STANDARD FORM 83-I SUPPORTING STATEMENT
FOR OMB REVIEW OF ICR No. _____:

ELECTRIC UTILITY STEAM GENERATING UNIT MERCURY EMISSIONS INFORMATION COLLECTION EFFORT INFORMATION COLLECTION REQUEST

Emission Standards Division
U.S. Environmental Protection Agency
Research Triangle Park, North Carolina 27711

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PART A OF THE SUPPORTING STATEMENT FOR OMB FORM 83-I

ELECTRIC UTILITY STEAM GENERATING UNIT
MERCURY EMISSIONS INFORMATION COLLECTION EFFORT
INFORMATION COLLECTION REQUEST

1. Identification of the Information Collection

(a) *Title of the Information Collection*

"Electric Utility Steam Generating Unit Mercury Emissions Information Collection Effort." The Environmental Protection Agency (EPA) tracking number for this information collection request (ICR) is EPA ICR No. 1858.01. This is a new ICR.

(b) *Short Characterization*

This information collection is being conducted by EPA's Office of Air and Radiation (OAR) to assist the Administrator of EPA in determining, as required by section 112(n)(1)(A) of the Clean Air Act, as amended (the Act), whether it is appropriate and necessary to regulate emissions of hazardous air pollutants (HAPs) by electric utility steam generating units under section 112. In the event that the Administrator determines that regulation of such units under section 112 is appropriate and necessary, the information being collected would also be used in developing an applicable emission standard.

There will be two components to the information collection. The first component consists of acquiring accurate information on the amount of mercury contained in the as-fired coal used by each electric utility steam generating unit (as defined in section 112(a)(8) of the Act) with a capacity greater than 25 megawatts electric (MWe), as well as accurate information on the total amount of coal burned by each such unit. The information will be obtained by requiring, through the issuance of a letter pursuant to the authority of section 114 of the Act, the owner/operator of each such unit to sample and analyze, in accordance with an approved protocol, the mercury content of the as-fired coal for that unit on a total of 52 occasions (once per week for 52 consecutive weeks) and to submit the results of those analyses to EPA's OAR, Office of Air Quality Planning and Standards, Emission Standards Division (ESD). The letter will also require each owner/operator to submit information on the total amount of coal burned by each unit on a weekly basis. To better evaluate whether mercury emissions from coal-

fired electric utility steam generating units vary over time and to provide information to the public on mercury emissions over time, the Agency is considering requiring coal sampling and emissions reporting to be conducted for a number of years. The second component consists of requiring, again through the issuance of a letter pursuant to the authority of section 114, the owners/operators of a total of 30 coal-fired electric utility steam generating units selected at random from 8 categories on a statistically weighted basis to conduct, in accordance with an EPA approved protocol, triplicate simultaneous before and after control device stack testing using a specified mercury speciation method on four separate occasions over a 1-year period. The owner/operator of each selected utility unit will also be required to collect and analyze, in accordance with an approved protocol, a statistically appropriate number of coal samples during each stack test. The results of the stack tests and the coal analyses will again be submitted to the ESD.

The EPA estimates the cost of the mercury content and coal use data component of the information collection to be $9,651,438 and the cost of the stack testing and coal sampling component of the information collection to be $5,007,826 for a total cost of $14,659,264.

The owner/operator of each coal-fired electric utility steam generating unit required to conduct coal sampling and analysis will be required to keep records: i) documenting that each coal sample was obtained in accordance with an approved sampling protocol; ii) establishing proper chain of custody for each coal sample; iii) specifying the quality assurance/quality control (QA/OC) procedures followed in preparing each coal sample for analysis and performing the required analysis; iv) setting forth the results of the analysis performed on each coal sample; and, v) documenting the volume of each coal burned on a weekly basis.

The owner/operator of each coal-fired electric utility steam generating unit required to conduct stack testing and concurrent coal sampling and analysis will be required to keep records: i) documenting that each coal sample was obtained in accordance with the approved sampling protocol; ii) establishing proper chain of custody for each coal sample; iii) specifying the QA/OC procedures followed in preparing each coal sample for analysis and performing the required analysis; iv) setting forth the results of the analysis performed on each coal sample; v) documenting that each stack test was

conducted in accordance with the approved testing protocol; and, vi) setting forth the results of each stack test.

All records required under the proposed information collection must be retained for 3 years.

2. Need for and Use of the Collection

(a) Need/Authority for the Collection

Section 112(n)(1)(A) of the Act requires the EPA to perform a study of the hazards to public health reasonably anticipated to occur as a result of emissions by electric utility steam generating units of HAPs after imposition of the requirements of the Act and to prepare a Report to Congress containing the results of the study. The Agency is to proceed with rulemaking activities under section 112 to control HAP emissions from electric utility steam generating units if EPA finds such regulation is appropriate and necessary after considering the results of the study. The study has been completed and the Final Report to Congress was issued on February 24, 1998.

In the Final Report to Congress, the EPA stated that mercury is the HAP of greatest potential concern for coal-fired electric utility steam generating units and that additional research and monitoring are merited. The EPA also listed a number of research needs related to such mercury emissions. These include obtaining additional data on the mercury content of various types of coal as fired in electric utility boilers and additional data on mercury emissions (e.g., how much is emitted from various types of units; how much is divalent vs. elemental mercury; and how do factors such as control device, fuel type, and plant configuration affect emissions and speciation).

As indicated above, in addition to requiring the Administrator to perform a study of the hazards to public health reasonably anticipated to occur as a result of HAP emissions by electric utility steam generating units after imposition of the requirements of the Act and to report the results of that study to Congress, section 112(n)(1)(A) further requires the Administrator to regulate electric utility steam generating units under section 112 if the Administrator finds that such regulation is appropriate and necessary after "considering the results of the study." The Administrator interprets the quoted language as indicating that the results of the study are to play a principle, but not exclusive, role in informing the Administrator's decision as to whether it is appropriate and necessary to regulate electric utility steam

generating units under section 112. The Administrator believes that in addition to considering the results of the study, she may consider any other available information in making her decision. The Administrator also believes that she is authorized to collect and evaluate any additional information which may be necessary to make an informed decision.

After carefully considering the Final Report to Congress, the Administrator has concluded that obtaining additional information prior to making the required determination is appropriate. In the Final Report to Congress the EPA stated that at this time, the available information, on balance, indicates that utility mercury emissions are of sufficient potential concern for public health to merit further research and monitoring. The EPA acknowledged that there are substantial uncertainties that make it difficult to quantify the magnitude of the risks due to utility mercury emissions, and that further research and/or evaluation would be needed to reduce those uncertainties. The EPA believes that among those uncertainties are: i) the actual cumulative amount of mercury being emitted by all electric utility steam generating units on an annual basis; ii) the speciation of the mercury which is being emitted; and iii) the effectiveness of various control technologies in reducing the volume of each form of mercury which is emitted.

To address the question of the cumulative amount of mercury actually being emitted by all electric utility steam generating units on an annual basis, the EPA believes that it is necessary to require the owners/operators of all such units to provide information on the mercury content of the coal fired in each unit, as well as the volume of coal fired in each unit. The EPA can then apply appropriate correction factors to this data to calculate the amount of mercury emitted on an annual basis by each unit. Thus, the mercury emission data collection effort includes a requirement for all coal-fired electric utility steam generating units as defined in section 112(a)(8) of the Act to analyze weekly the mercury content of the coal which they fire and report the results of that analysis together with the volume of coal fired on a weekly basis. (Section 112(a)(8) of the Act defines electric utility steam generating unit as follows: "The term 'electric utility steam generating unit' means any fossil fuel fired combustion unit of more than 25 megawatts that serves a generator that produces electricity for sale. A unit that cogenerates steam and electricity and supplies more than one-third of its potential electric output

capacity and more than 25 megawatts electrical output to any utility power distribution system for sale shall be considered an electric utility steam generating unit.")

When preparing the Final Report to Congress, the Agency had available mercury emission data from a number of utility boilers. These data included measurements of the mercury emitted during various stages of the process (e.g., exiting the boiler, exiting the various control devices). Research conducted during the period between the acquisition of these data and the release of the report has highlighted the importance of the specific valence state of the emitted mercury on the ability of a particular control device to remove mercury from the exhaust gas stream. During the same time period, advances have been made in emission testing methodologies that more accurately differentiate among the various species of mercury that may be emitted from an electric utility steam generating unit. The mercury emission data gathering effort, therefore, includes provisions for acquiring additional speciated emission data so that the correlation between mercury in the coal, the species of mercury formed, and the mercury removal performance of various control devices may be further evaluated.

The information will be collected under authority of section 114 of the Act. Section 114(a) states, in pertinent part,:

> For the purpose...(iii) carrying out any provision of this Chapter...(1) the Administrator may require any person who owns or operates any emission source...to-...(D) sample such emissions (in accordance with such procedures or methods, at such locations, at such intervals, during such periods and in such manner as the Administrator shall prescribe); (E) keep records on control equipment parameters, production variables or other indirect data when direct monitoring of emissions is impractical...(G) provide such other information as the Administrator may reasonably require...

Section 114 is set forth in its entirety in Attachment 1.

(b) *Use/Users of the Data*

The data collected pursuant to the mercury emissions collection effort, along with other information, will be used by the Agency in evaluating whether regulation of electric utility steam generating units under section 112 of the Act is appropriate and necessary. Specifically, the data will respond in part to the two research needs noted above, providing the Agency with updated information on the mercury content of coals fired by, and on the speciation and controllability of mercury emitted

from, electric utility steam generating units. The data will be added to the existing database and will be used to further evaluate the emission of mercury by electric utility steam generating units. In the event that the Administrator determines that it is appropriate and necessary to regulate electric utility steam generating unit HAP emissions under section 112, the data will be used in the development of an applicable emission standard(s).

3. Nonduplication, Consultations, and Other Collection Criteria

(a) Nonduplication

The EPA recognizes that some of the information requested as part of the mercury emission data gathering effort (e.g., amount of coal fired per year) may already be included in the submittals being made by individual utilities pursuant to the Department of Energy/Energy Information Administration's Form 767 requirements. Utility owners/operators are given the option of submitting already available information if that information suits the needs of, and is of sufficient quality for, this data gathering effort. Plant-specific information currently in EPA's possession will be provided to the recipients of the section 114 letters for verification and to minimize any duplication. Other information requested pursuant to the mercury emissions data gathering effort (e.g., mercury content of coal burned; specific sources of all coals burned; individual amounts of coal from each source fired per year; speciation of mercury emissions; effectiveness of various control devices at removing mercury) is not believed to be available from other sources and, therefore, will be used to supplement the information which may currently be available from other sources.

