6560-50-P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 63

[OAR-2003-0189; FRL-]

RIN: 2060-AK73

National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines - Proposed Delisting

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: The EPA is proposing to amend the list of categories of sources that was developed pursuant to section 112(c)(1) of the Clean Air Act (CAA) by deleting four subcategories from the Stationary Combustion Turbines source category. Final maximum achievable control technology (MACT) standards creating the following subcategories were published on March 5, 2004: lean premix gas-fired stationary combustion turbines, diffusion flame gas-fired stationary combustion turbines, emergency stationary combustion turbines, and stationary combustion turbines located on the North Slope of Alaska. This action is being taken in part to respond to a petition submitted by the Gas Turbine Association (GTA) and in part upon the EPA Administrator’s own motion. Petitions to remove a source category from the source

category list are permitted under section 112(c)(9) of the CAA. The proposed rule is based on EPA's evaluation of available information concerning the potential hazards from exposure to hazardous air pollutants (HAP) emitted from the four subcategories and includes a detailed rationale for removing the subcategories from the source category list. We request comment on the proposed rule.

Although the proposed rule would delete certain subcategories from the Stationary Combustion Turbines source category, the MACT standards for the subcategories will take effect upon publication of the standards. Because the MACT standards require immediate compliance by new sources, some sources in the subcategories which we are proposing to delist may need to make immediate expenditures on emission controls which will not be required if we adopt a final rule to delete the subcategories. In view of our initial determination that the statutory criteria for delisting have been met for the subcategories, we consider it inappropriate and contrary to statutory intent to mandate such expenditures until after a final determination has been made whether or not the subcategories should be delisted. Accordingly, we are publishing elsewhere in this Federal

Register a proposal to stay the effectiveness of the MACT standards for new sources in the subcategories during the pendency of the rule to delete the subcategories.

DATES: Comments. Written comments on the proposed rule must be received by [INSERT DATE 60 DAYS FROM PUBLICATION OF THE PROPOSED RULE IN THE FEDERAL REGISTER].

Public Hearing. A public hearing regarding the proposed rule will be held if requests to speak are received by the EPA on or before [INSERT DATE 15 DAYS FROM PUBLICATION OF THE PROPOSED RULE IN THE FEDERAL REGISTER]. If requested, a public hearing will be held on [INSERT DATE 28 DAYS FROM PUBLICATION OF THE PROPOSED RULE IN THE FEDERAL REGISTER]. **ADDRESSES:** Comments. Comments may be submitted electronically, by mail, or through hand delivery/courier. Electronic comments may be submitted on-line at http://www.epa.gov/edocket/. Written comments sent by U.S. mail should be submitted (in duplicate if possible) to: Air and Radiation Docket and Information Center (Mail Code 6102T), Attention Docket ID Number OAR-2003-0189, Room B108, U.S. EPA, 1200 Pennsylvania Avenue, NW., Washington, DC 20460. Written comments delivered in person or by courier should be submitted (in duplicate if possible) to: Air and

Radiation Docket and Information Center (Mail Code 6102T), Attention Docket ID Number OAR-2003-0189, Room B102, U.S. EPA, 1301 Constitution Avenue, NW., Washington, DC 20460. The EPA requests a separate copy also be sent to the contact person listed below (see FOR FURTHER INFORMATION CONTACT).

Public Hearing. If a public hearing is requested by [INSERT DATE 15 DAYS FROM PUBLICATION OF THE PROPOSED RULE IN THE FEDERAL REGISTER] the public hearing will be held at the EPA facility complex, T.W. Alexander Drive, Research Triangle Park, NC [INSERT DATE 28 DAYS FROM PUBLICATION OF THE PROPOSED RULE IN THE FEDERAL REGISTER]. Persons interested in presenting oral testimony should contact Ms. Kelly A. Rimer, Risk and Exposure Assessment Group, Emission Standards Division (C404-01), U.S. EPA, Research Triangle Park, North Carolina 27711, telephone number (919) 541-2962. Persons interested in attending the public hearing should also contact Ms. Rimer to verify the time of the hearing.

FOR FURTHER INFORMATION CONTACT: Ms. Kelly A. Rimer, Risk and Exposure Assessment Group, Emission Standards Division (C404-01), U.S. EPA, Research Triangle Park, NC 27711, telephone number (919) 541-2962, electronic mail

address rimer.kelly@epa.gov.

SUPPLEMENTARY INFORMATION:

Regulated Entities. Categories and entities potentially regulated by this action include:

Category	SIC	NAICS	Examples of regulated entities
Any industry using a combustion turbine as defined in the regulation.	4911	2211	Electric power generation, transmission, or stationary distribution
	4922	486210	Natural gas transmission
	1311	211111	Crude petroleum and natural gas production
	1321	211112	Natural gas liquids producers
	4931	221	Electric and other services combined

This table is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be affected by this action. If you have any questions regarding the applicability of this action to a particular entity, consult the person listed in the preceding FOR FURTHER INFORMATION CONTACT section.

Docket. The EPA has established an official public docket for this action under Docket ID Number OAR-2003-0189. The official public docket is the collection of materials that is available for public viewing at the EPA

Docket Center (Air Docket), EPA West, Room B-108, 1301 Constitution Avenue, NW, Washington, DC 20004. The Docket Center is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Reading Room is (202) 566-1744, and the telephone number for the Air Docket is (202) 566-1742.

Electronic Access. An electronic version of the public docket is available through EPA's electronic public docket and comment system, EPA Dockets. You may use EPA Dockets at http://www.epa.gov/edocket/ to submit or view public comments, access the index of the contents of the official public docket, and access those documents in the public docket that are available electronically. Once in the system, select "search" and key in the appropriate docket identification number.

Certain types of information will not be placed in the EPA dockets. Information claimed as confidential business information (CBI) and other information whose disclosure is restricted by statute, which is not included in the official public docket, will not be available for public viewing in EPA's electronic public docket. The EPA's policy is that copyrighted material will not be placed in EPA's electronic public docket but

will be available only in printed, paper form in the official public docket. Although not all docket materials may be available electronically, you may still access any of the publicly available docket materials through the EPA Docket Center.

For public commenters, it is important to note that EPA's policy is that public comments, whether submitted electronically or in paper, will be made available for public viewing in EPA's electronic public docket as EPA receives them and without change unless the comment contains copyrighted material, CBI, or other information whose disclosure is restricted by statute. When EPA identifies a comment containing copyrighted material, EPA will provide a reference to that material in the version of the comment that is placed in EPA's electronic public docket. The entire printed comment, including the copyrighted material, will be available in the public docket.

Public comments submitted on computer disks that are mailed or delivered to the docket will be transferred to EPA's electronic public docket. Public comments that are mailed or delivered to the docket will be scanned and placed in EPA's electronic public docket. Where

practical, physical objects will be photographed, and the photograph will be placed in EPA's electronic public docket along with a brief description written by the docket staff.

Comments. You may submit comments electronically, by mail, by facsimile, or through hand delivery/courier. To ensure proper receipt by EPA, identify the appropriate docket identification number in the subject line on the first page of your comment. Please ensure that your comments are submitted within the specified comment period. Comments submitted after the close of the comment period will be marked "late." The EPA is not required to consider these late comments.

Electronically. If you submit an electronic comment as prescribed below, EPA recommends that you include your name, mailing address, and an e-mail address or other contact information in the body of your comment. Also include this contact information on the outside of any disk or CD ROM you submit and in any cover letter accompanying the disk or CD ROM. This ensures that you can be identified as the submitter of the comment and allows EPA to contact you in case EPA cannot read your comment due to technical difficulties or needs further

information on the substance of your comment. The EPA's policy is that EPA will not edit your comment and any identifying or contact information provided in the body of a comment will be included as part of the comment that is placed in the official public docket and made available in EPA's electronic public docket. If EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, EPA may not be able to consider your comment.

