

US EPA ARCHIVE DOCUMENT

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MEMORANDUM

SUBJECT: Determining Prevention of Significant Deterioration (PSD) Applicability
Thresholds for Gas Turbine Based Facilities

FROM: Edward J. Lillis, Chief
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TO: Bernard E. Turlinski, Chief
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This is in response to the memoranda from Mr. Turlinski, Region III, dated January 30, 1992, and from Mr. Czerniak, Region V, dated December 16, 1992, regarding PSD applicability thresholds for gas turbine-based facilities. Both Regions have raised the issue of whether a gas turbine combined cycle or cogeneration plant with a total heat input of more than 250 million British thermal units (MMBtu) falls within the source categories listed in 52.21(b)(1)(i)(a) as being subject to a 100 tons per year (tpy) major source threshold. Further, both Regions conclude that it is appropriate to consider a proposed gas turbine combined cycle or cogeneration plant with a heat input of more than 250 MMBtu as a 100 tpy source.

The conclusion reached by both Regions, that the definition of "fossil fuel-fired steam electric plants" (one of the source categories in 52.21(b)(1)(i)(a) having a 100 tpy rather than a 250 tpy emission rate threshold) encompasses gas turbine combined cycle and cogeneration plants, is consistent with an earlier Region V determination for a steam electric plant in 1987. There the Region concluded that the heat input from a combined cycle gas turbine should be counted towards the 250 MMBtu heat input requirement for the PSD source category "fossil fuel steam electric plants." The determination was contained in a September 30, 1987 letter from David Kee, Director, Air & Radiation Division, Region V, to Mr. Dell Collins of Impell Power Projects and was made in consultation with the Office of Air Quality Planning and Standards (see attached). In that letter, EPA Headquarters supported, as we still do, the conclusion reached by Region V in this matter. Thus, we consider a gas turbine combined cycle or cogeneration plant with a total heat input of more than 250 MMBtu to fall within the listed source category "fossil fuel-fired steam electric plants" and subject to the 100 tpy emission rate threshold for PSD major source applicability.

We also concur with the Region III determination that the total heat input from fossil fuel-firing to a gas turbine combined cycle or cogeneration plant must be included when deciding

whether it is a major source (see attached letter dated October 4, 1991 from Bernard E. Turlinski, Region III, to Pamela F. Faggert, Virginia Department of Air Pollution Control). The term "heat input," as used for the new source review programs in parts 51 and 52, has a broad, plant-wide focus. This is evidenced by the 40 CFR part 52.01(g) and (h) definitions quoted below, which are applicable to the Federal PSD regulations (40 CFR 52.21):

(g) The term heat input means the total gross calorific value (where gross calorific value is measured by ASTM Method D2015-66, D240-64, or D1826-64) of all fuels burned.

(h) The term total rated capacity means the sum of the rated capacities of all fuel-burning equipment connected to a common stack. The rated capacity shall be the maximum guaranteed by the equipment manufacturer or the maximum normally achieved during use, whichever is greater.

These part 52 definitions, in conjunction with the other evidence of the plant-wide focus of the part 51 and 52 regulations, indicate that, for a gas turbine-based steam electric plant, the total heat input includes the heat input to the gas turbine, in addition to any supplemental firing in the heat recovery steam generator.

The definition under the new source performance standards (NSPS) program at 40 CFR part 60.41(b) also defines the term "heat input." The NSPS definition excludes, among other things, the heat input to a boiler from the exhaust gases of gas turbines:

"Heat input means heat derived from combustion of fuel in a steam generating unit and does not include the heat input from preheated combustion air, recirculated flue gases, or exhaust gases from other sources, such as gas turbines, internal combustion engines, kilns, etc."

However, the purpose of the NSPS provisions, as reflected in the above definition of heat input, is to determine whether individual steam generating "units" are subject to the NSPS. It has no relevance to the emissions from a "plant," except to the extent that the emissions unit is the plant. For this case, the applicability of this definition is therefore limited to the 40 CFR part 60 regulations and should not be applied when determining heat input for the purpose of 52.21(b)(1)(i)(a).

It has come to our attention that, while many Regions and States have long considered gas turbine combined cycle and cogeneration facilities to be subject to a 100 tpy major source threshold, there may be some agencies with a different interpretation of this issue. We urge these agencies to begin making determinations which are consistent with this memorandum. That is, that the 100 tpy major source threshold (for fossil fuel-fired steam electric plants) applies to gas turbine combined cycle and cogeneration plants with a heat input of more than 250 MMBtu. However, to avoid any potential disruption of permit processing, these agencies, in consultation with their respective State or Federal counterpart, could continue to apply their current interpretation of the applicable major source threshold to gas turbine projects for a short transition period, such as 60 days. Subsequent to the transition period, all Regions and States should consider gas turbine combined cycle and cogeneration plants as "fossil fuel-fired steam electric

plants" and subject to a 100 tpy major source threshold if total heat input from firing of fossil fuel to the plant exceeds 250 MMbtu.

If you have any questions or comments regarding the above, please contact David Solomon, Chief, New Source Review Section, at (919) 541-5375.

Attachments

cc: Air Branch Chief, Regions I-X
New Source Review Contacts

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