(b) Public Notice Required Prior to ICR Submission to OMB

This ICR was submitted for public review as required by the Paperwork Reduction Act of 1995 (PRA) and the subsequent rule issued by the Office of Management and Budget (OMB) on August 29, 1995 (60 FR 44978).

[A copy of the Federal Register notice advising the public of the availability of the ICR and requesting comment thereon will be provided when the ICR is submitted to the OMB for review. In addition, a summary of the comments received will also be presented in this section.]

(c) Consultations

Significant input and information was received from the affected industry, State and local governments, environmental groups, the public, and other Federal agencies during development of the Final Report to Congress. The comments received were reviewed and utilized in the development of the Final Report to Congress. The public comments are located in the docket for the study (Docket A-92-55).

A public meeting is planned to discuss the proposed mercury emission data gathering effort. At the public meeting, the industry, other potentially interested Federal agencies, the environmental community, and the general public will be afforded an opportunity to comment on the proposed mercury emissions data gathering effort. This opportunity will be in addition to that provided by the Federal Register notice concerning the availability of the ICR for public review and comment.

(d) Effects of Less Frequent Collection

This ICR includes collection of 52 as-fired coal analyses (once per week for 52 weeks or for one year) per facility from each distinct coal storage pile maintained at, or utilized by, that facility. The ideal number of samples needed to characterize a fixed pile of coal would be approximately 40. Due to the desire to minimize the cost of coal analyses, 52 is considered a minimum characterization for a coal source that changes with each coal shipment received. By taking these samples every week for a year, a time series analysis can be used to show any trends in a coal source over a specified period of time.

For the stack testing component of this information collection, with consideration being given to minimizing the cost of the data collection effort (which involves sampling the fewest number of units possible without compromising the integrity of the data being collected), a minimum statistically representative sample for a large population is considered to be 30. In order to collect the most representative data, triplicate simultaneous before and after control device stack sampling with a specified mercury speciation method once per quarter for a one year period will be required. This will serve two purposes: i) to provide a basis for comparison; and ii) to capture any seasonal effects on emissions.

(e) General Guidelines

This ICR adheres to the guidelines for Federal data requestors, as provided at 5 CFR 1320.6.

(f) *Confidentiality*

(i) *Confidentiality*. Respondents will be required to respond under the authority of section 114 of the Act. If a respondent believes that disclosure of certain information requested would compromise a trade secret, it should be clearly identified as such and will be treated as confidential until and unless it is determined in accordance with established EPA procedure as set forth in 40 CFR Part 2 not to be entitled to confidential treatment. All information submitted to the Agency for which a claim of confidentiality is made will be safeguarded according to the Agency policies set forth in Title 40, Chapter 1, Part 2, Subpart B -- Confidentiality of Business Information (see 40 CFR 2; 41 FR 36902, September 1, 1976; amended by 43 FR 39999, September 28, 1978; 43 FR 42251, September 28, 1978; 44 FR 17674, March 23, 1979). Any information subsequently determined to constitute a trade secret will be protected under 18 U.S.C. 1905. If no claim of confidentiality accompanies the information when it is received by the EPA, it may be made available to the public without further notice (40 CFR 2.203, September 1, 1976). Because section 114(c) of the Act exempts emission data from claims of confidentiality, the emission data provided may be made available to the public. Therefore, emissions data should not be marked confidential. A definition of what the EPA considers emissions data is provided in 40 CFR 2.301(a)(2)(i).

(ii) *Sensitive questions*. This section is not applicable because this ICR does not involve matters of a sensitive nature.

4. The Respondents and the Information Requested

(a) *Respondents/SIC Codes*

Respondents affected by this action are owners/operators of coal-fired electric utility steam generating units as defined by section 112(a)(8) of the Act. For the purposes of this information collection, "coal" includes anthracite, bituminous, subbituminous, and lignite. The standard industrial classification (SIC) code for the respondent class is 4911.

(b) *Information Requested*

(i) *Data items, including recordkeeping requirements*. The proposed mercury emissions data gathering effort has two components: i) analyses of as-fired coal; and, ii) mercury

speciation stack testing. The first component would apply to the owners/operators of all coal-fired electric utility steam generating units with a capacity greater than 25 MWe. The second component would apply to a limited number of entities within specified subsets. Criteria will be given to evaluate the adequacy of previously collected data for use as either partial or complete fulfillment of either part.

The first component, analyses of as-fired coal, would require 52 tests per unit (weekly for 12 months). Each facility at which a coal-fired electric utility steam generating unit is located would be required to obtain as-fired coal analyses for each coal fired from each distinct coal storage pile maintained at, or utilized by, that facility. That is, if a facility had, for example, 10 units, 6 of which burned one type or blend of coal from one pile and 4 of which burned another type or blend of coal from another pile, the facility would be required to provide 2 (rather than 10) series of coal analyses. Coal samples collected in accordance with standardized coal sampling methods that best represent "as fired" coal for each storage pile would be analyzed. The owner/operator would also be required to measure and record the amount and type of each coal burned in each unit during each week and identify the source of each coal (i.e., State, seam, etc.). Each coal sample would be required to be analyzed, in accordance with one of several standardized analytical methods, for proximate and ultimate analyses and for mercury and chlorine content. Other specified analyses of coal constituents would be required to be reported if already available for any unit at the facility. In lieu of the facility conducting its own sampling and analysis program, analytical reports obtained from the coal supplier would be accepted if such analyses: i) were shown to be representative of as-fired coal used during the period in question (i.e., cleaned rather than raw coal); ii) had been obtained using standardized sampling and analytical procedures; and iii) could be correlated to the components of any blend of as-fired coal. Reports would be due one month after the close of the preceding quarter.

The second component, stack testing for mercury speciation, would require triplicate simultaneous before and after control device stack sampling with a specified mercury speciation method on four separate occasions over a 1-year period. Sampling would be required once per quarter (three sampling runs per test) with a minimum of 60 days between each sampling occasion. During the stack testing, collection and analyses of a statistically appropriate number of coal samples would be required.

The results of each series of stack tests and coal sample analyses would be required to be reported to the EPA by using a specified standardized electronic format within one month of the date of each quarterly testing exercise. Specified QA/QC procedures would be required for each part of the mercury emissions data collection effort.

(ii) *Respondent activities*. The activities a respondent must undertake to fulfill the requirements of the information collection are presented in Table 1. These include: i) read instructions; ii) secure stack test contractor and review proposal (if one of the 30 units selected); iii) conduct coal sampling; iv) conduct coal analyses; v) conduct stack testing (if one of the 30 units selected); vi) supervise stack testing (if one of the 30 units selected); vii) process, compile, and review coal sampling data for accuracy and completeness; viii) review stack sampling data for accuracy and completeness (if one of the 30 units selected); ix) submit coal sampling data; and x) submit stack sampling data (if one of the 30 units selected).

5. The Information Collected--Agency Activities, Collection Methodology, and Information Management

(a) *Agency Activities*

A list of activities required of the EPA is provided in Table 2. These include: i) develop questionnaire and sampling/analysis protocol for facilities subject only to the first component of the mercury emissions data gathering effort; ii) review coal sampling test plans; iii) review and comment on stack sampling test plans; iv) answer respondent questions; v) review coal analysis data for accuracy and completeness; vi) review stack sampling data for accuracy and completeness; vii) analyze coal sampling data; viii) analyze stack sampling data; and ix) analyze requests for confidentiality.

(b) *Collection Methodology and Management*

In collecting and analyzing the information associated with this ICR, the EPA will use personal computers and applicable database software. The EPA will ensure the accuracy and completeness of the collected information by reviewing each submittal. The information collected pursuant to the mercury emissions data gathering effort will be maintained in a computerized database. To better

facilitate uniformity in the format of the reports that are received, and, thus, increase the ease of database entry, standardized reporting forms will be developed and distributed.

(c) *Small Entity Flexibility*

All respondents required to comply with the first component of the mercury emissions data gathering effort will be subject to the same requirements, as will all respondents required to comply with the second component. The EPA expects that a portion of the respondents could be small governmental jurisdictions; however, any individual small entity would be expected to receive only one section 114 letter so their response burden will be minimized.

(d) *Collection Schedule*

To ensure that the regulatory determination can be made without unnecessary delay, the EPA anticipates issuing the section 114 letters by October 15, 1998. The section 114 letters would require the owner/operator of each coal-fired electric utility steam generating unit with a capacity greater than 25 MWe to: i) begin the required coal sampling and analysis by January 1, 1999; ii) submit the first quarterly report on the results of the coal sampling and analysis by April 30, 1999; iii) complete all required coal sampling and analysis by December 31, 1999; and, submit a final report on the results of the required coal sampling and analysis by January 31, 2000. The section 114 letter will require the owner/operator of each of the 30 selected coal-fired electric utility steam generating units to: i) submit to EPA for approval a stack testing and coal sampling and analysis protocol, together with a schedule for completing the required stack testing and coal sampling and analysis, by April 15, 1999; ii) commence stack testing, including concurrent coal sampling and analysis, by the date specified in the EPA approved facility-specific schedule; iii) submit the first quarterly report by the date specified in the EPA approved facility-specific schedule; iv) complete stack testing and concurrent coal sampling and analysis by May 31, 2000; and, v) submit a final report on the results of the stack testing and concurrent coal sampling and analysis by June 30, 2000.

6. ***Estimating the Burden and Cost of the Collection***

(a) *Estimating Respondent Burden*

The average annual burden estimate for reporting and recordkeeping requirements are presented in Table 1 for all recipients. These numbers were derived from estimates based on the EPA's experience with other emission test programs and other information collections. These estimates represent the average annual burden that will be incurred by the recipients.

(b) Estimating Respondent Costs

Table 2 presents estimated costs for the required recordkeeping and reporting activities. Labor rates and associated overhead costs are based on estimated hourly rates of $26.73 for technical personnel, $33.12 for management personnel, and $15.44 for clerical personnel. These values were taken from the Bureau of Labor Statistics Internet website and reflect the latest values available (March 1997).

(c) Estimating Agency Burden and Cost

The costs the Federal Government would incur are presented in Table 4. Labor rates and associated costs are based on the estimated hourly rates of $25.20 for technical personnel (GS-12, step 5); $41.66 for management personnel (GS-15, step 5); and $14.21 for clerical personnel (GS-7, step 5).

(d) Estimating the Respondent Universe and Total Burden and Costs

The respondent universe consists of 421 coal-fired utility facilities. Of these, all would be required to conduct coal sampling and 30 would be required to conduct stack testing.

(e) Bottom Line Burden Hours and Costs Tables

(i) Respondent tally. The bottom line industry burden hours and costs, presented in Tables 1 and 2, are calculated by summing the person-hours column and by summing the cost column.

The annual burden and cost to the industry is 40,516 hours and $14,659,264.