Your use of EPA's electronic public docket to submit comments to EPA electronically is EPA's preferred method for receiving comments. Go directly to EPA Dockets at http://www.epa.gov/edocket, and follow the online instructions for submitting comments. Once in the system, select "search" and key in Docket ID No. OAR-2003-0189. The system is an "anonymous access" system, which means EPA will not know your identity, e-mail address, or other contact information unless you provide it in the body of your comment.

Comments may be sent by electronic mail (e-mail) to a-and-r-docket@epa.gov, Attention Docket ID No. OAR-2003-0189. In contrast to EPA's electronic public docket, EPA's e-mail system is not an "anonymous access" system.

If you send an e-mail comment directly to the docket without going through EPA's electronic public docket, EPA's e-mail system automatically captures your e-mail address. E-mail addresses that are automatically captured by EPA's e-mail system are included as part of the comment that is placed in the official public docket and made available in EPA's electronic public docket.

You may submit comments on a disk or CD ROM that you mail to the mailing address identified in this document. These electronic submissions will be accepted in WordPerfect or ASCII file format. Avoid the use of special characters and any form of encryption.

By Mail. Send your comments (in duplicate, if possible) to: EPA Docket Center (Air Docket), U.S. EPA West, (MD-6102T), Room B-108, 1200 Pennsylvania Avenue, NW, Washington, DC 20460, Attention Docket ID No. OAR-2003-0189.

By Hand Delivery or Courier. Deliver your comments (in duplicate, if possible) to: EPA Docket Center, Room B-108, U.S. EPA West, 1301 Constitution Avenue, NW, Washington, DC 20004, Attention Docket ID No. OAR-2003-0189. Such deliveries are only accepted during the Docket Center's normal hours of operation.

By Facsimile. Fax your comments to: (202) 566-1741, Docket ID No. OAR-2003-0189.

CBI. Do not submit information that you consider to be CBI through EPA's electronic public docket or by e-mail. Send or deliver information identified as CBI only to the following address: Kelly Rimer, c/o Roberto Morales, OAQPS Document Control Officer (C404-02), U.S. EPA, Research Triangle Park, NC 27709, Attention Docket ID No. OAR-2003-0189. You may claim information that you submit to EPA as CBI by marking any part or all of that information as CBI (if you submit CBI on disk or CD ROM, mark the outside of the disk or CD ROM as CBI and then identify electronically within the disk or CD ROM the specific information that is CBI). Information so marked will not be disclosed except in accordance with procedures set forth in 40 CFR part 2.

In addition to one complete version of the comment that includes any information claimed as CBI, a copy of the comment that does not contain the information claimed as CBI must be submitted for inclusion in the public docket and EPA's electronic public docket. If you submit the copy that does not contain CBI on disk or CD-ROM, mark the outside of the disk or CD-ROM clearly that it

does not contain CBI. Information not marked as CBI will be included in the public docket and EPA's electronic public docket without prior notice. If you have any questions about CBI or the procedures for claiming CBI, please consult the person identified in the FOR FURTHER INFORMATION CONTACT section.

Worldwide Web (WWW). In addition to being available in the docket, an electronic copy of today's proposed rule will also be available on the WWW through the Technology Transfer Network (TTN). Following the Administrator's signature, a copy of the proposed rule will be placed on the TTN's policy and guidance page for newly proposed or promulgated rules at http://www.epa.gov/ttn/oarpg. The TTN provides information and technology exchange in various areas of air pollution control. If more information regarding the TTN is needed, call the TTN HELP line at (919) 541-5384.

Outline. This preamble is organized as follows:

I. Background and Criteria for Delisting
II. Summary of Petitioner's Request and EPA's Initial Delisting Determination
III. Description of the Four Stationary Combustion Turbine Subcategories
IV. Analysis of Gas-Fired Subcategories
A. Analytical Approach
B. Planning and Scoping
C. Source Characterization
D. Emissions Characterization

E. Air Dispersion Modeling
F. Human Health Effects of Emitted HAP
G. Human Health Values Used
H. Human Health Risk Results-Air Pathway
I. Multipathway Considerations
J. Effects Due to Acute Exposure
K. Environmental Effects Evaluation
V. Analysis of the Emergency Turbine Subcategory
VI. Analysis of the North Slope Turbine Subcategory
VII. Statutory and Executive Order Reviews
A. Executive Order 12866: Regulatory Planning and Review
B. Paperwork Reduction Act
C. Regulatory Flexibility Act
D. Unfunded Mandates Reform Act
E. Executive Order 13132: Federalism
F. Executive Order 13175: Consultation and Coordination with Indian Tribal Governments
G. Executive Order 13045: Protection of Children from Environmental Health Risks and Safety Risks
H. Executive Order 13211: Actions Concerning Regulations that Significantly Affect Energy supply, Distribution, or Use
I. National Technology Transfer and Advancement Act

I. Background and Criteria for Delisting

Section 112 of the CAA contains a mandate for EPA to evaluate and control emissions of HAP from industry sectors called source categories. Section 112(b)(1) includes a list of 188 specific chemical compounds and classes of compounds identified as HAP. Section 112(c) requires the EPA to publish a list of all categories and subcategories of sources of HAP which will be subject to regulation. Each category or subcategory which includes major sources of HAP must be listed for regulation. Under section 112(d), the CAA requires EPA to establish

national emission standards for major source categories based on MACT for each category or subcategory which is included in the list.

The EPA published the initial source category list in the Federal Register on July 16, 1992 (57 FR 31576); you can find the most recent update to the source category list in the February 12, 2002 Federal Register (67 FR 6521).

Section 112(c)(9) of the CAA provides for the deletion of a source category from the list of source categories. A source category may be deleted from the list under section 112(c)(9)(A) if the category no longer satisfies the criteria for inclusion on the list because of the deletion of one or more HAP from the HAP list pursuant to section 112(b)(3) or a source category may be deleted from the list under section 112(c)(9)(B) if certain substantive criteria are satisfied. The EPA construes these provisions to apply to each listed subcategory as well. This construction is logical in the context of the general regulatory scheme established by the statute and is the most reasonable one because section 112(c)(9)(B)(ii) expressly refers to subcategories. If EPA takes final action to delete a

listed

source category or subcategory, this eliminates any requirement that MACT standards be promulgated for the category or subcategory in question. If MACT standards have already been promulgated, EPA will amend or rescind the standards in question.

A proceeding to delete a listed category or subcategory under section 112(c)(9)(B) of the CAA may be commenced either in response to a petition or on the initiative of the EPA Administrator. A source category delist petition is a formal request to the EPA from an individual or group to remove a specific source category or subcategory from the source category list. The Administrator must either grant or deny a petition within 1 year after receiving a complete petition (64 FR 33453). To grant such a petition, or to commence a proceeding to delete a category or subcategory on the Administrator's own motion, the Administrator must make an initial determination that:

(1) In the case of HAP emitted by sources in the category or subcategory that may result in cancer in humans, a determination that no source in the category or subcategory emits such HAP in quantities that may cause a

lifetime risk of cancer greater than 1 in 1 million to the individual in the population who is most exposed to emissions of such HAP from the source;

(2) In the case of HAP that may result in adverse health effects in humans other than cancer, a determination that emissions from no source in the category or subcategory exceed a level which is adequate to protect public health with an ample margin of safety; and

(3) In the case of HAP that may result in adverse environmental effects, a determination that no adverse environmental effect will result from emissions from any source in the category or subcategory.

If the Administrator decides to deny a petition, the Agency publishes a written explanation of the basis for denial in the Federal Register. A decision to deny a petition is final Agency action subject to review. If the Administrator decides to grant a petition, the Agency publishes a written explanation of the Administrator's decision, along with a proposed rule to delete the affected source category or subcategory. After affording an opportunity for notice and comment, the Administrator will issue a final rule determining whether or not the

affected category or subcategory will be delisted. If the final rule delists any affected source category or subcategory, the Administrator will also take all necessary actions to revise the source category list and to amend or to rescind affected MACT standards.

