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1. Article Addressed to:  
 Mr. Ben Jacoby, Director  
 Midway Development Co., L.L.C.  
 1400 Smith St.  
 Houston, Texas 77002-7631

2. Article Number (Copy from service label)  
 7099 3400 0000 1449 3799

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PS Form 3811, July 1999

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 Mr. Ben Jacoby, Director

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Mr. Ben Jacoby  
1400 Smith St.  
Houston, Texas 77002-7631

PS Form 3800, July 1999. See Reverse for Instructions

7099 3400 0000 1449 3799

**FINAL DETERMINATION**  
**File No. 1110099-002-AC (PSD-FL-305)**  
**MIDWAY DEVELOPMENT COMPANY, L.L.C.**  
**510 MW SIMPLE CYCLE FACILITY**

The Department distributed a Public Notice package on December 18, 2000 for the project to construct a nominal 510-megawatt (MW) natural gas and fuel oil-fired simple cycle facility to be known as the Midway Energy Center near Port St. Lucie and Fort Pierce in St. Lucie County. The project consists of three nominal 170 MW General Electric 7FA combustion turbine-electrical generators, three 150-foot stacks, a 2.5 million gallon fuel oil storage tank, a 0.6 million gallon fuel oil "day" tank, and other ancillary equipment.

The Public Notice of Intent to Issue was published on December 21, 2000 in The Tribune. Written comments were received from EPA Region IV and the applicant, Midway Development Company, L.L.C (Midway - an affiliate of Enron North America).

The written comments (in italics) are addressed below. Each is followed by the Department's response.

**EPA Comments**

1. *Section III. Emission Units Specific Conditions, Applicable Standards and Regulations, 6.: 40 C.F.R. Subpart Dc is an applicable requirement for the gas heater. In 40 C.F.R. § 60.41c, a steam generating unit is defined as a device that combusts any fuel and produces steam or heat water or any other heats transfer medium. Heat transfer medium is defined as any material that is used to transfer heat from one point to another point. The natural gas heaters meet the definition of steam generating unit; therefore, they are an affected facility as defined in 40 C.F.R. § 60.40c(a). Also, pursuant to 40 C.F.R. § 60.48c(g), the permittee must record the amount of each fuel combusted each day. Please include this applicable requirement in the permit.*

The Department agrees with EPA and the requirements of 40 CFR Subpart Dc will be included for the heaters.

2. *Section III. Emission Units Specific Conditions, General Operation Requirements, 13. Maximum allowable hours: To limit the potential to emit, the operation limitations (hours of operation per year) should be expressed in terms of 12 consecutive months, rather than calendar year. This 12-month consecutive limit prevents the enforcing agency from having to wait for long periods of time to establish a continuing violation before initiating enforcement.*

The Department agrees with EPA and the hours per year will be changed to read 12 consecutive months.

3. *Section III. Emission Units Specific Conditions, Excess Emissions, 25. The Florida Department of Environmental Protection should include definitions of what constitutes "startup" and "shutdown" as referenced in this section.*

The Department does not allow extended operation at low loads, during which such emissions typically occur. The facility must also employ good operating practices to allow excess emissions.

At the same time, the Department is aware that emissions are less from the GE 7FA units at low loads (< 50 percent of full load) than previously believed. This is based on reports from new installations including JEA.

The Department will progressively implement EPA's comments for future projects as we get emissions data from facilities required to demonstrate compliance by CEMS. As drafted, the permit includes Specific Conditions (22, 23, 24, 44, 45) related to excess emissions during startup, shutdown, and valid, documented malfunctions. See condition 43 of Section III of this permit for provisions that relate to excluding periods of CEM system data recorded for NO<sub>x</sub> and CO for episodes of startup, shutdown and malfunction. However, these periods are recorded and reported as excess emissions as stated in conditions 24 and 45.

Gas turbine startup is the commencement of operation of a gas turbine which has shut down or ceased operation for a period of time sufficient to cause temperature, pressure, or pollution control device imbalances, which may result in elevated emissions. Shutdown is the process of bringing a gas turbine off line and ending fuel combustion.

**Midway's comments:**

4. Section II. Administrative Requirements, Specific Condition (SC) 8 (page 5 of 15): At our request, the permit expiration date was extended. However, we believe it was the Department's intent to revise the language as follows: "The expiration date is June 30, 2003. Physical construction shall be complete by December 31, 2002~~3~~."

The typographical error was corrected to read 2002.