The average annual base reporting and recordkeeping burden and cost for this information collection for facilities having units subject only to the first component of the mercury emissions data gathering effort is 37 hours and $22,925 (see Tables 5 and 6). The average annual per electric utility steam generating unit base reporting and recordkeeping burden and cost for this information collection

for units subject to the second component of the mercury emissions data gathering effort is 174 hours and $166,928 (see Tables 7 and 8).

(ii) *Agency tally*. The bottom line Agency burden and cost, presented in Tables 3 and 4 is calculated in the same manner as the industry burden and cost. The estimated annual burden and cost are 53,569 hours and $1,342,075.

(iii) *The complex collection*. This ICR is a simple collection; therefore this section does not apply.

(iv) *Variations in the annual bottom line*. This section does not apply as this is a one-time collection.

(f) *Reasons for Change in Burden*

This is the initial estimation of burden for this information collection; therefore, this section does not apply.

(g) *Burden Statement*

Tables 5 and 6 present the annual respondent burden for those electric utility steam generating units required to comply with the first component of the mercury emissions data gathering effort, analyses of as-fired coal. Tables 7 and 8 present the average annual respondent burden for those electric utility steam generating units required to comply with the second component of the mercury emissions data gathering effort, mercury speciation stack testing. The total annual reporting and recordkeeping burden for the first component of the mercury emissions data gathering effort is estimated to be 34,375 hours and $9,651,438. The total annual reporting and recordkeeping burden for the second component of the mercury emissions data gathering effort is estimated to be 6,141 hours and $5,007,826.

This ICR does not include any requirements that would cause the respondents to incur either capital and start-up costs or operation and maintenance costs. The EPA has assumed that all respondents will contract (i.e., purchase services) for the coal analyses and for the stack testing. These costs are $8,804,800 for the coal analyses and $4,800,000 for the stack testing.

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 that is sent to ten or more persons unless it displays a currently valid OMB control number. The OMB control numbers for EPA's approved information collection requests are listed in 40 CFR Part 9 and 48 CFR Chapter 15.

Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Office of Policy Planning and Evaluation, Regulatory Information Division, U.S. Environmental Protection Agency (2137); 401 M Street SW; Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, 725 17th Street NW; Washington, DC 20503; marked "Attention: Desk Officer for the EPA." Include the EPA ICR number in any correspondence. Since OMB is required to make a decision concerning the ICR between 30 and 60 days after [Insert date of publication in the Federal Register], a comment to OMB is best assured of having its full effect if OMB receives it by [Insert date 30 days after publication in the Federal Register].

PART B OF THE SUPPORTING STATEMENT FOR OMB FORM 83-I

ELECTRIC UTILITY STEAM GENERATING UNIT
MERCURY EMISSIONS INFORMATION COLLECTION EFFORT
INFORMATION COLLECTION REQUEST

1. Respondent Universe

In 1994, the coal-fired utility industry was comprised of 1,017 units (boilers) greater than 25 MWe. All decisions regarding the stratification of the data employed in this study were based on the database used for the utility toxics study, Steam: Its Generation and Use (Babcock and Wilcox), and the Department of Energy/Energy Information Administration database.

2. Respondent Universe Stratification

Although the actual variables that affect mercury speciation are still being determined in on-going research efforts, two variables that appear to have an effect are scrubber type and coal source. For the purposes of grouping the coal-fired electric utility steam generating units into categories, these two variables were used so that a more representative sample of coal-fired units can be selected for testing. Scrubber type is defined as either a dry-scrubber (of any type/model), wet-scrubber (of any type/model), or no scrubber at all. Coal source is defined as bituminous (including anthracite), subbituminous, or lignite.

According to Babcock and Wilcox, lignite is the lowest rank coal and is relatively soft and brown to black in color.[1] The volatile content is high and, therefore, lignite ignites easily. Subbituminous coals are black, having little of the plant-like texture and none of the brown color associated with the lower rank lignite coal. Subbituminous coals generally have less ash and are cleaner burning than lignite coals. Bituminous coal is the rank most commonly burned in electric utility boilers and appears black with banded layers of glossy and dull black. The volatile content is lower than that of subbituminous and lignite coals. Anthracite, which is the highest rank of coal, is shiny black, hard, and brittle, with little appearance of layering. Anthracite has a low volatile content which makes it a slow burning fuel but

[1] Steam: Its Generation and Use. Edited by S.C. Stultz and J.B. Kitto. 40th Edition. The Babcock & Wilcox Company, Barberton, Ohio. 1992.

one that burns with a hot, clean flame. For the purposes of grouping, anthracite coal was combined with bituminous coal because only four coal-fired electric utility steam generating units are known to burn anthracite coal.

The nine defined categories that each coal-fired electric utility steam generating unit would fall into, and the number of units in each category, are as follows:

Category	Scrubber type/coal source	Total number of units
I	Dry Scrubber/Bituminous Coal	0
II	Dry Scrubber/Lignite Coal	2
III	Dry Scrubber/Subbituminous Coal	9
IV	No Scrubber/Bituminous Coal	641
V	No Scrubber/Lignite Coal	14
VI	No Scrubber/Subbituminous Coal	210
VII	Wet Scrubber/Bituminous Coal	78
VIII	Wet Scrubber/Lignite Coal	15
IX	Wet Scrubber/Subbituminous	48

Since no units were identified for category I, this category was removed from sampling considerations. The actual units that have been identified for each category are listed in Table 9 by category.

3. Sample Size

When dealing with a large population (1,017) of this nature, with consideration being given to minimizing the cost of the data collection effort (which involves sampling the fewest number of units possible without compromising the integrity of the data being collected), a statistically representative sample is considered to be 30. Given the eight viable categories from which units to be sampled can be selected, the units to be sampled can be selected in several ways: i) equally (or relatively so) among the eight categories, or ii) proportional allocation of units to be sampled to stratified population (units within each category). In proportional allocation, the sampling fraction (n_h/N_h) is specified to be the same for each stratum (category). The number of units (n_h) taken from each stratum is given by $n_h = (N_h)(n/N)$,

where N_h is the number of units in each stratum, n is the total number of units to be sampled (i.e., 30), and N is the total number of units (i.e., 1,017). Since assessing only one sample would not provide a basis for comparison, each category that would have had only one sample taken from it was changed to a two-sample set. Therefore, 2 units would be selected from categories II, III, V, VII, VIII, and IX; 12 units would be selected from category IV; and, 6 units would be selected from category VI, as shown below.

Category	Scrubber type/coal source	Total number of units	Statistically representative
II	Dry/Lignite	2	2 (0.06)
III	Dry/Subbituminous	9	2 (0.27)
IV	No/Bituminous	641	12 (18.91)
V	No/Lignite	14	2 (0.41)
VI	No/Subbituminous	210	6 (6.19)
VII	Wet/Bituminous	78	2 (2.30)
VIII	Wet/Lignite	15	2 (0.44)
IX	Wet/Subbituminous	48	2 (1.42)

In order to collect a meaningful amount of data per viable category (i.e., we cannot take samples from category I, since no units exist within that category), a minimum of two samples were accepted from each category. With only a fraction of a sample being the statistical proportion for a given category (see values in parenthesis), the minimum realistic sample size for each category would be one. When only one sample is taken, however, there is no basis for comparison; therefore, a two-sample minimum is appropriate. For those proportions that were over the two sample minimum, standard rounding conventions were used to determine the number of units to be sampled (i.e., greater than or equal to 0.5 was rounded up and less than 0.5 was rounded down). Due to the desire to minimize the cost of the data collection without compromising the integrity of the data being collected, the maximum number of samples to be taken was set at 30. Although 19 samples would have been the

ideal proportional allocation for category IV, the sacrifice to have a minimum number of samples for all categories had to be taken from the largest category.

4. Respondent Sample Collection

A random selection process will be used to determine which units are required to participate in this testing program. If possible, once a unit from a particular plant (site) has been selected, no other unit(s) at that plant (site) will be chosen for that particular category (i.e., some plants have units with different scrubber types or that burn coal from different sources). This will provide us with more information from a larger number of plants given all plant operations are not the same due to differing environmental conditions (e.g., weather), equipment, and load (e.g., amount of coal burned per unit of time). Each plant (site) will also have a different mix of coal, since most plants obtain coal from multiple sources (i.e., different States and/or different seams of coal), and testing at multiple plants (sites) will provide additional information on the variability of emissions across the mix of coals.

5. Response Rates

Since the information will be requested pursuant to the authority of section 114 of the CAA, EPA anticipates that all respondents requested to submit information will do so.

TABLE 1. ELECTRIC UTILITY STEAM GENERATING ICR
RESPONDENT BURDEN HOUR ESTIMATE - TOTAL

Collection activities	**Burden hours**[2]					
	Technical hours per occurrence	Occurrences per respondent	Technical hours per respondent	Respondents	Technical hours	Management hours
1. Read instructions.	1	1	1	451	451	23
2. Develop/submit coal sampling test plan.	1	1	1	421	421	21
3. Secure emission test contractor/review proposal.	40	1	40	33[3]	1,320	66
4. Conduct coal sampling.	0.5	52	26	842[4]	21,892	1,095
5. Coal sampling with stack testing.[5]	0.5	8	4	30	120	6
6. Conduct coal analyses.	0	52	0	842	0	0
7. Coal analyses with stack sampling.	0	8	0	30	0	0
8. Conduct stack testing.	0	4	0	30	0	0
9. Supervise stack testing.	24	4	96	30	2,880	144
10. Process/compile/review coal sampling data for accuracy and completeness.	8	1	8	842	6,736	337
11. Review stack sampling data for accuracy and completeness.	8	4	32	30	960	48
12. Submit coal sampling data.	1	1	1	421	421	21
13. Submit stack sampling data.	1	1	1	30	30	2
TOTAL			210		35,231	1,762

TABLE 2. ELECTRIC UTILITY STEAM GENERATING ICR
RESPONDENT BURDEN COST ESTIMATE - TOTAL

Collection activities	**Cost**

[2] Management hours are assumed to be 5 percent of technical hours; clerical hours are assumed to be 10 percent of technical hours.

[3] Assume that 10 percent need to be done twice.

[4] Each facility is assumed to have two distinct coal storage units.

[5] Each facility doing stack sampling will be required to acquire and analyze two additional samples per week for each of the four periods of stack sampling periods.