We do not interpret section 112(c)(9)(B) of the CAA to require absolute certainty that a source category or subcategory will not cause adverse effects on human health or the environment before it may be deleted from the source category list. The use of the words “may” and “adequate” indicate that the Agency must weigh the potential uncertainties and their likely significance. Uncertainties concerning risks of adverse health or environmental effects may be mitigated if we can determine that projected exposures are sufficiently low to provide reasonable assurance that such adverse effects will not occur. Similarly, uncertainties concerning the magnitude of projected exposures may be mitigated if we can determine that the levels which might cause adverse health or environmental effects are sufficiently high to provide reasonable assurance that exposures will not reach harmful levels.

II. Summary of Petitioner’s Request and EPA’s Initial

Delisting Determination

On August 28, 2002, the GTA submitted a petition requesting EPA to create and then delete two subcategories from the Stationary Combustion Turbines source category: lean premix stationary combustion turbines firing natural gas as a primary fuel with limited oil backup capability, and a low-risk subcategory of stationary combustion turbines.

Upon receiving a source category or subcategory deletion petition, EPA must first determine whether there is a match between the source category or subcategory to which the petition applies and a listed category or subcategory. When MACT standards have been promulgated for the category in question, EPA will consult the definitions in those standards to determine whether or not a petition refers to a listed category or subcategory.

In this case, neither of the two subcategories to which the petition refers existed at the time the petition was received, nor do they coincide with the subcategories which we have recently adopted in the final MACT standards for stationary combustion turbines. However, based on the information and the arguments

presented in the petition, we decided to conduct our own analysis on the subcategories as they were defined in the final MACT standards to determine whether any of the subcategories meet the criteria of section 112(c)(9)(B) of the CAA. In the analysis on which our initial determinations are based, we used the data and analysis presented in the petition in those instances where we felt it was relevant and technically appropriate to do so, and we collected additional data and performed further analysis where those in the petition were considered inadequate.

We construe the issuance of the proposed rule to constitute a partial grant and a partial denial of the GTA petition. The lean premix gas-fired turbines subcategory in the final MACT standards is similar to one of the subcategories that the petitioner proposed: namely, the lean premix stationary combustion turbine firing natural gas as a primary fuel with limited oil use. We have made an initial determination that the substantive criteria for delisting are satisfied for this subcategory. However, in the final MACT standards, we did not create any subcategory coinciding with the low-risk subcategory proposed by the petitioner. Therefore,

we must deny that portion of the petition. Also, we have made an initial determination that several additional subcategories included in the final MACT standards satisfy the substantive criteria for delisting. These additional subcategories are: diffusion flame gas-fired stationary turbines, emergency stationary combustion turbines, and stationary combustion turbines located on the North Slope of Alaska.

III. Description of the Four Stationary Combustion Turbines Subcategories

The final MACT standards (40 CFR 63.6175) define stationary combustion turbines as:

> all equipment including, but not limited to, the turbine, the fuel, air, lubrication and exhaust gas systems, control systems (except emissions control equipment), and any ancillary components and sub-components comprising any simple cycle stationary combustion turbine, any regenerative/recuperative cycle stationary combustion turbine, or the combustion turbine portion of any stationary combined cycle steam/electric generating system. Stationary means that the combustion turbine is not self-propelled or intended to be propelled while performing its function. A stationary combustion turbine may, however, be mounted on a vehicle for portability or transportability.

Currently, there are approximately 8,000 stationary combustion turbines operating in the United States.

For the purposes of the MACT standards, stationary combustion turbines have been divided into eight subcategories. Four of the subcategories are the subject of the proposed delisting rule: (1) stationary lean premix combustion turbines when firing gas and when firing oil at sites where all turbines fire oil no more than 1,000 hours annually (also referred to as “lean premix gas-fired turbines”); (2) stationary diffusion flame combustion turbines when firing gas and when firing oil at sites where all turbines fire oil no more than 1,000 hours annually (also referred to herein as “diffusion flame gas-fired turbines”); (3) emergency stationary combustion turbines; and (4) stationary combustion turbines operated on the North Slope of Alaska (defined as the area north of the Arctic Circle (latitude 66.5° North)).

The stationary combustion turbines MACT standards also define the subcategories. The lean premix gas-fired turbines subcategory includes those stationary combustion turbines that use lean premix technology which was introduced in the 1990's and was developed to reduce nitrogen oxide (NOx) emissions without the use of add-on controls. In a lean premix combustor, the air and fuel

are thoroughly mixed to form a lean mixture for combustion. Mixing may occur before or in the combustion chamber. Lean premix combustors emit lower levels of NOx, carbon monoxide (CO), formaldehyde and other HAP than diffusion flame combustion turbines.

Diffusion flame gas-fired turbines operate in a different manner than lean premix units. In a diffusion flame combustor, the fuel and air are injected at the combustor and are mixed only by diffusion prior to ignition. Emergency stationary combustion turbines are stationary combustion turbines that operate in an emergency situation. Examples include stationary combustion turbines used to produce power for critical networks or equipment (including power supplied to portions of a facility) when electric power from the local utility is interrupted, or stationary combustion turbines used to pump water in the case of fire or flood, etc. Emergency stationary combustion turbines do not include stationary combustion turbines used as peaking units at electric utilities or stationary combustion turbines at industrial facilities that typically operate at low capacity factors. Emergency stationary combustion turbines may be operated for the purpose of maintenance

checks and readiness testing, provided that the tests are required by the manufacturer, the vendor, or the insurance company associated with the turbine.

The subcategory stationary combustion turbines located on the North Slope of Alaska refers to all stationary combustion turbines that are located north of the Arctic Circle. They have been identified as a subcategory due to operating limitations and uncertainties regarding the application of controls to these units.

IV. Analysis of Gas-Fired Subcategories

A. Analytical Approach

In conducting the risk assessment for the four source subcategories, EPA uses a tiered, iterative process recommended by the National Research Council (NRC) of the National Academy of Sciences. This process begins with the use of relatively inexpensive screening techniques and moves to more resource-intensive levels of data-gathering, model construction, and model application, as the particular situation warrants (NRC, 1994). In applying this approach, EPA typically conducts the first (and in some cases the only) iteration of the risk assessment using limited amounts of data and simple,

health-protective assumptions. This results in risk estimates that we expect will over-predict the actual risk. If the initial estimates of risk exceed a level of concern, then successive refinements with regard to data and models may be useful to more accurately characterize the actual risk. If the initial estimates are below a level of concern, then a more sophisticated analysis may not be necessary for decision-making purposes.

The analysis discussed here represents an initial assessment based on simple, health-protective assumptions. This screening approach has not sought to modify the assumptions in a way that would yield exposure estimates that would correspond to an actual individual in the population who is most exposed. Instead, through the compounding of health-protective assumptions, we feel this approach yields exposure estimates that exceed exposures to the most exposed individuals in the population.

B. Planning and Scoping

The first step in conducting a tiered, iterative risk assessment is to plan and scope the assessment. The EPA provides guidance for this step in the Risk Characterization Handbook (EPA, 2000) and in the

Framework for Cumulative Risk Assessment (EPA, 2003). The general process of planning and scoping includes defining the elements that will or will not be included in the risk assessment and explaining the purposes for which the risk assessment information will be used (EPA, 2000).

We have already established the motivation for conducting the risk assessment. Prompted by a petition submitted by the GTA, we conducted the assessment under section 112(c)(9)(B) of the CAA to determine whether regulatory relief for the industry was warranted. The assessment needed to show whether or not any source in each of the four subcategories exceeds the human health and ecological criteria described in the statute. In designing the assessment, we considered the statutory requirements, the amount and type of available information on the subcategories to include in the assessment, and the available methods and models.

Based on the criteria, we designed an assessment to estimate cancer risks and noncancer hazards from a worst-case exposure scenario which would likely exceed the exposure to the person most exposed. We began by conducting a human health risk analysis on stationary

lean premix combustion turbines when firing gas and when firing oil at sites where all turbines fire oil no more than 1,000 hours annually, and stationary diffusion flame combustion turbines when firing gas and when firing oil at sites where all turbines fire oil no more than 1,000 hours annually. To evaluate the risks, hazards and potential for adverse environmental effects from the emergency turbines and north slope turbines subcategories, we used available information on the subcategories and the results of the assessment on the lean premix and diffusion flame subcategories.

