Reedy Creek Energy Services

1 February 2005

Mr. Al Linero
Professional Engineer Administrator
Permitting South Department
Division of Air Resources Management
Florida Department of Environmental Protection
Twin Towers Office Building
MS 5500
2600 Blair Stone Road
Tallahassee, FL 32399-2400

SUBJECT: Reedy Creek Improvement District
FDEP Permit 0950111-021-AV
Application for Air Construction Permit

Dear Mr. Linero:

Please find enclosed three (3) original Air Construction Permit applications for the subject source. The proposed project entails removal of the existing LM5000 combustion turbine and associated electric generator and their replacement with a LM6000 combustion turbine and electric generator. The balance of this combined-cycle source will remain unchanged.

Bob Kindle or myself will be calling in a few days to request a meeting at your offices to discuss the particulars of the application and project. We look forward to working with you on this project.

Sincerely,

Edward Godwin, P.E.
Chief Mechanical Engineer
Reedy Creek Energy Services

cc: Mr. Leonard Kozlov
Program Administrator
Air Resources Management
Florida Department of Environmental Protection
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803-3767

WALT DISNEY WORLD COMPANY
WALT DISNEY WORLD RESORT COMPLEX

REEDY CREEK IMPROVEMENT DISTRICT
REEDY CREEK ENERGY SERVICES
LM6000 REPOWERING PROJECT

APPLICATION FOR
AIR CONSTRUCTION PERMIT

Prepared for:

REEDY CREEK ENERGY SERVICES
Orlando, Florida

Prepared by:

ECT
Environmental Consulting & Technology, Inc.
3701 Northwest 98th Street
Gainesville, Florida 32606

ECT No. 040383-0100

January 2005

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1.0 INTRODUCTION AND SUMMARY

1.1 INTRODUCTION

The Reedy Creek Improvement District (RCID) is a public corporation of the State of Florida and is located in Orange and Osceola Counties in central Florida approximately 15 miles southwest of the city of Orlando. RCID is intersected diagonally (northeast to southwest) by U.S. Interstate Highway 4 and midway (east to west) by U.S. Route 192. The land in RCID (exclusive of approximately 2,118 acres primarily owned by RCID itself, 450 acres owned by the State of Florida, and 24 acres owned by others) is primarily owned by wholly owned subsidiaries of the Walt Disney Company. RCID is the site of the Walt Disney World (WDW) Resort Complex, which was first opened to the public on October 1, 1971.

RCID currently owns a wastewater collection and treatment system, reclaimed water system, electric generation and distribution system, solid waste and disposal system, potable water system, natural gas distribution system, high temperature hot water system, and chilled water system. By contract, Reedy Creek Energy Services, Inc. (RCES), operates these systems on behalf of RCID.

The WDW/RCID/RCES existing electric generation system includes a dual-fuel (natural gas and distillate fuel oil) General Electric (GE) LM5000 aeroderivative combustion turbine (CT) operating in combined-cycle mode. WDW/RCID/RCES plans to repower the existing combined-cycle unit by replacing the current GE LM5000 CT with a GE LM6000 CT.

Operation of the LM6000 repowered combined-cycle unit will result in airborne emissions. Therefore, a permit is required prior to the beginning of facility construction, per Rule 62-212.300(1)(a), Florida Administrative Code (F.A.C.). This report, including the required permit application forms and supporting documentation included in the attachments, constitutes WDW/RCID/RCES's application for authorization to commence construction in accordance with the Florida Department of Environmental Protection (Department) permitting rules contained in Chapter 62-212, F.A.C.

This report is organized as follows:

- Section 1.2 provides an overview and summary of the key regulatory determinations.
- Section 2.0 describes the repowering project and associated air emissions.
- Section 3.0 provides an assessment of Prevention of Significant Deterioration (PSD) applicability.

Appendix A contains FDEP's Application for Air Permit—Long Form. The following attachments are included as referenced in the permit application:

Attachment	Description
A-1	Facility Plot Plan
A-2	Process Flow Diagram
A-3	Precautions to Prevent Emissions of Unconfined Particulate Matter
A-4	Regulatory Applicability Analysis
A-5	List of Exempt Emission Units
A-6	Requested Air Construction Permit Conditions
A-7	Fuel Analysis or Specifications
A-8	Detailed Description of Control Equipment
A-9	Procedures for Startup and Shutdown

Appendix B provides detailed emissions rate calculations.

1.2 SUMMARY

WDW/RCID/RCES plans to repower the existing combined-cycle unit by replacing the current GE LM5000 CT with a GE LM6000 CT. With the exception of emissions monitoring instrumentation, no changes will be made to the existing combined-cycle unit heat recovery steam generator (HRSG) or steam turbine generator (STG).

The planned construction start date for the LM6000 repowering project is August 1, 2005. Initial operation is planned to occur no later than December 15, 2005.

As presented in this report, the analyses required for this permit application resulted in the following conclusions:

- The net change in emissions following the repowering of the existing LM5000 combined-cycle unit with the LM6000 CT will be below the Table 212.400-2, F.A.C., Significant Emissions Rates for all regulated air pollutants. Based on actual 2002/2003 historical emissions rates, the LM6000 repowering project will result in a net decrease of 2.5 tons per year (tpy) of nitrogen oxides (NO_x) and a net increase of 48.1 tpy of carbon monoxide (CO), 22.7 tpy of sulfur dioxide (SO_2), 13.2 tpy of particulate matter/particulate matter less than or equal to 10 micrometers (PM/PM_{10}), 6.5 tpy of volatile organic compounds (VOC), 2.8 tpy of sulfuric acid (H_2SO_4) mist, and 0.003 tpy of lead. Accordingly, the LM6000 repowering project is not subject to the PSD New Source Review (NSR) requirements of Section 62-212.400, F.A.C.
- The LM6000 CT will be fired with pipeline-quality natural gas as its primary fuel source with distillate fuel oil serving as a backup fuel. The LM6000 CT will operate for no more than 475 hours per year (hr/yr) while firing distillate fuel oil containing no more than 0.1 weight percent sulfur (wt%S).
- Water injection will be utilized to control NO_x emissions from the LM6000 CT during both natural gas and distillate fuel oil firing. Excluding startups, shutdowns, and malfunctions, LM6000 CT NO_x exhaust concentrations will not exceed 25 and 42 parts per million by volume dry (ppmvd) corrected to 15-percent oxygen for natural gas and distillate fuel oil firing, respectively.
- The existing HRSG is equipped with catalytic oxidation technology to control emissions of CO and VOC. This control system will remain unchanged and will reduce emissions of CO and VOC from the repowered combined-cycle unit.
- The existing HRSG duct burner (DB) will be fired exclusively with pipeline-quality natural gas and will only operate in fresh-air firing mode (i.e., the HRSG DB and the LM6000 CT will not operate concurrently).
- The existing LM5000 combined-cycle unit is equipped with a NO_x/CO_2 dilution in-stack, continuous emissions monitoring system. As part of the LM6000 repowering project, this monitoring system will be replaced with a NO_x/O_2 extractive continuous emissions monitoring system.

- As a new stationary gas turbine, the LM6000 CT will be subject to the requirements of New Source Performance Standard (NSPS) Subpart GG, Standards of Performance for Stationary Gas Turbines. The LM6000 CT will comply with all applicable provisions of this NSPS.
- On May 5, 2004, EPA promulgated National Emissions Standards for Hazardous Air Pollutants (NESHAP) for Stationary Gas Turbines; reference Chapter 40, Part 63, Subpart YYYY, Code of Federal Regulations (CFR). This maximum achievable control technology (MACT) standard is applicable to stationary gas turbines located at major sources of hazardous air pollutants (HAPs). The LM6000 will be located at the WDW Resort Complex, an existing major source of HAPs, and therefore is potentially subject to the requirements of NESHAP Subpart YYYY. Under the NESHAP Subpart YYYY definitions, the LM6000 CT qualifies as a diffusion flame gas-fired stationary CT. For this subcategory of stationary gas turbines, NESHAP Subpart YYYY limits the CT exhaust concentration of formaldehyde to no more than 91 parts per billion by volume dry (ppbvd) corrected to 15-percent oxygen. On April 7, 2004, EPA proposed to delist the diffusion flame gas-fired turbines subcategory from the Subpart YYYY MACT standard and also proposed to stay the effectiveness of the stationary gas turbine NESHAP pending a final rulemaking on the delisting proposal. On August 18, 2004, EPA stayed the effectiveness of the emissions and operating limitations in the stationary CTs NESHAP for new sources in the lean premix gas-fired turbines and diffusion flame gas-fired turbines subcategories pending the outcome of EPA's proposal to delist these subcategories from the source category list. If NESHAP Subpart YYYY is determined to be applicable, the LM6000 CT will utilize the existing HRSG that is presently equipped with a catalytic oxidation control system to achieve compliance with the Subpart YYYY formaldehyde emissions limit.

2.0 PROJECT DESCRIPTION AND AIR EMISSIONS

2.1 PROJECT DESCRIPTION

The WDW/RCID/RCES existing electric generation system includes a dual-fuel (natural gas and distillate fuel oil) GE LM5000 aeroderivative CT operating in combined-cycle mode. The LM5000 CT has a nominal generation capacity of 38 megawatts (MW) and is equipped a chilled water inlet air conditioning system. The HRSG portion of the combined-cycle unit provides steam to a nominal 8.5-MW STG and is equipped with a natural gas-fired DB. The HRSG DB may operate concurrently with the CT as a supplemental energy source or independently (i.e., when the CT is not in operation) using fresh-air firing. The LM5000 CT employs water injection to control emissions of NO_x and is also equipped with a catalytic oxidation system, located in the HRSG, for control of CO emissions.

WDW/RCID/RCES plans to repower the existing combined-cycle unit by replacing the current GE LM5000 CT with a GE LM6000 CT. The LM6000 CT will be equipped with variable inlet guide vanes (VIGV) to control CT inlet air compressor flows and GE Sprint® (Spray Inter-cooled Turbine) technology to allow for increased power production. The dual-fuel LM6000 CT will utilize water injection to control emissions of NO_x. With the exception of emissions monitoring instrumentation, no changes will be made to the existing HRSG and STG. However, future operation of the HRSG DB will be confined to fresh-air firing only (i.e., the HRSG DB will not operate concurrently with the LM6000 CT).

The LM6000 CT will serve the same purpose as the existing LM5000 CT (i.e., providing power to RCID). A process flow diagram of the LM6000 repowering project is provided in Appendix A, Attachment A-2.

2.2 AIR EMISSIONS

The LM6000 CT will operate under a variety of alternative operating scenarios including fuel type (natural gas and distillate fuel oil), ambient temperatures (ranging from approximately 49 degrees Fahrenheit (°F) [January] to 92°F [July] on a daily average ba-

sis), CT load (from 25 to 100 percent, excluding startups and shutdowns), and optional use of GE Sprint® technology and inlet air chilling.

Combustion of natural gas and distillate fuel oil in the LM6000 CT will result in emissions of NO_x, CO, PM/PM_{10}, SO_2, VOC, and trace amounts of lead. Regarding noncriteria pollutants, the LM6000 CT will emit H_2SO_4 mist and trace amounts of organic compounds.

With the exception of CO and VOC, maximum natural gas-firing hourly mass (in pounds per hour [lb/hr]) emissions rates are projected to occur under Scenario No. 6 conditions (i.e., 100-percent load, CT inlet air chilling to 48°F, and use of GE Sprint® technology). For CO, maximum natural gas-firing hourly mass emissions rates are projected to occur under Scenario No. 3 conditions (i.e., 25-percent load and an ambient and CT inlet air temperature of 30°F). For VOC, maximum natural gas-firing hourly mass emissions rates are projected to occur under Scenario No. 4 conditions (i.e., 100-percent load, CT inlet air chilling to 58°F, and use of GE Sprint® technology).

The LM6000 CT will utilize backup distillate fuel oil for only a limited amount of time (i.e., no more than 475 hr/yr or less than 6 percent of the available CT operating hours on an annual basis). Maximum distillate fuel oil-firing hourly mass emissions rates are projected to occur under Scenario No. 2 conditions (i.e., 100-percent load and an ambient and CT inlet air temperature of 30°F). The sulfur content of the backup distillate fuel oil will be limited to a maximum of 0.1 wt%S.

The LM6000 repowered combined-cycle unit will have up to 100 startup/shutdown cycles per year. Emissions occurring during a startup or shutdown event are minor due to the short duration of each event (approximately 15 minutes). Due to the relatively low exhaust temperatures of the LM6000 aeroderivative CT, the CT is able to quickly reach the load level where NO_x controls (i.e., water injection) become effective and emissions stabilize regardless of the initial state (i.e., cold, warm, or hot) of the HRSG. GE estimates typical NO_x and CO startup emissions of 1.2 and 5.2 pounds per event, respec-

tively, and typical NO_x and CO shutdown emissions of 0.93 and 4.3 pounds per event, respectively

Based on an evaluation of the anticipated worst-case annual operating scenario, the LM6000 CT will have the potential to emit 195.7 tpy of NO_x, 55.2 tpy of CO, 15.7 tpy of PM/PM_{10}, 22.8 tpy of SO_2, 6.1 tpy of VOC, and 0.003 tpy of lead. Regarding noncriteria pollutants, the LM6000 CT will potentially emit 2.8 tpy of H_2SO_4 mist and trace amounts of organic compounds. Detailed hourly and annual emissions estimates are provided in Appendix B.

3.0 PSD NETTING ANALYSIS

The WDW Resort Complex is classified as an existing major facility. A modification to an existing major facility that results in a significant net emissions increase equal to or exceeding the significant emissions rates (SER) listed in Section 62-212.400, Table 212.400-2, F.A.C., is classified as a major modification and will be subject to the PSD NSR preconstruction permitting program for those pollutants that exceed the PSD SERs.

The procedures for determining applicability of the PSD NSR permitting program to modifications planned at existing major facilities are specified in Rule 62-212.400(2)(d)4., F.A.C. The term "significant net emissions increase" is defined by Rule 62-212.400(2)(e), F.A.C. For each regulated pollutant, the net emissions increase for a modification project is equal to the sum of the increases in emissions associated with the proposed project plus all facility-wide creditable, contemporaneous emissions increases minus all facility-wide creditable, contemporaneous emissions decreases. If this net change in emissions is equal to or greater than the applicable Table 212.400-2, F.A.C., Regulated Pollutants—Significant Emissions Rates, then the net emissions increase is considered to be "significant," and the modification will be subject to PSD NSR for that particular regulated pollutant.

In accordance with Rule 62-212.400(2)(e)3., F.A.C., the "contemporaneous" period for a modification project begins 5 years prior to the date of submittal of a complete permit application and ends when the new or modified emissions units are estimated to begin operation.

Pursuant to Rule 62-212.400(2)(e)4., F.A.C., contemporaneous emissions increases and decreases are "creditable" if:

- The emissions increase or decrease will affect PSD increment consumption (i.e., will consume or expand the available increment).
- The emissions increase or decrease was not previously considered in the issuance of a PSD NSR permit (to avoid "double counting").

- FDEP has not relied on the emissions increase or decrease in attainment or reasonable further progress demonstrations.

Contemporaneous emissions increases and decreases are based on *actual* emissions rates. The term "actual emissions" is defined by Rule 62-210.200(12), F.A.C. For new emissions units, including new electric utility steam generating units, actual emissions are equal to potential emissions. For changes to existing emissions units, actual emissions are generally the actual average emissions rates, in tpy, for the 2-year period preceding the change and which are representative of normal operations. FDEP may allow the use of a different time period if it is determined that the other time period is more representative of the normal operation of an emissions unit.

For emissions decreases, the old level of actual or allowable emissions (whichever is lower) must be greater than the new level of actual emissions. The actual emissions decrease must also take place on or before the date that emissions from the modification project first occur and must be federally enforceable on and after the date FDEP issues a construction permit for the modification project.

For the LM6000 repowering project, the contemporaneous period is projected to begin in January 2000 (5 years prior to the submittal of the LM6000 repowering project PSD air construction permit application) and end in December 2005 (initial operation). Accordingly, actual emissions increases and decreases that occur within this contemporaneous period at the existing WDW Resort Complex may be used for netting purposes if the reductions are creditable. The following sections provide estimated potential emissions rates for the LM6000 repowered combined-cycle unit, contemporaneous emissions increases and reductions, and the net change in emissions.

3.1 LM6000 CT POTENTIAL EMISSIONS RATES

Estimates of annual potential emissions rates for SO_2, NO_x, CO, VOCs, PM/PM_{10}, H_2SO_4, and lead are provided in Appendix B, Table B5. This table provides estimated emissions rates for four annual operating profiles. These annual profiles, specified in Appendix B, Table B1, are summarized as follows:

- Annual Profile No. 1—Comprised of six operating scenarios including low, average, and high ambient temperatures, normal and low CT operating loads, use of both distillate fuel oil and natural gas fuels, and CT startup/shutdowns. This profile represents the expected actual annual operating modes of the LM6000 unit.
- Annual Profile No. 2—Comprised of low ambient temperature operation while firing distillate fuel oil (Scenario No. 2) for 475 hr/yr, and full-load operation while firing natural gas with inlet air chilling (Scenario No. 6) for 8,285 hr/yr. This is a hypothetical annual profile that was developed to obtain maximum annual NO_x, SO_2, PM/PM_{10}, H_2SO_4 mist, and lead emissions rates.
- Annual Profile No. 3—Comprised of continuous low ambient temperature, low load operation while firing natural gas (Scenario No. 3) for 8,760 hr/yr. This is a hypothetical annual profile that was developed to obtain the maximum annual CO emissions rate.
- Annual Profile No. 4—Comprised of low ambient temperature operation while firing distillate fuel oil (Scenario No. 2) for 475 hr/yr, and full-load operation while firing natural gas with inlet air chilling (Scenario No. 4) for 8,285 hr/yr. This is a hypothetical annual profile that was developed to obtain the maximum annual VOC emissions rate.

The maximum annual emissions rates from *any* of the four annual profiles were used in the PSD netting analysis. This conservative approach was taken to demonstrate that the *only* operating constraints for the LM6000 unit to avoid PSD review are with respect to the number of annual distillate fuel oil-firing hours and distillate fuel oil sulfur content. Specifically, oil-firing hours will be limited to no more than 475 hr/yr, and the distillate fuel oil will contain no more than 0.1 wt%S.

3.2 CONTEMPORANEOUS EMISSIONS INCREASES AND REDUCTIONS

As previously noted, the contemporaneous period for PSD netting purposes is projected to begin in January 2000 and end in December 2005. Creditable emissions decreases that will occur within this contemporaneous period consist of the actual emissions associated

with the cessation of operations of the existing LM5000 CT. Creditable emissions increases consist of the actual emissions associated with three emergency diesel generators that were installed in November 2002. There are no other creditable emissions increases or reductions that will occur within the January 2000 through December 2005 contemporaneous period.

Actual average LM5000 actual emissions rates are provided in Table 3-1. The emissions data shown in Table 3-1 for the existing LM5000 CT were obtained from the WDW Resort Complex Annual Operating Reports (AORs). Consistent with FDEP's definition of "actual emissions" (reference Rule 62-210.200[11], F.A.C.), the 2-year period preceding the LM6000 repowering project (i.e., 2002/2003) is considered representative of normal operations for the existing LM5000 CT. Average 2002/2003 actual emissions for the LM5000 CT were therefore used in the PSD netting analysis.

3.3 NET CHANGE IN EMISSIONS

Table 3-1 provides the net change in emissions for the LM6000 repowering project. The net change consists of the sum of the potential emissions rates increases associated with the new LM6000 CT as previously described, actual emissions rates associated with the three emergency diesel generators, and the actual emissions decreases associated with the permanent shutdown of the existing LM5000 CT. The net emissions rate changes, using a conservative methodology, are all below the applicable Table 212-400-2, F.A.C. Regulated Pollutants—Significant Emissions Rates. Accordingly, the LM6000 repowering project is not subject to PSD review.