	Technical hours per occurrence	Occurrences per respondent	Technical hours per respondent	Respondents	Technical, at $26.73[6]	Management at $33.12
1. Read instructions.	1	1	1	451	$12,055	$747
2. Develop/submit coal sampling test plan.	1	1	1	421	$11,253	$697
3. Secure emission test contractor/review proposal.	40	1	40	33	$35,284	$2,186
4. Conduct coal sampling.	0.5	52	26	842	$585,173	$36,253
5. Coal sampling with stack testing.[9]	0.5	8	4	30	$3,208	$199
6. Conduct coal analyses.	0	52	0	842	$8,756,800[10]	
7. Coal analyses with stack sampling.	0	8	0	30	$48,000	
8. Conduct stack testing.	0	4	0	30	$4,800,000[11]	
9. Supervise stack testing.	24	4	96	30	$76,982	$4,769
10. Process/compile/review coal sampling data for accuracy and completeness.	8	1	8	842	$180,053	$11,155
11. Review emission stack data for accuracy and completeness.	8	4	32	30	$25,661	$1,590
12. Submit coal sampling data.	1	1	1	421	$11,253	$697
13. Submit stack sampling data.	1	1	1	30	$802	$50
TOTAL			210			

[6] From Bureau of Labor Statistics, March 1997 Employment Cost Trends, Table 16, Special industries (public utilities); http://stats.bls.gov/news.release.ecec.t16.htm

[7] From Bureau of Labor Statistics, March 1997 Employment Cost Trends, Table 2, Civilian workers by occupational and industry group; http://stats.bls.gov/news.release/ecec.t02.htm

[8] From Bureau of Labor Statistics, March 1997 Employment Cost Trends, Table 2, Civilian workers by occupational and industry group

[9] Each facility doing stack sampling will be required to acquire and analyze two additional samples per week for each of the four periods of stack sampling periods.

[10] Coal analyses are assumed to be contracted at a flat rate of $200 per sample.

[11] Emission testing is assumed to be contracted at a flat rate of $40,000 per sampling event (three sample runs per event; four events per respondent).

TABLE 3. ELECTRIC UTILITY STEAM GENERATING ICR EPA BURDEN HOUR ESTIMATE

Collection activities	Burden hours[12]					
	Technical hours per occurrence	Occurrences per respondent	Technical hours per respondent	Respondents	Technical hours	Management hours
1. Develop questionnaire.	80	1	80	1	80	4
2. Review coal sampling test plans.	1	1	1	421	421	21
3. Review and comment on emission sampling test plans.	4	1	4	33[13]	132	7
4. Answer respondent questions.	0.25	1	0.25	42[14]	11	1
5. Audit stack tests.	40	1	40	5	200	10
6. Review coal analysis data for accuracy and completeness.	8	1	8	842	6,736	337
7. Review stack data for accuracy and completeness.	16	1	16	30	480	24
8. Analyze coal sampling data.	40	1	40	842	33,680	1,684
9. Analyze stack sampling data.	40	4	160	30	4,800	240
10. Analyze requests for confidentiality.	1	1	1	42[15]	42	2
TOTAL			350.25		46,582	2,329

[12] Management hours are assumed to be 5 percent of technical hours; clerical hours are assumed to be 10 percent of technical hours.

[13] Assume that 10 percent need to be done twice.

[14] 10 percent of respondents are assumed to have one question.

[15] 10 percent of respondents are assumed to claim information to be confidential.

TABLE 4. ELECTRIC UTILITY STEAM GENERATING ICR EPA BURDEN COST ESTIMATE

Collection activities	Cost[16]					
	Technical hours per occurrence	Occurrences per respondent	Technical hours per respondent	Respondents	Technical, at $25.20	Manageme at $41.66
1. Develop questionnaire.	80	1	80	1	$2,016	$167
2. Review coal sampling test plans.	1	1	1	421	$10,609	$877
3. Review and comment on emission sampling test plans.	4	1	4	33	$3,326	$275
4. Answer respondent questions.	0.25	1	0.25	42	$265	$22
5. Audit stack tests.	40	1	40	5	$10,040[17]	$417
6. Review coal analysis data for accuracy and completeness.	8	1	8	842	$169,747	$14,031
7. Review stack data for accuracy and completeness.	16	1	16	30	$12,096	$1,000
8. Analyze coal sampling data.	40	1	40	842	$848,736	$70,155
9. Analyze stack sampling data.	40	4	160	30	$120,960	$9,998
10. Analyze requests for confidentiality.	1	1	1	42	$1,058	$87
TOTAL			350.25			

[16] Technical assumed at GS-12, Step 5; Management assumed at GS-15, Step 5; Clerical assumed at GS-7, Step 5.

[17] Includes $1,000 per audit for other direct costs.

TABLE 5. ELECTRIC UTILITY STEAM GENERATING ICR RESPONDENT BURDEN HOUR ESTIMATE - MERCURY CONTENT AND COAL USE DATA COMPONENT

Collection activities	**Burden hours**[18]					
	Technical hours per occurrence	Occurrences per respondent	Technical hours per respondent	Respondents	Technical hours	Management hours
1. Read instructions.	1	1	1	421	421	21
2. Develop/submit coal sampling test plan.	1	1	1	421	421	21
3. Conduct coal sampling.	0.5	52	26	842[19]	21,892	1,095
4. Conduct coal analyses.	0	52	0	842	0	0
5. Process/compile/review coal sampling data for accuracy and completeness.	8	1	8	842	6,736	337
6. Submit coal sampling data.	1	1	1	421	421	21
TOTAL			37		29,891	1,495

[18] Management hours are assumed to be 5 percent of technical hours; clerical hours are assumed to be 10 percent of technical hours.

[19] Each facility is assumed to have two distinct coal storage units.

TABLE 6. ELECTRIC UTILITY STEAM GENERATING ICR RESPONDENT BURDEN COST ESTIMATE - MERCURY CONTENT AND COAL USE DATA COMPONENT

Collection activities	Cost					
	Technical hours per occurrence	Occurrences per respondent	Technical hours per respondent	Respondents	Technical, at $26.73[20]	Manageme at $33.12[2
1. Read instructions.	1	1	1	421	$11,253	$697
2. Develop/submit coal sampling test plan.	1	1	1	421	$11,253	$697
3. Conduct coal sampling.	0.5	52	26	842[23]	$585,173	$36,253
4. Conduct coal analyses.	0	52	0	842	$8,756,800[24]	
5. Process/compile/review coal sampling data for accuracy and completeness.	8	1	8	842	$180,053	$11,155
6. Submit coal sampling data.	1	1	1	421	$11,253	$697
TOTAL			37			

[20] From Bureau of Labor Statistics, March 1997 Employment Cost Trends, Table 16, Special Industries (public utilities); http://stats.bls.gov/news.release.ecce.t16.htm

[21] From Bureau of Labor Statistics, March 1997 Employment Cost Trends, Table 2, Civilian workers by occupational and industry group; http://stats.bls.gov/news.release/ecec.t02.htm

[22] From Bureau of Labor Statistics, March 1997 Employment Cost Trends, Table 2, Civilian workers by occupational and industry group

[23] Each facility is assumed to have two distinct coal storage units.

[24] Coal analyses are assumed to be contracted at a flat rate of $200 per sample.

TABLE 7. ELECTRIC UTILITY STEAM GENERATING ICR RESPONDENT BURDEN HOUR ESTIMATE - STACK TESTING AND COAL SAMPLING COMPONENT

Collection activities	**Burden hours**[25]					
	Technical hours per occurrence	Occurrences per respondent	Technical hours per respondent	Respondents	Technical hours	Management hours
1. Read instructions.	1	1	1	30	30	2
2. Secure stack test contractor/review proposal.	40	1	40	33[26]	1,320	66
3. Conduct coal sampling.	0.5	8	4	30	120	6
4. Conduct coal analyses.	0	8	0	30	0	0
5. Conduct stack testing.	0	4	0	30	0	0
6. Supervise stack testing.	24	4	96	30	2,880	144
7. Review stack sampling data for accuracy and completeness.	8	4	32	30	960	48
8. Submit stack sampling data.	1	1	1	30	30	2
TOTAL			174		5,340	267

[25] Management hours are assumed to be 5 percent of technical hours; clerical hours are assumed to be 10 percent of technical hours.

[26] Assume that 10 percent need to be done twice.

TABLE 8. ELECTRIC UTILITY STEAM GENERATING ICR RESPONDENT BURDEN COST ESTIMATE - STACK TESTING AND COAL SAMPLING COMPONENT

Collection activities	Cost					
	Technical hours per occurrence	Occurrences per respondent	Technical hours per respondent	Respondents	Technical, at $26.73[27]	Manageme at $33.12[2
1. Read instructions.	1	1	1	30	$802	$50
2. Secure stack test contractor/review proposal.	40	1	40	33	$35,284	$2,186
3. Conduct coal sampling.	0.5	8	4	30	$3,208	$199
4. Conduct coal analyses.	0	8	0	30	$48,000[30]	
5. Conduct stack testing.	0	4	0	30	$4,800,000[31]	
6. Supervise stack testing.	24	4	96	30	$76,982	$4,769
7. Review stack sampling data for accuracy and completeness.	8	4	32	30	$25,661	$1,590
8. Submit stack sampling data.	1	1	1	30	$802	$50
TOTAL			174			

[27] From Bureau of Labor Statistics, March 1997 Employment Cost Trends, Table 16, Special Industries (public utilities); http://stats.bls.gov/news.release.ecce.t16.htm

[28] From Bureau of Labor Statistics, March 1997 Employment Cost Trends, Table 2, Civilian workers by occupational and industry group; http://stats.bls.gov/news.release/ecec.t02.htm.

[29] From Bureau of Labor Statistics, March 1997 Employment Cost Trends, Table 2, Civilian workers by occupational and industry group.

[30] Coal analyses are assumed to be contracted at a flat rate of $200 per sample.

[31] Emission testing is assumed to be contracted at a flat rate of $40,000 per sampling event (three sample runs per event; four events per respondent).