We designed the assessment to address cancer risks and noncancer hazards to humans from the air and ingestion pathways and also evaluated the potential for adverse environmental effects. As we describe above, we used a tiered, iterative approach to the assessment. Given that there are thousands of facilities in the four subcategories and that current information on the facilities is limited, it was not feasible to identify all turbines and their operating characteristics on a site-specific basis. Therefore, we used a number of health-protective assumptions where we lacked data. This is an appropriate approach to evaluating whether to

remove a source category or subcategory from regulation as the CAA specifies that in order to be delisted, “no source in the category” may exceed the cancer, noncancer or environmental criteria.

We created a worst-case exposure scenario by using a combination of actual data and health-protective assumptions. For the air pathway, our approach was to:

(1) Determine which type of turbine would result in the highest modeled air concentration of HAP.

(2) Hypothetically “place” eleven of the turbines at an actual facility to create our model plant. (An actual facility is permitted for eleven turbines, but seven turbines are currently operated there.)

(3) Calculate cancer risks, noncancer hazards and the potential for adverse environmental effects based on the highest ambient air concentrations of HAP calculated by the model.

For the multipathway analysis, we developed and evaluated an exposure scenario for our model plant using meteorologic data from locations around the country: Allentown, PA; Baton Rouge, LA; Indianapolis, IN; Kansas

City, KS; Los Angeles, CA; Minneapolis, MN; Seattle, WA; and Tampa, FL. Our goal was to account for the effect of meteorologic variability on the risks and hazards.

We feel the health-protective assumptions we used, when compounded in the assessment, lead to very health-protective risk estimates. Given the combination of data and assumptions used, we conducted an assessment that adequately addresses the questions posed, that is responsive to the requirements in section 112(c)(9)(B)of the CAA, that overestimates actual risks, and that shows the statutory criteria for deletion are met. See the technical memo located in the docket for the a more detailed description of the analysis (Combustion Turbines Source Category Risk Characterization, January 2004).

C. Source Characterization

Stationary combustion turbines can be operated in two basic cycles: simple cycle and combined cycle. The simple cycle mode consists of the combustion turbine-generator combination operating and producing electricity with the turbine exhaust vented through a stack directly to the atmosphere. In the combined cycle mode, the exhaust from the turbine is passed through a heat recovery steam generator to generate steam that is then

used to produce additional electricity. The heat extraction at this step cools the exhaust gas stream resulting in a lower exhaust temperature (reduced plume buoyancy). Thus, emissions from a turbine operating in the combined cycle mode will often produce higher ground level pollutant concentrations. As a health-protective assumption, our analysis only examined the combined cycle units.

To conduct our analysis, we used information on the physical characteristics of these turbines that was submitted by the petitioner after we determined the data were of sufficient quality to do so. The GTA provided data on a set of typical turbines ranging in power output from 5 to 253 megawatts (MW) each. These characteristics include turbine type (i.e., make and model), heat input, stack parameters (height, diameter, exit velocity, temperature), and building dimensions.

D. Emissions Characterization

With regard to emissions, we agree with the petitioner that the following HAP are emitted from turbines when natural gas is used as the fuel: 1,3-butadiene, acetaldehyde, acrolein, benzene, ethylbenzene, formaldehyde, naphthalene, polycyclic aromatic

hydrocarbons (PAH, which the EPA classifies as a subset of a larger group of HAP, polycyclic organic matter (POM)), propylene oxide, toluene, and xylenes (mixed). We also agree with the petitioner that the following non-metallic HAP are emitted from turbines when distillate oil is used as the fuel: 1,3-butadiene, benzene, formaldehyde, naphthalene, and PAH. However, the petitioner claimed that metallic HAP are not detectable in distillate oil and are, thus, not present in turbine emissions; they subsequently amended this claim to state that only chromium and lead are emitted. We disagree with these claims and have collected additional data showing the following HAP metals can be emitted when turbines burn distillate oil, although the levels can vary by oil type: arsenic, beryllium, cadmium, chromium VI, lead, manganese, mercury, nickel and selenium. We used emission factors for the emitted HAP that are based on the most recent available data. Also, we developed separate emission factors for large and small turbines based on the burner design-type (lean premix or diffusion flame) and based on the differences in heat input between small versus large turbines. To develop health-protective, yet still realistic emission values, we

calculated emission factors for each HAP by selecting the lesser of 1) the upper 95 percent confidence interval around the mean of each set of emission factors reported for the HAP or 2) the maximum emission factor reported for the HAP. We then developed turbine-specific emission estimates by multiplying the pollutant-specific emission factors with the heat input of each unit.

E. Air Dispersion Modeling

The goal of our air dispersion modeling approach was to determine the maximum annual ambient average concentrations of all emitted HAP that a person living in the vicinity of a turbine could experience. We used these maximum annual ambient average concentrations, without regard to whether a person is actually exposed to these concentrations, as surrogates for exposure. This is a health-protective approach to assessing exposure.

We used the SCREEN3 model (Version 96043) to estimate the maximum annual ambient average concentrations of all emitted pollutants. SCREEN3 consists of algorithms that tend to overestimate HAP concentrations in air, along with worst-case meteorologic conditions, to estimate ambient concentrations of HAP in air. This results in estimates of HAP concentrations in

air that are likely to be an overestimate of what we expect people to actually breathe. We used this health-protective modeling approach to evaluate the four subcategories of stationary combustion turbines because it is not feasible to identify all turbines and their operating characteristics due to the large number of facilities. Also, we want to ensure that our assessment is not underestimating potential exposures and risks. This is an important consideration when we are evaluating whether to grant a petition to remove a source category from regulation as the CAA specifies that in order to be delisted, “no source in the category” may exceed the cancer, noncancer or environmental criteria.

Our approach to modeling was to first determine which type of turbine (of the ten turbine types identified by the petitioner) produces the highest maximum annual ambient average concentrations using SCREEN3. We then simulated a facility and ran SCREEN3 for all HAP emitted from lean premix gas-fired turbines and also for diffusion flame gas-fired turbines, using regulatory default mode, full meteorology, building downwash, flat nearby terrain, rural dispersion, automated receptor arrangement (50-2000 meter), and a

conversion factor of 0.08 to obtain annual average concentrations from maximum 1-hour concentrations. As stated above, we used turbine characteristics submitted by the petitioner and developed updated emission factors ourselves. We used these data as inputs into the SCREEN3 model in order to obtain the maximum annual average air concentrations from a worst-case type of turbine. Our dispersion modeling showed that the W501F turbine resulted in the highest air concentrations.

After establishing that maximum annual ambient average concentrations are the highest from the W501F turbine, we simulated another facility. We placed 11 W501F turbines at our simulated facility because the highest number of large turbines permitted to operated at an actual facility is 11. After accounting for source separation (see technical memo for details), we ran SCREEN3 on our simulated facility for four scenarios: (1) assuming the 11 turbines are lean premix gas-fired turbines collectively using 1,000 hours of oil per year; (2) assuming the 11 turbines are diffusion flame gas-fired turbines collectively using 1,000 hours of oil per year; (3) assuming the 11 turbines are lean premix and burn only natural gas; and (4)assuming the 11 turbines

are diffusion flame turbines and burn only natural gas. We conducted the analyses assuming the turbines burn only natural gas, and assuming the turbines burn natural gas plus 1,000 hours of oil per year because not all facilities use oil, and because emissions are different when only natural gas is used as fuel (no metals are emitted but formaldehyde emissions are higher). The maximum annual ambient average concentrations for each emitted pollutant for natural gas plus 1,000 hours of oil per year and for natural gas only for the 11 W501F turbines can be found in Table 4 of the technical memo (see docket).