Table 3-1. PSD Netting Analysis

	LM5000 Historical Emissions						Diesel Generators	LM6000	Net Change (tpy)	PSD Threshold (tpy)	% of PSD Threshold (%)	PSD Review (Yes/No)
	1999	2000	2001	2002	2003	02,03 Avg						
Natural Gas Usage (10^6 ft^3)	1,973.34	1,862.46	1,565.26	2,340.08	1,450.63	1,895.36	N/A	4,380.0	N/A	N/A	N/A	N/A
Heat Content (Btu/ft^3)	1,041.55	1,031.87	1,044.20	1,036.99	1,042.00	1,039.50	N/A	1,040.0	N/A	N/A	N/A	N/A
Sulfur Content (gr S/100 ft^3)	0.1552	0.1552	0.0957	0.0983	0.0924	0.0954	N/A	0.75	N/A	N/A	N/A	N/A
Natural Gas Density (lb/ft^3)*	0.0451	0.0451	0.0451	0.0451	0.0451	0.0451	N/A	0.0451	N/A	N/A	N/A	N/A
Wt % S	0.00049	0.00049	0.00030	0.00031	0.00029	0.00030	N/A	0.00237	N/A	N/A	N/A	N/A
Oil Usage (10^3 gal)	54.0	0.0	54.0	0.0	0.0	0.0	10.2	1,559.4	N/A	N/A	N/A	N/A
Heat Content (10^6 Btu/10^3 gal)	138.585		138.585					137.761	N/A	N/A	N/A	N/A
Oil Density (lb/gal)	7.022		7.022					7.05	N/A	N/A	N/A	N/A
Wt % S	0.0372		0.0372				0.05	0.10	N/A	N/A	N/A	N/A
NO_x† (ton/yr)	185.7	184.0	130.4	246.0	154.0	200.0	1.77	195.7	-2.5	40.0	-6.3	No
CO† (ton/yr)	4.2	3.9	3.0	8.8	5.5	7.2	0.14	55.2	48.1	100.0	48.1	No
SO_2† (ton/yr)	0.6	0.4	0.4	0.3	0.2	0.3	0.18	22.8	22.7	40.0	56.7	No
H_2SO_4‡ (ton/yr)	0.1	0.0	0.0	0.0	0.0	0.0	0.02	2.8	2.8	7.0	40.3	No
PM_{10}†(ton/yr)	2.5	2.3	2.1	3.1	2.1	2.6	0.06	15.7	13.2	15.0	87.7	No
PM† (ton/yr)	2.5	2.3	2.1	3.1	2.1	2.6	0.06	15.7	13.2	25.0	52.6	No
Lead** (ton/yr)	0.00005	0.00000	0.00005	0.00000	0.00000	0.00003	0.00	0.0025	0.003	0.6	0.4	No
VOC† (ton/yr)	0.0	0.0	0.0	0.0	0.0	0.0	0.42	6.1	6.5	40.0	16.3	No

*Based on natural gas specific gravity of 0.59.

†Annual Operating Report (AOR) data.

‡Based on 8.0% conversion of fuel sulfur to SO_3 and 100% conversion of SO_3 to H_2SO_4.

**Use of April 2000 AP-42 factor for distillate oil (1.4 x 10^5 lb/10^6 Btu); negligible Pb emissions assumed for natural gas combustion.

Sources: RCES, 2005.
ECT, 2005.

Department of Environmental Protection

Division of Air Resource Management

APPLICATION FOR AIR PERMIT - LONG FORM

I. APPLICATION INFORMATION

Air Construction Permit – Use this form to apply for an air construction permit for a proposed project:

- subject to prevention of significant deterioration (PSD) review, nonattainment area (NAA) new source review, or maximum achievable control technology (MACT) review; or
- where the applicant proposes to assume a restriction on the potential emissions of one or more pollutants to escape a federal program requirement such as PSD review, NAA new source review, Title V, or MACT; or
- at an existing federally enforceable state air operation permit (FESOP) or Title V permitted facility.

Air Operation Permit – Use this form to apply for:

- an initial federally enforceable state air operation permit (FESOP); or
- an initial/revised/renewal Title V air operation permit.

Air Construction Permit & Revised/Renewal Title V Air Operation Permit (Concurrent Processing Option) – Use this form to apply for both an air construction permit and a revised or renewal Title V air operation permit incorporating the proposed project.

To ensure accuracy, please see form instructions.

Identification of Facility

1. Facility Owner/Company Name: **Walt Disney World Company**	
2. Site Name: **Walt Disney World Resort Complex, Reedy Creek Improvement District**	
3. Facility Identification Number: **0950111**	
4. Facility Location Street Address or Other Locator: **1375 Buena Vista Drive** City: **Lake Buena Vista** County: **Orange and Osceola** Zip Code: **32830-8402**	
5. Relocatable Facility? ☐ Yes ☒ No	6. Existing Title V Permitted Facility? ☒ Yes ☐ No

Application Contact

1. Application Contact Name: **Edward Godwin, P.E.**
2. Application Contact Mailing Address: Organization/Firm: **Reedy Creek Energy Services** Street Address: **P.O. Box 10,000** City: **Lake Buena Vista** State: **Florida** Zip Code: **32830-1000**
3. Application Contact Telephone Numbers... Telephone: **(407) 824-4943** ext. Fax: **(407) 824-4529**
4. Application Contact Email Address: **ed.godwin@disney.com**

Application Processing Information (DEP Use)

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

APPLICATION INFORMATION

Purpose of Application

This application for air permit is submitted to obtain: (Check one)

Air Construction Permit

[X] Air construction permit.

Air Operation Permit

[ ] Initial Title V air operation permit.
[ ] Title V air operation permit revision.
[ ] Title V air operation permit renewal.
[ ] Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is required.
[ ] Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is not required.

Air Construction Permit and Revised/Renewal Title V Air Operation Permit (Concurrent Processing)

[ ] Air construction permit and Title V permit revision, incorporating the proposed project.
[ ] Air construction permit and Title V permit renewal, incorporating the proposed project.

Note: By checking one of the above two boxes, you, the applicant, are requesting concurrent processing pursuant to Rule 62-213.405, F.A.C. In such case, you must also check the following box:

[ ] I hereby request that the department waive the processing time requirements of the air construction permit to accommodate the processing time frames of the Title V air operation permit.

Application Comment

The Walt Disney World (WDW)/Reedy Creek Improvement District (RCID)/Reedy Creek Energy Services (RCES) existing electric generation system includes a dual fuel (natural gas and distillate fuel oil) General Electric (GE) LM5000 aeroderivative combustion turbine (CT) operating in combined-cycle mode. WDW/RCID/RCES plans to repower the existing combined-cycle unit by replacing the current GE LM5000 CT with a GE LM6000 CT.

This application, including required supporting documentation, constitutes WDW/RCID/ RCES's application for authorization to commence construction in accordance with the Florida Department of Environmental Protection permitting rules contained in Chapter 62-212, Florida Administrative Code (F.A.C.).

APPLICATION INFORMATION

Scope of Application

Emissions Unit ID Number	Description of Emissions Unit	Air Permit Type	Air Permit Proc. Fee
088	GE LM6000 Combustion Turbine (CT) and Heat Recovery Steam Generator Duct Burner (DB)	N/A	N/A

Application Processing Fee

Check one: ☐ Attached - Amount: $_____ ☒ Not Applicable

A permit processing fee is not required for a modification to a Title V source pursuant to Rule 62-213.205(4), F.A.C.

APPLICATION INFORMATION

Owner/Authorized Representative Statement

Complete if applying for an air construction permit or an initial FESOP.

1. Owner/Authorized Representative Name :
   Lee Schmudde, Vice President

2. Owner/Authorized Representative Mailing Address...
   Organization/Firm: **Walt Disney World Company**
   Street Address: **P.O. Box 10000**
   City: **Lake Buena Vista** State: **Florida** Zip Code: **32830-1000**

3. Owner/Authorized Representative Telephone Numbers...
   Telephone: **(407) 828 - 1723** ext. Fax: **(407) 828 – 4311**

4. Owner/Authorized Representative Email Address: **lee.schmudde@Disney.com**

5. Owner/Authorized Representative Statement:

   I, the undersigned, am the owner or authorized representative of the facility addressed in this air permit application. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof and all other requirements identified in this application to which the facility is subject. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department, and I will promptly notify the department upon sale or legal transfer of the facility or any permitted emissions unit.

Signature 11/27/05 Date

APPLICATION INFORMATION

N/A

Application Responsible Official Certification

Complete if applying for an initial/revised/renewal Title V permit or concurrent processing of an air construction permit and a revised/renewal Title V permit. If there are multiple responsible officials, the "application responsible official" need not be the "primary responsible official."

1. Application Responsible Official Name:

2. Application Responsible Official Qualification (Check one or more of the following options, as applicable):
   - ☐ For a corporation, the president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit under Chapter 62-213, F.A.C.
   - ☐ For a partnership or sole proprietorship, a general partner or the proprietor, respectively.
   - ☐ For a municipality, county, state, federal, or other public agency, either a principal executive officer or ranking elected official.
   - ☐ The designated representative at an Acid Rain source.

3. Application Responsible Official Mailing Address...
   Organization/Firm:
   Street Address:
   City: State: Zip Code:

4. Application Responsible Official Telephone Numbers...
   Telephone: ( ) - ext. Fax: ( ) –

5. Application Responsible Official Email Address:

6. Application Responsible Official Certification:

   I, the undersigned, am a responsible official of the Title V source addressed in this air permit application. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof and all other applicable requirements identified in this application to which the Title V source is subject. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department, and I will promptly notify the department upon sale or legal transfer of the facility or any permitted emissions unit. Finally, I certify that the facility and each emissions unit are in compliance with all applicable requirements to which they are subject, except as identified in compliance plan(s) submitted with this application.

   _____ _____
   Signature Date

APPLICATION INFORMATION

Professional Engineer Certification

1. Professional Engineer Name: **Thomas W. Davis**
   Registration Number: **36777**
2. Professional Engineer Mailing Address...
   Organization/Firm: **Environmental Consulting & Technology, Inc.**
   Street Address: **3701 Northwest 98th Street**
   City: **Gainesville** State: **Florida** Zip Code: **32606-5004**
3. Professional Engineer Telephone Numbers...
   Telephone: **(352) 332 – 0444** ext. Fax: **(352) 332 - 6722**
4. Professional Engineer Email Address: **tdavis@ectinc.com**
5. Professional Engineer Statement:

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

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

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

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

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

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

Signature

1/24/05
Date

(seal)

*Attach any exception to certification statement.

II. FACILITY INFORMATION

A. GENERAL FACILITY INFORMATION

Facility Location and Type

1. Facility UTM Coordinates... Zone **17** East (km) **449.70** North (km) **3,138.00**		2. Facility Latitude/Longitude... Latitude (DD/MM/SS) Longitude (DD/MM/SS)	
3. Governmental Facility Code: **0**	4. Facility Status Code: **A**	5. Facility Major Group SIC Code: **79**	6. Facility SIC(s): **7996**
7. Facility Comment :			

Facility Contact

1. Facility Contact Name: **Bernie Budnik, Manager, Energy Production Division**
2. Facility Contact Mailing Address... Organization/Firm: **Reedy Creek Energy Services** Street Address: **P.O. Box 10000** City: **Lake Buena Vista** State: **Florida** Zip Code: **32830-1000**
3. Facility Contact Telephone Numbers: Telephone: **(407) 824 - 6441** ext. Fax: **(407) 824 – 3655**
4. Facility Contact Email Address: **bernie.budnik@disney.com**

Facility Primary Responsible Official

Complete if an "application responsible official" is identified in Section I. that is not the facility "primary responsible official."

1. Facility Primary Responsible Official Name:
2. Facility Primary Responsible Official Mailing Address... Organization/Firm: Street Address: City: State: Zip Code:
3. Application Responsible Official Telephone Numbers... Telephone: ( ) – ext. Fax: ( )
4. Facility Primary Responsible Official Email Address:

Facility Regulatory Classifications

Check all that would apply *following* completion of all projects and implementation of all other changes proposed in this application for air permit. Refer to instructions to distinguish between a "major source" and a "synthetic minor source."

1. ☐ Small Business Stationary Source	☐ Unknown
2. ☐ Synthetic Non-Title V Source	
3. ☒ Title V Source	
4. ☒ Major Source of Air Pollutants, Other than Hazardous Air Pollutants (HAPs)	
5. ☐ Synthetic Minor Source of Air Pollutants, Other than HAPs	
6. ☒ Major Source of Hazardous Air Pollutants (HAPs)	
7. ☐ Synthetic Minor Source of HAPs	
8. ☒ One or More Emissions Units Subject to NSPS (40 CFR Part 60)	
9. ☐ One or More Emissions Units Subject to Emission Guidelines (40 CFR Part 60)	
10. ☒ One or More Emissions Units Subject to NESHAP (40 CFR Part 61 or Part 63)	
11. ☐ Title V Source Solely by EPA Designation (40 CFR 70.3(a)(5))	
12. Facility Regulatory Classifications Comment:	
The LM6000 CT will be subject to New Source Performance Standard (NSPS) Subject GG. The existing HRSG DB is subject to NSPS Subpart Db.	

FACILITY INFORMATION

List of Pollutants Emitted by Facility

N/A

1. Pollutant Emitted	2. Pollutant Classification	3. Emissions Cap [Y or N]?

B. EMISSIONS CAPS

N/A

Facility-Wide or Multi-Unit Emissions Caps

1. Pollutant Subject to Emissions Cap	2. Facility Wide Cap [Y or N]? (all units)	3. Emissions Unit ID No.s Under Cap (if not all units)	4. Hourly Cap (lb/hr)	5. Annual Cap (ton/yr)	6. Basis for Emissions Cap

7. Facility-Wide or Multi-Unit Emissions Cap Comment:

C. FACILITY ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1. Facility Plot Plan: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [X] Attached, Document ID: **A-1** [ ] Previously Submitted, Date:_____
2. Process Flow Diagram(s): (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [X] Attached, Document ID: **A-2** [ ] Previously Submitted, Date:_____
3. Precautions to Prevent Emissions of Unconfined Particulate Matter: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [X] Attached, Document ID: **A-3** [ ] Previously Submitted, Date:_____

Additional Requirements for Air Construction Permit Applications

1. Area Map Showing Facility Location:
   [ ] Attached, Document ID:_____ [X] Not Applicable (existing permitted facility)
2. Description of Proposed Construction or Modification:
   [X] Attached, Document ID: **Section 2.0**
3. Rule Applicability Analysis:
   [X] Attached, Document ID: **A-4**
4. List of Exempt Emissions Units (Rule 62-210.300(3)(a) or (b)1., F.A.C.):
   [X] Attached, Document ID: **A-5** [ ] Not Applicable (no exempt units at facility)
5. Fugitive Emissions Identification (Rule 62-212.400(2), F.A.C.):
   [ ] Attached, Document ID:_____ [X] Not Applicable
6. Preconstruction Air Quality Monitoring and Analysis (Rule 62-212.400(5)(f), F.A.C.):
   [ ] Attached, Document ID:_____ [X] Not Applicable
7. Ambient Impact Analysis (Rule 62-212.400(5)(d), F.A.C.):
   [ ] Attached, Document ID:_____ [X] Not Applicable
8. Air Quality Impact since 1977 (Rule 62-212.400(5)(h)5., F.A.C.):
   [ ] Attached, Document ID:_____ [X] Not Applicable
9. Additional Impact Analyses (Rules 62-212.400(5)(e)1. and 62-212.500(4)(e), F.A.C.):
   [ ] Attached, Document ID:_____ [X] Not Applicable
10. Alternative Analysis Requirement (Rule 62-212.500(4)(g), F.A.C.):
    [ ] Attached, Document ID:_____ [X] Not Applicable

FACILITY INFORMATION

N/A

Additional Requirements for FESOP Applications

1. List of Exempt Emissions Units (Rule 62-210.300(3)(a) or (b)1., F.A.C.):
   ☐ Attached, Document ID:_____ ☐ Not Applicable (no exempt units at facility)

Additional Requirements for Title V Air Operation Permit Applications

1. List of Insignificant Activities (Required for initial/renewal applications only):
   ☐ Attached, Document ID:_____ ☐ Not Applicable (revision application)

2. Identification of Applicable Requirements (Required for initial/renewal applications, and for revision applications if this information would be changed as a result of the revision being sought):
   ☐ Attached, Document ID:_____
   ☐ Not Applicable (revision application with no change in applicable requirements)

3. Compliance Report and Plan (Required for all initial/revision/renewal applications):
   ☐ Attached, Document ID:_____
   Note: A compliance plan must be submitted for each emissions unit that is not in compliance with all applicable requirements at the time of application and/or at any time during application processing. The department must be notified of any changes in compliance status during application processing.

4. List of Equipment/Activities Regulated under Title VI (If applicable, required for initial/renewal applications only):
   ☐ Attached, Document ID:_____
   ☐ Equipment/Activities On site but Not Required to be Individually Listed
   ☐ Not Applicable (revision application)

5. Verification of Risk Management Plan Submission to EPA (If applicable, required for initial/renewal applications only) :
   ☐ Attached, Document ID:_____ ☐ Not Applicable (revision application)

6. Requested Changes to Current Title V Air Operation Permit:
   ☐ Attached, Document ID:_____ ☐ Not Applicable

Additional Requirements Comment

A. GENERAL EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Emissions Unit Classification

1. Regulated or Unregulated Emissions Unit? (Check one, if applying for an initial, revised or renewal Title V air operation permit. Skip this item if applying for an air construction permit or FESOP only.)

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

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

Emissions Unit Description and Status

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

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

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

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

2. Description of Emissions Unit Addressed in this Section:
Cogeneration unit comprised of one nominal 50-MW General Electric LM6000 combustion turbine (CT) and one heat recovery steam generator (HRSG) equipped with a 198 MMBtu/hr duct burner (DB). The CT is fired with either natural gas or distillate fuel oil. The duct burner is only fired with natural gas and is only used in fresh-air firing mode; i.e., the duct burner will not operate concurrently with the GE LM 6000 CT.

3. Emissions Unit Identification Number: **088 (LM6000 CT and HRSG DB)**

4. Emissions Unit Status Code:	5. Commence Construction Date:	6. Initial Startup Date:	7. Emissions Unit Major Group SIC Code:	8. Acid Rain Unit?
C	**N/A**	**N/A**	**49**	[x] Yes [ ] No

9. Package Unit:
Manufacturer: **General Electric** Model Number: **LM6000**

10. Generator Nameplate Rating: **50** MW **(CT - nominal)**
8.5 MW **(Steam Turbine –nominal)**

11. Emissions Unit Comment:

The WDW/RCID/RCES existing electric generation system includes a dual fuel (natural gas and distillate fuel oil) GE LM5000 aeroderivative CT operating in combined cycle mode. WDW/RCID/RCES plans to repower the existing combined cycle unit by replacing the current GE LM5000 CT with a GE LM6000 CT. There will be no changes to the existing HRSG or steam turbine with the exception of emissions monitoring instrumentation.

Emissions Unit Control Equipment

1. Control Equipment/Method(s) Description:

Water Injection – CT
Oxidation Catalyst – CT/HRSG

2. Control Device or Method Code(s): **028 (Water Injection), 109 (Catalytic Oxidizer)**

B. EMISSIONS UNIT CAPACITY INFORMATION

(Optional for unregulated emissions units.)

Emissions Unit Operating Capacity and Schedule

1. Maximum Process or Throughput Rate: **N/A**	
2. Maximum Production Rate: **N/A**	
3. Maximum Heat Input Rate:	**480** million Btu/hr **(HHV) – CT** **198** million Btu/hr **(HHV) – HRSG DB**
4. Maximum Incineration Rate: pounds/hr	**N/A**
tons/day	
5. Requested Maximum Operating Schedule:	
24 hours/day	7 days/week
52 weeks/year	**8,760** hours/year
6. Operating Capacity/Schedule Comment:	

Maximum CT heat input at a compressor inlet air temperature of 30°F, fuel higher heating value, and 100% load. CT heat input rates will vary depending upon CT characteristics, ambient conditions, fuel type, and CT compressor inlet air conditioning.

The HRSG DB will operate only in fresh-air mode (i.e., the duct burner will not operate concurrently with the GE LM6000 CT) for up to 1,000 hours per year.