TABLE 9a. COAL-FIRED ELECTRIC UTILITY STEAM GENERATING UNITS WITH DRY SCRUBBERS USING LIGNITE COAL

Plant	State	Unit no.	Scrubber type	Coal source
Coyote	ND	1	Dry	Lignite
Stanton	ND	10	Dry	Lignite

TABLE 9b. COAL-FIRED ELECTRIC UTILITY STEAM GENERATING UNITS WITH DRY SCRUBBERS USING SUBBITUMINOUS COAL

Plant	State	Unit no.	Scrubber type	Coal source
Craig	CO	3	Dry	Subbituminous
GRDA	OK	2	Dry	Subbituminous
North Valmy	NV	2	Dry	Subbituminous
Rawhide	CO	1	Dry	Subbituminous
Riverside	MN	7	Dry	Subbituminous
Sherburne County	MN	3	Dry	Subbituminous
Shiras	MI	3	Dry	Subbituminous
Springerville	AZ	1	Dry	Subbituminous

Springerville	AZ	2	Dry	Subbituminous

TABLE 9c. COAL-FIRED ELECTRIC UTILITY STEAM GENERATING UNITS WITH NO SCRUBBER USING BITUMINOUS COAL

Plant	State	Unit no.	Scrubber type	Coal source
Acme	OH	2	None	Bituminous
Albright	WV	1	None	Bituminous
Albright	WV	2	None	Bituminous
Albright	WV	3	None	Bituminous
Allen	NC	1	None	Bituminous
Allen	NC	2	None	Bituminous
Allen	NC	3	None	Bituminous
Allen	NC	4	None	Bituminous
Allen	NC	5	None	Bituminous
AM Williams	SC	1	None	Bituminous
Amos	WV	1	None	Bituminous
Amos	WV	2	None	Bituminous

Amos	WV	3	None	Bituminous
Arapahoe	CO	1	None	Bituminous
Arapahoe	CO	2	None	Bituminous
Arapahoe	CO	3	None	Bituminous
Arapahoe	CO	4	None	Bituminous
Arkwright	GA	1	None	Bituminous
Arkwright	GA	2	None	Bituminous
Arkwright	GA	3	None	Bituminous
Arkwright	GA	4	None	Bituminous
Armstrong	PA	1	None	Bituminous
Armstrong	PA	2	None	Bituminous
Asheville	NC	1	None	Bituminous
Asheville	NC	2	None	Bituminous
Ashtabula	OH	5	None	Bituminous
Avon Lake	OH	6	None	Bituminous
Avon Lake	OH	7	None	Bituminous
Avon Lake	OH	9	None	Bituminous

Bailly	IN	7	None	Bituminous
Bailly	IN	8	None	Bituminous
Baldwin	IL	1	None	Bituminous
Baldwin	IL	2	None	Bituminous
Baldwin	IL	3	None	Bituminous
Barry	AL	1	None	Bituminous
Barry	AL	2	None	Bituminous
Barry	AL	3	None	Bituminous
Barry	AL	4	None	Bituminous
Barry	AL	5	None	Bituminous
Bay Shore	OH	1	None	Bituminous
Bay Shore	OH	2	None	Bituminous
Bay Shore	OH	3	None	Bituminous
Bay Shore	OH	4	None	Bituminous
BeeBee	NY	12	None	Bituminous
Belews Creek	NC	1	None	Bituminous
Belews Creek	NC	2	None	Bituminous

Big Bend	FL	1	None	Bituminous
Big Bend	FL	2	None	Bituminous
Big Bend	FL	3	None	Bituminous
Big Bend	FL	4	None	Bituminous
Big Sandy	KY	1	None	Bituminous
Big Sandy	KY	2	None	Bituminous
BL England	NJ	1	None	Bituminous
BL England	NJ	2	None	Bituminous
Blount Street	WI	6	None	Bituminous
Blount Street	WI	7	None	Bituminous
Blue Valley	MO	3	None	Bituminous
Bonanza	UT	1	None	Bituminous
Bowen	GA	1	None	Bituminous
Bowen	GA	2	None	Bituminous
Bowen	GA	3	None	Bituminous
Bowen	GA	4	None	Bituminous
Brandon Shores	MD	1	None	Bituminous

Brandon Shores	MD	2	None	Bituminous
Brayton Point	MA	1	None	Bituminous
Brayton Point	MA	2	None	Bituminous
Brayton Point	MA	3	None	Bituminous
Bremo Bluff	VA	3	None	Bituminous
Bremo Bluff	VA	4	None	Bituminous
Bridgeport Harbor	CT	3	None	Bituminous
Brunner Island	PA	1	None	Bituminous
Brunner Island	PA	2	None	Bituminous
Brunner Island	PA	3	None	Bituminous
Buck	NC	3	None	Bituminous
Buck	NC	4	None	Bituminous
Buck	NC	5	None	Bituminous
Buck	NC	6	None	Bituminous
Bull Run	TN	1	None	Bituminous
Cameo	CO	2	None	Bituminous
Canadys	SC	1	None	Bituminous

Canadys	SC	2	None	Bituminous
Canadys	SC	3	None	Bituminous
Cape Fear	NC	5	None	Bituminous
Cape Fear	NC	6	None	Bituminous
Carbon	UT	1	None	Bituminous
Carbon	UT	2	None	Bituminous
Cardinal	OH	1	None	Bituminous
Cardinal	OH	2	None	Bituminous
Cardinal	OH	3	None	Bituminous
Carlson	NY	5	None	Bituminous
Carlson	NY	6	None	Bituminous
Cayuga	IN	1	None	Bituminous
Cayuga	IN	2	None	Bituminous
Chalk Point	MD	1	None	Bituminous
Chalk Point	MD	2	None	Bituminous
Chamois	MO	2	None	Bituminous
Cherokee	CO	1	None	Bituminous

Cherokee	CO	4	None	Bituminous
Chesapeake	VA	1	None	Bituminous
Chesapeake	VA	2	None	Bituminous
Chesapeake	VA	3	None	Bituminous
Chesapeake	VA	4	None	Bituminous
Chesterfield	VA	3	None	Bituminous
Chesterfield	VA	4	None	Bituminous
Chesterfield	VA	5	None	Bituminous
Chesterfield	VA	6	None	Bituminous
Cheswick	PA	1	None	Bituminous
Cliffside	NC	1	None	Bituminous
Cliffside	NC	2	None	Bituminous
Cliffside	NC	3	None	Bituminous
Cliffside	NC	4	None	Bituminous
Cliffside	NC	5	None	Bituminous
Clifty Creek	IN	1	None	Bituminous
Clifty Creek	IN	2	None	Bituminous

Clifty Creek	IN	3	None	Bituminous
Clifty Creek	IN	4	None	Bituminous
Clifty Creek	IN	5	None	Bituminous
Clifty Creek	IN	6	None	Bituminous
Clinch River	VA	1	None	Bituminous
Clinch River	VA	2	None	Bituminous
Clinch River	VA	3	None	Bituminous
Coffeen	IL	1	None	Bituminous
Coffeen	IL	2	None	Bituminous
Colbert	AL	1	None	Bituminous
Colbert	AL	2	None	Bituminous
Colbert	AL	3	None	Bituminous
Colbert	AL	4	None	Bituminous
Colbert	AL	5	None	Bituminous
Coleman	KY	1	None	Bituminous
Coleman	KY	2	None	Bituminous
Coleman	KY	3	None	Bituminous

Conemaugh	PA	1	None	Bituminous
Conemaugh	PA	2	None	Bituminous
Conesville	OH	1	None	Bituminous
Conesville	OH	2	None	Bituminous
Conesville	OH	3	None	Bituminous
Conesville	OH	4	None	Bituminous
CP Crane	MD	1	None	Bituminous
CP Crane	MD	2	None	Bituminous
CR Huntley	NY	63	None	Bituminous
CR Huntley	NY	64	None	Bituminous
CR Huntley	NY	65	None	Bituminous
CR Huntley	NY	66	None	Bituminous
CR Huntley	NY	67	None	Bituminous
CR Huntley	NY	68	None	Bituminous
CR Lowman	AL	1	None	Bituminous
Crist	FL	4	None	Bituminous
Crist	FL	5	None	Bituminous

Crist	FL	6	None	Bituminous
Crist	FL	7	None	Bituminous
Crystal River	FL	1	None	Bituminous
Crystal River	FL	2	None	Bituminous
Crystal River	FL	4	None	Bituminous
Crystal River	FL	5	None	Bituminous
Culley	IN	1	None	Bituminous
Culley	IN	2	None	Bituminous
Culley	IN	3	None	Bituminous
Cumberland	TN	1	None	Bituminous
Cumberland	TN	2	None	Bituminous
Dale	KY	3	None	Bituminous
Dale	KY	4	None	Bituminous
Dallman	IL	1	None	Bituminous
Dallman	IL	2	None	Bituminous
Dan River	NC	1	None	Bituminous
Dan River	NC	2	None	Bituminous

Dan River	NC	3	None	Bituminous
Danskammer Point	NY	3	None	Bituminous
Danskammer Point	NY	4	None	Bituminous
DE Karn	MI	1	None	Bituminous
DE Karn	MI	2	None	Bituminous
Deepwater	NJ	6	None	Bituminous
Deerhaven	FL	2	None	Bituminous
Dickerson	MD	1	None	Bituminous
Dickerson	MD	2	None	Bituminous
Dickerson	MD	3	None	Bituminous
Dubuque	IA	3	None	Bituminous
Dubuque	IA	4	None	Bituminous
Dunkirk	NY	1	None	Bituminous
Dunkirk	NY	2	None	Bituminous
Dunkirk	NY	3	None	Bituminous
Dunkirk	NY	4	None	Bituminous
Earl F Wisdom	IA	1	None	Bituminous

Eastlake	OH	1	None	Bituminous
Eastlake	OH	2	None	Bituminous
Eastlake	OH	3	None	Bituminous
Eastlake	OH	4	None	Bituminous
Eastlake	OH	5	None	Bituminous
Eckert	MI	1	None	Bituminous
Eckert	MI	2	None	Bituminous
Eckert	MI	3	None	Bituminous
Eckert	MI	4	None	Bituminous
Eckert	MI	5	None	Bituminous
Eckert	MI	6	None	Bituminous
ED Edwards	IL	1	None	Bituminous
ED Edwards	IL	2	None	Bituminous
ED Edwards	IL	3	None	Bituminous
Edge Moor	DE	3	None	Bituminous
Edge Moor	DE	4	None	Bituminous
Edgewater	OH	4	None	Bituminous

Edwardsport	IN	7	None	Bituminous
Edwardsport	IN	8	None	Bituminous
Elmer Smith	KY	1	None	Bituminous
Elmer Smith	KY	2	None	Bituminous
Erickson	MI	1	None	Bituminous
EW Brown	KY	1	None	Bituminous
EW Brown	KY	2	None	Bituminous
EW Brown	KY	3	None	Bituminous
EW Stout	IN	5	None	Bituminous
EW Stout	IN	6	None	Bituminous
EW Stout	IN	7	None	Bituminous
FE Fair	IA	2	None	Bituminous
Fort Martin	WV	1	None	Bituminous
Fort Martin	WV	2	None	Bituminous
Fox Lake	MN	3	None	Bituminous
Gadsby	UT	2	None	Bituminous
Gadsby	UT	3	None	Bituminous

Gadsden New	AL	1	None	Bituminous
Gadsden New	AL	2	None	Bituminous
Gallagher	IN	1	None	Bituminous
Gallagher	IN	2	None	Bituminous
Gallagher	IN	3	None	Bituminous
Gallagher	IN	4	None	Bituminous
Gallatin	TN	1	None	Bituminous
Gallatin	TN	2	None	Bituminous
Gallatin	TN	3	None	Bituminous
Gallatin	TN	4	None	Bituminous
Gannon	FL	1	None	Bituminous
Gannon	FL	2	None	Bituminous
Gannon	FL	3	None	Bituminous
Gannon	FL	4	None	Bituminous
Gannon	FL	5	None	Bituminous
Gannon	FL	6	None	Bituminous
Gaston	AL	1	None	Bituminous