We consider the maximum annual average concentrations resulting from our dispersion modeling analysis to be health-protective. That is, we feel that the resulting air concentrations over- rather than under-estimate actual exposures to people. This is because our analysis used health-protective source parameters and atmospheric dispersion modeling methodology; relied on health-protective emission factors for all HAP; used the maximum annual ambient average concentrations of the emitted HAP as a surrogate for exposure; and assumed 70 years, 24 hours a day, 365 days a year of continuous

exposure. Even though actual emission rates, and thus ambient concentrations, of HAP may increase above annual average levels during certain short-duration transient operations such as unit startup, the health-protective analysis approach accounts for such transient increases in the health-protective estimates of annual average exposures. Thus, the analyses, even though they do not explicitly incorporate these short term events, reasonably account for these events and result in health-protective estimates of risk.

F. Human Health Effects of Emitted HAP

Although numerous HAP may be emitted from combustion turbines, a few account for essentially all the mass of HAP emissions from stationary combustion turbines. These HAP are formaldehyde, toluene, benzene, and acetaldehyde. Other emitted HAP are of potential concern not so much because of the emitted amounts, but due to their high potency via the inhalation route. These include arsenic and PAH. Four of the emitted HAP are of potential concern from the ingestion route: PAH, which are of concern for cancer; and cadmium, lead and mercury which are of concern for noncarcinogenic effects.

The HAP emitted in the largest quantity is

formaldehyde. Formaldehyde is a probable human carcinogen and can cause irritation of the eyes and respiratory tract, coughing, dry throat, tightening of the chest, headache, and heart palpitations. Acute (short-term) inhalation has caused bronchitis, pulmonary edema, pneumonitis, pneumonia, and death due to respiratory failure. Chronic (long-term) exposure can cause dermatitis and sensitization of the skin and respiratory tract.

Other HAP emitted in significant quantities from stationary combustion turbines include toluene, benzene, and acetaldehyde. The health effect of primary concern for toluene is dysfunction of the central nervous system (CNS). Toluene vapor also causes narcosis. Controlled exposure of human subjects produced mild fatigue, weakness, confusion, lacrimation, and paresthesia; at higher exposure levels there were also euphoria, headache, dizziness, dilated pupils, and nausea. After-effects included nervousness, muscular fatigue, and insomnia persisting for several days. Acute exposure may cause irritation of the eyes, respiratory tract, and skin. It may also cause fatigue, weakness, confusion, headache, and drowsiness. Very high concentrations may

cause unconsciousness and death.

Benzene is a known human carcinogen. The health effects of benzene include nerve inflammation, CNS depression, and cardiac sensitization. Acute exposure can cause dizziness, euphoria, giddiness, headache, nausea, staggering gait, weakness, drowsiness, respiratory irritation, pulmonary edema, pneumonia, gastrointestinal irritation, convulsions, and paralysis. Benzene can also cause irritation to the skin, eyes, and mucous membranes. Chronic exposure to benzene can cause fatigue, nervousness, irritability, blurred vision, and labored breathing and has produced anorexia and irreversible injury to the blood-forming organs; effects include aplastic anemia and leukemia.

Acetaldehyde is a probable human carcinogen. Inhalation exposures to acetaldehyde can cause irritation of the eyes, mucous membranes, skin, and upper respiratory tract, and CNS depression in humans. Acute exposure can cause conjunctivitis, coughing, difficult breathing, and dermatitis. Chronic exposure may cause heart and kidney damage, embryotoxicity, and teratogenic effects.

Arsenic, a naturally occurring element, is found

throughout the environment. For most people, food is the major source of exposure to arsenic. The EPA has classified inorganic arsenic as a human carcinogen. Acute high-level inhalation exposure to arsenic dust or fumes has resulted in gastrointestinal effects (nausea, diarrhea, abdominal pain); central and peripheral nervous system disorders have occurred in workers acutely exposed to inorganic arsenic. Chronic inhalation exposure to inorganic arsenic in humans is associated with irritation of the skin and mucous membranes. Chronic oral exposure has resulted in gastrointestinal effects, anemia, peripheral neuropathy, skin lesions, hyperpigmentation, and liver or kidney damage in humans. Inorganic arsenic exposure in humans, by the inhalation route, has been shown to be strongly associated with lung cancer, while ingestion of inorganic arsenic in humans has been linked to a form of skin cancer and also to bladder, liver, and lung cancer.

Polycyclic aromatic hydrocarbons are a group of compounds that fit within the POM HAP category. Dermal exposures to mixtures of PAH cause skin disorders in humans and animals. No information is available on the reproductive or developmental effects of PAH mixtures in

humans, but animal studies have reported that oral exposure to benzo(a)pyrene (BaP, a PAH compound) causes reproductive and developmental effects. Human studies have reported an increase in lung cancer in humans exposed to PAH-bearing mixtures including coke oven emissions, roofing tar emissions, and cigarette smoke. Animal studies have reported respiratory tract tumors from inhalation exposure to BaP and forestomach tumors, leukemia, and lung tumors from oral exposure to BaP. The EPA has classified seven PAH compounds: (BaP, benz(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene) as Group B2, probable human carcinogens.

The EPA reports in the Integrated Risk and Exposure Assessment (IRIS) that cadmium has been shown to cause kidney damage via the oral route. IRIS also reports that there are no positive cancer studies of orally ingested cadmium suitable for quantification. Consequently, we evaluated noncancer hazards only for cadmium ingestion. The major effect from chronic oral exposure to inorganic mercury is also kidney damage. Animal studies have reported effects such as alterations in testicular

tissue, increased resorption rates, and abnormalities of development from oral exposure to inorganic mercury. Mercuric chloride (an inorganic mercury compound) exposure has been shown to result in forestomach, thyroid, and renal tumors in experimental animals. For lead, oral exposures can lead to central nervous system effects, as well as effects on the blood, blood pressure, kidneys and Vitamin D metabolism. Children are especially sensitive to the chronic effects of lead, and can exhibit slowed cognitive development and reduced growth.

G. Human Health Values Used

We used the human health values currently used by EPA's air toxics program and available at: http://www.epa.gov/ttn/atw/toxsource/summary.html. These dose response values come from several sources including EPA's IRIS, the United States department of Health and Human Service's Agency for Toxic Substances Disease Registry, and California EPA. See Table 5 in our technical memo for a summary of the human health values we used in our assessment.

For formaldehyde, we do not use the dose-response value reported in IRIS. The dose-response value in IRIS

is based on a 1987 study, and no longer represents the best available science in the peer-reviewed literature. Since that time, significant new data and analysis have become available. We based the dose-response value we used for formaldehyde on work conducted by the CIIT Centers for Health Research (CIIT). In 1999, the CIIT published a risk assessment which incorporated mechanistic and dosimetric information on formaldehyde that had been accumulated over the past decade. The risk assessment analyzed carcinogenic risk from inhaled formaldehyde using approaches that are consistent with EPA’s draft guidelines for carcinogenic risk assessment. The CIIT model is based on computational fluid dynamics (CFD) models of airflow and formaldehyde delivery to the relevant parts of the rat and human respiratory tract, which are then coupled to a biologically-motivated, two-staged clonal growth model that allows for incorporation of different biological effects. These biological effects, such as interaction with DNA and cell proliferation, are processes by which formaldehyde may contribute to development of cancer at sites exposed at the portal of entry (e.g., respiratory tract). The two-staged model is a much more advanced approach for

examining the relevance of tumors seen in animal models for human populations. The CIIT information and other recent information, including recently published epidemiological studies, are being reviewed and considered in the reassessment of our formaldehyde unit risk estimate (URE).

We believe that the CIIT modeling effort represents the best available application of the available mechanistic and dosimetric science on the dose-response for portal of entry cancers due to formaldehyde exposures. We note here that other organizations, including Health Canada, have adopted this approach. Accordingly, we have used risk estimates based on the CIIT airflow model coupled to a two-staged clonal growth model as the basis for the dose-response values for this analysis. The formaldehyde risk value obtained by extrapolating with the CIIT model that we used in our analysis differs slightly from the values used by the petitioner. The CIIT model incorporates state-of-the-art analyses for species-specific dosimetry, and encompasses more of the available biological data than any other currently available model. As with any model, uncertainties exist, and the CIIT model is sensitive to

the inputs, but we believe it represents the best available approach for assessing the risk of portal-of-entry cancers due to formaldehyde exposures.