C. EMISSION POINT (STACK/VENT) INFORMATION

(Optional for unregulated emissions units.)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram: **088**	2. Emission Point Type Code: **1**	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking: **N/A**		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common: **N/A**		
5. Discharge Type Code: **V**	6. Stack Height: **65** feet	7. Exit Diameter: **11.1** feet
8. Exit Temperature: **285°F**	9. Actual Volumetric Flow Rate: **350,935** acfm	10. Water Vapor: **N/A %**
11. Maximum Dry Standard Flow Rate: **N/A** dscfm	12. Nonstack Emission Point Height: **N/A** feet	
13. Emission Point UTM Coordinates... Zone: East (km): North (km):	14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) : Longitude (DD/MM/SS) :	
15. Emission Point Comment: **Data for Field 9 is at a CT compressor inlet air temperature of 48°F and 100% load (Scenario No. 6). CT/HRSG stack actual volumetric flow rates will vary depending upon CT characteristics, ambient conditions, fuel type, and CT compressor inlet air conditioning.**		

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment 1 of 3

1. Segment Description (Process/Fuel Type): **Combustion turbine fired with pipeline-quality natural gas.**		
2. Source Classification Code (SCC): **2-01-002-01**	3. SCC Units: **Million cubic feet burned**	
4. Maximum Hourly Rate: **0.500**	5. Maximum Annual Rate: **4,380**	6. Estimated Annual Activity Factor: **N/A**
7. Maximum % Sulfur: **N/A**	8. Maximum % Ash: **N/A**	9. Million Btu per SCC Unit: **1,040 (HHV)**
10. Segment Comment: **Fields 4 and 5 based on 100% load, CT inlet air temperature of 48°F, and 8,760 hr/yr.**		

Segment Description and Rate: Segment 2 of 3

1. Segment Description (Process/Fuel Type): **Combustion turbine fired with distillate fuel oil.**		
2. Source Classification Code (SCC): **2-01-001-01**	3. SCC Units: **Thousand gallons burned**	
4. Maximum Hourly Rate: **3.283**	5. Maximum Annual Rate: **1,559.4**	6. Estimated Annual Activity Factor: **N/A**
7. Maximum % Sulfur: **0.1**	8. Maximum % Ash: **0.1**	9. Million Btu per SCC Unit: **137,760 (HHV)**
10. Segment Comment: **Fields 4 and 5 based on 100% load, CT inlet air temperature of 30°F, and 475 hr/yr.**		

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment 3 of 3

1. Segment Description (Process/Fuel Type): **Duct burner fired with pipeline-quality natural gas.**		
2. Source Classification Code (SCC): **1-01-006-01**	3. SCC Units: **Million cubic feet burned**	
4. Maximum Hourly Rate: **0.190**	5. Maximum Annual Rate: **190**	6. Estimated Annual Activity Factor: **N/A**
7. Maximum % Sulfur: **N/A**	8. Maximum % Ash: **N/A**	9. Million Btu per SCC Unit: **1,040 (HHV)**
10. Segment Comment: **Field 5 based on 100% load and 1,000 hr/yr.**		

Segment Description and Rate: Segment __ of __

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

E. EMISSIONS UNIT POLLUTANTS

List of Pollutants Emitted by Emissions Unit

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
NO_x	**028**		**EL**
CO	**109**		**EL**
VOC			**EL**
SO_2			**EL**
PM			**EL**
PM_{10}			**NS**

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **NO_x**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **74.0** lb/hour **195.7** tons/year	4. Synthetically Limited? [x] Yes [ ] No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year **N/A**	
6. Emission Factor: **N/A** Reference: **Vendor Data**	7. Emissions Method Code: **2**

8. Calculation of Emissions:

Potential Hourly Emissions:

100% load, 30°F CT inlet, oil-firing

Potential Annual Emissions:

100% load, 30°F CT inlet, oil-firing (475 hr/yr)

100% load, 48°F CT inlet, gas-firing (8,285 hr/yr)

$$74.0\frac{lb}{hr}\times 475\frac{hr}{yr}\times\frac{ton}{2{,}000\ lb}+43.0\frac{lb}{hr}\times 8{,}285\frac{hr}{yr}\times\frac{ton}{2{,}000\ lb}=17.6+178.1=195.7\frac{ton}{yr}$$

9. Pollutant Potential/Estimated Fugitive Emissions Comment:

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 3

1. Basis for Allowable Emissions Code: **ESCPSD**	2. Future Effective Date of Allowable Emissions: **N/A**
3. Allowable Emissions and Units: **25 ppmvd @ 15-percent oxygen**	4. Equivalent Allowable Emissions: **43.0** lb/hour **188.3** tons/year
5. Method of Compliance: **EPA Reference Method 7E or 20**	
6. Allowable Emissions Comment (Description of Operating Method): **Limits applicable to CT while firing natural gas. Field 4 annual emissions based on maximum of 8,760 hr/yr.**	

Allowable Emissions Allowable Emissions 2 of 3

1. Basis for Allowable Emissions Code: **ESCPSD**	2. Future Effective Date of Allowable Emissions: **N/A**
3. Allowable Emissions and Units: **42 ppmvd @ 15-percent oxygen**	4. Equivalent Allowable Emissions: **74.0** lb/hour **17.6** tons/year
5. Method of Compliance: **EPA Reference Method 7E or 20**	
6. Allowable Emissions Comment (Description of Operating Method): **Limits applicable to CT while firing distillate fuel oil. Field 4 annual emissions based on maximum of 475 hr/yr.**	

Allowable Emissions Allowable Emissions 3 of 3

1. Basis for Allowable Emissions Code: **RULE**	2. Future Effective Date of Allowable Emissions: **N/A**
3. Allowable Emissions and Units: **0.20 lb/MMBtu**	4. Equivalent Allowable Emissions: **39.6** lb/hour **19.8** tons/year
5. Method of Compliance: **EPA Reference Method 7E**	
6. Allowable Emissions Comment (Description of Operating Method): **Limits applicable to HRSG DB while firing natural gas in fresh-air mode. Field 4 annual emissions based on maximum of 1,000 hr/yr. NSPS Subpart Db, §60.44b(a)(4).**	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **CO**	2. Total Percent Efficiency of Control: **85**
3. Potential Emissions: **12.6** lb/hour **55.2** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year **N/A**	
6. Emission Factor: **N/A** Reference: **Vendor Data**	7. Emissions Method Code: **2**

8. Calculation of Emissions:

Potential Hourly Emissions:
25% load, 30°F CT inlet, gas-firing

Potential Annual Emissions:
25% load, 30°F CT inlet, gas-firing (8,760 hr/yr)

$$12.6\frac{lb}{hr} \times 8{,}760\frac{hr}{yr} \times \frac{ton}{2{,}000\,lb} = 55.2\frac{ton}{yr}$$

9. Pollutant Potential/Estimated Fugitive Emissions Comment:

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 2

1. Basis for Allowable Emissions Code: **ESCPSD**	2. Future Effective Date of Allowable Emissions: **N/A**
3. Allowable Emissions and Units: **N/A**	4. Equivalent Allowable Emissions: **12.6** lb/hour **55.2** tons/year
5. Method of Compliance: **EPA Reference Method 10.**	
6. Allowable Emissions Comment (Description of Operating Method): **Limits applicable to CT while firing natural gas. Field 4 annual emissions based on maximum of 8,760 hr/yr.**	

Allowable Emissions Allowable Emissions 2 of 2

1. Basis for Allowable Emissions Code: **ESCPSD**	2. Future Effective Date of Allowable Emissions: **N/A**
3. Allowable Emissions and Units: **N/A**	4. Equivalent Allowable Emissions: **2.4** lb/hour **0.6** tons/year
5. Method of Compliance: **EPA Reference Method 10.**	
6. Allowable Emissions Comment (Description of Operating Method): **Limits applicable to CT while firing distillate fuel oil. Field 4 annual emissions based on maximum of 475 hr/yr.**	

Allowable Emissions Allowable Emissions __ of __

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **VOC**	2. Total Percent Efficiency of Control: **N/A**
3. Potential Emissions: **4.9** lb/hour **6.1** tons/year	4. Synthetically Limited? [x] Yes [ ] No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year **N/A**	
6. Emission Factor: **N/A** Reference: **Vendor Data**	7. Emissions Method Code: **2**

8. Calculation of Emissions:

Potential Hourly Emissions:

100% load, 30°F CT inlet, oil-firing

Potential Annual Emissions:

100% load, 30°F CT inlet, oil-firing (475 hr/yr)

100% load, 57.9°F CT inlet, gas-firing (8,285 hr/yr)

$$4.9\frac{lb}{hr}\times 475\frac{hr}{yr}\times\frac{ton}{2{,}000\ lb}+1.2\frac{lb}{hr}\times 8{,}285\frac{hr}{yr}\times\frac{ton}{2{,}000\ lb}=1.16+4.97=6.1\frac{ton}{yr}$$

9. Pollutant Potential/Estimated Fugitive Emissions Comment:

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 2

1. Basis for Allowable Emissions Code: **ESCPSD**	2. Future Effective Date of Allowable Emissions: **N/A**
3. Allowable Emissions and Units: **N/A**	4. Equivalent Allowable Emissions: **1.2** lb/hour **5.3** tons/year
5. Method of Compliance: **EPA Reference Method 10 (CO used as a surrogate for VOC).**	
6. Allowable Emissions Comment (Description of Operating Method): **Limits applicable to CT while firing natural gas. Field 4 annual emissions based on maximum of 8,760 hr/yr.**	

Allowable Emissions Allowable Emissions 2 of 2

1. Basis for Allowable Emissions Code: **ESCPSD**	2. Future Effective Date of Allowable Emissions: **N/A**
3. Allowable Emissions and Units: **N/A**	4. Equivalent Allowable Emissions: **4.9** lb/hour **1.2** tons/year
5. Method of Compliance: **EPA Reference Method 10 (CO used as a surrogate for VOC).**	
6. Allowable Emissions Comment (Description of Operating Method): **Limits applicable to CT while firing distillate fuel oil. Field 4 annual emissions based on maximum of 475 hr/yr.**	

Allowable Emissions Allowable Emissions __ of __

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **SO_2**	2. Total Percent Efficiency of Control: **N/A**
3. Potential Emissions: **46.3** lb/hour **22.8** tons/year	4. Synthetically Limited? [X] Yes [ ] No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year **N/A**	
6. Emission Factor: **N/A** Reference: **Vendor Data**	7. Emissions Method Code: **2**

8. Calculation of Emissions:

Potential Hourly Emissions:
100% load, 30°F CT inlet, oil-firing

Potential Annual Emissions:
100% load, 30°F CT inlet, oil-firing (475 hr/yr)
100% load, 48°F CT inlet, gas-firing (8,285 hr/yr)

$$46.3\frac{lb}{hr}\times 475\frac{hr}{yr}\times\frac{ton}{2{,}000\ lb}+2.9\frac{lb}{hr}\times 8{,}285\frac{hr}{yr}\times\frac{ton}{2{,}000\ lb}=11.0+11.8=22.8\frac{ton}{yr}$$

9. Pollutant Potential/Estimated Fugitive Emissions Comment:

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 2

1. Basis for Allowable Emissions Code: **ESCPSD**	2. Future Effective Date of Allowable Emissions: **N/A**
3. Allowable Emissions and Units: **2.0 grains S / 100 ft^3 natural gas**	4. Equivalent Allowable Emissions: **2.9** lb/hour **12.5** tons/year
5. Method of Compliance: **Fuel analysis per 40 CFR Part 75, Appendix D.**	
6. Allowable Emissions Comment (Description of Operating Method): **Limits applicable to CT while firing natural gas. Field 4 annual emissions based on maximum of 8,760 hr/yr.**	

Allowable Emissions Allowable Emissions 2 of 2

1. Basis for Allowable Emissions Code: **ESCPSD**	2. Future Effective Date of Allowable Emissions: **N/A**
3. Allowable Emissions and Units: **0.1 weight % S distillate fuel oil**	4. Equivalent Allowable Emissions: **46.3** lb/hour **11.0** tons/year
5. Method of Compliance: **Fuel analysis per 40 CFR Part 75, Appendix D.**	
6. Allowable Emissions Comment (Description of Operating Method): **Limits applicable to CT while firing distillate fuel oil. Field 4 annual emissions based on maximum of 475 hr/yr.**	

Allowable Emissions Allowable Emissions __ of __

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **PM/PM_{10}**	2. Total Percent Efficiency of Control: **N/A**
3. Potential Emissions: **13.9** lb/hour **15.7** tons/year	4. Synthetically Limited? [x] Yes [ ] No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year **N/A**	
6. Emission Factor: **N/A** Reference:	7. Emissions Method Code: **2**

8. Calculation of Emissions:

Potential Hourly Emissions:
100% load, 30°F CT inlet, oil-firing

Potential Annual Emissions:
100% load, 30°F CT inlet, oil-firing (475 hr/yr)
100% load, 48°F CT inlet, gas-firing (8,285 hr/yr)

$$13.9\frac{lb}{hr}\times 475\frac{hr}{yr}\times\frac{ton}{2{,}000\ lb}+3.0\frac{lb}{hr}\times 8{,}285\frac{hr}{yr}\times\frac{ton}{2{,}000\ lb}=3.3+12.4=15.7\frac{ton}{yr}$$

9. Pollutant Potential/Estimated Fugitive Emissions Comment:

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions 1 of 2

1. Basis for Allowable Emissions Code: **ESCPSD**	2. Future Effective Date of Allowable Emissions: **N/A**
3. Allowable Emissions and Units: **N/A**	4. Equivalent Allowable Emissions: **3.0** lb/hour **13.1** tons/year
5. Method of Compliance: **EPA Reference Method 9 (opacity used as a surrogate for PM/PM_{10}).**	
6. Allowable Emissions Comment (Description of Operating Method): **Limits applicable to CT while firing natural gas. Field 4 annual emissions based on maximum of 8,760 hr/yr.**	

Allowable Emissions Allowable Emissions 2 of 2

1. Basis for Allowable Emissions Code: **ESCPSD**	2. Future Effective Date of Allowable Emissions: **N/A**
3. Allowable Emissions and Units: **N/A**	4. Equivalent Allowable Emissions: **13.9** lb/hour **3.3** tons/year
5. Method of Compliance: **EPA Reference Method 9 (opacity used as a surrogate for PM/PM_{10}).**	
6. Allowable Emissions Comment (Description of Operating Method): **Limits applicable to CT while firing distillate fuel oil. Field 4 annual emissions based on maximum of 475 hr/yr.**	

Allowable Emissions Allowable Emissions __ of ___

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

G. VISIBLE EMISSIONS INFORMATION

Complete if this emissions unit is or would be subject to a unit-specific visible emissions limitation.

Visible Emissions Limitation: Visible Emissions Limitation **1** of **2**

1. Visible Emissions Subtype: **VE 05**	2. Basis for Allowable Opacity: ☐ Rule ☒ Other
3. Allowable Opacity: Normal Conditions: **5 %** Exceptional Conditions: **N/A %** Maximum Period of Excess Opacity Allowed: **N/A** min/hour	
4. Method of Compliance: **EPA Reference Method 9**	
5. Visible Emissions Comment: **Limit applicable during natural gas-firing.**	

Visible Emissions Limitation: Visible Emissions Limitation **2** of **2**

1. Visible Emissions Subtype: **VE 10**	2. Basis for Allowable Opacity: ☐ Rule ☒ Other
3. Allowable Opacity: Normal Conditions: **10 %** Exceptional Conditions: **N/A %** Maximum Period of Excess Opacity Allowed: **N/A** min/hour	
4. Method of Compliance: **EPA Reference Method 9**	
5. Visible Emissions Comment: **Limit applicable during distillate fuel oil-firing.**	

H. CONTINUOUS MONITOR INFORMATION

Complete if this emissions unit is or would be subject to continuous monitoring.

Continuous Monitoring System: Continuous Monitor **1** of **2**

1. Parameter Code: **EM**	2. Pollutant(s): **NO_x**
3. CMS Requirement:	[x] Rule [ ] Other
4. Monitor Information... **To be provided** Manufacturer: Model Number:	Serial Number:
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment: **Acid Rain Program, 40 CFR 75 and NSPS Subpart GG.** **The existing NO_x/CO_2 dilution in-stack CEMS will be replaced with a NO_x/O_2 extractive CEMS**	

Continuous Monitoring System: Continuous Monitor **2** of **2**

1. Parameter Code: **O_2**	2. Pollutant(s):
3. CMS Requirement:	[x] Rule [ ] Other
4. Monitor Information... **To be provided** Manufacturer: Model Number:	Serial Number:
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment: **NO_x diluent CEM requirements of 40 CFR 75 and NSPS Subpart GG.** **The existing NO_x/CO_2 dilution in-stack CEMS will be replaced with a NO_x/O_2 extractive CEMS**	

I. EMISSIONS UNIT ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1. Process Flow Diagram (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [x] Attached, Document ID: A-2 [ ] Previously Submitted, Date _____

2. Fuel Analysis or Specification (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [x] Attached, Document ID: A-7 [ ] Previously Submitted, Date _____

3. Detailed Description of Control Equipment (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [x] Attached, Document ID: A-8 [ ] Previously Submitted, Date _____

4. Procedures for Startup and Shutdown (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [x] Attached, Document ID: A-9 [ ] Previously Submitted, Date _____
   [ ] Not Applicable (construction application)

5. Operation and Maintenance Plan (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   [ ] Attached, Document ID: _____ [ ] Previously Submitted, Date _____
   [x] Not Applicable

6. Compliance Demonstration Reports/Records
   [ ] Attached, Document ID: _____
   Test Date(s)/Pollutant(s) Tested: _____
   _____
   [ ] Previously Submitted, Date: _____
   Test Date(s)/Pollutant(s) Tested: _____
   _____
   [ ] To be Submitted, Date (if known): _____
   Test Date(s)/Pollutant(s) Tested: _____
   _____
   [x] Not Applicable
   Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.

7. Other Information Required by Rule or Statute
   [ ] Attached, Document ID: _____ [x] Not Applicable

EMISSIONS UNIT INFORMATION
Section [1] of [1]

Additional Requirements for Air Construction Permit Applications

1. Control Technology Review and Analysis (Rules 62-212.400(6) and 62-212.500(7), F.A.C.; 40 CFR 63.43(d) and (e))
   ☐ Attached, Document ID: _____ ☒ Not Applicable
2. Good Engineering Practice Stack Height Analysis (Rule 62-212.400(5)(h)6., F.A.C., and Rule 62-212.500(4)(f), F.A.C.)
   ☐ Attached, Document ID: _____ ☒ Not Applicable
3. Description of Stack Sampling Facilities (Required for proposed new stack sampling facilities only)
   ☐ Attached, Document ID: _____ ☒ Not Applicable

Additional Requirements for Title V Air Operation Permit Applications **N/A**

1. Identification of Applicable Requirements
   ☐ Attached, Document ID: _____
2. Compliance Assurance Monitoring
   ☐ Attached, Document ID: _____ ☐ Not Applicable
3. Alternative Methods of Operation
   ☐ Attached, Document ID: _____ ☐ Not Applicable
4. Alternative Modes of Operation (Emissions Trading)
   ☐ Attached, Document ID: _____ ☐ Not Applicable
5. Acid Rain Part Application
   - ☐ Certificate of Representation (EPA Form No. 7610-1)
     - ☐ Copy Attached, Document ID:_____
   - ☐ Acid Rain Part (Form No. 62-210.900(1)(a))
     - ☐ Attached, Document ID:_____
     - ☐ Previously Submitted, Date:_____
   - ☐ Repowering Extension Plan (Form No. 62-210.900(1)(a)1.)
     - ☐ Attached, Document ID:_____
     - ☐ Previously Submitted, Date:_____
   - ☐ New Unit Exemption (Form No. 62-210.900(1)(a)2.)
     - ☐ Attached, Document ID:_____
     - ☐ Previously Submitted, Date:_____
   - ☐ Retired Unit Exemption (Form No. 62-210.900(1)(a)3.)
     - ☐ Attached, Document ID:_____
     - ☐ Previously Submitted, Date:_____
   - ☐ Phase II NOx Compliance Plan (Form No. 62-210.900(1)(a)4.)
     - ☐ Attached, Document ID:_____
     - ☐ Previously Submitted, Date:_____
   - ☐ Phase II NOx Averaging Plan (Form No. 62-210.900(1)(a)5.)
     - ☐ Attached, Document ID:_____
     - ☐ Previously Submitted, Date:_____
   - ☐ Not Applicable

Additional Requirements Comment

ATTACHMENT A-1

FACILITY PLOT PLAN

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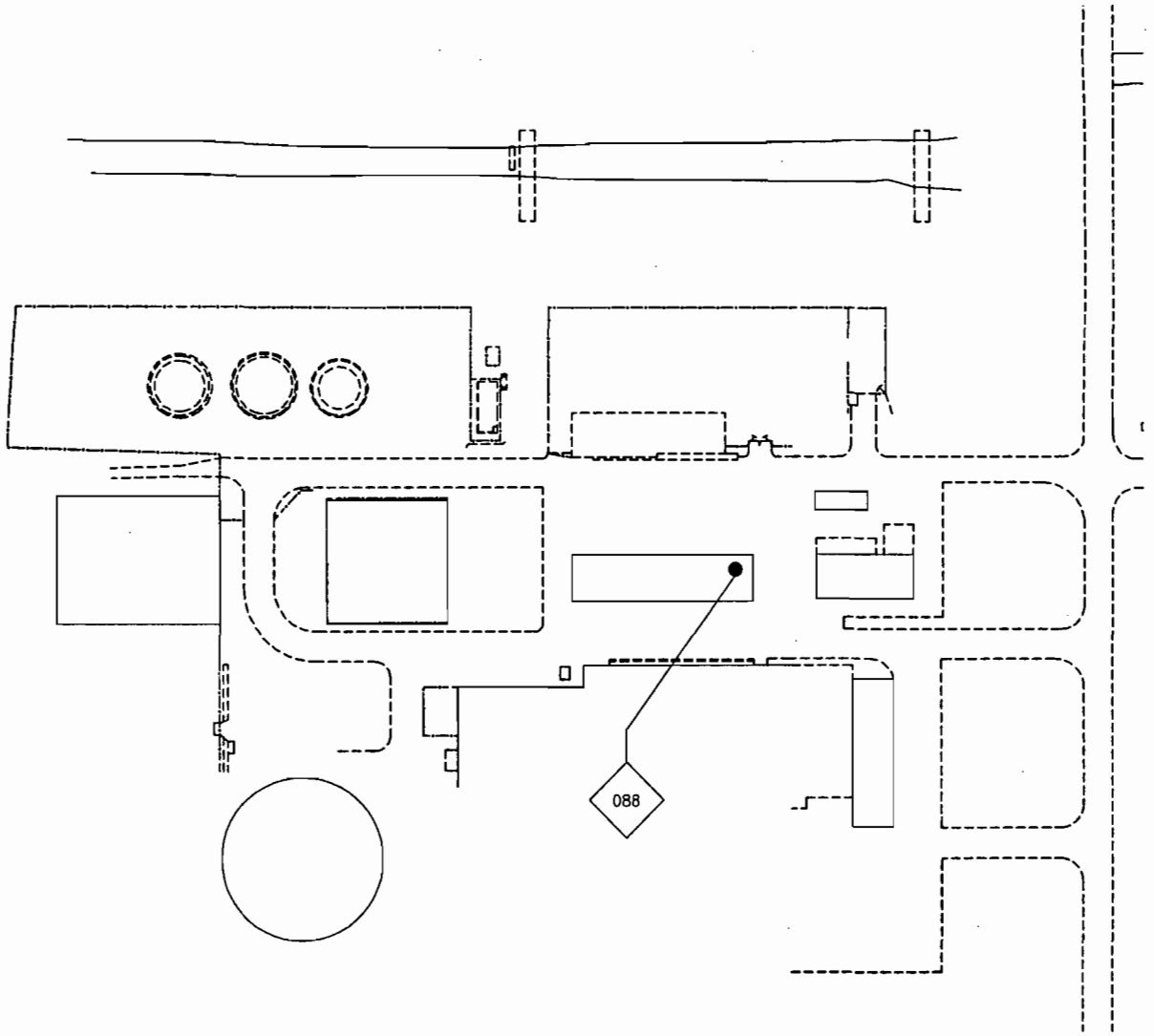

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088 EMISSION POINT

ATTACHMENT A-1.