Gaston	AL	2	None	Bituminous
Gaston	AL	3	None	Bituminous
Gaston	AL	4	None	Bituminous
Gaston	AL	5	None	Bituminous
Gavin	OH	1	None	Bituminous
Gavin	OH	2	None	Bituminous
Genoa	WI	3	None	Bituminous
Ghent	KY	1	None	Bituminous
Ghent	KY	2	None	Bituminous
Ghent	KY	3	None	Bituminous
Ghent	KY	4	None	Bituminous
Gibson	IN	1	None	Bituminous
Gibson	IN	2	None	Bituminous
Gibson	IN	3	None	Bituminous
Gibson	IN	4	None	Bituminous
Glen Lyn	VA	5	None	Bituminous
Glen Lyn	VA	6	None	Bituminous

Gorgas Two	AL	6	None	Bituminous
Gorgas Two	AL	7	None	Bituminous
Gorgas Two	AL	8	None	Bituminous
Gorgas Two	AL	9	None	Bituminous
Gorgas Two	AL	10	None	Bituminous
Goudey	NY	7	None	Bituminous
Goudey	NY	8	None	Bituminous
Grainger	SC	1	None	Bituminous
Grainger	SC	2	None	Bituminous
Grand Tower	IL	3	None	Bituminous
Grand Tower	IL	4	None	Bituminous
Green River	KY	3	None	Bituminous
Green River	KY	4	None	Bituminous
Greene County	AL	1	None	Bituminous
Greene County	AL	2	None	Bituminous
Greenidge	NY	3	None	Bituminous
Greenidge	NY	4	None	Bituminous

HA Wagner	MD	2	None	Bituminous
HA Wagner	MD	3	None	Bituminous
Hamilton	OH	9	None	Bituminous
Hammond	GA	1	None	Bituminous
Hammond	GA	2	None	Bituminous
Hammond	GA	3	None	Bituminous
Hammond	GA	4	None	Bituminous
Harbor Beach	MI	1	None	Bituminous
Harllee Branch	GA	1	None	Bituminous
Harllee Branch	GA	2	None	Bituminous
Harllee Branch	GA	3	None	Bituminous
Harllee Branch	GA	4	None	Bituminous
Harrison	WV	1	None	Bituminous
Harrison	WV	2	None	Bituminous
Harrison	WV	3	None	Bituminous
Hatfields Ferry	PA	1	None	Bituminous
Hatfields Ferry	PA	2	None	Bituminous

Hatfields Ferry	PA	3	None	Bituminous
Havana	IL	6	None	Bituminous
Hayden	CO	1	None	Bituminous
Hayden	CO	2	None	Bituminous
Henderson One	KY	6	None	Bituminous
Henderson Two	KY	1	None	Bituminous
Henderson Two	KY	2	None	Bituminous
Hennepin	IL	1	None	Bituminous
Hennepin	IL	2	None	Bituminous
Hickling	NY	1	None	Bituminous
Hickling	NY	2	None	Bituminous
High Bridge	MN	4	None	Bituminous
HL Spurlock	KY	1	None	Bituminous
Holtwood	PA	17	None	Bituminous
Hower City	PA	3	None	Bituminous
Hower City	PA	2	None	Bituminous
Hower City	PA	1	None	Bituminous

HT Pritchard	IN	3	None	Bituminous
HT Pritchard	IN	4	None	Bituminous
HT Pritchard	IN	5	None	Bituminous
HT Pritchard	IN	6	None	Bituminous
Hudson	NJ	2	None	Bituminous
JR Whiting	MI	1	None	Bituminous
JR Whiting	MI	2	None	Bituminous
JR Whiting	MI	3	None	Bituminous
JS Cooper	KY	1	None	Bituminous
JS Cooper	KY	2	None	Bituminous
Hunlock	PA	3	None	Bituminous
Huntington	UT	2	None	Bituminous
Hutchings	OH	1	None	Bituminous
Hutchings	OH	2	None	Bituminous
Hutchings	OH	3	None	Bituminous
Hutchings	OH	4	None	Bituminous
Hutchings	OH	5	None	Bituminous

Hutchings	OH	6	None	Bituminous
Hutsonville	IL	3	None	Bituminous
Hutsonville	IL	4	None	Bituminous
Indian River	DE	1	None	Bituminous
Indian River	DE	2	None	Bituminous
Indian River	DE	3	None	Bituminous
Indian River	DE	4	None	Bituminous
Jack Watson	MS	4	None	Bituminous
Jack Watson	MS	5	None	Bituminous
James DeYoung	MI	5	None	Bituminous
James River	MO	3	None	Bituminous
James River	MO	4	None	Bituminous
James River	MO	5	None	Bituminous
JC Weadock	MI	7	None	Bituminous
JC Weadock	MI	8	None	Bituminous
Kammer	WV	1	None	Bituminous
Kammer	WV	2	None	Bituminous

Kammer	WV	3	None	Bituminous
Kanawha River	WV	1	None	Bituminous
Kanawha River	WV	2	None	Bituminous
Jefferies	SC	3	None	Bituminous
Jefferies	SC	4	None	Bituminous
Jennison	NY	1	None	Bituminous
Jennison	NY	2	None	Bituminous
JH Campbell	MI	1	None	Bituminous
JH Campbell	MI	2	None	Bituminous
JH Campbell	MI	3	None	Bituminous
JM Stuart	OH	1	None	Bituminous
JM Stuart	OH	2	None	Bituminous
JM Stuart	OH	3	None	Bituminous
JM Stuart	OH	4	None	Bituminous
John Sevier	TN	1	None	Bituminous
John Sevier	TN	2	None	Bituminous
John Sevier	TN	3	None	Bituminous

John Sevier	TN	4	None	Bituminous
Johnsonville	TN	1	None	Bituminous
Johnsonville	TN	2	None	Bituminous
Johnsonville	TN	3	None	Bituminous
Johnsonville	TN	4	None	Bituminous
Johnsonville	TN	5	None	Bituminous
Johnsonville	TN	6	None	Bituminous
Johnsonville	TN	7	None	Bituminous
Johnsonville	TN	8	None	Bituminous
Johnsonville	TN	9	None	Bituminous
Johnsonville	TN	10	None	Bituminous
Keystone	PA	1	None	Bituminous
Keystone	PA	2	None	Bituminous
Killen	OH	2	None	Bituminous
Kincaid	IL	1	None	Bituminous
Kincaid	IL	2	None	Bituminous
Kingston	TN	1	None	Bituminous

Kingston	TN	2	None	Bituminous
Kingston	TN	3	None	Bituminous
Kingston	TN	4	None	Bituminous
Kingston	TN	5	None	Bituminous
Kingston	TN	6	None	Bituminous
Kingston	TN	7	None	Bituminous
Kingston	TN	8	None	Bituminous
Kingston	TN	9	None	Bituminous
Kraft	GA	1	None	Bituminous
Kraft	GA	2	None	Bituminous
Kraft	GA	3	None	Bituminous
Kyger Creek	OH	1	None	Bituminous
Kyger Creek	OH	2	None	Bituminous
Kyger Creek	OH	3	None	Bituminous
Kyger Creek	OH	4	None	Bituminous
Kyger Creek	OH	5	None	Bituminous
Lake Road	MO	4	None	Bituminous

Lake Shore	OH	18	None	Bituminous
Lakeside	IL	6	None	Bituminous
Lakeside	IL	7	None	Bituminous
Lansing Smith	FL	1	None	Bituminous
Lansing Smith	FL	2	None	Bituminous
Lee	NC	1	None	Bituminous
Lee	NC	2	None	Bituminous
Lee	NC	3	None	Bituminous
Lee	SC	1	None	Bituminous
Lee	SC	2	None	Bituminous
Lee	SC	3	None	Bituminous
Lovett	NY	4	None	Bituminous
Lovett	NY	5	None	Bituminous
Manitowoc	WI	6	None	Bituminous
Marion	IL	1	None	Bituminous
Marion	IL	2	None	Bituminous
Marion	IL	3	None	Bituminous

Marshall	NC	1	None	Bituminous
Marshall	NC	2	None	Bituminous
Marshall	NC	3	None	Bituminous
Marshall	NC	4	None	Bituminous
Martins Creek	PA	1	None	Bituminous
Martins Creek	PA	2	None	Bituminous
Marysville	MI	6	None	Bituminous
Marysville	MI	7	None	Bituminous
Marysville	MI	8	None	Bituminous
Mayo	NC	1	None	Bituminous
McDonough	GA	1	None	Bituminous
McDonough	GA	2	None	Bituminous
McIntosh	GA	1	None	Bituminous
McMeekin	SC	1	None	Bituminous
McMeekin	SC	2	None	Bituminous
Meramec	MO	1	None	Bituminous
Meramec	MO	2	None	Bituminous

Meramec	MO	3	None	Bituminous
Meramec	MO	4	None	Bituminous
Mercer	NJ	1	None	Bituminous
Mercer	NJ	2	None	Bituminous
Meredosia	IL	1	None	Bituminous
Meredosia	IL	2	None	Bituminous
Meredosia	IL	3	None	Bituminous
Merrimack	NH	1	None	Bituminous
Merrimack	NH	2	None	Bituminous
Miami Fort	OH	5	None	Bituminous
Miami Fort	OH	6	None	Bituminous
Miami Fort	OH	7	None	Bituminous
Miami Fort	OH	8	None	Bituminous
Miller	AL	1	None	Bituminous
Miller	AL	2	None	Bituminous
Miller	AL	3	None	Bituminous
Miller	AL	4	None	Bituminous

Milliken	NY	1	None	Bituminous
Milliken	NY	2	None	Bituminous
Minnesota Valley	MN	3	None	Bituminous
Mitchell	GA	3	None	Bituminous
Mitchell	WV	1	None	Bituminous
Mitchell	WV	2	None	Bituminous
ML Kapp	IA	2	None	Bituminous
Montour	PA	1	None	Bituminous
Montour	PA	2	None	Bituminous
Morgantown	MD	1	None	Bituminous
Morgantown	MD	2	None	Bituminous
Mount Storm	WV	1	None	Bituminous
Mount Storm	WV	2	None	Bituminous
Mount Storm	WV	3	None	Bituminous
Mount Tom	MA	1	None	Bituminous
Mountaineer	WV	1	None	Bituminous
Muskingum River	OH	1	None	Bituminous