5. Section III. General Operation Requirements, SC 13 and 14 (pages 7 and 8 of 15): As suggested in a separate letter to the Department, dated January 23, 2001, it's requested that the language in SC 13 and 14 be revised. The suggested language below provides the Department with reasonable assurance that the intent is for natural gas to be the primary fuel for this proposed project:

Specific Condition 13 - Maximum allowable hours: The three stationary gas turbines shall operate no more than an average of 3,500 hours per installed unit during any calendar year, as may be adjusted in condition 14 below, based on oil fired run hours. ~~The three stationary gas turbines shall operate no more than an average of 1000 hours per installed unit on fuel oil during any calendar year. No single combustion turbine shall operate more than 5,000 hours in a single year. [Applicant Request, Rule 62-210.200, F.A.C. (Definitions - Potential Emissions), Rule 62-212.400, F.A.C. (BACT)]~~

Specific Condition 14 - Fuel oil usage: ~~The amount of back-up fuel (fuel oil) burned at the site (in BTU's) shall not exceed the amount of natural gas (primary fuel) burned at the site (in BTU's) during any consecutive 12 month period. The Department may waive this requirement during the first 24 months of operation based on natural gas availability.~~

In order to encourage the maximum use of natural gas as fuel, during any calendar year the three stationary gas turbines shall operate on fuel oil for no more than an average of 1000 hours per installed unit. Furthermore, during any calendar year, the maximum allowable operating hours referenced in condition 13 above shall be reduced by two hours for each oil fired hour in excess of an average of 500 per installed unit. For example, if the three stationary gas turbines operate on fuel oil in any calendar year for an average of 550 hours per installed unit, the total maximum allowable operating hours shall be decreased to 3,400.

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

*Note: In a phone conversation with Midway representatives on February 8, the company further proposed to reduce to 250 hours the level at which the "2 for 1" trigger would kick in. Therefore if the three stationary gas turbines operate on fuel oil in any calendar year for the permitted average of 1000 hours per installed unit, the total maximum allowable operating hours shall be decreased to 2,000 hours.*

The Department met with Midway representatives on January 17 to discuss these matters. The Department emphasized that a major part of the Best Available Control Technology (BACT) is the use of natural gas. The company argued that there is not yet enough firm supply of natural gas to insure that in a given year or in a given 12-month period they can commit to firing more gas than fuel oil.

Apparently Florida Gas Transmission (FGT) Phase IV and V (and proposed Phase VI) Expansions extend to points North and West of the planned Midway site. Therefore Midway will rely on interruptible supply from the existing FGT capacity in Southeast Florida if it chooses to purchase gas from FGT. This situation could change as FGT considers possible future capacity expansion in Southeast Florida.

The approved Gulfstream Pipeline will extend from Manatee County and includes segments to St. Lucie and Belle Glade. This presents another opportunity for Midway to obtain gas. Additionally, Enron (parent of Midway) has announced a possible project involving construction of a liquefied natural gas (LNG) handling terminal in the Bahamas together with a pipeline to the Southeast Florida Coast.

If the company actually uses more fuel oil than gas, then a better effort needs to be made to reduce emissions while firing fuel oil. For example, nitrogen oxides (NO<sub>x</sub>) emissions while firing fuel oil are 42 parts per million by volume dry (ppmvd), whereas emissions while firing natural gas are only 9 ppmvd.

Midway and other companies argue that the NO<sub>x</sub> guarantee while burning fuel oil is still 42 ppmvd from General Electric. They are not willing to commit to further wet injection to reduce emissions to less than the guaranteed values. However, it is clear that lower emissions are feasible with wet injection than indicated by the guarantees. For example, initial compliance tests on a GE 7FA simple cycle combustion turbine at the JEA Kennedy Plant indicated NO<sub>x</sub> emissions of 30 ppmvd @15% O<sub>2</sub>. The added costs in terms of reduced lifetime and increased maintenance are unknown.

There is already a requirement (within Section III, Condition 19) for Midway to develop a NO<sub>x</sub> reduction plan when the hours of oil firing reach 500 hours per year per unit. If the Department determines that a lower NO<sub>x</sub> emissions standard is warranted for oil firing, this permit shall be revised.

The Department concludes that Midway's proposed draft permit revision, the fuel oil use hammers, and the various gas supply options will encourage Enron to make sure more gas becomes available for its planned Midway Project as well as for its other projects planned in Broward County. The permit will be modified accordingly.

It is noted that Midway's potential to emit will be significantly reduced because maximum oil use will reduce total hours of operation by an average of 1500 per unit. For example, potential NO<sub>x</sub> emissions from the facility will be reduced from roughly 735 tons per year to approximately 600 tons per year.