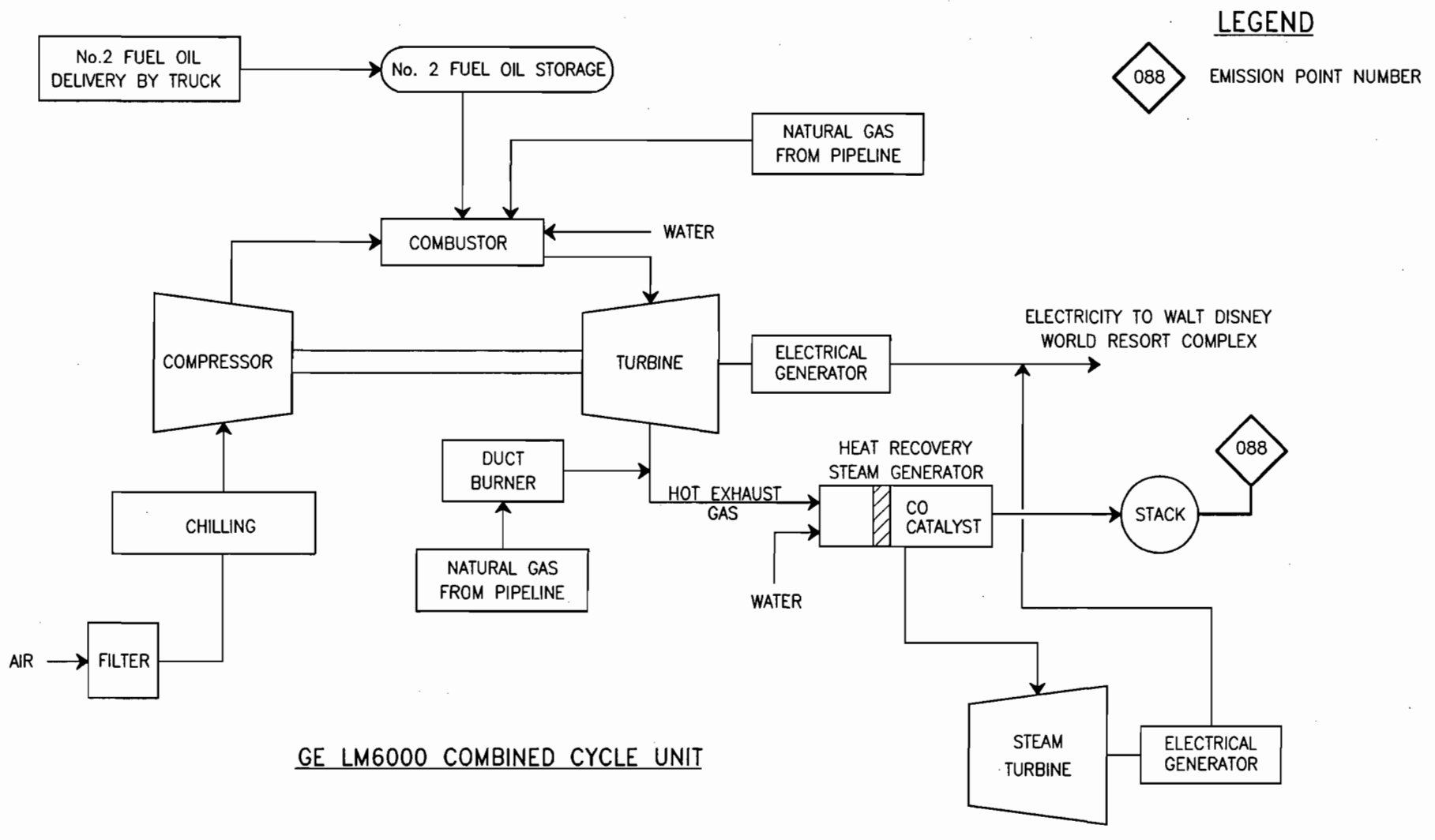
WALT DISNEY WORLD RESORT COMPLEX: FACILITY PLOT PLAN

NORTH SERVICE AREA COMBUSTION TURBINE

Source: RCES, 2004.

ATTACHMENT A-2

PROCESS FLOW DIAGRAM



ATTACHMENT A-2.

WALT DISNEY WORLD RESORT COMPLEX: PROCESS FLOW DIAGRAM

NORTH SERVICE AREA COMBUSTION TURBINE

Source: RCES, 2004.

ATTACHMENT A-3

PRECAUTIONS TO PREVENT EMISSIONS OF UNCONFINED PARTICULATE MATTER

LM6000 REPOWERING PROJECT

PRECAUTIONS TO PREVENT EMISSIONS OF UNCONFINED PARTICULATE MATTER

The following techniques may be used to control unconfined particulate matter emissions on an as needed basis:

- Chemical or water application to unpaved roads and yard areas.
- Paving and maintenance of roads, parking areas and yards.
- Landscaping or planting of vegetation.
- Confining abrasive blasting where possible.
- Other techniques, as necessary.

ATTACHMENT A-4

REGULATORY APPLICABILITY ANALYSES

Table A4-1. Summary of Federal EPA Regulatory Applicability and Corresponding Requirements—LM600 Repowering Project (Page 1 of 12)

Regulation	Citation	Not Applicable	Applicable Emissions Units	Applicable Requirement or Nonapplicability Rationale
40 CFR Part 60—Standards of Performance for New Stationary Sources				
40 CFR Part 60 Subpart A—General Provisions				
Notification and Recordkeeping	60.7(a)		LM6000 CT HRSG DB	Notification requirements.
	60.7(b) - (h)		LM6000 CT HRSG DB	General recordkeeping and reporting requirements.
Performance Tests	60.8		LM6000 CT HRSG DB	Conduct initial performance tests as required by EPA.
Compliance with Standards	60.11(a) thru (f)		LM6000 CT HRSG DB	General compliance requirements. Addresses requirements for visible emissions tests.
Circumvention	60.12		LM6000 CT HRSG DB	Cannot conceal an emission that would otherwise constitute a violation of an applicable standard.
Monitoring Requirements	60.13		LM6000 CT HRSG DB	Requirements for CEMS and monitoring devices.
Modification	60.14		LM6000 CT HRSG DB	General requirements regarding modifications **(potential future requirement).**
Reconstruction	60.15		LM6000 CT HRSG DB	General requirements regarding reconstructions **(potential future requirement).**
Incorporation by Reference	60.17		LM6000 CT HRSG DB	Specifies ASTM Methods for collecting and analyzing fuel samples.
General Notification and Reporting Requirements	60.19		LM6000 CT HRSG DB	General procedures regarding reporting deadlines.

Table A4-1. Summary of Federal EPA Regulatory Applicability and Corresponding Requirements—LM6000 Repowering Project (Continued, Page 2 of 12)

Regulation	Citation	Not Applicable	Applicable Emissions Units	Applicable Requirement or Nonapplicability Rationale
40 CFR Part 60 Subpart Db—Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units				
Standard for Nitrogen Oxides	60.44b(a)(4)		HRSG DB	Nitrogen oxides (expressed as NO_2) shall not exceed 0.20 lb/MMBtu heat input from a duct burner in a combined cycle system fired with natural gas.
	60.44b(h)		HRSG DB	Nitrogen oxides standard (30-day rolling average) applies at all times including periods of startup, shutdown, or malfunction.
	60.44b(i)		HRSG DB	Compliance with the nitrogen oxides standard is determined on a 30-day rolling average basis.
Compliance Provisions, NO_x	60.46b(f)(1) or (2)		HRSG DB	Performance test procedures for duct burners used in combined cycle systems.
	60.48b(h)		HRSG DB	Duct burners subject to the nitrogen oxides standard of 60.44b(a)(4) are not required to install or operate a continuous emissions monitoring system to measure NO_x emissions.
Reporting and Recordkeeping Requirements	60.49b(d)		HRSG DB	The amounts of each fuel combusted during each day shall be recorded and maintained and the annual capacity factor calculated for each fuel. The annual capacity factor is determined on a 30-day rolling average basis with a new annual capacity factor calculated at the end of each calendar month.
	60.49b(g)(1)		HRSG DB	Daily recordkeeping requirements.
	60.49b(o)		HRSG DB	All required records shall be maintained for a period of 2 years following the date of the record.
40 CFR Part 60 Subpart GG—Standards of Performance for Stationary Gas Turbines				
Standard for Nitrogen Oxides	60.332		LM6000 CT	Specifies formula for allowable nitrogen oxide emission limit of 75 ppmv at 15% oxygen (with corrections for heat rate and fuel bound nitrogen) for electric utility stationary gas turbines with peak heat input greater than 100 MMBtu/hr.

Table A4-1. Summary of Federal EPA Regulatory Applicability and Corresponding Requirements—LM6000 Repowering Project (Continued, Page 3 of 12)

Regulation	Citation	Not Applicable	Applicable Emissions Units	Applicable Requirement or Nonapplicability Rationale
Standard for Sulfur Dioxide	60.333		LM6000 CT	Establishes exhaust gas SO_2 limit of 0.015 % by volume (at 15% O2, dry) and maximum fuel sulfur content of 0.8 % by weight.
Monitoring Requirements	60.334(a)		LM6000 CT	Continuous monitoring system to monitor and record fuel consumption and the ratio of water or steam to fuel fired is required.
	60.334(e)		LM6000 CT	LM6000 CT may use a nitrogen oxide CEMS in lieu of continuous monitoring of fuel consumption and the ratio of water to fuel combusted for excess emissions monitoring.
Fuel Nitrogen Content Monitoring	60.334(h)(2)		LM6000 CT	An allowance for fuel bound nitrogen (FBN) is not claimed. Therefore no monitoring of fuel nitrogen content is required.
Natural Gas Sulfur Content Monitoring	60.334(h)(3)		LM6000 CT	Gaseous fuel used meets the definition of natural gas. Therefore no monitoring of natural gas sulfur content is required.
Fuel Oil Sulfur Content Monitoring	60.334(i)(1)		LM6000 CT	Required procedures for monitoring the sulfur content of fuel oil.
Excess Emissions Monitoring Requirements, NO_x	60.334(j)(1)(i)		LM6000 CT	Excess emissions monitoring requirements for turbines using water or steam to fuel ratio monitoring.
	60.334(j)(1)(iii)		LM6000 CT	Excess emissions monitoring requirements for turbines using NO_x and diluent CEMS.
Test Methods and Procedures	60.335(a), (b), (c)		LM6000 CT	Specifies test methods and monitoring procedures.
40 CFR Part 60—Subparts B, C, Cb, Cc, Cd, Ce, D, Da, Dc, E, Ea, Eb, Ec, F, G, H, I, J, K, Ka, Kb, L, M, N, N, Na, O, P, Q, R, S, T, U, V, W, X, Z, AA, AAa, BB, CC, DD, EE, HH, KK, LL, MM, NN, PP, QQ, RR, SS, TT, UU, VV, WW, XX, AAA, BBB, DDD, FFF, GGG, HHH, III, JJJ, KKK, LLL, NNN, OOO, PPP,QQQ, RRR, SSS, TTT, UUU, VVV, and WWW.		X		None of the listed NSPS' contain requirements that are applicable to the LM6000 Repowering Project.

Table A4-1. Summary of Federal EPA Regulatory Applicability and Corresponding Requirements—LM6000 Repowering Project (Continued, Page 4 of 12)

Regulation	Citation	Not Applicable	Applicable Emissions Units	Applicable Requirement or Nonapplicability Rationale
40 CFR Part 61—National Emission Standards for Hazardous Air Pollutants for Source Categories: Subparts B, C, D, E, F, H, I, J, L, M, N, O, Q, R, T, V, W, Y, BB, and FF.		X		None of the listed NESHAPS' contain requirements that are applicable to the LM6000 Repowering Project.
40 CFR Part 63—National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines: Subpart YYYY.		X	LM6000 CT	On August 18, 2004, EPA stayed the effectiveness of the emissions and operating limitations in the stationary combustion turbines NESHAP for new sources in the lean premix gas-fired turbines and diffusion flame gas-fired turbines subcategories pending the outcome of EPA's proposal to delist these subcategories from the source category list.
40 CFR Part 63—National Emission Standards for Hazardous Air Pollutants for Source Categories: Subparts A, B, C, D, E, F, G, H, I, J, L, M, N, N, O, Q, R, S, T, U, W, X, Y, AA, BB, CC, DD, EE, FF, HH, II, JJ, KK, LL, MM, OO, PP, QQ, RR, SS, TT, UU, VV, WW, YY, CCC, DDD, EEE, GGG, HHH, III, JJJ, LLL, MMM, NNN, OOO, PPP, QQQ, RRR, TTT, UUU, VVV, XXX, AAAA, CCCC, DDDD, EEEE, FFFF, GGGG, HHHH, IIII, JJJJ, KKKK, MMMM, NNNN, OOOO, PPPP, QQQQ, RRRR, SSSS, TTTT, UUUU, VVVV, XXXX, YYYY, ZZZZ, AAAAA, BBBBB, CCCCC, DDDDD, EEEEE, FFFFF, GGGGG, HHHHH, IIIII, JJJJJ, KKKKK, LLLLL, MMMMM, NNNNN, PPPPP, QQQQQ, RRRRR, SSSSS, TTTTT, and WWWWW.		X		None of the listed NESHAPS' contain requirements that are applicable to the LM6000 Repowering Project.
40 CFR Part 72—Acid Rain Program Permits				
40 CFR Part 72 Subpart A—Acid Rain Program General Provisions				
Standard Requirements	72.9		LM6000 CT	General acid rain requirements.
40 CFR Part 72 Subpart B—Designated Representative				
Designated Representative	72.20 - 72.24		LM6000 CT	General requirements pertaining to the designated representative.

Table A4-1. Summary of Federal EPA Regulatory Applicability and Corresponding Requirements—LM6000 Repowering Project (Continued, Page 5 of 12)

Regulation	Citation	Not Applicable	Applicable Emissions Units	Applicable Requirement or Nonapplicability Rationale
40 CFR Part 72 Subpart C—Acid Rain Application				
Requirements to Apply	72.30(a)		LM6000 CT	Requirements to submit a complete Acid Rain permit by the applicable deadline.
	72.30(b)(2)(ii)		LM6000 CT	Deadline to submit a complete Acid Rain permit application.
Requirements to Apply	72.30(c)		LM6000 CT	Duty to reapply—The designated representative shall submit a complete Acid Rain permit application for each source with an affected unit at least six months prior to the expiration of an existing Acid Rain permit governing the unit during Phase II or such longer time as may be approved under Part 70 of this chapter that ensures that the term of the existing permit will not expire before the effective date of the permit for which the application is submitted.
Requirements to Apply	72.30(d)		LM6000 CT	Requirements to submit an original and three copies of all Phase II permit applications to the State permitting authority where the administrator is not the permitting authority.
Information for Acid Rain Permit Applications	72.31		LM6000 CT	General permit application requirements.
Permit Application Shield	72.32		LM6000 CT	Permit application shield provisions for timely and complete Acid Rain permit applications. Application is binding pending issuance of Acid Rain Permit.
40 CFR Part 72 Subpart D – Acid Rain Compliance Plan and Compliance Options				
General	72.40(a)(1)		LM6000 CT	General Compliance Plan Requirements for SO_2.
40 CFR Part 72 Subpart E—Acid Rain Permit Contents				
Permit Shield	72.51		LM6000 CT	Permit shield provisions. Units operating in compliance with an Acid Rain Permit are deemed to be operating in compliance with the Acid Rain Program.

Table A4-1. Summary of Federal EPA Regulatory Applicability and Corresponding Requirements—LM6000 Repowering Project (Continued, Page 6 of 12)

Regulation	Citation	Not Applicable	Applicable Emissions Units	Applicable Requirement or Nonapplicability Rationale
40 CFR Part 72 Subpart H—Permit Revisions				
General, Additional Information	72.80(g)		LM6000 CT	Requirement to submit supplementary or corrected information upon becoming aware of a failure to submit relevant information or a prior incorrect submittal (potential **future requirement**).
Fast-Track Modifications	72.82(a) and (c)		LM6000 CT	Procedures for fast-track modifications to Acid Rain Permits (**potential future requirement**).
40 CFR Part 72 Subpart I—Compliance Certification				
Annual Compliance Certification Report	72.90		LM6000 CT	Requirement to submit an annual compliance report.
40 CFR Part 75—Continuous Emission Monitoring				
40 CFR Part 75 Subpart A—General				
Compliance Dates	75.4 (b)(2)		LM6000 CT	Requirement to complete all certification tests within the earlier of 90 unit operating days or 180 calendar days after the date the unit commences commercial operation.
Prohibitions	75.5		LM6000 CT	General monitoring prohibitions.
40 CFR Part 75 Subpart B—Monitoring Provisions				
General Operating Requirements	75.10		LM6000 CT	General acid rain monitoring requirements.
Specific Provisions for Monitoring SO_2 Emissions	75.11(d)(2)		LM6000 CT	SO_2 continuous monitoring requirements for gas and oil fired units using Appendix D.
Specific Provisions for Monitoring NO_x Emissions	75.12(a) and (c)		LM6000 CT	NO_x continuous monitoring requirements.
Specific Provisions for Monitoring Opacity	75.14(c)		LM6000 CT	Opacity continuous monitoring exemption for gas-fired units.

Table A4-1. Summary of Federal EPA Regulatory Applicability and Corresponding Requirements—LM6000 Repowering Project (Continued, Page 7 of 12)

Regulation	Citation	Not Applicable	Applicable Emissions Units	Applicable Requirement or Nonapplicability Rationale
40 CFR Part 75 Subpart C—Operation and Maintenance Requirements				
Recertification Requirements	75.20(b)		LM6000 CT	Requires that monitoring systems meet recertification requirements by the deadlines stipulated in 75.4. **(potential future requirement)**
	75.20(a)(1)		LM6000 CT	Requires notification of recertification and revised test dates at least 45 days prior to certification testing. **(potential future requirement)**
	75.20(a)(2)		LM6000 CT	Requires submittal of recertification applications in accordance with 75.60. **(potential future requirement)**
	75.20(a)(5)		LM6000 CT	Procedures to be used in the event that the agency issues a disapproval of certification application or certification status. **(potential future requirement)**
	75.20(c)(1), (3), (10), and (19)		LM6000 CT	Recertification procedure requirements. **(potential future requirement)**
	75.20(g)		LM6000 CT	Recertification procedure requirements for excepted monitoring systems under Appendices D and E.. **(potential future requirement)**
Quality Assurance and Quality Control Requirements	75.21(a), c), (d), and (e)		LM6000 CT	General QA/QC requirements (excluding COMS).
Reference Test Methods	75.22		LM6000 CT	Specifies required test methods to be used for certification or recertification testing.
Out-Of-Control Periods and Adjustment for System Bias	75.24 except 75.24(e)		LM6000 CT	Specifies out-of-control periods and the required actions to be taken when they occur (excluding COMS).