H. Human Health Risk Results-Air Pathway

We calculated the maximum excess lifetime cancer risk for the Air pathway that results from the exposure scenario described above. We estimated risks for both the primary firing of natural gas with 1,000 hours of oil firing per year, per facility, and for the continuous firing of natural gas. Diffusion flame gas-fired turbines produced the highest risk. When firing natural gas plus 1,000 hours of oil per year, the total excess lifetime cancer risk from the all emitted pollutants from the diffusion flame turbines in our analysis is 7.7×10^{-7}. The total excess lifetime cancer risk from continuous burning of natural gas for our modeled scenario is 3.9×10^{-7}.

In addition to estimating cancer risks, we evaluated noncancer hazards for each pollutant for which there is a noncancer human health value. To do this, we used a hazard quotient (HQ) approach and calculated the ratio of the exposure concentration to the noncancer human health value (e.g., inhalation reference concentration (RfC))

for each emitted HAP. This is represented by the formula HQ= (exposure concentration)/(RfC). The RfC is a peer-reviewed value defined as an estimate (with uncertainty spanning perhaps an order of magnitude) of a daily inhalation exposure to the human population (including sensitive subgroups) that is likely to be without appreciable risk of deleterious noncancer effects during a lifetime.

We then generated hazard indices (HI) by summing HQ across HAP. We can generate two types of hazard indices. The first type is generated by adding HQ for all emitted HAP regardless of their target organ. This results in an HI that is considered health-protective since the HQ for all pollutants are added even though some pollutants cause distinctly different effects. For our modeled scenario, the total HI for the natural gas plus 1,000 hours of oil scenario is 0.6. The HI for the natural gas burning scenario is 0.4.

We can also calculate HI by summing HQ from HAP that affect the same target organ. In this assessment, pollutants that affect the same target organ are acrolein and formaldehyde; they affect the respiratory system. These also are the two HAP with the highest individual

hazard quotients. When accounting for the fact that acrolein and formaldehyde affect the same target organ, we calculate a HI of 0.4. None of the other HAP affect the same target organ, thus, we calculated a HI for the respiratory system only. The other HAP had HQ ranging from 10^{-6} (nickel) to 0.1 (manganese).

I. Multipathway Considerations

In order to fully characterize risks and hazards to humans from the subcategories, we considered exposures from ingestion as well as inhalation for four of the emitted HAP: cadmium, lead, mercury and PAH. We chose these HAP because of all the HAP emitted, only these four appear on lists of chemicals that EPA considers to be persistent, bioaccumulative, and toxic (PBT) substances under the Pollution Prevention Program, the Great Waters Program, or the Toxics Release Inventory. (See the multipathway HAP memo in the docket for more information.) Therefore, in addressing the potential for the subcategories to be of concern due to multipathway routes of exposure, we need to consider emissions of cadmium, lead, mercury and PAH.

Several of the emitted PAH are carcinogenic via the ingestion pathway and, thus, we evaluated these

pollutants in the multipathway analysis: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene. We evaluated noncancer health effects for cadmium, lead, mercury and the following noncarcinogenic PAH: acenaphthene, fluoranthene, fluorene,and pyrene.

To evaluate the potential for these HAP to cause cancer risk or noncancer hazard to humans due to ingestion, we conducted a screening level multipathway analysis. As with the inhalation assessment, we did not have enough data to evaluate actual exposures across the entire source category. We did not structure this assessment to reflect actual exposures, rather we developed a worst-case exposure model scenario based on limited data and assumptions which, when considered in total, provide for a health-protective analysis. This approach ensures that we are not underestimating actual risks and hazards from emissions from the four subcategories.

We structured this analysis to estimate maximum risks to an individual exposed via routes other than inhalation (e.g., ingestion of contaminated food) for HAP

emitted from combustion turbines. We used our modeled facility and evaluated human ingestion of contaminated food, water and soil. We generally followed the Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities (HHRAP) (U.S. EPA, 1998) to conduct the multipathway portion of the assessment. The HHRAP provided the primary source of chemical-specific parameter values and default environmental parameters. We started with the HHRAP's parameter values and replaced specific inputs as necessary, either due to updated science or due to policy choices that we made in order to be consistent with the mandate to assess risks to the individual most exposed.

To evaluate a worst-case potential exposure from our modeled facility, we used a subsistence farmer scenario. This scenario reflects an adult living on a farm that we hypothetically assumed to be located close to our modeled facility. We assumed the farmer consumes meat (pork and beef), dairy, fruit, and vegetables that the farm produces as a portion of his/her diet. The animals raised on the farm subsist primarily on feed grown on the farm. We also assumed that the farmer is a recreational fisher and eats the fish he/she catches. Finally, we

assumed that the farmer drinks treated, local surface water (water which has gone through minimal municipal treatment).

For several reasons, we consider this approach to multipathway assessment scenario to be health-protective. We used the maximum ambient air concentrations from our modeled facility which, as we have stated above, produces higher ambient air concentrations than we expect to actually occur anywhere in the U.S. Also, we used a water body size, flow rate, watershed size and other parameters that were developed for the health protective analysis scenario analyzed in the Mercury Study Report to Congress. Further, we applied maximum pollutant deposition rates to the entire watershed. Thus, we feel our modeled scenario will over-predict actual risks and hazards from ingestion and is, therefore, health-protective.

We estimated both cancer risk and noncancer hazards from all the ingestion pathways: water, meats, fruits, vegetables, soil, and fish. The results of our multipathway analysis show that the cancer risks from PAH are 0.16 in 1 million (1.6×10^{-7}). This is below the statutory cancer risk criterion of 1 in 1 million. When

we add these risks to the lifetime excess cancer risks of 7.7×10^{-7} from the inhalation pathway, we get a total cancer risk of .93 in 1 million, which rounds to 0.9 in 1 million (0.9×10^{-6}). Such a summation of risks is appropriate only if it is plausible that the person with the maximum risks from the air pathway is also the person with the maximum risk from the ingestion pathway. Inherent in this assumption is that these two maximum concentrations (therefore, the maximum risk and hazards) occur at the exact same location. While we calculated risk and hazards for such a person, we feel it very unlikely that one person would be located at the point of highest impact from both inhalation and ingestion. If we had more site-specific data with which to conduct this assessment, we would likely have found that the maximum impact from inhalation was not in the same location as the maximum impact from ingestion, and the risks would be lower. We consider it inappropriate to use this combined inhalation/ingestion scenario because we consider it to be implausible. We feel that the actual combined risks, from all pathways, will be lower than 1 in 1 million and, therefore, the statutory criteria are met.

We estimated noncancer hazards for cadmium and

mercury, combining hazards from all ingestion pathways. The highest total hazard index for all ingestion pathways is 0.1. Noncancer hazards are driven by methyl mercury via ingestion of fish. The HQ for mercury for this route of exposure is also 0.1; it is clearly the driver for multipathway noncancer effects.

The EPA uses a slightly different approach in order to assess the hazard from ingestion exposures to lead. In general, we use a protocol like that in HHRAP to obtain media concentrations. We use an additional model called the Integrated Exposure, Uptake and Biokinetic Model (IEUBK) to estimate blood lead levels. We then calculate an HQ. In this analysis, the inhalation HQ for lead was so low, 0.000008, that we found it unnecessary to take the additional step of modeling further with the IEUBK. Based on previous analyses we have conducted on lead, we do not feel that an air concentration that leads to an HQ of 0.000008 would translate into an HQ of concern from the ingestion route of exposure. The ingestion HQ would have to be four to five orders of magnitude higher than the HQ from the air pathway to even approach a level of concern. Given the very low inhalation HQ for lead from exposure to the turbine

subcategories, the lead emissions from the four subcategories do not exceed a level that is adequate to protect the public health with an ample margin of safety. Therefore, we conclude that both risks and hazards to humans due to multipathway exposures from all HAP emitted from the four combustion turbine subcategories meet the required human health criteria in CAA section 112(c)(9)(B).