Muskingum River	OH	2	None	Bituminous
Muskingum River	OH	3	None	Bituminous
Muskingum River	OH	4	None	Bituminous
Muskingum River	OH	5	None	Bituminous
New Castle	PA	3	None	Bituminous
New Castle	PA	4	None	Bituminous
New Castle	PA	5	None	Bituminous
Newton	IL	2	None	Bituminous
Niles	OH	1	None	Bituminous
Niles	OH	2	None	Bituminous
Noblesville	IN	1	None	Bituminous
Noblesville	IN	2	None	Bituminous
Northeast	MN	1	None	Bituminous
Nucla	CO	4	None	Bituminous
Oak Creek	WI	5	None	Bituminous
Oak Creek	WI	6	None	Bituminous
Oak Creek	WI	7	None	Bituminous

Oak Creek	WI	8	None	Bituminous
Paradise	KY	3	None	Bituminous
Petersburg	IN	1	None	Bituminous
Petersburg	IN	2	None	Bituminous
Philip Sporn	WV	1	None	Bituminous
Philip Sporn	WV	2	None	Bituminous
Philip Sporn	WV	3	None	Bituminous
Philip Sporn	WV	4	None	Bituminous
Philip Sporn	WV	5	None	Bituminous
Picway	OH	5	None	Bituminous
Pineville	KY	3	None	Bituminous
Port Washington	WI	1	None	Bituminous
Port Washington	WI	2	None	Bituminous
Port Washington	WI	3	None	Bituminous
Port Washington	WI	4	None	Bituminous
Portland	PA	1	None	Bituminous
Portland	PA	2	None	Bituminous

Possum Point	VA	3	None	Bituminous
Possum Point	VA	4	None	Bituminous
Potomac River	VA	1	None	Bituminous
Potomac River	VA	2	None	Bituminous
Potomac River	VA	3	None	Bituminous
Potomac River	VA	4	None	Bituminous
Potomac River	VA	5	None	Bituminous
Quindaro Three	KS	1	None	Bituminous
Quindaro Three	KS	2	None	Bituminous
Ratts	IN	1	None	Bituminous
Ratts	IN	2	None	Bituminous
RD Nixon	CO	1	None	Bituminous
RE Burger	OH	1	None	Bituminous
RE Burger	OH	2	None	Bituminous
RE Burger	OH	3	None	Bituminous
RE Burger	OH	4	None	Bituminous
RE Burger	OH	5	None	Bituminous

Reid	KY	1	None	Bituminous
RH Gorsuch	OH	1	None	Bituminous
RH Gorsuch	OH	2	None	Bituminous
River Rouge	MI	2	None	Bituminous
River Rouge	MI	3	None	Bituminous
Riverbend	NC	4	None	Bituminous
Riverbend	NC	5	None	Bituminous
Riverbend	NC	6	None	Bituminous
Riverbend	NC	7	None	Bituminous
Riverside	IA	5	None	Bituminous
Rivesville	WV	5	None	Bituminous
Rivesville	WV	6	None	Bituminous
RM Schahfer	IN	14	None	Bituminous
RM Schahfer	IN	15	None	Bituminous
Robinson	SC	1	None	Bituminous
Rock River	WI	1	None	Bituminous
Rock River	WI	2	None	Bituminous

Roxboro	NC	1	None	Bituminous
Roxboro	NC	2	None	Bituminous
Roxboro	NC	3	None	Bituminous
Roxboro	NC	4	None	Bituminous
RP Smith	MD	3	None	Bituminous
RP Smith	MD	4	None	Bituminous
Russell	NY	1	None	Bituminous
Russell	NY	2	None	Bituminous
Russell	NY	3	None	Bituminous
Russell	NY	4	None	Bituminous
Salem Harbor	MA	1	None	Bituminous
Salem Harbor	MA	2	None	Bituminous
Salem Harbor	MA	3	None	Bituminous
Schiller	NH	4	None	Bituminous
Schiller	NH	5	None	Bituminous
Schiller	NH	6	None	Bituminous
Scholz	FL	1	None	Bituminous

Scholz	FL	2	None	Bituminous
Seward	PA	4	None	Bituminous
Seward	PA	5	None	Bituminous
Shawnee	KY	1	None	Bituminous
Shawnee	KY	2	None	Bituminous
Shawnee	KY	3	None	Bituminous
Shawnee	KY	4	None	Bituminous
Shawnee	KY	5	None	Bituminous
Shawnee	KY	6	None	Bituminous
Shawnee	KY	7	None	Bituminous
Shawnee	KY	8	None	Bituminous
Shawnee	KY	9	None	Bituminous
Shawnee	KY	10	None	Bituminous
Shawville	PA	1	None	Bituminous
Shawville	PA	2	None	Bituminous
Shawville	PA	3	None	Bituminous
Shawville	PA	4	None	Bituminous

Silver Lake	MN	4	None	Bituminous
Sixth Street	IA	8	None	Bituminous
Somerset	MA	6	None	Bituminous
St. Clair	MI	7	None	Bituminous
Streeter	IA	7	None	Bituminous
Sunbury	PA	4	None	Bituminous
Sutherland	IA	1	None	Bituminous
Sutherland	IA	2	None	Bituminous
Sutherland	IA	3	None	Bituminous
Sutton	NC	1	None	Bituminous
Sutton	NC	2	None	Bituminous
Sutton	NC	3	None	Bituminous
Tanners Creek	IN	1	None	Bituminous
Tanners Creek	IN	2	None	Bituminous
Tanners Creek	IN	3	None	Bituminous
Tanners Creek	IN	4	None	Bituminous
TH Allen	TN	1	None	Bituminous

TH Allen	TN	2	None	Bituminous
TH Allen	TN	3	None	Bituminous
Titus	PA	1	None	Bituminous
Titus	PA	2	None	Bituminous
Titus	PA	3	None	Bituminous
Trenton Channel	MI	9	None	Bituminous
Tyrone	KY	3	None	Bituminous
Urquhart	SC	1	None	Bituminous
Urquhart	SC	2	None	Bituminous
Urquhart	SC	3	None	Bituminous
Valley	WI	1	None	Bituminous
Valley	WI	2	None	Bituminous
Vermilion	IL	1	None	Bituminous
Vermilion	IL	2	None	Bituminous
Wabash River	IN	1	None	Bituminous
Wabash River	IN	2	None	Bituminous
Wabash River	IN	3	None	Bituminous

Wabash River	IN	4	None	Bituminous
Wabash River	IN	5	None	Bituminous
Wabash River	IN	6	None	Bituminous
Wansley	GA	1	None	Bituminous
Wansley	GA	2	None	Bituminous
Warren	PA	1	None	Bituminous
Warren	PA	2	None	Bituminous
Warrick	IN	4	None	Bituminous
Wateree	SC	1	None	Bituminous
Wateree	SC	2	None	Bituminous
WC Beckjord	OH	1	None	Bituminous
WC Beckjord	OH	2	None	Bituminous
WC Beckjord	OH	3	None	Bituminous
WC Beckjord	OH	4	None	Bituminous
WC Beckjord	OH	5	None	Bituminous
WC Beckjord	OH	6	None	Bituminous
Weatherspoon	NC	1	None	Bituminous

Weatherspoon	NC	2	None	Bituminous
Weatherspoon	NC	3	None	Bituminous
WH Sammis	OH	1	None	Bituminous
WH Sammis	OH	2	None	Bituminous
WH Sammis	OH	3	None	Bituminous
WH Sammis	OH	4	None	Bituminous
WH Sammis	OH	5	None	Bituminous
WH Sammis	OH	6	None	Bituminous
WH Sammis	OH	7	None	Bituminous
Whitewater Valley	IN	1	None	Bituminous
Whitewater Valley	IN	2	None	Bituminous
Widows Creek	AL	1	None	Bituminous
Widows Creek	AL	2	None	Bituminous
Widows Creek	AL	3	None	Bituminous
Widows Creek	AL	4	None	Bituminous
Widows Creek	AL	5	None	Bituminous
Widows Creek	AL	6	None	Bituminous

Willow Island	WV	1	None	Bituminous
Willow Island	WV	2	None	Bituminous
Winyah	SC	1	None	Bituminous
Wood River	IL	4	None	Bituminous
Wood River	IL	5	None	Bituminous
Yates	GA	1	None	Bituminous
Yates	GA	2	None	Bituminous
Yates	GA	3	None	Bituminous
Yates	GA	4	None	Bituminous
Yates	GA	5	None	Bituminous
Yates	GA	6	None	Bituminous
Yates	GA	7	None	Bituminous
Yorktown	VA	1	None	Bituminous
Yorktown	VA	2	None	Bituminous

TABLE 9d. COAL-FIRED ELECTRIC UTILITY STEAM GENERATING UNITS WITH NO SRUBBER USING LIGNITE COAL

Plant	State	Unit no.	Scrubber type	Coal source
Big Brown	TX	1	None	Lignite
Big Brown	TX	2	None	Lignite
Big Stone	SD	1	None	Lignite
Heskett	ND	1	None	Lignite
Heskett	ND	2	None	Lignite
Leland Olds	ND	1	None	Lignite
Leland Olds	ND	2	None	Lignite
Lewis & Clark	MT	1	None	Lignite
Monticello	TX	1	None	Lignite
Monticello	TX	2	None	Lignite
MR Young	ND	1	None	Lignite
Stanton	ND	1	None	Lignite
TNP One	TX	1	None	Lignite
TNP One	TX	2	None	Lignite

TABLE 9e. COAL-FIRED ELECTRIC UTILITY STEAM GENERATING UNITS WITH NO SCRUBBER USING SUBBITUMINOUS COAL

Plant	State	Unit no.	Scrubber type	Coal source
Allen S. King	MN	1	None	Subbituminous
Alma	WI	4	None	Subbituminous
Alma	WI	5	None	Subbituminous
Ames Two	IA	7	None	Subbituminous
Ames Two	IA	8	None	Subbituminous
Asbury	MO	1	None	Subbituminous
BC Cobb	MI	4	None	Subbituminous
BC Cobb	MI	5	None	Subbituminous
Belle River	MI	1	None	Subbituminous
Belle River	MI	2	None	Subbituminous
Big Cajun Two	LA	1	None	Subbituminous
Big Cajun Two	LA	2	None	Subbituminous
Big Cajun Two	LA	3	None	Subbituminous
Black Dog	MN	1	None	Subbituminous