Table A4-1. Summary of Federal EPA Regulatory Applicability and Corresponding Requirements—LM6000 Repowering Project (Continued, Page 8 of 12)

Regulation	Citation	Not Applicable	Applicable Emissions Units	Applicable Requirement or Nonapplicability Rationale
40 CFR Part 75 Subpart D—Missing Data Substitution Procedures				
General Provisions	75.30		LM6000 CT	General missing data requirements.
Determination of Monitor Data Availability for Standard Missing Data Procedures	75.32		LM6000 CT	Monitor data availability procedure requirements after the first 720 and 2,160 quality-assured monitor operating hours for NO_x CEMS.
Standard Missing Data Procedures for SO_x, NO_x, and Flow Rate	75.33		LM6000 CT	Missing data substitution procedure requirements after the first 720 and 2,160 quality-assured monitor operating hours for NO_x CEMS.
Appendix D to Part 75—Optional SO_2 Emissions Data Protocol for Gas-Fired and Oil-Fired Units				
Missing Data Procedures	Appendix D 2.4		LM6000 CT	Missing data substitution requirements for units using Appendix D – Optional SO_2 Emissions Data Protocol for Gas-Fired and Oil-Fired Units.
Appendix G to Part 75 – Determination of CO_2 Emissions				
Missing Data Procedures	Appendix G 5		LM6000 CT	Missing data substitution requirements for units using Appendix G – Determination of CO_2 Emissions.
40 CFR Part 75 Subpart E—Alternative Monitoring Systems				
Alternative Monitoring Systems	75.40 - 75.48	X		Optional requirements for alternative monitoring systems.
40 CFR Part 75 Subpart F—Recordkeeping Requirements				
Monitoring Plan	75.53(a), (b), (e), and (f)		LM6000 CT	Requirement to prepare and maintain a Monitoring Plan
General Recordkeeping Provisions	75.57		LM6000 CT	General recordkeeping provisions.
General Recordkeeping Provisions for Specific Situations	75.58(c)		LM6000 CT	SO_2 recordkeeping provisions for gas-fired or oil-fired units using Appendix D.
Certification, Quality Assurance, and Quality Control Record Provisions	75.59(a) and (b)		LM6000 CT	General QA/QC recordkeeping requirements.

Table A4-1. Summary of Federal EPA Regulatory Applicability and Corresponding Requirements—LM6000 Repowering Project (Continued, Page 9 of 12)

Regulation	Citation	Not Applicable	Applicable Emissions Units	Applicable Requirement or Nonapplicability Rationale
40 CFR Part 75 Subpart G—Reporting Requirements				
General Provisions	75.60		LM6000 CT	General reporting requirements.
Notification of Certification and Recertification Test Dates	75.61		LM6000 CT	Requires written submittal of certification tests, recertification test, and revised test dates for CEMS. Notice of certification testing shall be submitted at least 45 days prior to the first day of certification for recertification testing. Notification of any proposed adjustment to certification testing dates must be provided at least 7 business days prior to the proposed date change.
Monitoring Plan	75.62		LM6000 CT	Monitoring Plan required to be submitted no later than 45 days prior to the certification test.
Certification or Recertification Application	75.63		LM6000 CT	Requires submittal of a certification application within 30 days after completing the certification test.
Quarterly Reports	75.64(a)(1) - (5)		LM6000 CT	Requirement to submit quarterly data report.
	75.64(b), (c), (d)		LM6000 CT	Requirement to submit compliance certification in support of each quarterly data report. Requirement to submit quarterly reports in an electronic format to be specified by EPA.
40 CFR Part 77—Excess Emissions				
Offset Plans for Excess Emissions of Sulfur Dioxide	77.3		LM6000 CT	Requirement to submit offset plans for excess SO_2 emissions not later than 60 days after the end of any calendar year during which an affected unit has excess SO_2 emissions. Required contents of offset plans are specified (**potential future requirement**).
Offset Plans for Excess Emissions of Sulfur Dioxide	77.5(b)		LM6000 CT	Requirement for the Designated Representative to hold enough allowances in the appropriate compliance subaccount to cover deductions to be made by EPA if a timely and complete offset plan is not submitted or if EPA disapproves a proposed offset plan (**potential future requirement**).

Table A4-1. Summary of Federal EPA Regulatory Applicability and Corresponding Requirements—LM6000 Repowering Project (Continued, Page 10 of 12)

Regulation	Citation	Not Applicable	Applicable Emissions Units	Applicable Requirement or Nonapplicability Rationale
Penalties for Excess Emissions of Sulfur Dioxide and Nitrogen Oxides	77.6		LM6000 CT	Requirement to pay a penalty if excess emissions of SO_2 or NO_x occur at any affected unit during any year **(potential future requirement).**
40 CFR Part 78—Appeal Procedures for Acid Rain Program				
Appeal Procedures	78.1 - 78.20		LM6000 CT	Optional appeal procedures for EPA Acid Rain program decisions **(optional future requirement).**
40 CFR Part 82—Protection of Stratospheric Ozone				
Production and Consumption Controls	Subpart A	X		LM6000 Repowering Project does not produce or consume ozone depleting substances.
Servicing of Motor Vehicle Air Conditioners	Subpart B	X		LM6000 Repowering Project does not perform servicing of motor vehicles which involves refrigerant in the motor vehicle air conditioner. All such servicing is conducted off-site by persons who comply with Subpart B requirements.
Ban on Nonessential Products Containing Class I Substances and Ban on Nonessential Products Containing or Manufactured with Class II Substances	Subpart C	X		LM6000 Repowering Project does not sell or distribute any banned nonessential substances.
The Labeling of Products Using Ozone-Depleting Substances	Subpart E	X		LM6000 Repowering Project does not produce any products containing ozone depleting substances.
Subpart F—Recycling and Emissions Reduction				
Prohibitions	82.154	X		LM6000 Repowering Project personnel do not maintain, service, repair, or dispose of any appliances. All such activities will be performed by independent parties in compliance with 82.154.

Table A4-1. Summary of Federal EPA Regulatory Applicability and Corresponding Requirements—LM6000 Repowering Project (Continued, Page 11 of 12)

Regulation	Citation	Not Applicable	Applicable Emissions Units	Applicable Requirement or Nonapplicability Rationale
Required Practices	82.156 except 82.156(i)(5), (6), (9), (10), and (11)		Appliances as defined by 82.152—any device which contains and uses a Class I or II substance as a refrigerant and which is used for household or commercial purposes including any air conditioner, refrigerator, chiller, or freezer.	Contractors will maintain, service, repair, and dispose of any appliances in compliance with 82.156 required practices.
Technician Certification	82.161		Appliances as defined by 82.152.	RCES personnel maintain, service, repair, or dispose of any appliances and are subject to technician certification requirements.
Certification By Owners of Recovery and Recycling Equipment	82.162		Appliances as defined by 82.152.	RCES personnel maintain, service, repair, or dispose of any appliances and use recovery and recycling equipment.
Reporting and Recordkeeping Requirements	82.166(k), (m), and (n)		Appliances as defined by 82.152.	Owners/operators of appliances normally containing 50 or more pounds of refrigerant must keep servicing records documenting the date and type of service, as well as the quantity of refrigerant added.
40 CFR Part 50—National Primary and Secondary Ambient Air Quality Standards Requirements		X		State agency requirements—not applicable to individual emission sources.

Table A4-1. Summary of Federal EPA Regulatory Applicability and Corresponding Requirements—LM6000 Repowering Project (Continued, Page 12 of 12)

Regulation	Citation	Not Applicable	Applicable Emissions Units	Applicable Requirement or Nonapplicability Rationale
40 CFR Part 51—Preparation, Adoption, and Submittal of Implementation Plans		X		State agency requirements—not applicable to individual emission sources.
40 CFR Part 52—Approval and Promulgation of Implementation Plans		X		State agency requirements—not applicable to individual emission sources.
40 CFR Part 62—Approval and Promulgation of State Plans for Designated Facilities and Pollutants		X		State agency requirements—not applicable to individual emission sources.
40 CFR Part 70—State Operating Permit Programs		X		State agency requirements—not applicable to individual emission sources.
40 CFR Parts 53, 54, 55, 56, 58, 62, 66, 67, 68, 69, 71, 74, 77, 79, 80, 81, 85, 86, 87, 88, 89, and 90		X		The listed regulations do not contain any requirements that are applicable to the LM6000 Repowering Project.

Source: ECT, 2004.

Table A4-2. Summary of FDEP Regulatory Applicability and Corresponding Requirements—LM6000 Repowering Project (Page 1 of 14)

Regulation	Citation	Not Applicable	Applicable: Facilitywide	Applicable Emission Units	Applicable Requirement or Nonapplicability Rationale
Chapter 62-4, F.A.C.—Permits: Part I General					
Scope of Part I	62-4.001, F.A.C.	X			Contains no applicable requirements.
Definitions	62-4.020, .021, F.A.C.	X			Contains no applicable requirements.
General Prohibition	62-4.030, F.A.C.		X		All stationary air pollution sources must be permitted, unless otherwise exempted.
Exemptions	62-4.040(1)(a) and (b), F.A.C.		X		Certain structural changes exempt from permitting. Other stationary sources exempt from permitting upon FDEP insignificance determination.
Procedures to Obtain Permits	62-4.050(1), (2), and (3), F.A.C.		X		General permitting procedures including filing in quadruplicate and PE certification.
Air Pollution Permit Processing Fees	62-4.050(4)(a)1., 4., 5., F.A.C.		X		Processing fees for air pollution permits. Permit processing fees are not required for operating permits or non-PSD construction permits for sources holding a Title V permit. **(potential future requirement)**
Permit Processing, Response to Requests for Additional Information	62-4.055(1), F.A.C.		X		If additional information is requested by FDEP, applicants have 90 days to submit the additional information. Upon request, FDEP will grant an additional 90 period to provided the requested information. Further extensions may be granted if the applicant shows good cause. **(potential future requirement)**
Permit Processing, Option to Request a Hearing	62-4.055(2), F.A.C.		X		If a FDEP request for additional information is not considered authorized by law or rule, the applicant may request a hearing. **(optional future requirement)**

Table A4-2. Summary of FDEP Regulatory Applicability and Corresponding Requirements—LM6000 Repowering Project (Page 2 of 14)

Regulation	Citation	Not Applicable	Applicable: Facilitywide	Applicable Emission Units	Applicable Requirement or Nonapplicability Rationale
Permit Processing, Option to Request Department Permit Processing	62-4.055(4), F.A.C.		X		If a FDEP request for additional information is not considered authorized by law or rule, the applicant may request that FDEP process the permit application without the requested information. **(optional future requirement)**
Permit Processing	62-4.055(3), (5), and (6) F.A.C.	X			FDEP permit processing procedures. Contains no applicable requirements.
Consultation	62-4.060, F.A.C.	X			Consultation with FDEP is encouraged, not required.
Standards for Issuing or Denying Permits; Issuance; Denial	62-4.070, F.A.C.	X			Establishes FDEP standard permitting procedures. Contains no applicable requirements.
Modification of Permit Conditions	62-4.080(1) F.A.C.		X		For good cause, permittee may be required to conform to new or additional conditions. **(potential future requirement)**
Modification of Permit Conditions	62-4.080(2) and (3) F.A.C.		X		Permittee may request a permit modification or permit extension. **(optional future requirement)**
Renewals	62-4.090, F.A.C.		X		Establishes permit criteria. Requests for renewal of a Title V operating permit are due prior to 180 days before permit expiration. Applications submitted prior to the due date are considered timely and sufficient. For timely and sufficient applications, the existing permit shall remain in effect until the renewal application has been finally acted upon by FDEP. Additional criteria are cited at 62-213.430(3), F.A.C. **(future requirement)**
Suspension and Revocation	62-4.100, F.A.C.	X			Establishes FDEP permit suspension and revocation criteria. Contains no applicable requirements.

Table A4-2. Summary of FDEP Regulatory Applicability and Corresponding Requirements—LM6000 Repowering Project (Page 3 of 14)

Regulation	Citation	Not Applicable	Applicable: Facilitywide	Applicable Emission Units	Applicable Requirement or Nonapplicability Rationale
Financial Responsibility	62-4.110, F.A.C.	X			FDEP has not required proof of financial responsibility or posting of a bond for the LM6000 Repowering Project.
Transfer of Permits	62-4.120, F.A.C.	X			A sale or legal transfer of a permitted facility is not being requested for the LM6000 Repowering Project.
Plant Operation—Problems	62-4.130, F.A.C.		X		Immediate notification is required whenever the permittee is temporarily unable to comply with any permit condition. Notification content is specified. **(potential future requirement)**
Permit Review	62-4.150, F.A.C.		X		Failure to request a hearing within 14 days of proposed or final Agency action on a permit application shall be deemed a waiver to the right to an administrative hearing. **(optional future requirement)**
Permit Conditions	62-4.160, F.A.C.	X			Lists general conditions that FDEP must include in permits. Contains no applicable requirements.
Chapter 62-4, F.A.C.—Part II Specific Permits; Requirements					
Construction Permits	62-4.210, F.A.C.		X		General requirements for construction permits.
Operation Permits for New Sources	62-4.220, F.A.C.		X		General requirements for new source operation permits.
Chapter 62-4, F.A.C.—Part III Procedures for General Permits	62-4.510 thru 62-4.540, F.A.C.	X			Not applicable to the LM6000 Repowering Project.
Chapter 62-204, F.A.C.—Air Pollution Control—General Provisions					
State Implementation Plan	62-204.100, .200, .220(1)-(3), .240, .260, .320, .340, .360, .400, and .500, F.A.C.	X			Contains no applicable requirements.

Table A4-2. Summary of FDEP Regulatory Applicability and Corresponding Requirements—LM6000 Repowering Project (Page 4 of 14)

Regulation	Citation	Not Applicable	Applicable: Facilitywide	Applicable Emission Units	Applicable Requirement or Nonapplicability Rationale
Ambient Air Quality Protection	62-204.220(4), F.A.C.		X		Assessments of ambient air pollutant impacts must be made using applicable air quality models, data bases, and other requirements approved by FDEP and specified in 40 CFR Part 51, Appendix W. Air quality modeling is not required for Title V permit applications. **(potential future requirement)**
Federal Regulations Adopted by Reference	62-204.800(8)(a), (b)3. and (b)39., (c), (d), and (e), F.A.C.			LM6000 CT HRSG DB	All Federal Regulations cited in the rules by the Department are adopted and incorporated by reference. Specifically, the new source performance standards contained in 40 CFR 60 Subpart A (LM6000 CT and HRSG DB), Subpart Db (HRSG-DB) and Subpart GG (LM6000 CT) are applicable to the LM6000 Repowering Project.
Federal Regulations Adopted by Reference	62-204.800(15), F.A.C.		X		State (FDEP) Part 70 (Title V Permit) Program requirements; see Table A4-1 for detailed federal regulatory citations. Contains no applicable requirements.
Federal Regulations Adopted by Reference	62-204.800(16), (17), (18), (20), and (21), F.A.C.			LM6000 CT	Acid Rain Program; see Table A5-1 for detailed federal regulatory citations.
Federal Regulations Adopted by Reference	62-204.800 (19), F.A.C.	X			Acid Rain NO_x Emission Reduction Program; see Table A4-1 for detailed federal regulatory citations.
Federal Regulations Adopted by Reference	62-204.800(23)(e), F.A.C.		X		Protection of Stratospheric Ozone; see Table A4-1 for detailed federal regulatory citations.
Chapter 62-210, F.A.C.—Stationary Sources—General Requirements					
Purpose and Scope	62-210.100, F.A.C.	X			Contains no applicable requirements.
Definitions	62-210.200, F.A.C.	X			Contains no applicable requirements.

Table A4-2. Summary of FDEP Regulatory Applicability and Corresponding Requirements—LM6000 Repowering Project (Page 5 of 14)

Regulation	Citation	Not Applicable	Applicable: Facilitywide	Applicable Emission Units	Applicable Requirement or Nonapplicability Rationale
Permits Required, Air Construction	62-210.300(1), F.A.C.			LM6000 CT HRSG DB	Requirements for air construction permits.
Permits Required, Air Operation	62-210.300(2)(a), F.A.C.		X		Air operation permits required, including permits.
Permits Required, Exemptions	62-210.300(3), F.A.C.		X		Permit exemptions for certain facilities and sources.
Emission Unit Startup, Reclassification, and Transfer of Air Permits	62-210.300(5), (6), and (7) F.A.C.		X		Startup notification required if a permitted source has been shut down for more than 1 year. Emission unit reclassification and air permit transfer procedures. **(potential future requirements).**
Public Notice and Comment	62-210.350(1), F.A.C.		X		All permit applicants, including those for renewals and revisions, are required to publish notice of proposed agency action.
Additional Notice Requirements for Sources Subject to Prevention of Significant Deterioration or Nonattainment Area New Source Review	62-210.350(2), F.A.C.		X		PSD permit application notice requirements. **(potential future requirements).**
Additional Public Notice Requirements for Sources Subject to Operation Permits for Title V Sources	62-210.350(3), F.A.C.		X		Notice requirements for Title V operating permits, renewals, and revisions.
Administrative Permit Corrections	62-210.360(1), F.A.C.		X		Facility owner shall notify the FDEP by letter of minor corrections to information contained in a permit. **(potential future requirements).**
Annual Operating Report for Air Pollutant Emitting Facility	62-210.370(3)(a)1. and (c), F.A.C.		X		Title V sources are required to submit an annual operating report.
Stack Height Policy	62-210.550, F.A.C.		X		Limits credit in air dispersion studies to good engineering practice (GEP) stack heights.

Table A4-2. Summary of FDEP Regulatory Applicability and Corresponding Requirements—LM6000 Repowering Project (Page 6 of 14)

Regulation	Citation	Not Applicable	Applicable: Facilitywide	Applicable Emission Units	Applicable Requirement or Nonapplicability Rationale
Circumvention	62-210.650, F.A.C.		X		An applicable air pollution control device cannot be circumvented and must be operated whenever the emission unit is operating.
Excess Emissions	62-210.700(1), (4), (5), and (6) F.A.C.		X		Excess emissions due to startup, shutdown, and malfunction are permitted. Excess emissions due to malfunction must be reported. Excess emissions due to certain other causes are prohibited. **(potential future requirement)**
Forms and Instructions	62-210.900, F.A.C.		X		List required FDEP forms for stationary sources.
Notification Forms for Air General Permits	62-210.920, F.A.C.	X			Contains no applicable requirements.
Chapter 62-212, F.A.C.—Stationary Sources—Preconstruction Review					
Purpose and Scope	62-212.100, F.A.C.	X			Contains no applicable requirements.
General Preconstruction Review Requirements	62-212.300, F.A.C.			LM6000 CT HRSG DB	Air construction permit requirements.
Prevention of Significant Deterioration	62-212.400, F.A.C.	X			PSD permit requirements.
Prevention of Significant Deterioration	62-212.400(7)(b), F.A.C.	X			The operation permit shall contain all operating conditions and provisions required under 62-212.400(7)(a) and set forth in the original or amended construction permit.
New Source Review for Nonattainment Areas	62-212.500, F.A.C.	X			The LM6000 Repowering Project is not located in any nonattainment area or nonattainment area of influence.
Sulfur Storage and Handling Facilities	62-212.600, F.A.C.	X			Applicable only to sulfur storage and handling facilities.

