

**Prevention of Significant Air Quality Deterioration Review
Of the GenPower Rincon, LLC.
Rincon Power Plant
To be located in Effingham County, Georgia**

**FINAL DETERMINATION
SIP Permit Application No. 12718
October 2002**

**State of Georgia
Department of Natural Resources
Environmental Protection Division
Air Protection Branch**

Stationary Source Permitting Program (SSPP)	Planning & Support Program
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Background

On December 15, 2000, GenPower Rincon, LLC., (GenPower) submitted to the Environmental Protection Division (EPD) an application for an air quality permit to construct and operate a combined-cycle facility in Effingham County, Georgia.

On July 23, 2002, EPD issued a Preliminary Determination stating that the construction and operation of the combined-cycle facility should be approved. The Preliminary Determination contained a draft Air Quality Permit for the construction and operation of the combined-cycle facility.

The Division requested that GenPower place a public notice in a newspaper of general circulation in the area of the proposed facility notifying the public of the proposed construction and providing the opportunity for written public comment and public hearing. Such public notice was placed in *Effingham Herald* (legal organ for Effingham County) on August 1, 2002. The public comment period expired September 3, 2002.

During the comment period, comments were received from GenPower Rincon, LLC., and the U.S. EPA. The Division also received four letters from various local organizations and individual that supports the issuance of the draft Permit. This discussion will not elaborate on typographical or grammatical revisions made to the final permit. The requested changes are listed below along with the changes made to the final Permit. A copy of the final permit is provided in Appendix A. A copy of comments received during the public comment period is provided in Appendix B. A copy of additional correspondence received is provided in Appendix C.

Review of U.S. EPA Region IV Comments

1. NO_x BACT Limit

Numerous best available control technology (BACT) determinations for NO_x emissions from combined cycle combustion turbines have been made nationwide (including a few in Region 4) establishing NO_x emission limits at levels less than 3.0 ppmvd (15 % oxygen) for natural gas combustion with selective catalytic reduction (SCR) controls – the control method proposed for the GenPower Rincon project. We find no assessment in the permit application BACT evaluation or in the preliminary determination BACT evaluation for NO_x levels less than 3.0 ppmvd with SCR. We request that the Georgia Environmental Protection Division consider the lower NO_x emission levels before arriving at a final BACT determination.

Response:

The Division agreed with EPA Region IV that no BACT evaluations for NO_x limit less than 3.0 ppmvd with SCR were discussed in the preliminary review and requested GenPower to consider lowering the current NO_x BACT limit. The facility submitted a letter, dated September 18, 2002, in which they provided some reasons why they did not think that the proposed NO_x BACT limit should be lowered.

Of the reasons that GenPower included, the only one that the Division believes is germane to EPA's comment is the increased costs associated with a limit of 2.5 ppmvd. Specifically, the company said that the increased capital cost for the additional equipment to meet the objective of 2.5 ppmvd vs. a 3.0 ppmvd is approximately \$100,000. In addition, the annual operating cost

would be increased by more than \$40,000 as the “life-cycle” of the catalyst would be greatly reduced, resulting in more frequent replacement.

On a subsequent email communication, dated October 11, 2002, the facility provided an estimate of a Control Cost Effectiveness of \$5857.1 per ton of NO_x reduced when the NO_x limit was lowered to 2.5 ppmvd. The Division agrees with the additional information provided by GenPower. Besides, various PSD permits in the northeastern states, California, and one recent PSD permit in Florida contain NO_x BACT limit from 2.0 to 2.5 ppmvd. Thus, the Division believes that 2.5 ppmvd of NO_x is cost effective and technically feasible. Condition Nos. 2.8, 2.10, and 8.18 are modified to reflect the change.

2. **Facility Description**

Note B, Facility Description, in the draft permit contains a list of air pollution control devices for each emission units. This list does not include catalytic oxidation as a control device for the combustion turbines and heat recovery steam generators.

Response:

The Division agrees with EPA, and has included catalytic oxidation as a control device for the combustion turbines and heat recovery steam generators in Note B.