6. Section III. SC 17 (page 8 of 15): *The permit language states that "The permittee shall provide manufacturer's emissions vs. load diagrams for the DLN and wet injection systems prior to their installation." Past requests of the manufacturer for these types of diagrams have been unsuccessful. Typically, the manufacturer will provide emission estimates at various load points corresponding to various inlet temperature cases. These emission values, that are the basis for this permit, were previously provided in the permit application. It's requested that the word "diagrams" in the above sentence be replaced with the word "estimates".*

The Department has regularly obtained such diagrams from operators throughout the State. The Department will to change the language from "prior to installation" to "upon installation and completion of testing" for submittal of the required diagrams.

7. Section III. SC 19 (page 9 of 15): *The language concerning fuel oil firing should be revised as follows: "In addition, NO<sub>x</sub> emissions calculated as NO<sub>2</sub> shall exceed neither 332 lb/hr nor 42 ppmvd at 15% O<sub>2</sub> to be demonstrated by initial stack test."*

The Department revised this condition to include the word initial as suggested. Reference to Method 20 will be added for consistency with the previous condition.

8. Section III. SC 20 (page 9 of 15): *The CO emission limit for fuel oil presented in the permit application was based on 20 ppmvd. At a temperature of 30 °F, this corresponds to 69.6 lb/hour, not 46 lb/hour, as shown in the draft permit. The 20 ppm concentration is based on 100% load. Concentrations of CO are estimated to be as high as 22 ppm at 75% load factor and 30 ppm at 50% load factor. The peak emission estimate is 78.3 lb/hour at 50% load and 91°F. Based on these factors we request that the permit limit for oil firing be expressed as follows: "The concentration of CO in the stack exhaust gas shall exceed neither 12 ppmvd nor 31 lb/hr (gas) and neither 20 ppmvd nor 70 lb/hour (fuel oil) to be demonstrated by stack tests at full load operation."*

This condition will be revised as suggested. The Department notes, however, that initial testing of General Electric 7FA combustion turbines indicates emissions in the range of 0.5 to 2 ppm whether burning natural gas or fuel oil. Such results have been observed at TECO Polk Power, JEA and City of Tallahassee facilities.

The Department will monitor long-term performance on CO at some of the combined cycle units that have continuous emissions monitors. This may result in lower emission limits issued to applicants for combustion turbine projects in the future.

9. Section III. SC 27 (page 10 of 15): The last sentence should be revised as follows: "...periods of startup, shutdown, malfunction, shall be monitored, recorded, and reported as excess emissions when emission levels exceed the permitted standards listed in Specific Condition No. 18 and 19."

This condition was revised to read 19.

10. Section III. SC 29 (page 11 of 15): The permit language indicates that emission testing by EPA Reference Methods 9 and 10 (for visible emissions and CO emissions, respectively) are to be conducted both initially and annually for both fuels. In the past, the Department has issued permits (e.g., Hines Energy Complex) with language that requires that annual testing be done on fuel oil (the backup fuel) only if a threshold number of operating hours on oil is exceeded (e.g., 400 hr/CT) during a rolling 12-month period. This is because it's a financial hardship to require operation on the more expensive fuel. It's requested that the conditions be revised to include annual testing for VE and CO emissions on oil, only if a CT exceeds 400 hours of operation in a 12-month rolling period.

The Department does not consider it to be a financial hardship for Midway to test for CO and VE while firing fuel oil and it is not clear that fuel oil is exclusively just the back-up fuel. In the case of Hines, the allowable hours on fuel oil operation are much lower than the hours on natural gas operation. At Midway, the fuel oil firing can be very significant compared with natural gas. Additionally, permitted CO emissions are much higher than for the fuel oil case than for the natural gas case.

11. Section III. SC 33 (page 11 of 15): It's requested that the same language be included here regarding the annual testing requirement for visible emissions while firing oil.

See discussion in 10 above.

12. Section III. SC 36 (page 12 of 15): The second sentence should be revised as follows: "...corrected for the average inlet ambient air temperature during the test..."

The Department will revise this condition as suggested.

13. Section III. SC 45 (page 13 of 15): The last sentence states that "these excess emissions periods shall be reported as required in Specific Conditions 24 and 46." The reference to SC 24 appears to be incorrect, as it refers to the limitation for visible emissions.

The reference to Specific Condition 24 in Specific Condition 45 will be revised to read Specific Condition 27.