Table A4-2. Summary of FDEP Regulatory Applicability and Corresponding Requirements—LM6000 Repowering Project (Page 7 of 14)

Regulation	Citation	Not Applicable	Applicable: Facilitywide	Applicable Emission Units	Applicable Requirement or Nonapplicability Rationale
Air Emissions Bubble	62-212.710(2), (3), (5), and (6) F.A.C.		X		Applicant requirements for an air emissions bubble including permit applications, ambient impact analysis, monitoring, and recordkeeping. **(optional future requirement)**
Chapter 62-213, F.A.C.—Operation Permits for Major Sources of Air Pollution					
Purpose and Scope	62-213.100, F.A.C.	X			Contains no applicable requirements.
Responsible Official	62-213.202, F.A.C.		X		Title V sources must designate a responsible official.
Annual Emissions Fee	62-213.205, F.A.C.		X		Title V sources must pay an annual emissions fee.
Title V Air General Permits	62-213.300, F.A.C.	X			Not applicable to the LM6000 Repowering Project.
Permits Required	62-213.400(1), F.A.C.		X		Title V sources must operate in compliance with Chapter 62-213.
Permit Revisions Required	62-213.400(2), F.A.C.		X		Lists changes for which a permit revision is required. **(potential future requirement).**
Concurrent Processing of Permit Applications	62-213.405, F.A.C.			LM6000 CT HRSG DB	Applicant may request concurrent processing of a construction permit and Title V permit revision or renewal.
Changes Without Permit Revision	62-213.410, F.A.C.		X		Certain changes may be made if specific notice and recordkeeping requirements are met. **(potential future requirement)**
Immediate Implementation Pending Revision Process	62-213.412, F.A.C.		X		Certain modifications can be implemented pending permit revision if specific criteria are met.**(potential future requirement)**
Fast-Track Revisions of Acid Rain Parts	62-213.413, F.A.C.			LM6000 CT	Optional provisions for Acid Rain permit revisions. **(optional future requirement)**

Table A4-2. Summary of FDEP Regulatory Applicability and Corresponding Requirements—LM6000 Repowering Project (Page 8 of 14)

Regulation	Citation	Not Applicable	Applicable: Facilitywide	Applicable Emission Units	Applicable Requirement or Nonapplicability Rationale
Trading of Emissions within a Source	62-213.415, F.A.C.		X		Defines the conditions under which emissions trading is allowable. **(optional future requirement)**
Permit Applications, Timely Submittal	62-213.420(1)(a)3., F.A.C.		X		Title V operating permit application is timely if submitted in accordance with Rule 62-4.090, F.A.C. (Prior to 180 days before permit expiration)
Permit Applications, New or Modified Emission Units	62-213.420(1)(a)4., F.A.C.			LM6000 CT HRSG DB	A Title V source that contains an emissions unit that commences operation or is modified after 10/25/95 is required to submit an application for Title V permit revision at least 90 days prior to the unit's air construction permit expiration , but no later than 180 days after the unit commences operation.
Permit Applications, Standard Information Required	62-213.420(1)(b)1., (3) and (4), F.A.C.			LM6000 CT HRSG DB	Title V operating permit application must contain all the information specified by 62-213.420(3), F.A.C. and be certified by the responsible official.
Permit Applications, Additional Time to Provide Requested Information	62-213.420(1)(b)6., F.A.C.		X		If requested in writing by the applicant prior to the initial due date, FDEP will grant up to 60 additional days to respond to requests for additional information. FDEP may grant additional time beyond 60 days for good cause. **(optional future requirement)**
Permit Applications, Certification by Responsible Official	62-213.420(4), F.A.C.		X		Requires submittal of a Responsible Official (RO) certification for any application form, report, compliance statement, compliance plan, and compliance schedule.
Permit Applications, Acid Rain Part	62-213.420(5), F.A.C.			LM6000 CT	Applicants may request separate processing of the Title V permit and Acid Rain Part. **(optional future requirement)**

Table A4-2. Summary of FDEP Regulatory Applicability and Corresponding Requirements—LM6000 Repowering Project (Page 9 of 14)

Regulation	Citation	Not Applicable	Applicable: Facilitywide	Applicable Emission Units	Applicable Requirement or Nonapplicability Rationale
Permit Issuance, Renewal, and Revision	62-213.430(3), F.A.C.		X		Permits being renewed are subject to the same requirements that apply to permit issuance. Permit applications shall contain the information specified in 62-210.900(1) and 62-213.420(3), F.A.C.
Permit Issuance, Renewal, and Revision – Insignificant Emission Units and Activities	62-213.430(6), F.A.C.		X		Specifies criteria for insignificant emissions units and activities. Applicants may request FDEP determinations of insignificant emission units or activities. Such requests will be processed in conjunction with a permit or revision application. Insignificant emission units added after issuance of a Title V permit shall be incorporated into the permit at its next renewal.
Permit Content	62-213.440, F.A.C.	X			FDEP standard permit requirements. Contains no applicable requirements.
Permit Review by EPA and Affected States	62-213.450, F.A.C.	X			Contains no applicable requirements.
Permit Shield	62-213.460, F.A.C.		X		Provides permit shield for facilities in compliance with permit terms and conditions.
Forms and Instructions	62-213.900(1), (7), and (8), F.A.C.		X		Lists applicable forms including "Major Air Pollution Source Annual Emissions Fee," Statement of Compliance," and "Responsible Official Notification" forms.
Chapter 62-214 F.A.C.—Requirements for Sources Subject to the Federal Acid Rain Program					
Purpose and Scope	62-214.100, F.A.C.	X			Contains no applicable requirements.
Applicability	62-214.300, F.A.C.			LM6000 CT	LM6000 Repowering Project includes Acid Rain units. Therefore, facility compliance with 62-213 and 62-214, F.A.C., is required.

Table A4-2. Summary of FDEP Regulatory Applicability and Corresponding Requirements—LM6000 Repowering Project (Page 10 of 14)

Regulation	Citation	Not Applicable	Applicable: Facilitywide	Applicable Emission Units	Applicable Requirement or Nonapplicability Rationale
Applications, Renewals	62-214.320(1)(i), F.A.C.			LM6000 CT	Requires Title V sources having Acid Rain unit(s) to submit an Acid Rain Renewal Application to FDEP. Operation without a Title V permit that includes an Acid Rain Part is prohibited.
Applications, Information Requirements	62-214.320(2), F.A.C.			LM6000 CT	Specifies required contents of Acid Rain Part applications.
Acid Rain Compliance Plan and Compliance Options, SO_2	62-214.330(1)(a), F.A.C.			LM6000 CT	Acid rain compliance plan requirements for sulfur dioxide emissions.
Acid Rain Compliance Plan and Compliance Options, NO_x	62-214.330(1)(b), F.A.C.	X			Acid rain compliance plan requirements for nitrogen oxides emissions.
Exemptions	62-214.340(2), F.A.C.			LM6000 CT	Notice may be submitted for retired exemptions **(potential future requirement)**.
Certification	62-214.350(2), (3), (5), (6), F.A.C.			LM6000 CT	Submittal of a copy of the Certificate of Representation form to FDEP is required. Specifies required Designated Representative (DR) certifications.
Department Action on Applications	62-214.360, F.A.C.	X			FDEP application processing procedures. Contains no applicable requirements.
Revisions and Administrative Corrections	62-214.370(1), (3), (4), F.A.C.			LM6000 CT	Specifies applicant permit revision requirements. **(potential future requirement)**.
Revisions and Administrative Corrections, Agency Procedures	62-214.370(2), (5), (6), and (7) F.A.C.	X			FDEP application processing procedures. Contains no applicable requirements.
Acid Rain Part Content	62-214.420, F.A.C.	X			FDEP requirements—defines content of Acid Rain Part. Contains no applicable requirements.
Implementation and Termination of Compliance Options	62-214.430, F.A.C.			LM6000 CT	Defines permit activation and termination procedures. Presently not applicable to the LM6000 Repowering Project. **(potential future requirement)**.

Table A4-2. Summary of FDEP Regulatory Applicability and Corresponding Requirements—LM6000 Repowering Project (Page 11 of 14)

Regulation	Citation	Not Applicable	Applicable: Facilitywide	Applicable Emission Units	Applicable Requirement or Nonapplicability Rationale
Chapter 62-252—Gasoline Vapor Control					
Rules for gasoline vapor control equipment	62-252, F.A.C.	X			The LM6000 Repowering Project does not include gasoline loading operations.
Chapter 62-256, F.A.C.—Open Burning and Frost Protection Fires					
Declaration and Intent	62-256.100, F.A.C.	X			Contains no applicable requirements.
Definitions	62-256.200, F.A.C.	X			Contains no applicable requirements.
Prohibitions	62-256.300, F.A.C.*		X		Prohibits certain types of open burning.
Agricultural and Silvicultural Fires	62-256.400, F.A.C. [Transferred to Division of Forestry, Chapter 5I-2]	X			Contains no applicable requirements.
Burning for Cold and Frost Protection	62-256.450, F.A.C.	X			Limited to agricultural protection.
Land Clearing	62-256.500, F.A.C.*		X		Defines allowed open burning for non-rural land clearing and structure demolition.
Industrial, Commercial, Municipal, and Research Open Burning	62-256.600, F.A.C.*		X		Prohibits industrial open burning
Open Burning allowed	62-256.700(3), (5), and (6) F.A.C.		X		Defines allowed open burning. For recreational and training purposes.
Effective Date	62-256.800, F.A.C.	X			Contains no applicable requirements.
Chapter 62-257—Asbestos Program		X			
Chapter 62-281—Motor Vehicle Air Conditioning Refrigerant Recovery and Recycling					

Table A4-2. Summary of FDEP Regulatory Applicability and Corresponding Requirements—LM6000 Repowering Project (Page 12 of 14)

Regulation	Citation	Not Applicable	Applicable: Facilitywide	Applicable Emission Units	Applicable Requirement or Nonapplicability Rationale
Establishes installation and proper use of motor vehicle refrigerant recycling equipment.	62-281.100, F.A.C.	X			Requirements for the installation and proper use of motor vehicle refrigerant recycling equipment. Adopts definitions of 40 CFR Part 82 with some exceptions. No vehicle maintenance involving air conditioning systems is conducted at the LM6000 Repowering Project.
Chapter 62-296—Stationary Sources—Emission Standards					
Purpose and Scope	62-296.100, F.A.C.	X			Contains no applicable requirements
General Pollutant Emission Limiting Standard, Volatile Organic Compounds Emissions	62-296.320(1), F.A.C.		X		Known and existing vapor control devices must be applied as required by the Department.
General Pollutant Emission Limiting Standard, Objectionable Odor Prohibited	62-296.320(2), F.A.C.*		X		Objectionable odor release is prohibited.
General Pollutant Emission Limiting Standard, Industrial, Commercial, and Municipal Open Burning Prohibited	62-296.320(3), F.A.C.*		X		Open burning in connection with industrial, commercial, or municipal operations is prohibited. **(potential future requirement)**
General Particulate Emission Limiting Standard, Process Weight Table	62-296.320(4)(a), F.A.C.	X			LM6000 Repowering Project does not have any applicable emission units. Combustion emission units are exempt per 62-296.320(4)(a)1a.
General Particulate Emission Limiting Standard, General Visible Emission Standard	62-296.320(4)(b), F.A.C.		X		Opacity limited to 20 percent, unless otherwise permitted. Test methods specified.
General Particulate Emission Limiting Standard, Unconfined Emission of Particulate Matter	62-296.320(4)(c), F.A.C.		X		Reasonable precautions must be taken to prevent unconfined particulate matter emission.

Table A4-2. Summary of FDEP Regulatory Applicability and Corresponding Requirements—LM6000 Repowering Project (Page 13 of 14)

Regulation	Citation	Not Applicable	Applicable: Facilitywide	Applicable Emission Units	Applicable Requirement or Nonapplicability Rationale
New Fossil Fuel Fired Steam Generators with Less Than 250 MMBtu/hr Heat Input	62-296.406(2), F.A.C.			HRSG-DB	Required to meet Best Available Control Technology (BACT) for PM and SO_2, and visible emissions limits.
Specific Emission Limiting and Performance Standards	62-296.401 through 62-296.404 and 62-296.406 through 62-296.417, F.A.C.	X			Not applicable to the LM6000 Repowering Project emission units.
Reasonably Available Control Technology (RACT) Volatile Organic Compounds (VOC) and Nitrogen Oxides (NO_x) Emitting Facilities	62-296.500 through 62-296.516, F.A.C.	X			None of the RACT standards are applicable to the LM6000 Repowering Project.
Reasonably Available Control Technology (RACT)—Requirements for Major VOC- and NO_x-Emitting Facilities	62-296.570, F.A.C.	X			The LM6000 Repowering Project is not located in a specified ozone nonattainment area or a specified ozone air quality maintenance area (Broward, Dade and Palm Beach Counties).
Reasonably Available Control Technology (RACT)—Lead	62-296.600 through 62-296.605, F.A.C.	X			The LM6000 Repowering Project is not located in a lead nonattainment area or a lead air quality maintenance area.
Reasonably Available Control Technology (RACT)—Particulate Matter	62-296.700 through 62-296.712, F.A.C.	X			The LM6000 Repowering Project is not located in a PM nonattainment area or a PM air quality maintenance area.
Chapter 62-297, Stationary Sources—Emissions Monitoring					
Purpose and Scope	62-297.100, F.A.C.	X			Contains no applicable requirements.
General Test Requirements	62-297.310, F.A.C.			LM6000CT HRSG - DB	Specifies general compliance test requirements including the number of runs, operating rates, emission rate calculation, applicable test procedures, determination of process variables, required stack sampling facilities, frequency of tests, and content of test reports.

Table A4-2. Summary of FDEP Regulatory Applicability and Corresponding Requirements—LM6000 Repowering Project (Page 14 of 14)

Regulation	Citation	Not Applicable	Applicable: Facilitywide	Applicable Emission Units	Applicable Requirement or Nonapplicability Rationale
Standards for Visible Emissions Observations	62-297.320(1), F.A.C.			LM6000CT HRSG - DB	Specifies training and certification requirements for persons conducting the opacity of visible emissions.
Compliance Test Methods	62-297.401, F.A.C.		X		List methods to be used for compliance testing.
Supplementary Test Procedures	62-297.440, F.A.C.		X		Contains other test procedures adopted by reference.
EPA VOC Capture Efficiency Test Procedures	62-297.450, F.A.C.	X			Not applicable to the LM6000 Repowering Project.
EPA CEMS Performance Specifications	62-297.520(1), (2), and (3) F.A.C.	X			Contains 40 CFR Part 60 performance specifications for NO_x and O_2 continuous emissions monitoring. CEMS meeting 40 CFR Part 75 requirements may be used in lieu of 40 CFR Part 60 requirements.
Exceptions and Approval of Alternate Procedures and Requirements	62-297.620, F.A.C.			LM6000CT HRSG - DB	Exceptions or alternate testing procedures may be requested. **(optional future requirement).**
Chapter 5I-2, Open Burning Rule					
Definitions	5I-2.003, F.A.C.	X			Contains no applicable requirements.
Open Burning Not Allowed	5I-2.004, F.A.C.		X		Prohibits certain types of open burning.
Open Burning Allowed	5I-2.006, F.A.C.		X		Requirements for agricultural, silvicultural, and rural land clearing open burning.

*State requirement only; not federally enforceable.

Source: ECT, 2004.

ATTACHMENT A-5

LIST OF EXEMPT EMISSION UNITS

LM6000 REPOWERING PROJECT
LIST OF EXEMPT EMISSION UNITS

Station emergency power will be provided by the existing Black Start Cummings No. 2 fuel oil fired emergency generator. This existing generator (included in FINAL Permit No. 0950111-021-AV, Appendix I-1, Item 43) is an insignificant activity and exempt from permitting requirements.

ATTACHMENT A-6

REQUESTED AIR CONSTRUCTION PERMIT CONDITIONS

LM6000 REPOWERING PROJECT

REQUESTED AIR CONSTRUCTION PERMIT CONDITIONS

Consideration of the following permitting issues is requested:

(1) Permitted Capacity

Requested Permit Condition:

Heat input to the Combustion Turbine (CT) is the greater of: (a) 480 MMBtu/hr based on a CT compressor inlet air temperature of 30°F, fuel higher heating value, and 100-percent load, or (b) maximum heat input determined during the initial compliance test. CT heat input rates will vary depending upon CT characteristics, ambient conditions, alternate methods of operation, and CT compressor inlet air conditioning. During fresh-air firing when the CT is not in operation, the duct burner heat input rate is 198 MMBtu/hr.

{Permitting Note: The heat input limitation has been placed in the permit to identify the capacity of the emissions unit for purposes of confirming that emissions testing is conducted within 90 to 100 percent of the emissions unit's rated capacity (or to limit future operation to 110 percent of the test load), to establish appropriate limits and to aid in determining future rule applicability.}

Basis for Request:

The CT vendor, General Electric, has provided estimates of CT heat input rates for a variety of operating scenarios. While the GE estimates represent the best data available prior to construction, actual heat input rates might be higher. The requested permit language allows for adjustment of the GE estimates based on actual test data.

(2) Fuel Oil Description

Requested Permit Condition:

Describe authorized fuel oil as "distillate (or superior) fuel oil."

Basis for Request:

The LM6000 repowering project will include provisions for a limited amount of low sulfur (maximum of 0.1 weight percent S) distillate fuel oil firing. To allow flexibility in fuel oil selection, use of the term "distillate (or superior) fuel oil" when describing authorized fuel oils is requested. Use of "distillate (or superior) fuel oil" is consistent with recent Department permits (e.g., City of Tallahassee LM6000 project).

(3) NSPS Subpart GG Monitoring – NO_x Excess Emissions

Requested Permit Condition:

For purposes of monitoring NSPS Subpart GG excess NO_x emissions, a NO_x CEMS will be utilized instead of continuous fuel consumption and water to fuel monitoring. The NO_x CEMS shall be installed, certified, operated, maintained, and quality-assured as described in 40 CFR 60.334(b).

Basis for Request:

Use of a NO_x CEMS instead of continuous fuel consumption and water to fuel monitoring is an option specified in 40 CFR 60.334(d).

Requested Permit Condition:

An hour of NSPS Subpart GG excess NO_x emissions is defined as any CT operating hour in which the 4-hour rolling average NO_x concentration exceeds the emission limit specified in 40 CFR 60.334(a)(1). The 4-hour rolling average NO_x concentration is the arithmetic average of the average NO_x concentration measured by the CEMS (corrected to 15-percent oxygen) and the three CT operating hour average NO_x concentrations immediately preceding that CT operating hour. Correction of the CEMS data to ISO conditions is not required.

Basis for Request:

The definition of NO_x excess emissions when using a CEMS for monitoring is specified in 40 CFR 60.334(j)(1)(iii). ISO correction is optional for CTs used in association with HRSGs equipped with duct burners pursuant to 40 CFR 60.335(b)(1).

(4) NSPS Subpart GG Monitoring – Fuel Sulfur and Nitrogen Monitoring

Requested Permit Condition:

Monitoring of the total sulfur content of natural gas is not required. Monitoring of fuel nitrogen content is not required for either natural gas or distillate (or superior) fuel oil. For distillate (or superior) fuel oil sulfur monitoring, one of the total sulfur sampling options and associated sampling frequency described in sections 2.2.3, 2.2.4.1, 2.2.4.2, and 2.2.4.3 of Appendix D to 40 CFR 75 shall be used.

LM6000 REPOWERING PROJECT

REQUESTED AIR CONSTRUCTION PERMIT CONDITIONS

Basis for Request:

Pipeline quality natural gas meeting the definition of *natural gas* in 40 CFR 60.331(u) will be combusted in the LM6000 CT. Accordingly, monitoring of natural gas sulfur content is not required pursuant to 40 CFR 60.334(h)(3). No adjustment to the NSPS NO_x emission limit specified in 40 CFR 60.334(a)(1) for fuel-bound nitrogen (FBN) is requested for the LM6000 CT. Accordingly, monitoring of fuel FBN is not required in accordance with 40 CFR 60.334(h)(2). The requested procedures for monitoring fuel oil sulfur content reflect the requirements of 40 CFR 60.334(j)(1).

ATTACHMENT A-7

FUEL ANALYSES OR SPECIFICATIONS

Typical Natural Gas Composition

Component	Mole Percent (by volume)
Gas Composition	
CO_2	0.752
N_2	0.285
Methane	96.528
Ethane	1.842
Propane	0.354
I-butane	0.077
N-butane	0.074
I-Pentane	0.023
N-Pentane	0.014
Hexane+	0.051
Other Characteristics	
Heat content	1,040 Btu/ft^3 with 14.73 psia, dry
Real specific gravity	0.580
Sulfur content (maximum)	2.0 gr/100 scf

Note: Btu/ft^3 = British thermal units per cubic foot.
psia = pounds per square inch absolute.
gr/100 scf = grains per 100 standard cubic foot.

Source: Florida Gas Transmission, 2004.
RCES, 2005.

Typical No. 2 Fuel Oil Analysis

Parameter	Value
Specific gravity (@ 60°F)	0.845
Flash point (°F)	100
Pour point (°F)	0
Gross heating value (Btu/lb)	19,541
Water and sediment (percent by volume)	0.05
Ash (percent by weight)	0.01
Sulfur (percent by weight [maximum])	0.1
Fuel-bound nitrogen (percent by weight)	0.015

Note: Btu/lb = British thermal unit per pound.

Source: ECT, 2004.
RCES, 2004.

ATTACHMENT A-8

DETAILED DESCRIPTION OF CONTROL EQUIPMENT

LM6000 REPOWERING PROJECT

DETAILED DESCRIPTION OF CONTROL EQUIPMENT

NO_x emissions from combustion sources consist of two components: oxidation of combustion air atmospheric nitrogen (thermal NO_x and prompt NO_x), and conversion of chemically bound fuel nitrogen (fuel NO_x). Essentially all combustion turbine (CT) NO_x emissions originate as nitric oxide (NO). NO generated by the CT combustion process is subsequently further oxidized in the CT exhaust system or in the atmosphere to the more stable NO_2 molecule.

Thermal NO_x results from the oxidation of atmospheric nitrogen under high temperature combustion conditions. The amount of thermal NO_x formed is primarily a function of combustion temperature and residence time, air/fuel ratio, and, to a lesser extent, combustion pressure. Thermal NO_x increases exponentially with increases in temperature and linearly with increases in residence time as described by the Zeldovich mechanism. Prompt NO_x is formed near the combustion flame front from the oxidation of intermediate combustion products such as hydrogen cyanide (HCN), nitrogen (N), and NH. Prompt NO_x comprises a small portion of total NO_x in conventional near-stoichiometric CT combustors but increases under fuel-lean conditions. Prompt NO_x, therefore, is an important consideration with respect to dry low-NO_x combustors that use lean fuel mixtures.

Fuel NO_x arises from the oxidation of nonelemental nitrogen contained in the fuel. The conversion of fuel-bound nitrogen (FBN) to NO_x depends on the bound nitrogen content of the fuel. In contrast to thermal NO_x, fuel NO_x formation does not vary appreciably with combustion variables such as temperature or residence time. Presently, there are no combustion processes or fuel treatment technologies available to control fuel NO_x emissions. For this reason, the gas turbine NSPS (Subpart GG) contains an allowance for FBN. NO_x emissions from combustion sources fired with fuel oil are higher than those fired with natural gas due to higher combustion flame temperatures and FBN contents. Natural gas may contain molecular nitrogen (N_2); however, the N_2 found in natural gas does not contribute significantly to fuel NO_x formation. Typically, natural gas contains a negligible amount of FBN.