Review of GenPower Rincon, LLC's Comments

3. Condition No. 8.10

We believe the intent of the first sentence of this “Condition” is to establish a requirement for preparing *on a monthly basis*, the twelve month CO emissions totals for both GT1 and GT2. We believe the ending phrase of “for each” needs to be changed to “*on a monthly basis*” or by adding the word **month** to the end of the sentence.

Response:

The Division agrees with the facility and has made the change to Condition No. 8.10.

4. Condition No. 8.16

A literal reading of this condition could be construed as requiring a report during reporting periods prior to facility operations. We respectfully request the following clarifying language be added to indicate reporting is not required until after initial startup. Specifically, we propose adding this new sentence at the end of the second sentence which says, “*Reporting required by this condition shall begin at the end of the quarter in which initial startup is completed.*”

Response:

The Division agrees with the facility and has made the change to Condition No. 8.16. Condition 8.16 has also been renumbered to 8.17 due to the next comment.

5. Condition No. 8.17

This condition deals with “file” maintenance and retention for a number of monitoring issues. It seems to us **it might be better included under “Record Keeping Requirements”** rather than “*Reporting Requirements*” to avoid the possibly of file maintenance being overlooked. We would recommend you consider renumbering Condition 8.17 to 8.13 with subsequent renumbering of condition 8.13 thru 8.16.

Response:

The Division agrees with facility. Condition No. 8.17 was moved to *Record Keeping Requirements* section and renumbered as Condition No. 8.13. Condition Nos. 8.13 thru 8.16 were renumbered as Condition Nos. 8.14 thru 8.17. Condition Nos. 2.15 and 8.18 cited the conditions that were renumbered, and were modified to reflect the changes.

6. Condition No. 8.19

The Condition is identical in tone to Condition 8.16. A literal reading of this condition could be construed to require reports prior to facility operations. We believe this is not the intent of the GDNr and again respectfully request the following clarifying language be added to indicate reporting is not required until after initial startup. At the end of the second sentence we recommend inserting a new third sentence; as follows “*Reporting required by this condition shall begin at the end of the quarter in which initial startup is completed.*”

Response:

The Division agrees with the facility and has made the change to Condition No. 8.19.

Additional Changes

NOTE B

FACILITY DESCRIPTION

Emission Units		Air Pollution Control Devices	
ID No.	Description	ID No.	Description
GT1	Gas Combustion Turbine Unit 1 (GE 7FA)	DN1 SC1 CO1	Dry Low NOx Burner SCR Catalytic Oxidation
HR1	HRSG, for combustion turbine GT1, supplementally fired by Duct Burner Unit 1.	LN1 SC1 CO1	Low NOx Burner SCR Catalytic Oxidation
GT2	Gas Combustion Turbine Unit 2 (GE 7FA)	DN2 SC2 CO2	Dry Low NOx Burner SCR Catalytic Oxidation
HR2	HRSG, for combustion turbine GT2, supplementally fired by Duct Burner Unit 2.	LN2 SC2 CO2	Low NOx Burner SCR Catalytic Oxidation
AB3	Auxiliary Boiler rated at a maximum heat input of 83 MM Btu/hr	LN3	Low NOx Burner
EG4	500 kW Emergency Generator (diesel)	NA	None
FP5	260 hp Fire Pump (diesel)	NA	None
CT6-17	Cooling Tower	DE6-17	Drift Eliminator

HRSG = Heat Recovery Steam Generator

SCR = Selective Catalytic Reduction

Combined Cycle Combustion Turbine System means one combustion turbine, one duct burner, and their combined exhaust.