Emissions that result in the maximum modeled lifetime excess cancer risk of 0.9 in 1 million are within the statutory criteria. With regard to noncancer effects, we consider the emissions resulting in a target organ-specific HI of 0.4 from the turbine subcategories do not exceed a level that is adequate to protect the public health with an ample margin of safety. We consider the actual risks and hazards from the turbines in the four subcategories to be lower than what we estimated here due to the health-protective assumptions we included in this assessment. For example, in characterizing the physical and operational attributes of the turbines, we assumed all turbines were operating in combined cycle, used worst-case meteorology, and included the potential for building downwash. These assumptions

lead to exposures which we feel are higher than what we would find from an actual plant. In addition, we assumed that individuals are exposed to the maximum modeled concentrations of HAP in the air continuously for their entire lives (which we approximated as 70 years), and we used the maximum annual average concentration as a surrogate for exposure. These assumptions are also health-protective.

J. Effects Due to Acute Exposure

We determined that emissions from turbines are of concern for long-term (chronic) exposures and not from short-term (acute) exposures. Short-term exposures may arise when a facility starts up or shuts down equipment, which may result in short bursts of high emissions due to the fact that the unit is not running at peak efficiency during the time it takes to start up or shut down. For other types of source categories, this can lead to exposures that result in adverse health effects. In the case of gas-fired turbines, we have determined that upon start up, they reach peak efficiency quickly, therefore, limiting any bursts of emissions. Shut downs take a short amount of time as well. The HAP emitted from combustion turbines have not been associated with acute

health effects at the concentrations predicted in the analyses. While the short-duration emissions may slightly increase the overall cancer risks, this effect would be so small as to be inconsequential. Therefore, we conclude that the acute exposures to HAP emissions from stationary combustion turbines are not of concern.

K. Environmental Effects Evaluation

In order to assess whether the emissions from our modeled facility could lead to adverse environmental effects, we performed a screening-level ecological risk assessment. We evaluated the inhalation pathway for terrestrial mammals, the ingestion pathway for terrestrial wildlife, contact with sediment for benthic species, and contact with soil for terrestrial plants. We did not evaluate terrestrial plants exposed via direct contact with the air due to a lack of toxicity data.

We contend that human toxicity values we used in this analysis for the inhalation route are protective of inhalation exposures that may be experienced by terrestrial mammals. The human health values were derived based on human studies and also considered studies on small laboratory animals, primarily rodents. These values are significantly less than the level to

which an experimental animal was exposed. Because the maximum cancer risk and noncancer hazards to humans from inhalation exposure are all below a level of concern, we expect there to be no significant and widespread adverse effects to terrestrial mammals from inhalation exposures to HAP emitted from gas-fired turbines.

In order to assess whether the continuing emissions from our modeled facility could contribute to adverse environmental effects from the ingestion pathway, we performed a screening-level ecological risk assessment. For screening purposes, we intentionally designed the assessment to be health-protective of ecological receptors. We did not intend the assessment to be used in predicting specific types of effects to individuals, species, populations, or communities, or to the structure and function of the ecosystem. We used the assessment to identify HAP which may pose potential risk or hazard to ecological receptors and, therefore, would need to be evaluated in a more refined level of risk assessment.

For screening endpoints, we used the structure and function of generic aquatic and terrestrial populations and communities, including threatened and endangered species, that might be exposed to HAP emissions via soil

or water. The assessment endpoints are relatively generic with respect to descriptions of the environmental values that are to be protected and the characteristics of the ecological entities and their attributes. We assumed in the assessment that these ecological receptors were representative of sensitive individuals, populations, and communities present near these facilities.

The HAP we included in the quantitative ecological assessment are the same HAP that we evaluated in the multipathway human health assessment: cadmium, lead, mercury and PAH. We derived estimated media concentrations for each of these HAP from the media concentrations estimated in the multipathway exposures assessment. We chose exposure pathways to reflect the potential routes of exposure through sediment, soil, water, and air. We selected these environments because they are considered representative of locations of generic populations and communities most likely to be exposed to the HAP. Within these environments, the receptors evaluated consisted of two distinct groups: terrestrial and aquatic (i.e., including aquatic, benthic, and soil organisms; terrestrial plants and wildlife; and herbivorous, piscivorus, and carnivorous

wildlife).

The chronic ecological toxicity screening values used in the assessment were estimates of the maximum concentrations that would not be expected to affect survival, growth, or reproduction of sensitive species after long-term (more than 30 days) exposure to HAP. We screened HAP, pathways, and receptors using the ecological HQ method, which simply calculates the ratio of the estimated environmental concentrations to the selected ecological screening values.

The results of our ecological assessment show that for all pollutants assessed, and for all pathways assessed, the ecological HQ values are less than 1. Therefore, it is not likely that any of the HAP emitted would pose an ecological risk to ecosystems near any of these facilities.

With regard to endangered species, we assumed that the screening values were protective of sensitive species, including threatened or endangered species. There are no available ecological toxicity test data for threatened and endangered species for these HAP. As such, the actual sensitivities of any threatened or endangered species located in the vicinity of these

facilities is unknown. However, in order to be health-protective, we selected ecological screening values for the most sensitive species available for use in the analysis. Also, we are not familiar with any species that have become threatened or endangered as a result of emissions of these chemicals from stationary combustion turbines. Therefore, we feel it is not likely that any threatened and endangered species, if they exist around these facilities, would be adversely affected by these HAP emissions.

V. Analysis of the Emergency Turbine Subcategory

Emergency stationary combustion turbines are stationary combustion turbines that operate in an emergency situation. Examples include stationary combustion turbines used to produce power for critical networks or equipment (including power supplied to portions of a facility) when electric power from the local utility is interrupted, or stationary combustion turbines used to pump water in the case of fire or flood, etc. Emergency stationary combustion turbines do not include stationary combustion turbines used as peaking units at electric utilities or stationary combustion turbines at industrial facilities that typically operate

at low capacity factors. Emergency stationary combustion turbines may be operated for the purpose of maintenance checks and readiness testing, provided that the tests are required by the manufacturer, the vendor, or the insurance company associated with the turbine.

Usually one or two emergency turbines are located at a given facility. These units run mostly on oil and operate approximately 30 hours per year, per turbine. Regular testing of these units (done to ensure they will be operational during an emergency) may bring the total operating hours for a turbine up toward 200 hours per year, per turbine, or approximately 400 hours per facility. Given that these units burn less oil than allowed under the MACT standards for lean premix and diffusion flame gas-fired turbines (1,000 hours per facility), we expect the maximum annual average HAP concentrations in air to be much less for emergency turbines. Therefore, we expect the risks and hazards to be less.

VI. Analysis of the North Slope Turbine Subcategory

We have identified 120 stationary combustion turbines that are located on the North slope of Alaska.

Of these, 112 are diffusion flame gas-fired units, and eight are lean premix gas-fired turbines. The total number of oil hours used, per year, by any facility we identified on the North Slope is much less than 1,000 hours. Because we have determined that facilities burning oil for fewer than 1,000 hours per year meet the statutory criteria for delisting, we concluded that stationary combustion turbines located on the North Slope of Alaska also meet the delisting criteria.

Given the standard EPA risk assessment methods used, and the health-protective assumptions made in the assessment, we have made an initial determination that all sources in the four subcategories meet the human health and environmental criteria in CAA section 112(c)(9)(B) and should be removed from the source category list.

VII. Statutory and Executive Order Reviews

A. Executive Order 12866: Regulatory Planning and Review

Under Executive Order 12866 (58 FR 51735, October 4, 1993), EPA must determine whether the regulatory action is “significant” and, therefore, subject to Office of Management and Budget (OMB) review and the requirements

of the Executive Order. The Executive Order defines "significant regulatory action" as one that is likely to result in a rule that may:

(1) Have an annual effect on the economy of $100 million or more or adverse affect in a material way the economy, a sector to the economy, productivity, competition, jobs, the environment, public health or safety, or state, local or tribal governments or communities;

(2) create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;

(3) materially alter the budgetary impact of entitlements, grants, user fees, or loan programs, or the rights and obligation of recipients thereof; or

(4) raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order.