The GE LM6000 will employ water injection to control NO_x emissions during both natural gas and distillate fuel oil firing. Injection of water into the primary combustion zone of a CT reduces the formation of thermal NO_x by decreasing the peak combustion temperature. Water injection decreases the peak flame temperature by diluting the combustion gas stream and acting as a heat sink by absorbing heat necessary to: (a) vaporize the water (latent heat of vaporization), and (b) raise the vaporized water temperature to the combustion temperature. High purity water must be employed to prevent turbine corrosion and deposition of solids on the turbine blades. Typical injection rates range from 0.3 to 1.0 pounds of water per pound of fuel. Water injection will not reduce the formation of fuel NO_x.

The maximum amount of water that can be injected depends on the CT combustor design. Excessive rates of injection will cause flame instability, combustor dynamic pressure oscillations, thermal stress (cold-spots), and increased emissions of CO and VOCs due to combustion inefficiency. Accordingly, the efficiency of water injection to reduce NO_x emissions also depends on turbine combustor design. For a given turbine design, the maximum water-to-fuel ratio (and maximum NO_x reduction) will occur up to the point where cold-spots and flame instability adversely effect safe, efficient, and reliable operation of the turbine.

For the GE LM6000 CT, the use of water injection will achieve NO_x exhaust concentrations of 25 and 42 parts per million by volume, corrected to 15 percent oxygen (ppmvd @ 15% O_2) for gas and oil firing, respectively.

ATTACHMENT A-9

PROCEDURES FOR STARTUP AND SHUTDOWN

Cogeneration Plant Startup

Prestartup Check List

1 Lube Oil levels
2 Lube Oil temperatures
3 Steam Drum levels
4 Tagout Log
5 Steam Condenser Hotwell level
6 GA & G-28 Breakers
7 Deaerator level
8 Demin Tank level
9 Feed Reg Valve controls
10 Steam Drum Vents
11 Superheater Vent and Drains
12 Atemperators
13 PRV's
14 RO System
15 Damper position
16 GT Gas line up
17 HRSG Gas line up
18 All MCC breaker positions
19 All AOH switch positions
20 Coen Panel
21 CEMS Panel
22 CMS Panel
23 Woodward Governor
24 Steam Drains
25 Chemical Pumps
26 Enclosure Fans
27 2 in 24 Timer
28 Boiler Permissives
29 HTHW Hx Temperature controls
30 GT fuel selection
31 Cooling Tower in operation
32 Cooling Water in operation
33 Ready to Start light

Normal Startup

1. Verify startup time with the Broker.
2. Verify the KEY LOCK switch is in the UNLOCK position.
3. Place Unit Control Switch in Local.
4. Clear Zycom alarms.
5. Verify Ready to Start light is on
6. At 3 minutes prior to the top of the hour place the TURBINE CONTROL switch to "RUN".
7. Place the TURBINE CONTROL switch to "START" and release. Observe:
   i. VF-101 and VF-102 shift
   ii. Hydraulic Starter energizes
   iii. Gas Turbine starts a 3 minute purge cycle at approximately 2300 RPM
   iv. Gas Turbine Generator Oil Pumps are tested with LOP-104 left running
8. Observe after the 3 minute purge the Starter disengages and the Gas Turbine starts to slow down.
9. Observe at approximately 1400 RPM the Starter reengages.
   i. At approximately 1700 RPM the Gas Valve opens and the Igniters are energized.
   ii. T-44 starts to rise. It must exceed 400 degrees within 10 seconds.
   iii. Gas Turbine speed increases. It must reach 4700 RPM within 90 seconds after T-44 has reached 400 degrees.
10. At 4700 RPM observe:
   i. The Starter disengages.
   ii. The igniters are deenergized.
   iii. Start Cycle light goes off.
   iv. Turbine Running light turns on.
   v. Fired Attempts counter increments increases by one.
   vi. Running Hours meter is energized.
11. Observe the Gas Turbine accelerate to 7000 RPM and stabilizes for a 5-minute warmup.
   i. Warm-up Cycle in Progress message appears.
   ii. During this 5-minute warmup the Power Turbine must break away and accelerate to at least 1000 RPM.
12. After the 5-minute warmup the Gas Turbine will accelerate and the message "Accelerating to Synchronous Speed" will be given.

13. Observe as the Power Turbine approaches 3600 RPM the Generator will flash and voltage will stabilize at 12.5 KV as Power Turbine speed stabiles at 3600 RPM.
14. After approximately 60 seconds the "Unit Ready for Breaker Closure" message is given.
    i. Either place the Synchronizing switch in Gen Auto and allow the GA breaker to be closed automatically.
    ii. Or place the Synchronizing switch in Gen Manual and close the GA breaker manually.
    iii. After the GA Breaker is closed place the Synchronizing switch in off.

NOTE: If the GA breaker is not close within 3 minutes of the Synchronizing switch being place in AUTO a shutdown will occur.

15. After the GA breaker is closed, raise the load on the GTG to approximately 12 MW.
    i. As the load is increased the Nox Water Pump will start at approximately 4 MW.
    ii. At approximately 10 MW the Nox Water Valve will start to open.
16. After allowing the Water to Fuel Ratio to stabilize, adjust the ratio to achieve .7.
17. Monitor Steam Drum pressures. At 25 psi close the Steam Drum Vents and place them in Auto.
18. Close the Super Heater Vent and place it in Auto with a set point of 600 psi.
19. Monitor Steam Drum levels.
    i. Start a Make Up Water Pump and a Feed Pump when Steam Drum levels require to be raised.
    ii. Maintain Steam Drum levels with the Feed Reg Valves in Manual.
    iii. As time and load permit place the Feed Reg Valves in Auto.
20. Start #1 Absorber when sufficient steam pressure is available.
21. Start the HTHW Hx when sufficient steam pressure is available and secure #3 Boiler.
22. Monitor Steam Drain Bypasses and the Superheater Drains and close when they start blowing dry steam.

23. Monitor 600-psi Steam pressure and warm up the line to the Steam Turbine to 500 degrees. Adjust the Atmospheric Relief accordingly. Consider raising Gas Turbine Generator loading.
24. As the Steam Turbine nozzle block approaches 500 degrees draw a vacuum in the Steam Condenser.
25. When the Steam Turbine nozzle block is 500 degrees and Condenser vacuum is 12 inches of Hg start the Steam Turbine.

Note: Ensure the Governor Valve is fully open prior to admitting steam to the Steam Turbine.

i. Smartly open the T & T valve to roll the turbine using care not to raise turbine speed greater than 500 RPM.
ii. Start the Steam Condenser Auxileries.
iii. Manually trip the Steam Turbine using the T handle on the left side of the turbine.
iv. Reset and restart the Steam Turbine

26. Raise Steam Turbine speed to 900 using the T & T Valve for 10 minutes being watchful for any sign of vibration of rubbing.
    i. If any vibration of rubbing occurs, lower turbine speed to a value where the vibration or rubbing disappears.
    ii. After 5 minutes at the reduced RPM, raise turbine speed cautiously to 900. If any vibration of rubbing occurs, repeat the reduced speed operations.

Note: Do not leave the Steam Turbine until after it has been placed on the governor.

27. After the 10-minute warm-up at 900 RPM slowly raise turbine speed to 1000 RPM and observe the governor valve take control. After the governor valve has control, fully open the T & T valve and then close the T & T valve ½ of 1 turn.
28. After the 17 or 31 (shutdown time dictates) minute warmup, raise turbine speed to normal operating speed.
29. Start a second Boiler Feed pump if not already running.

30. Place the Excitation switch in the On position.

i. Either place the Synchronizing switch in Auto and allow the G-28 breaker to be closed automatically.
ii. Or place the Synchronizing switch in manual and close the G-28 breaker manually.
iii. After the G-28 Breaker is closed place the Synchronizing switch in off.

31. Load the Steam Turbine Generator to approximately .5 MW
32. Shut the Atmospheric Vent if still open.
33. Place the Steam Turbine control in Inlet Pressure Control and adjust its set point to 600.

Note: Exercise care if steam pressure is less than 600 psi to NOT trip the Steam Turbine on Reverse Power.

34. Reset the Super Heater Vent to 680 psi.
35. Enable Extraction.
36. Secure the Makeup Water pump if not needed for makeup.
37. Raise the Gas Turbine Generator loading.
38. Start the gas compressor.
39. Start one set of Air Ejectors and secure the Hogger.
40. Complete the Outage Report.
41. Complete the Emissions Variance Report.

Cogeneration Plant Shutdown

1. Verify shutdown time with the Broker.
2. Start #3 Boiler.
3. Inhibit Extraction on the Steam Turbine.
4. Place E Stop in the non running Field Gas Compressor, unload and secure the running Field Gas Compressor.
5. Initiate Stop on the Gas Turbine.
6. Observe the Gas Turbine Generator unload, GA Breaker open and the Gas Turbine slow to 7000 RPM for a 5 minute Cooldown.
7. When the electrical load on the Steam Turbine Generator decreases to .5 MW, open G-28 and place the Excitation switch in Off.

Note: Ensure steam flow is maintained through the Superheater.

8. Trip the Steam Turbine and observe all Steam Turbine functions go off.
9. Open the Superheater drains.
10. Start A Makeup Water pump.
11. Break Vacuum on the Steam Condenser.
12. Transfer #3 Boiler to the Field and secure the HTHW Heat Exchanger.
13. Observe the Gas Turbine go into a 25 minute Cooldown High Speed Crank after the 5 minute Cooldown.
14. When the Steam Turbine speed had decayed to 1000 RPM, secure Steam Condenser Auxiliaries.
15. Bypass the Steam Traps.
16. Secure the Atemperators.
17. Feed Steam Drums as necessary.
18. Secure unnecessary equipment.
19. Open Steam Drum Vents when pressure drops to 25 psi.
20. Secure #1 Absorber.
21. Consider a second High Speed Crank.
22. Start the Outage Report.
23. Completed Emission Variance Report.
24. If the HRSG is going to be secured for 24 or more hours, place the Steam Drums in Wet Lay Up

Table B1. RCES LM6000 Repowering Project
LM6000 Operating Scenarios

Scenario	Ambient Temperature (°F)	CT Inlet Temperature (°F)	Nominal Load (%)	Annual Profile #1 (hr/yr)	Annual Profile #2 (hr/yr)	Annual Profile #3 (hr/yr)	Annual Profile #4 (hr/yr)	SPRINT	Inlet Air Chilling	Natural Gas Firing	Distillate Oil Firing
1	30.0	30.0	100	100						X	
2	30.0	30.0	100	36	475		475				X
3	30.0	30.0	25			8,760				X	
4	60.4	57.9	100				8,285	X	X	X	
5	60.4	60.4	100					X		X	
6	60.4	48.0	100	7,164	8,285			X	X	X	
7	62.3	60.5	100					X	X	X	
8	62.3	62.3	100					X		X	
9	70.1	65.9	100					X	X	X	
10	68.4	68.4	40							X	
11	73.9	73.9	40							X	
12	75.0	75.0	40							X	
13	70.0	70.0	25	1,110						X	
14	83.5	50.0	100					X	X	X	
15	83.5	50.0	100	300				X	X		X
16	83.0	83.0	25							X	
17	59.0	59.0	S/S	50						X	X
			Totals	**8,760**	**8,760**	**8,760**	**8,760**				

SPRINT - Spray Inter-Cooled Turbine
S/S - Startup and Shutdown

Sources: ECT, 2005.
GE, 2004.
RCES, 2005.

Table B2a. RCES LM6000 Repowering Project
CT Hourly Criteria and H_2SO_4 Emission Rates

Scenario	Ambient Temp. (°F)	CT Inlet Temp. (°F)	Fuel Type (Gas/Oil)	Nominal Load (%)	PM/PM_{10}[1]		SO_2[2]		H_2SO_4[3]		Pb[4,5]	
					(lb/hr)	(g/sec)	(lb/hr)	(g/sec)	(lb/hr)	(g/sec)	(lb/hr)	(g/sec)
1	30.0	30.0	Gas	100	3.0	0.38	2.57	0.32	0.31	0.040	0.00022	0.000028
2	30.0	30.0	Oil	100	13.9	1.75	46.30	5.83	5.67	0.715	0.00633	0.000798
3	30.0	30.0	Gas	25	3.0	0.38	1.00	0.13	0.12	0.015	0.00009	0.000011
4	60.4	57.9	Gas	100	3.0	0.38	2.53	0.32	0.31	0.039	0.00022	0.000028
5	60.4	60.4	Gas	100	3.0	0.38	2.53	0.32	0.31	0.039	0.00022	0.000028
6	60.4	48.0	Gas	100	3.0	0.38	2.86	0.36	0.35	0.044	0.00025	0.000031
7	62.3	60.5	Gas	100	3.0	0.38	2.51	0.32	0.31	0.039	0.00022	0.000028
8	62.3	62.3	Gas	100	3.0	0.38	2.52	0.32	0.31	0.039	0.00022	0.000028
9	70.1	65.9	Gas	100	3.0	0.38	2.46	0.31	0.30	0.038	0.00022	0.000027
10	68.4	68.4	Gas	40	3.0	0.38	1.23	0.16	0.15	0.019	0.00011	0.000014
11	73.9	73.9	Gas	40	3.0	0.38	1.23	0.16	0.15	0.019	0.00011	0.000014
12	75.0	75.0	Gas	40	3.0	0.38	1.23	0.16	0.15	0.019	0.00011	0.000014
13	70.0	70.0	Gas	25	3.0	0.38	1.00	0.13	0.12	0.015	0.00009	0.000011
14	83.5	50.0	Gas	100	3.0	0.38	2.59	0.33	0.32	0.040	0.00023	0.000029
15	83.5	50.0	Oil	100	13.6	1.72	45.38	5.72	5.56	0.700	0.00621	0.000782
16	83.0	83.0	Gas	25	3.0	0.38	0.99	0.13	0.12	0.015	0.00009	0.000011
				Max. - Gas	**3.0**	**0.38**	**2.86**	**0.36**	**0.35**	**0.04**	**0.00025**	**0.00003**
				Max. - Oil	**13.9**	**1.75**	**46.30**	**5.83**	**5.67**	**0.71**	**0.00633**	**0.00080**

Table B2b. RCES LM6000 Repowering Project
CT Hourly Criteria and H_2SO_4 Emission Rates

Oxidation Catalyst CO Oxidation Efficiency: 85 %

Scenario	Ambient Temp. (°F)	CT Inlet Temp. (°F)	Fuel Type (Gas/Oil)	Nominal Load (%)	NO_x			CO			VOC		
					(ppmvd)[6]	(lb/hr)	(g/sec)	(ppmvd)[6]	(lb/hr)	(g/sec)	(ppmvd)[6]	(lb/hr)[7]	(g/sec)
1	30.0	30.0	Gas	100	25.0	42.0	5.29	7.8	8.1	1.01	2.0	1.10	0.14
2	30.0	30.0	Oil	100	42.0	74.0	9.32	2.3	2.4	0.30	8.0	4.90	0.62
3	30.0	30.0	Gas	25	25.0	16.0	2.02	31.5	12.6	1.59	3.0	0.68	0.09
4	60.4	57.9	Gas	100	25.0	41.7	5.25	4.8	4.9	0.61	2.0	1.20	0.15
5	60.4	60.4	Gas	100	25.0	41.7	5.25	4.8	4.9	0.61	2.0	1.20	0.15
6	60.4	48.0	Gas	100	25.0	43.0	5.42	4.8	5.1	0.64	0.8	0.41	0.05
7	62.3	60.5	Gas	100	25.0	41.3	5.20	4.6	4.6	0.58	2.0	1.20	0.15
8	62.3	62.3	Gas	100	25.0	41.5	5.23	4.6	4.7	0.59	2.0	1.20	0.15
9	70.1	65.9	Gas	100	25.0	40.7	5.13	4.2	4.2	0.53	2.0	1.10	0.14
10	68.4	68.4	Gas	40	25.0	20.3	2.56	4.0	2.0	0.25	2.0	0.60	0.08
11	73.9	73.9	Gas	40	25.0	20.3	2.56	2.4	1.2	0.15	2.0	0.60	0.08
12	75.0	75.0	Gas	40	25.0	20.3	2.56	3.4	1.7	0.21	2.0	0.60	0.08
13	70.0	70.0	Gas	25	25.0	16.0	2.02	15.5	6.2	0.77	3.0	0.68	0.09
14	83.5	50.0	Gas	100	25.0	42.8	5.39	5.8	6.1	0.76	2.0	1.20	0.15
15	83.5	50.0	Oil	100	42.0	72.3	9.11	0.9	2.4	0.30	8.0	4.80	0.60
16	83.0	83.0	Gas	25	25.0	16.0	2.02	10.5	4.2	0.53	3.0	0.68	0.09
				Max. - Gas	**25.0**	**43.0**	**5.42**	**31.5**	**12.6**	**1.59**	**3.0**	**1.20**	**0.15**
				Max. - Oil	**42.0**	**74.0**	**9.32**	**2.3**	**2.4**	**0.30**	**8.0**	**4.90**	**0.62**

[1] Filterable PM, as measured by EPA Reference Method 5.

[2] Based on natural gas sulfur content of 2.0 gr/100 ft^3 and distillate fuel oil sulfur content of 0.1 weight % sulfur.

[3] Based on 8.0% conversion of fuel S to SO_3 and 100% conversion of SO_3 to H_2SO_4.

[4] Natural Gas - Table 1.4-2., AP-42, July 1998.

[5] Distillate Fuel Oil - Table 3.1-2a, AP-42, April 2000.

[6] Corrected to 15% O_2.

[7] Reported as methane.

Sources: ECT, 2005.
GE, 2004.

Table B3a. RCES LM6000 Repowering Project
CT Hourly Hazardous Air Pollutant Emission Rates

Parameter	Units		Value															
Scenario	N/A		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Maximum CT Hourly Fuel Flow:	10^6 Btu/hr (HHV)		467.8	452.3	181.6	459.8	460.5	476.4	456.0	458.2	448.0	224.6	224.2	224.1	181.3	471.9	443.4	173.3