2.0 Allowable Emissions

- 2.8 The Permittee shall not discharge, or cause the discharge, into the atmosphere, from the stacks defined in Condition No. 2.3, each, NOx emissions in excess of ~~46~~ **100** tons during any twelve consecutive months. [40 CFR 52.21(j)]
- 2.10 The Permittee shall not discharge, or cause the discharge, into the atmosphere, from each combined combustion turbine and duct burner stack, noted in Condition No. 2.3, any gases which

- a. Contain nitrogen oxides (NO_x) in excess of ~~3.0~~ **2.5** ppmvd, corrected to 15% oxygen. [40 CFR 52.21(j); 40 CFR 60.332(a)(1) for the combustion turbines (subsumed); 40 CFR 60.44a(d)(1) and 40 CFR 60.46a(b) for the duct burners (subsumed)]
 - b. Contain carbon monoxide (CO) in excess of 2.0 ppmvd @ 15% O₂. [40 CFR 52.21(j)]
 - c. Contain particulate matter in excess of 0.011 pounds per million Btu heat input. [40 CFR 52.21(j); 391-3-1-.02(2)(d) for the duct burners (subsumed); 40 CFR 60.42a(a)(1) and 40 CFR 60.46a(a) for the duct burners (subsumed)]
 - d. Contain volatile organic compounds (VOC) in excess of 2.0 ppmvd @ 15% O₂, as methane. [40 CFR 52.21(j)]
 - e. Exhibit greater than 10 percent opacity. [40 CFR 52.21(j); 40 CFR 60.42a(b) for the duct burners(subsumed); and 391-3-1-.02(2)(b) (subsumed)]
- 2.15 The following definitions of startup and shutdown as used in Condition Nos. 8.11 and ~~8.15~~ **8.16** shall apply: [40 CFR 52.21 (j)]
- a. Cold startup is defined as a startup to combined cycle operation following a complete shutdown lasting at least 72 hours. Hours allocated to a cold startup are zero to four (4) hours until the unit reaches steady state load operation. Steady state operation shall be reached when the combustion turbine reaches minimum load (50%) and the steam turbine is declared available for load changes.
 - b. Warm startup is defined as a startup to combined cycle operation following a complete shutdown lasting 8 hours or more, but less than 72 hours. Hours allocated to a warm startup are zero to two (2) hours until the unit reaches steady state load operation. Steady state operation shall be reached when the combustion turbine reaches minimum load (50%) and the steam turbine is declared available for load changes.
 - c. Hot startup is defined as a startup to combined cycle operation following a complete shutdown lasting less than 8 hours. Hours allocated to a hot startup are zero to one (1) hour until the unit reaches steady state load operation. Steady state operation shall be reached when the combustion turbine reaches minimum load (50%) and the steam turbine is declared available for load changes.
 - d. Unit shutdown is defined as the period of time from steady state operation to cessation of combustion turbine firing. This period shall not exceed 60 minutes for planned shutdown.

8.0 Notification, Reporting, and Record Keeping

Record Keeping Requirements

8.10 The Permittee shall use the records required by Condition No. 8.9 to determine the twelve consecutive month total of carbon monoxide emissions (in tons) from each combustion turbine, GT1 and GT2, for each **month**. A twelve consecutive month total shall be the total for a month in the reporting period plus the totals for the previous eleven consecutive months. These records (including calculations) shall be maintained as part of the monthly record suitable for inspection or submittal.
[391-3-1-.02(6)(b)1(i) and 40 CFR 52.21]

~~8.178.13~~ The Permittee shall maintain files of all measurements, including continuous monitoring systems, monitoring devices, and performance testing measurements; all continuous monitoring system or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices. These files shall be kept in a permanent form suitable for inspection and shall be maintained for a period of at least five (5) years following the date of such measurements, reports, maintenance and records.
[391-3-1-.03(2)(c)]

Reporting Requirements

8.138.14 The Permittee shall furnish the Division written notification as follows:
[40 CFR 52.21; 40 CFR 60.7]

- a. A notification of the actual date of initial startup of each combined cycle combustion turbine system, postmarked within 15 days after such date. For purposes of this permit, “startup” shall mean the setting in operation of an affected facility for any purpose.
- b. Certification that a final inspection has shown that construction of each combined cycle combustion turbine system has been completed in accordance with the application, plans, specifications and supporting documents submitted in support of this permit. The certification shall be included with the notification in paragraph (a).