14. Section III. SC 46 (page 14 of 15): Although the language is intended to instruct on the procedure to determine compliance with the 24-hour rolling average, the second sentence refers to a separate compliance determination being conducted at the "end of each operating day". This language is appropriate in the context of a 24-hour

*block average, but should be deleted from SC 46, which is addressing rolling averages.*

This condition was revised to read 24-hour block average.

15. *Section III. SC 47 (page 14 of 15): The Specific Conditions referenced in the last sentence of this condition (20, 21 and 29) all appear to be incorrect. The conditions need to be cross-referenced correctly or deleted. Also, the appropriate DEP office to notify would be the Southeast District, not the South District.*

This condition was revised to read reference to Specific Conditions 18, 19 and 24. The District office was changed as suggested.

16. *Section III. SC 49 (page 14 of 15): Some of the text appears to be missing. There doesn't appear to be any schedule for testing of sulfur or nitrogen in natural gas in the bulleted items. In fact, the bulleted items appear to be related to compliance with the Acid Rain requirements of Parts 72 and 75, not with Part 60 Subpart GG compliance (which is what requires a Custom Fuel Schedule).*

17. *Section III. SC 50 (page 15 of 15): It's requested that the requirement to conduct sampling and analysis for fuel bound nitrogen content be deleted. Typically, the requirement to monitor water-to-fuel ratio, combined with the requirement to analyze for fuel bound nitrogen content, provides a surrogate for NO<sub>x</sub> compliance. As recognized by the Department in the language of SC 48, the NO<sub>x</sub> CEMS are to be used in lieu of the water/fuel monitoring system for reporting excess emissions. Given that NO<sub>x</sub> CEMS will be used for compliance, the monitoring of the fuel bound nitrogen content serves no useful purpose, and should not be required.*

The Department replaced the above conditions with the new condition (SC 49) below. The requirements of the 40CFR60, Subpart GG will be attached as Appendix GG. This new Appendix includes all the Department requirements regarding this Subpart GG.

New Specific Condition 49:

Fuel Sulfur Records: The permittee shall demonstrate compliance with the fuel sulfur limits specified in this permit by maintaining the following records of the sulfur contents.

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

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

fuel delivery, the permittee shall maintain a permanent file of the certified fuel sulfur analysis from the fuel vendor. At the request of a Compliance Authority, the permittee shall perform additional sampling and analysis for the fuel sulfur content.

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

18. Particulate Limits: *The Department has determined that measurement of front-half catch by EPA Method 5 is sufficient to demonstrate the BACT emission limit for PM<sub>10</sub>.*

EPA Method 5 measuring the front-half catch only is now specified for compliance with the PM<sub>10</sub> standard. Because the back-half catch is excluded, the emission limits are reduced from 18 to 10 and from 34 to 17 pounds per hour while firing natural gas and fuel oil respectively. These values are equal to previous BACT determination for GE 7FA simple cycle units.

### **CONCLUSION**

The Department will issue the permit with the changes noted above.



STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
NOTICE OF FINAL PERMIT

In the Matter of an  
Application for Permit by:

Mr. Ben Jacoby, Director  
Midway Development Company, L.L.C.  
1400 Smith Street  
Houston, Texas 77002-7631

DEP File No. 1110099-002-AC (PSD-305)  
Midway Energy Center, Units 1 - 3  
St. Lucie County

Enclosed is the Final Permit Number PSD-FL-305 to construct three 170-megawatt dual-fuel combustion turbines with inlet chillers, three 80-foot stacks, a natural gas heater, a 2.5 million gallon fuel oil storage tank, and a 0.6 million gallon fuel oil day storage tank for the Midway Energy Center to be located in St. Lucie County. This permit is issued pursuant to Chapter 403, Florida Statutes.

Any party to this order (permit) has the right to seek judicial review of the permit pursuant to Section 120.68, F.S., by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Legal Office; and by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 (thirty) days from the date this Notice is filed with the Clerk of the Department.

Executed in Tallahassee, Florida.



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

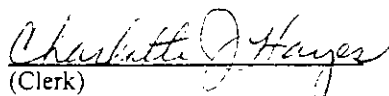
CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this NOTICE OF FINAL PERMIT (including the FINAL permit) was sent by certified mail\* and copies were mailed by U.S. Mail before the close of business on 2/14/01 to the person(s) listed:

Ben Jacoby, MDC\*  
Gregg Worley, EPA  
John Bunyak, NPS  
Isidore Goldman, DEP SED  
Chair, St. Lucie County BCC  
Blair Burgess, P.E., ENSR

Clerk Stamp

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

 2/14/01  
(Clerk) (Date)