Hazardous Air Pollutant	Gas Emission Factor[1,4] ($lb/10^6$ Btu)	Oil Emission Factor[2,5,6] ($lb/10^6$ Btu)	Hourly Emissions 1 (lb/hr)	2 (lb/hr)	3 (lb/hr)	4 (lb/hr)	5 (lb/hr)	6 (lb/hr)	7 (lb/hr)	8 (lb/hr)	9 (lb/hr)	10 (lb/hr)	11 (lb/hr)	12 (lb/hr)	13 (lb/hr)	14 (lb/hr)	15 (lb/hr)	16 (lb/hr)
1,3-Butadiene	3.01E-07	1.12E-05	1.41E-04	5.07E-03	5.47E-05	1.38E-04	1.39E-04	1.43E-04	1.37E-04	1.38E-04	1.35E-04	6.76E-05	6.75E-05	6.74E-05	5.46E-05	1.42E-04	4.97E-03	5.22E-05
Acetaldehyde	2.80E-05		1.31E-02		5.09E-03	1.29E-02	1.29E-02	1.33E-02	1.28E-02	1.28E-02	1.25E-02	6.29E-03	6.28E-03	6.27E-03	5.08E-03	1.32E-02		4.85E-03
Acrolein	4.48E-06		2.10E-03		8.14E-04	2.06E-03	2.06E-03	2.13E-03	2.04E-03	2.05E-03	2.01E-03	1.01E-03	1.00E-03	1.00E-03	8.12E-04	2.11E-03		7.76E-04
Arsenic	1.96E-07	1.10E-05	9.17E-05	4.98E-03	3.56E-05	9.02E-05	9.03E-05	9.34E-05	8.94E-05	8.99E-05	8.79E-05	4.40E-05	4.40E-05	4.39E-05	3.55E-05	9.25E-05	4.88E-03	3.40E-05
Benzene	8.40E-06	3.85E-05	3.93E-03	1.74E-02	1.53E-03	3.86E-03	3.87E-03	4.00E-03	3.83E-03	3.85E-03	3.76E-03	1.89E-03	1.88E-03	1.88E-03	1.52E-03	3.96E-03	1.71E-02	1.46E-03
Beryllium	1.18E-08	3.10E-07	5.50E-06	1.40E-04	2.14E-06	5.41E-06	5.42E-06	5.61E-06	5.37E-06	5.39E-06	5.27E-06	2.64E-06	2.64E-06	2.64E-06	2.13E-06	5.55E-06	1.37E-04	2.04E-06
Cadmium	1.08E-06	4.80E-06	5.04E-04	2.17E-03	1.96E-04	4.96E-04	4.97E-04	5.14E-04	4.92E-04	4.94E-04	4.83E-04	2.42E-04	2.42E-04	2.42E-04	1.95E-04	5.09E-04	2.13E-03	1.87E-04
Chromium	1.37E-06	1.10E-05	6.42E-04	4.98E-03	2.49E-04	6.31E-04	6.32E-04	6.54E-04	6.26E-04	6.29E-04	6.15E-04	3.08E-04	3.08E-04	3.08E-04	2.49E-04	6.48E-04	4.88E-03	2.38E-04
Ethylbenzene	2.24E-05		1.05E-02		4.07E-03	1.03E-02	1.03E-02	1.07E-02	1.02E-02	1.03E-02	1.00E-02	5.03E-03	5.02E-03	5.02E-03	4.06E-03	1.06E-02		3.88E-03
Formaldehyde	4.97E-04	1.96E-04	2.32E-01	8.87E-02	9.03E-02	2.29E-01	2.29E-01	2.37E-01	2.27E-01	2.28E-01	2.23E-01	1.12E-01	1.11E-01	1.11E-01	9.01E-02	2.35E-01	8.69E-02	8.61E-02
Lead	4.90E-07	1.40E-05	2.29E-04	6.33E-03	8.90E-05	2.25E-04	2.26E-04	2.34E-04	2.24E-04	2.25E-04	2.20E-04	1.10E-04	1.10E-04	1.10E-04	8.89E-05	2.31E-04	6.21E-03	8.50E-05
Manganese	3.73E-07	7.90E-04	1.74E-04	3.57E-01	6.77E-05	1.71E-04	1.72E-04	1.77E-04	1.70E-04	1.71E-04	1.67E-04	8.37E-05	8.35E-05	8.35E-05	6.75E-05	1.76E-04	3.50E-01	6.46E-05
Mercury	2.55E-07	1.20E-06	1.19E-04	5.43E-04	4.63E-05	1.17E-04	1.17E-04	1.21E-04	1.16E-04	1.17E-04	1.14E-04	5.73E-05	5.71E-05	5.71E-05	4.62E-05	1.20E-04	5.32E-04	4.42E-05
Naphthalene	9.10E-07	2.45E-05	4.26E-04	1.11E-02	1.65E-04	4.18E-04	4.19E-04	4.34E-04	4.15E-04	4.17E-04	4.08E-04	2.04E-04	2.04E-04	2.04E-04	1.65E-04	4.29E-04	1.09E-02	1.58E-04
Nickel	2.06E-06	4.60E-06	9.63E-04	2.08E-03	3.74E-04	9.47E-04	9.48E-04	9.81E-04	9.39E-04	9.43E-04	9.22E-04	4.62E-04	4.62E-04	4.61E-04	3.73E-04	9.72E-04	2.04E-03	3.57E-04
Polycyclic Aromatic Hydrocarbons	1.54E-06	2.80E-05	7.20E-04	1.27E-02	2.80E-04	7.08E-04	7.09E-04	7.34E-04	7.02E-04	7.06E-04	6.90E-04	3.46E-04	3.45E-04	3.45E-04	2.79E-04	7.27E-04	1.24E-02	2.67E-04
Propylene Oxide	2.03E-05		9.50E-03		3.69E-03	9.33E-03	9.35E-03	9.67E-03	9.26E-03	9.30E-03	9.10E-03	4.56E-03	4.55E-03	4.55E-03	3.68E-03	9.58E-03		3.52E-03
Selenium	2.35E-08	2.50E-05	1.10E-05	1.13E-02	4.27E-06	1.08E-05	1.08E-05	1.12E-05	1.07E-05	1.08E-05	1.05E-05	5.29E-06	5.28E-06	5.27E-06	4.27E-06	1.11E-05	1.11E-02	4.08E-06
Toluene	9.10E-05		4.26E-02		1.65E-02	4.18E-02	4.19E-02	4.34E-02	4.15E-02	4.17E-02	4.08E-02	2.04E-02	2.04E-02	2.04E-02	1.65E-02	4.29E-02		1.58E-02
Xylene	4.48E-05		2.10E-02		8.14E-03	2.06E-02	2.06E-02	2.13E-02	2.04E-02	2.05E-02	2.01E-02	1.01E-02	1.00E-02	1.00E-02	8.12E-03	2.11E-02		7.76E-03
Maximum Individual HAP			0.232	0.357	0.090	0.229	0.229	0.237	0.227	0.228	0.223	0.112	0.111	0.111	0.090	0.235	0.350	0.086
Total HAPs			0.339	0.525	0.132	0.333	0.334	0.345	0.331	0.332	0.325	0.163	0.163	0.162	0.131	0.342	0.514	0.126

[1] - All emission factors except metals, EPA AP-42, Section 3.1 Stationary Gas Turbines, Table 3.1-3., April 2000.
[2] - Organic pollutant emission factors reduced by 30% percent due to use of oxidation catalyst.
[3] - Lead emission factor, EPA AP-42, Section 1.4 Natural Gas Combustion, Table 1.4-2., July 1998.
[4] - Metallic emission factors, EPA AP-42, Section 1.4 Natural Gas Combustion, Table 1.4-4., July 1998.
[5] - Organic emission factors, EPA AP-42, Stationary Gas Turbines, Table 3.1-4., April 2000.
[6] - Metallic emission factors, EPA AP-42, Stationary Gas Turbines, Table 3.1-5., April 2000.

Sources: ECT, 2005.
GE, 2004.

Table B3b. RCES LM6000 Repowering Project
CT Annual Hazardous Air Pollutant Emission Rates

Hazardous Air Pollutant	Annual Emissions			
	Annual Profile 1 (ton/yr)	Annual Profile 2 (ton/yr)	Annual Profile 3 (ton/yr)	Annual Profile 4 (ton/yr)
1,3-Butadiene	1.39E-03	1.80E-03	2.39E-04	1.78E-03
Acetaldehyde	5.13E-02	5.53E-02	2.23E-02	5.33E-02
Acrolein	8.20E-03	8.84E-03	3.56E-03	8.53E-03
Arsenic	1.18E-03	1.57E-03	1.56E-04	1.56E-03
Benzene	1.83E-02	2.07E-02	6.68E-03	2.01E-02
Beryllium	4.47E-05	5.65E-05	9.36E-06	5.57E-05
Cadmium	2.33E-03	2.64E-03	8.58E-04	2.57E-03
Chromium	3.33E-03	3.89E-03	1.09E-03	3.80E-03
Ethylbenzene	4.10E-02	4.42E-02	1.78E-02	4.27E-02
Formaldehyde	9.24E-01	1.00E+00	3.95E-01	9.68E-01
Lead	1.94E-03	2.47E-03	3.90E-04	2.44E-03
Manganese	5.97E-02	8.56E-02	2.96E-04	8.56E-02
Mercury	5.56E-04	6.32E-04	2.03E-04	6.14E-04
Naphthalene	3.49E-03	4.43E-03	7.24E-04	4.37E-03
Nickel	4.11E-03	4.56E-03	1.64E-03	4.42E-03
Polycyclic Aromatic Hydrocarbons	4.91E-03	6.05E-03	1.23E-03	5.94E-03
Propylene Oxide	3.72E-02	4.01E-02	1.61E-02	3.87E-02
Selenium	1.91E-03	2.73E-03	1.87E-05	2.73E-03
Toluene	1.67E-01	1.80E-01	7.24E-02	1.73E-01
Xylene	8.20E-02	8.84E-02	3.56E-02	8.53E-02
Maximum Individual HAP	0.924	1.002	0.395	0.968
Total HAPs	1.414	1.555	0.577	1.506

Sources: ECT, 2005.
GE, 2004.

Table B4. RCES LM6000 Repowering Project
CT Startup and Shutdown Annual Emission Rates

Pollutant	No. of Startups and Shutdowns (events/yr)	Startup/Shutdown Emission Rates				
		Startups (lb/event)	Shutdowns (lb/event)	Startups (ton/yr)	Shutdowns (ton/yr)	Totals (ton/yr)
NO_x	100	1.2	0.93	0.060	0.047	0.107
CO	100	5.2	4.3	0.260	0.215	0.475

Note: Each startup and shutdown event lasts for approximately 15 minutes.

Sources: ECT, 2005.
GE, 2004.

Table B5. RCES LM6000 Repowering Project
Annual Criteria and H_2SO_4 Emission Rates
0.1 % S Fuel Oil, 475 hr/yr

Annual Profile	Scenario	Operating Hours (hrs/yr)	Emission Rates													
			NO_x		CO		VOC		PM/PM_{10}		SO_2		H_2SO_4		Lead	
			(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
1	1	100	42.0	2.10	8.1	0.40	1.10	0.06	3.0	0.15	2.6	0.13	0.3	0.02	0.0002	0.00001
	2	36	74.0	1.33	2.4	0.04	4.90	0.09	13.9	0.25	46.3	0.83	5.7	0.10	0.0063	0.00011
	6	7,164	43.0	154.03	5.1	18.26	0.41	1.48	3.0	10.75	2.9	10.23	0.3	1.25	0.0002	0.00090
	13	1,110	16.0	8.88	6.2	3.41	0.68	0.38	3.0	1.67	1.0	0.55	0.1	0.07	0.0001	0.00005
	15	300	72.3	10.85	2.4	0.36	4.80	0.72	13.6	2.04	45.4	6.81	5.6	0.83	0.0062	0.00093
	17	50	-	0.04	-	0.16	1.10	0.03	3.0	0.08	2.9	0.07	0.3	0.01	0.0002	0.00001
	Totals	8,760	N/A	177.22	N/A	22.63	N/A	2.75	N/A	14.93	N/A	18.63	N/A	2.28	N/A	0.0020
2	2	475	74.0	17.58	2.4	0.57	4.9	1.16	13.9	3.30	46.3	11.00	5.7	1.35	0.0063	0.00150
	6	8,285	43.0	178.13	5.1	21.12	0.4	1.71	3.0	12.43	2.9	11.83	0.3	1.45	0.0002	0.00104
	Totals	8,760	N/A	**196.70**	N/A	21.69	N/A	2.88	N/A	**16.73**	N/A	**22.83**	N/A	**2.80**	N/A	**0.0025**
3	3	8,760	16.0	70.08	12.6	55.19	0.7	2.98	3.0	13.14	1.00	4.37	0.12	0.54	0.0001	0.00038
	Totals	8,760	N/A	70.08	N/A	**55.19**	N/A	2.98	N/A	13.14	N/A	4.37	N/A	0.54	N/A	0.00038
4	2	475	74.0	17.58	2.4	0.57	4.9	1.16	13.9	3.30	46.3	11.00	5.7	1.35	0.0063	0.00150
	4	8,285	41.7	172.74	4.9	20.13	1.2	4.97	3.0	12.43	2.5	10.47	0.3	1.28	0.0000	0.00000
	Totals	8,760	N/A	190.32	N/A	20.70	N/A	**6.13**	N/A	15.73	N/A	21.46	N/A	2.63	N/A	0.0015
	Max.			**196.70**		**55.19**		**6.13**		**16.73**		**22.83**		**2.80**		**0.0025**

Note: Bold and shaded tpy values represent highest for all annual profiles.

Sources: ECT, 2005.
GE, 2004.
RCES, 2005.

Table B6a. RCES LM6000 Repowering Project
CT Exhaust Data

A. Exhaust Molecular Weight (MW)

Component	Load (%)	100	100	25	100	100	100	100	100	100	40	40	40	25	100	100	25
	CT Inlet Temp. (°F)	30.0	30.0	30.0	57.9	60.4	48.0	60.5	62.3	65.9	68.4	73.9	75.0	70.0	50.0	50.0	83.0
	Scenario	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	MW (lb/mole)	Exhaust Gas Composition - Volume %															
Ar	39.944	0.8710	0.8785	0.9015	0.8613	0.8610	0.8619	0.8603	0.8599	0.8589	0.8794	0.8755	0.8747	0.8891	0.8621	0.8719	0.8821
N_2	28.013	72.8413	73.4538	75.3861	72.0324	72.0023	72.2509	71.9495	71.9105	71.8331	73.5369	73.2114	73.1465	74.3530	72.0962	72.9028	73.7646
O_2	31.999	13.3889	13.5308	16.0593	12.9230	12.8786	12.9085	12.9106	12.8546	12.9056	14.8240	14.7199	14.6997	15.5327	12.8957	13.2437	15.3056
CO_2	44.010	3.1685	4.2854	2.1558	3.2967	3.3152	3.3670	3.2919	3.3150	3.2787	2.5337	2.5424	2.5438	2.2839	3.3192	4.3811	2.3193
H_2O	18.015	9.7229	7.8450	5.4931	10.8813	10.9376	10.6057	10.9828	11.0550	11.1192	8.2232	8.6482	8.7327	6.9385	10.8212	8.5938	7.7260
SO_2	64.063	0.0000	0.0018	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0019	0.0000
CO	28.010	0.0044	0.0006	0.0023	0.0025	0.0025	0.0031	0.0023	0.0023	0.0019	0.0009	0.0006	0.0006	0.0009	0.0029	0.0006	0.0005
HC (CH_4)	16.043	0.0006	0.0003	0.0003	0.0003	0.0003	0.0004	0.0002	0.0003	0.0002	0.0002	0.0002	0.0002	0.0001	0.0003	0.0003	0.0001
NO	30.006	0.0023	0.0041	0.0016	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0018	0.0019	0.0019	0.0017	0.0024	0.0042	0.0017
	Totals	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Exhaust MW (lb/mole)		28.19	28.56	28.56	28.07	28.07	28.11	28.06	28.05	28.04	28.29	28.25	28.24	28.41	28.08	28.49	28.33
Exhaust Flow (lb/sec)		310.50	311.70	180.50	293.70	292.60	302.30	291.70	291.10	287.70	187.80	186.50	186.30	169.10	299.20	299.30	165.80
Exhaust Temp.	(°F)	789.0	798.5	673.6	826.4	829.7	823.9	827.7	831.3	829.4	781.7	790.2	791.8	747.6	827.9	821.0	771.3
	(K)	693.7	699.0	629.6	714.5	716.3	713.1	715.2	717.2	716.2	689.7	694.4	695.3	670.7	715.3	711.5	683.9
Exhaust O_2 (Vol %, Dry)		14.83	14.68	16.99	14.50	14.46	14.44	14.50	14.45	14.52	16.15	16.11	16.11	16.69	14.46	14.49	16.59

Sources: ECT, 2005.
GE, 2004.

Table B6b. RCES LM6000 Repowering Project
CT Exhaust Data

B. Exhaust Flow Rates

Load (%)	100	100	25	100	100	100	100	100	100	40	40	40	25	100	100	25
CT Inlet Temp. (°F)	30.0	30.0	30.0	57.9	60.4	48.0	60.5	62.3	65.9	68.4	73.9	75.0	70.0	50.0	58.0	83.0
Scenario	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
ACFM	602,656	601,610	313,828	589,528	588,921	604,786	586,346	586,897	579,402	361,008	361,548	361,739	314,820	601,083	589,488	315,658
Stack Dia. (ft)	11.1	11.1	11.1	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
Stack Area (ft^2)	96.8	96.8	96.8	63.6	63.6	63.6	63.6	63.6	63.6	63.6	63.6	63.6	63.6	63.6	63.6	63.6
Velocity (fps)	103.8	103.6	54.1	154.4	154.3	158.4	153.6	153.8	151.8	94.6	94.7	94.8	82.5	157.5	154.4	82.7
Velocity (m/s)	31.6	31.6	16.5	47.1	47.0	48.3	46.8	46.9	46.3	28.8	28.9	28.9	25.1	48.0	47.1	25.2
SCFM, Dry[1]	229,912	232,518	138,097	215,562	214,653	222,257	213,937	213,368	210,801	140,835	139,438	139,204	128,053	219,679	222,012	124,856
ACFM (15% O_2, Dry)	559,453	584,022	196,350	569,615	572,284	591,746	565,664	570,264	556,657	266,521	267,855	268,152	208,943	584,839	585,296	212,841

[1] At 68 °F.

Sources: ECT, 2005.
GE, 2004.

Table B7. RCES LM6000 Repowering Project
CT Fuel Flow Rate Data

Scenario	Ambient Temp. (°F)	CT Inlet Temp. (°F)	Fuel Type (Gas/Oil)	Generator Output (kW)	Load[1] (%)	Heat Input - LHV (MMBtu/hr)	Heat Input - HHV[2] (MMBtu/hr)	Fuel Rate (lb/hr)	Fuel Rate (lb/sec)	Fuel Rate[3] (10^6 ft^3/hr)	Fuel Rate[4] (10^3 gal/hr)
1	30.0	30.0	Gas	50,242	100	421.9	467.8	20,346	5.652	0.450	N/A
2	30.0	30.0	Oil	50,210	100	425.9	452.3	23,148	6.430	N/A	3.283
3	30.0	30.0	Gas	13,000	26	163.8	181.6	7,900	2.194	0.175	N/A
4	60.4	57.9	Gas	48,684	97	414.7	459.8	19,999	5.555	0.442	N/A
5	60.4	60.4	Gas	48,645	97	415.3	460.5	20,027	5.563	0.443	N/A
6	60.4	48.0	Gas	50,729	101	429.7	476.4	22,614	6.282	0.500	N/A
7	62.3	60.5	Gas	48,230	96	411.3	456.0	19,836	5.510	0.439	N/A
8	62.3	62.3	Gas	48,367	97	413.3	458.2	19,928	5.536	0.441	N/A
9	70.1	65.9	Gas	47,254	95	404.1	448.0	19,486	5.413	0.431	N/A
10	68.4	68.4	Gas	18,812	38	202.6	224.6	9,768	2.713	0.216	N/A
11	73.9	73.9	Gas	18,812	38	202.2	224.2	9,750	2.708	0.216	N/A
12	75.0	75.0	Gas	18,812	38	202.1	224.1	9,745	2.707	0.215	N/A
13	70.0	70.0	Gas	13,000	26	163.5	181.3	7,885	2.190	0.174	N/A
14	83.5	50.0	Gas	49,957	100	425.6	471.9	20,526	5.702	0.454	N/A
15	83.5	50.0	Oil	48,547	97	417.5	443.4	22,691	6.303	N/A	3.219
16	83.0	83.0	Gas	13,000	26	163.2	173.3	7,872	2.187	0.174	N/A
			Max. - Gas	**50,729**		**429.7**	**476.4**	**22,614**	**6.282**	**0.500**	**N/A**
			Max. - Oil	**50,210**		**425.9**	**452.3**	**23,148**	**6.430**	**N/A**	**3.283**

[1] Based on 100 % load = 50,000 kW.
[2] Based on HHV/LHV ratio of 1.108742 (gas) and 1.06201 (oil).
[3] Based on natural gas density of 0.04523 lb/ft^3.
[4] Based on distillate fuel oil density of 7.04986 lb/gal.

Sources: ECT, 2005.
GE, 2004.
RCES, 2005.

Table B8. RCES LM6000 Repowering Project
NSPS GG NO_x Limits

Fuel	LM6000 Gas Turbine ISO Heat Rate (LHV)		F	NO_x Std
	(Btu/kw-hr)	(kj/w-hr)		(ppmvd)
Natural Gas	8,743	9.224	0.0	117.1
Distillate Fuel Oil	8,833	9.319	0.0	115.9

Sources: ECT, 2005.
GE, 2004.

POTENTIAL EMISSION INVENTORY WORKSHEET

Reedy Creek Energy Services, LM6000 Repowering Project

HRSG-DB

EMISSION SOURCE TYPE

NATURAL GAS COMBUSTION - CRITERIA POLLUTANTS

FACILITY AND SOURCE DESCRIPTION

Emission Source Description:	*LM6000 CT/HRSG Unit*
Emission Control Method(s)/ID No.(s):	Oxidation Catalyst
Emission Point Description:	HRSG Duct Burner

EMISSION ESTIMATION EQUATIONS

Emission (lb/hr) = Emission Factor (lb/10^6 ft^3) x Natural Gas Consumption (10^6 ft^3/hr)

Emission (ton/yr) = Emission Factor (lb/10^6 ft^3) x Natural Gas Consumption (10^6 ft^3/yr) x (1 ton/ 2,000 lb)

Source: ECT, 2004.

INPUT DATA AND EMISSIONS CALCULATIONS

Operating Hours:	1,000	hrs/yr	Oxidation Catalyst CO Oxidation Efficiency:	85 %
Fuel Flow:	0.190	10^6 ft^3/hr		
Fuel Flow:	190.4	10^6 ft^3/yr		
Natural Gas Sulfur Content:	2.00	grains/100 ft^3		
Natural Gas Heat Content:	1,040	Btu/ft^3 (HHV)		
Heat Input:	198.0	MMBtu/hr (HHV)		

Criteria Pollutant	Emission Factor (lb/10^6 ft^3)	Potential Emission Rates (lb/hr)	Potential Emission Rates (tpy)
NO_x	208.00	39.60	19.80
CO	12.6	2.40	1.20
VOC	5.5	1.05	0.52
SO_2	6.0	1.14	0.57
PM (filterable)	1.9	0.36	0.18
PM_{10} (filterable)	1.9	0.36	0.18

SOURCES OF INPUT DATA

Parameter	Data Source
Operating Hours (annual)	RCES, 2005.
Fuel Flow Rates	RCES, 2005.
Emission Factors (NO_x)	NSPS Subpart Db allowable rate.
Emission Factors (all except NO_x)	AP-42, Table 1.4-2., EPA, July 1998.

NOTES AND OBSERVATIONS

DATA CONTROL

Data Collected by:	E. Godwin	Date:	Jan-05
Data Entered by:	T. Davis	Date:	Jan-05