8.148.15 In addition to any other reporting requirements of this Permit, the Permittee shall report to the Division in writing, within seven (7) days, any deviations from applicable requirements associated with any malfunction or breakdown of process, fuel burning, or emission control equipment for a period of four hours or more which results in excessive emissions.

The Permittee shall submit a written report which shall contain the probable cause of the deviation(s), duration of the deviation(s), and any corrective actions or preventive measures taken.
[391-3-1-.02(6)(b)1.(iv)]

8.158.16 The Division may allow excess emissions in certain cases as described below.

- a. Excess emissions resulting from startup, shutdown, malfunction of any source which occur though ordinary diligence is employed shall be allowed provided that:
[391-3-1-.02(2)(a)7(i)]

- i. The best operational practices to minimize emissions are adhered to;
 - ii. All associated air pollution control equipment is operated in a manner consistent with good air pollution control practice for minimizing emissions; and
 - iii. The duration of excess emissions is minimized.
- b. Excess emissions which are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure which may reasonably be prevented during startup, shutdown or malfunction are prohibited and are violations of this Permit.
[391-3-1-.02(2)(a)7(ii)]
- c. Paragraphs (a) and (b) of this condition shall not apply if precluded by any other State or Federal regulation or specifically excluded in paragraph (d) of this condition.
[391-3-1-.02(2)(a)7(iii)]
- d. Paragraphs (a) and (b) of this condition do not apply to Conditions Nos. 2.8 and 2.9 (typ NOx and CO limits) regarding startup and shutdown emissions. Emissions during startup and shutdown shall be counted toward the mass emission limits in these permit conditions.
[391-3-1-.02(2)(a)7(iii)]

8.168.17 The Permittee shall submit a written report containing excess emissions, exceedances, and/or excursions as described in this permit and any monitor malfunctions for each quarterly period ending March 31, June 30, September 30, and December 31 of each year. All reports shall be postmarked by the 30th day following the end of each reporting period, April 30, July 30, October 30, and January 30, respectively. **Reporting required by this condition shall begin at the end of the quarter in which initial startup is completed.** In the event that there have not been any excess emissions, exceedances, excursions or malfunctions during a reporting period, the report should so state. Otherwise, the contents of each report shall be as specified by the Division's Procedures for Testing and Monitoring Sources of Air Pollutants and shall contain the following:
[391-3-1-.02(6)(b)1]

- a. A summary report of excess emissions, exceedances and excursions, and monitor downtime, in accordance with Section 1.5(c) and (d) of the above referenced document, including any failure to follow required work practice procedures.
- b. Total operating time during each reporting period.
- c. The magnitude of all excess emissions, exceedances and excursions computed in accordance with the applicable definitions as determined by the Director, and any conversion factors used, and the date and time of the commencement and completion of each time period of occurrence.
- d. Specific identification of each period of such excess emissions, exceedances, and excursions that occur during startups, shutdowns, or malfunctions of the affected facility. The nature and cause of any malfunction(if known), the corrective action taken or preventive measures adopted.

- e. The date and time identifying each period during which any required monitoring system or device was inoperative (including periods of malfunction) except for zero and span checks, and the nature of the repairs, adjustments, or replacement. When the monitoring system or device has not been inoperative, repaired, or adjusted, such information shall be stated in the report.
 - f. Certification that, based on information and belief formed after reasonable inquiry, the statements and information in the report are true, accurate, and complete.
- 8.18 For the purpose of reporting excess emissions, exceedances or excursions in the report required in Condition No. ~~8.16~~ **8.17**, the following excess emissions, exceedances, and excursions shall be reported:
[40 CFR 52.21 and 391-3-1-.02(6)(b)1]
- a. Excess emissions: (means for the purpose of this Condition and Condition No. ~~8.16~~ **8.17**, any condition that is detected by monitoring or record keeping which is specifically defined, or stated to be, excess emissions by an applicable requirement)