Pursuant to the terms of Executive Order 12866, it has been determined that the proposed action constitutes a "significant regulatory action" because it may raise novel policy issues and is therefore subject to OMB review. Changes made in response to OMB suggestions or

recommendations are documented in the public record (see ADDRESSES section of this preamble).

B. Paperwork Reduction Act

This action does not impose an information collection burden under the provisions of the Paperwork Reduction Act, 44 U.S.C. 3501 et seq. The proposed action will remove two subcategories from the combustion turbine source category and, therefore, eliminate the need for information collection toward regulatory compliance under the CAA. Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the

information. An Agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for EPA's regulations are listed in 40 CFR part 9 and 48 CFR chapter 15.

C. Regulatory Flexibility Act

The Regulatory Flexibility Act (RFA) generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act or any other statute unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small business, small organizations, and small governmental jurisdictions. For the purposes of assessing the impacts of today's proposed action on small entities, small entity is defined as: (1) a small business that meets the definitions for small business based on the Small Business Association (SBA) size standards which, for this proposed action, can include manufacturing (NAICS 3999-03) and air transportation (NAICS 4522-98 and 4512-98) operations

that employ less 1,000 people and engineering services (NAICS 8711-98) operations that earn less than $20 million annually; (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.

After considering the economic impact of today's proposed action on small entities, I certify that the proposed action will not have a significant economic impact on a substantial number of small entities. In determining whether a rule has significant economic impact on a substantial number of small entities, the impact of concern is any significant adverse economic impact on small entities, since the primary purpose of the regulatory flexibility analysis is to identify and address regulatory alternatives "which minimize any significant economic impact of the proposed rule on small entities." (5 U.S.C. 603 and 604). Thus, an agency may certify that a rule will not have a significant economic impact on a substantial number of small entities if the rule relieves regulatory burden, or otherwise has a

positive economic effect on all of the small entities subject to the rule. The proposed rule will eliminate the burden of additional controls to be applied to two subcategories of the combustion turbine source category, and associated operating, monitoring and reporting requirements. We have, therefore, concluded that today's proposed rule will relieve regulatory burden for all small entities. We continue to be interested in the potential impacts of the proposed rule on small entities and welcome comments on issues related to such impacts.

D. Unfunded Mandates Reform Act

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), Public Law 1044, establishes requirements for Federal agencies to assess the effects of their regulatory actions on State, local, and tribal governments and the private sector. Under section 202 of the UMRA, EPA generally must prepare a written statement, including a cost-benefit analysis, for proposed and final rules with "Federal mandates" that may result in expenditures to State, local, and tribal governments, in the aggregate, or to the private sector, of $100 million or more in any 1 year. Before promulgating an EPA rule for which a written statement is needed, section 205 of

the UMRA generally requires EPA to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most cost-effective or least burdensome alternative that achieves the objectives of the rule. The provisions of section 205 do not apply when they are inconsistent with applicable law. Moreover, section 205 allows EPA to adopt an alternative other than the least costly, most cost-effective or least burdensome alternative if the Administrator publishes with the final rule an explanation why that alternative was not adopted. Before EPA establishes any regulatory requirements that may significantly or uniquely affect small governments, including tribal governments, it must have developed under section 203 of the UMRA a small government agency plan. The plan must provide for notifying potentially affected small governments, enabling officials of affected small governments to have meaningful and timely input in the development of EPA regulatory proposals with significant Federal intergovernmental mandates, and informing, educating, and advising small governments on compliance with the regulatory requirements.

Today’s proposed rule contains no Federal mandates for State, local, or tribal governments or the private

sector. The proposed rule imposes no enforceable duty on any State, local or tribal governments or the private sector. In any event, EPA has determined that the proposed rule does not contain a Federal mandate that may result in expenditures of $100 million or more for State, local, and tribal governments, in the aggregate, or the private sector in any 1 year. Because the proposed rule removes two subcategories from the combustion turbine source category from regulatory consideration, it actually reduces the burden established under the CAA. Thus, today's proposed rule is not subject to the requirements of sections 202 and 205 of the UMRA.

E. Executive Order 13132: Federalism

Executive Order 13132 (64 FR 43255, August 10, 1999) requires EPA to develop an accountable process to ensure "meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications." "Policies that have federalism implications" is defined in the Executive Order to include regulations that have "substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of

government."

The proposed rule does not have federalism implications. It will not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132. Thus, Executive Order 13132 does not apply to the proposal.

F. Executive Order 13175: Consultation and Coordination with Indian Tribal Governments

Executive Order 13175 (65 FR 67249, November 9, 2000) requires EPA to develop an accountable process to ensure "meaningful and timely input by tribal officials in the development of regulatory policies that have tribal implications." The proposed rule does not have tribal implications, as specified in Executive Order 13175. The proposed action will eliminate control requirements for two subcategories from the combustion turbine source category and, therefore, reduces control costs and reporting requirements for any tribal entity operating a turbine contained in either of these subcategories. Thus, Executive Order 13175 does not apply to the proposed rule.

G. Executive Order 13045: Protection of Children from Environmental Health and Safety Risks

Executive Order 13045 (62 FR 19885, April 23, 1997) applies to any rule that: (1) is determined to be "economically significant" as defined under Executive Order 12866, and (2) concerns an environmental health or safety risk that EPA has reason to believe may have a disproportionate effect on children. If the regulatory action meets both criteria, the Agency must evaluate the environmental health or safety effects of the planned rule on children, and explain why the planned regulation is preferable to other potentially effective and reasonably feasible alternatives considered by the Agency.

The EPA interprets Executive Order 13045 as applying only to those regulatory actions that are based on health or safety risks, such that the analysis required under section 5-501 of the Executive Order has the potential to influence the regulation. The proposed rule is not subject to Executive Order 13045 because it is not economically significant as defined in Executive Order 12866, and because the Agency does not have reason to believe the environmental health or safety risks

addressed by this action present a disproportionate risk to children. This determination is based on the fact that the noncancer human health values we used in this analysis (e.g., RfC) are determined to be protective of sensitive sub-populations, including children. Also, while the cancer human health values do not always expressly account for cancer effects in children, the cancer risks posed by turbines in these two subcategories are sufficiently low so as not to be concern for anyone in the population, including children. In addition, the public is invited to submit or identify peer-reviewed studies and data, of which the Agency may not be aware, that assesses results of early life exposure to the HAP emitted by lean premix gas-fired combustion turbines and diffusion flame gas-fired combustion turbines.

H. Executive Order 13211, Actions Concerning Regulations that Significantly Affect Energy Supply, Distribution, or Use

The proposed rule is not subject to Executive Order 13211 (66 FR 28355, May 22, 2001) because it is not a significant regulatory action under Executive Order 12866.

I. National Technology Transfer and Advancement Act

Section 112(d) of the National Technology Transfer and Advancement Act of 1995 (NTTAA), (Public Law No. 104-113, section 12(d) 915 U.S.C. 272 note), directs all Federal agencies to use voluntary consensus standards instead of government-unique standards in their regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (e.g., material specifications, test method, sampling and analytical procedures, business practices, etc.) that are developed or adopted by one or more voluntary consensus standards bodies. Examples of organizations generally regarded as voluntary consensus standards bodies include the American society for Testing and Materials, the National Fire Protection Association A), and the Society of Automotive Engineers. The NTTAA requires Federal agencies like EPA to provide Congress, through OMB, with explanations when an agency decides not to use available and applicable voluntary consensus standards. The
proposed rule does not involve technical standards. Therefore, EPA is not considering the use of any voluntary consensus standards.

List of Subjects in 40 CFR part 63

Environmental protection, Air pollution control, Hazardous substances, Reporting and recordkeeping requirements.

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Dated:

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Michael O. Leavitt
Administrator