None required to be reported in accordance with Condition No. ~~8.16~~ **8.17**.
 - b. Exceedances: (means for the purpose of this Condition and Condition No. ~~8.16~~ **8.17**, any condition that is detected by monitoring or record keeping that provides data in terms of an emission limitation or standard and that indicates that emissions (or opacity) do not meet the applicable emission limitation or standard consistent with the averaging period specified for averaging the results of the monitoring)
 - i. Any three hour rolling average NO_x emission rate, which exceeds ~~3.0~~ **2.5** ppmvd at 15% oxygen for each combined cycle combustion turbine system,
 - ii. Any three hour rolling average CO emission rate, which exceeds 2.0 ppmvd at 15% oxygen for each combined cycle combustion turbine system,
 - iii. Any time diesel fuel combusted in emergency generator EG4 and fire pump FP5 exceeds 0.05 percent sulfur by weight.
 - iv. Any twelve consecutive month total NO_x emissions (tons) from any combined cycle combustion turbine system, which exceeds ~~446~~ **100** tons.
 - v. Any twelve consecutive month total CO emissions (tons) from any combined cycle combustion turbine system, which exceeds 96.1 tons.
 - vi. Any twelve consecutive month total hours of operation of emergency generator EG4 and fire pump FP5, each, which exceeds 250 hours.
 - vii. Any twelve consecutive month total hours of operation of auxiliary boiler AB3, which exceeds 1,000 hours.
 - viii. Any startup episode which exceeds the limit in Condition No. 2.15.
 - c. Excursions: (means for the purpose of this Condition and Condition No. ~~8.16~~ **8.17**, any departure from an indicator range or value established for monitoring consistent with any averaging period specified for averaging the results of the monitoring)

- i. Any value of the natural gas sulfur content, as determined by Condition No. 5.4, which exceeds 0.5 grains per 100 standard cubic foot.
- 8.19 The Permittee shall submit a written report containing the following information for each quarterly period ending March 31, June 30, September 30, and December 31 of each year. All reports shall be postmarked by the 30th day following the end of each reporting period, April 30, July 30, October 30, and January 30, respectively. **Reporting required by this condition shall begin at the end of the quarter in which initial startup is completed.**
- [40 CFR 52.21 and 391-3-1-.02(6)(b)1]
- a. The twelve consecutive month total NO_x emissions (tons) from each combined cycle combustion turbine system for each month in the quarterly period.
 - b. The twelve consecutive month total CO emissions (tons) from each combined cycle combustion turbine system for each month in the quarterly period.
 - c. The twelve consecutive month total hours of operation of auxiliary boiler AB3, emergency generator EG4, and fire pump FP5, each, for each month in the quarterly reporting periods.

9.0 Modifications

- 9.1 Prior to any source commencing a modification as defined in Georgia Rule 391-3-1-.01(pp), which may result in air pollution and not exempted by Georgia Rule 391-3-1-.03(6), the Permittee shall submit a Permit application to the Division. The application shall be submitted sufficiently in advance of any critical data involved to allow adequate time for review, discussion, or revision of plans, if necessary. Such application shall include, but not be limited to, information describing the precise ~~natural~~ **nature** of the change, modifications to any emission control system, production capacity of the plant before and after the change, and the anticipated completion date of the change. The application shall be in the form of a Georgia air quality Permit application to construct or modify (otherwise known as a SIP application) and shall be submitted on forms supplied by the Division, unless otherwise notified by the Division.

APPENDIX A - Final Permit 4911-103-0011-P-01-0

APPENDIX B - Copy of Comments Received During Public Comment Period.

1. U.S. EPA Region IV dated September 4, 2002
2. GenPower Rincon, LLC. dated August 19, 2002

APPENDIX C - Copy of Additional Correspondence Received

1. GenPower Rincon, LLC. dated October 15, 2002.
2. GenPower Rincon, LLC. dated October 11, 2002.
3. GenPower Rincon, LLC. dated September 18, 2002.
4. Effingham County Board of Education dated August 26, 2002
5. Effingham County Chamber of Commerce dated August 20, 2002
6. Ruth Lee dated August 20, 2002
7. Effingham County Development Authorities dated August 15, 2002