Black Dog	MN	2	None	Subbituminous
Black Dog	MN	3	None	Subbituminous
Black Dog	MN	4	None	Subbituminous
Boardman	OR	1	None	Subbituminous
Burlington	IA	1	None	Subbituminous
Centralia	WA	1	None	Subbituminous
Centralia	WA	2	None	Subbituminous
Cherokee	CO	2	None	Subbituminous
Cherokee	CO	3	None	Subbituminous
Clay Boswell	MN	1	None	Subbituminous
Clay Boswell	MN	2	None	Subbituminous
Clay Boswell	MN	3	None	Subbituminous
Coleto Creek	TX	1	None	Subbituminous
Columbia	WI	1	None	Subbituminous
Columbia	WI	2	None	Subbituminous
Comanche	CO	1	None	Subbituminous
Comanche	CO	2	None	Subbituminous

Council Bluffs	IA	1	None	Subbituminous
Council Bluffs	IA	2	None	Subbituminous
Council Bluffs	IA	3	None	Subbituminous
Crawford	IL	7	None	Subbituminous
Crawford	IL	8	None	Subbituminous
Dave Johnston	WY	1	None	Subbituminous
Dave Johnston	WY	2	None	Subbituminous
Dave Johnston	WY	3	None	Subbituminous
Dave Johnston	WY	4	None	Subbituminous
DH Mitchell	IN	4	None	Subbituminous
DH Mitchell	IN	5	None	Subbituminous
DH Mitchell	IN	6	None	Subbituminous
DH Mitchell	IN	11	None	Subbituminous
Drake	CO	5	None	Subbituminous
Drake	CO	6	None	Subbituminous
Drake	CO	7	None	Subbituminous
Edgewater	WI	3	None	Subbituminous

Edgewater	WI	4	None	Subbituminous
Edgewater	WI	5	None	Subbituminous
Fayette	TX	1	None	Subbituminous
Fayette	TX	2	None	Subbituminous
Fisk	IL	19	None	Subbituminous
Flint Creek	AR	1	None	Subbituminous
George Neal North	IA	1	None	Subbituminous
George Neal North	IA	2	None	Subbituminous
George Neal North	IA	3	None	Subbituminous
George Neal South	IA	4	None	Subbituminous
Gerald Gentleman	NE	1	None	Subbituminous
Gerald Gentleman	NE	2	None	Subbituminous
GRDA	OK	1	None	Subbituminous
Harrington	TX	1	None	Subbituminous
Harrington	TX	2	None	Subbituminous
Harrington	TX	3	None	Subbituminous
Hastings	NE	1	None	Subbituminous

Hawthorn	MO	5	None	Subbituminous
High Bridge	MN	5	None	Subbituminous
High Bridge	MN	6	None	Subbituminous
Hoot Lake	MN	3	None	Subbituminous
Hoot Lake	MN	2	None	Subbituminous
Hugo	OK	1	None	Subbituminous
Iatan	MO	1	None	Subbituminous
Independence	AR	1	None	Subbituminous
Independence	AR	2	None	Subbituminous
Irvington	AZ	4	None	Subbituminous
JE Corette	MT	1	None	Subbituminous
Joliet	IL	6	None	Subbituminous
Joliet	IL	7	None	Subbituminous
Joliet	IL	8	None	Subbituminous
Joppa	IL	1	None	Subbituminous
Joppa	IL	2	None	Subbituminous
Joppa	IL	3	None	Subbituminous

Joppa	IL	4	None	Subbituminous
Joppa	IL	5	None	Subbituminous
Joppa	IL	6	None	Subbituminous
JP Pulliam	WI	3	None	Subbituminous
JP Pulliam	WI	4	None	Subbituminous
JP Pulliam	WI	5	None	Subbituminous
JP Pulliam	WI	6	None	Subbituminous
JP Pulliam	WI	7	None	Subbituminous
JP Pulliam	WI	8	None	Subbituminous
JT Deely	TX	1	None	Subbituminous
JT Deely	TX	2	None	Subbituminous
Kaw	KS	1	None	Subbituminous
Kaw	KS	3	None	Subbituminous
LA Cygne	KS	2	None	Subbituminous
Labadie	MO	1	None	Subbituminous
Labadie	MO	2	None	Subbituminous
Labadie	MO	3	None	Subbituminous

Labadie	MO	4	None	Subbituminous
Lansing	IA	3	None	Subbituminous
Lansing	IA	4	None	Subbituminous
Lawrence	KS	3	None	Subbituminous
LD Wright	NE	8	None	Subbituminous
Louisa	IA	1	None	Subbituminous
Madgett	WI	1	None	Subbituminous
Michigan City	IN	12	None	Subbituminous
Mohave	NV	1	None	Subbituminous
Mohave	NV	2	None	Subbituminous
Monroe	MI	1	None	Subbituminous
Monroe	MI	2	None	Subbituminous
Monroe	MI	3	None	Subbituminous
Monroe	MI	4	None	Subbituminous
Montrose	MO	1	None	Subbituminous
Montrose	MO	2	None	Subbituminous
Montrose	MO	3	None	Subbituminous

Muscatine	IA	8	None	Subbituminous
Muskogee	OK	4	None	Subbituminous
Muskogee	OK	5	None	Subbituminous
Muskogee	OK	6	None	Subbituminous
Naughton	WY	1	None	Subbituminous
Naughton	WY	2	None	Subbituminous
Navajo	AZ	1	None	Subbituminous
Navajo	AZ	2	None	Subbituminous
Navajo	AZ	3	None	Subbituminous
Nearman Creek	KS	1	None	Subbituminous
Nebraska City	NE	1	None	Subbituminous
Nelson Dewey	WI	1	None	Subbituminous
Nelson Dewey	WI	2	None	Subbituminous
New Madrid	MO	1	None	Subbituminous
New Madrid	MO	2	None	Subbituminous
North Omaha	NE	1	None	Subbituminous
North Omaha	NE	2	None	Subbituminous

North Omaha	NE	3	None	Subbituminous
North Omaha	NE	4	None	Subbituminous
North Omaha	NE	5	None	Subbituminous
North Valmy	NV	1	None	Subbituminous
Northeastern	OK	3	None	Subbituminous
Northeastern	OK	4	None	Subbituminous
Ottumwa	IA	1	None	Subbituminous
Pawnee	CO	1	None	Subbituminous
Platte	NE	1	None	Subbituminous
Pleasant Prairie	WI	1	None	Subbituminous
Pleasant Prairie	WI	2	None	Subbituminous
Powerton	IL	5	None	Subbituminous
Powerton	IL	6	None	Subbituminous
Prairie Creek	IA	3	None	Subbituminous
Prairie Creek	IA	4	None	Subbituminous
Presque Isle	MI	2	None	Subbituminous
Presque Isle	MI	3	None	Subbituminous

Presque Isle	MI	4	None	Subbituminous
Presque Isle	MI	5	None	Subbituminous
Presque Isle	MI	6	None	Subbituminous
Presque Isle	MI	7	None	Subbituminous
Presque Isle	MI	8	None	Subbituminous
Presque Isle	MI	9	None	Subbituminous
Riverside	MN	8	None	Subbituminous
Riverton	KS	7	None	Subbituminous
Riverton	KS	8	None	Subbituminous
Rockport	IN	1	None	Subbituminous
Rockport	IN	2	None	Subbituminous
Rodemacher	LA	2	None	Subbituminous
RS Nelson	LA	6	None	Subbituminous
Rush Island	MO	1	None	Subbituminous
Rush Island	MO	2	None	Subbituminous
Scherer	GA	1	None	Subbituminous
Scherer	GA	2	None	Subbituminous

Scherer	GA	3	None	Subbituminous
Scherer	GA	4	None	Subbituminous
Sheldon	NE	1	None	Subbituminous
Sheldon	NE	2	None	Subbituminous
Sibley	MO	1	None	Subbituminous
Sibley	MO	2	None	Subbituminous
Sibley	MO	3	None	Subbituminous
Sioux	MO	1	None	Subbituminous
Sioux	MO	2	None	Subbituminous
Sooner	OK	1	None	Subbituminous
Sooner	OK	2	None	Subbituminous
St. Clair	MI	1	None	Subbituminous
St. Clair	MI	2	None	Subbituminous
St. Clair	MI	3	None	Subbituminous
St. Clair	MI	4	None	Subbituminous
St. Clair	MI	6	None	Subbituminous
State Line	IN	3	None	Subbituminous

State Line	IN	4	None	Subbituminous
SYL Laskin	MN	1	None	Subbituminous
SYL Laskin	MN	2	None	Subbituminous
Tecumseh	KS	9	None	Subbituminous
Tecumseh	KS	10	None	Subbituminous
Thomas Hill	MO	1	None	Subbituminous
Thomas Hill	MO	2	None	Subbituminous
Thomas Hill	MO	3	None	Subbituminous
Tolk	TX	1	None	Subbituminous
Tolk	TX	2	None	Subbituminous
Valmont	CO	5	None	Subbituminous
VJ Daniel	MS	1	None	Subbituminous
VJ Daniel	MS	2	None	Subbituminous
WA Parish	TX	5	None	Subbituminous
WA Parish	TX	6	None	Subbituminous
WA Parish	TX	7	None	Subbituminous
Waukegan	IL	6	None	Subbituminous

Waukegan	IL	7	None	Subbituminous
Waukegan	IL	8	None	Subbituminous
Welsh	TX	1	None	Subbituminous
Welsh	TX	2	None	Subbituminous
Welsh	TX	3	None	Subbituminous
Weston	WI	1	None	Subbituminous
Weston	WI	2	None	Subbituminous
Weston	WI	3	None	Subbituminous
White Bluff	AR	1	None	Subbituminous
White Bluff	AR	2	None	Subbituminous
Will County	IL	1	None	Subbituminous
Will County	IL	2	None	Subbituminous
Will County	IL	3	None	Subbituminous
Will County	IL	4	None	Subbituminous

TABLE 9f. COAL-FIRED ELECTRIC UTILITY STEAM GENERATING UNITS WITH WET SCRUBBERS USING BITUMINOUS COAL

Plant	State	Unit no.	Scrubber type	Coal source
AB Brown	IN	1	Wet	Bituminous
AB Brown	IN	2	Wet	Bituminous
Big Bend	FL	4	Wet	Bituminous
Bonanza	UT	1	Wet	Bituminous
Bruce Mansfield	PA	1	Wet	Bituminous
Bruce Mansfield	PA	2	Wet	Bituminous
Bruce Mansfield	PA	3	Wet	Bituminous
Cane Run	KY	4	Wet	Bituminous
Cane Run	KY	5	Wet	Bituminous
Cane Run	KY	6	Wet	Bituminous
CH Stanton	FL	1	Wet	Bituminous
Conesville	OH	4	Wet	Bituminous
Conesville	OH	5	Wet	Bituminous
Conesville	OH	6	Wet	Bituminous
CR Lowman	AL	2	Wet	Bituminous
CR Lowman	AL	3	Wet	Bituminous

Cromby	PA	1	Wet	Bituminous
Cross	SC	2	Wet	Bituminous
Cross	SC	1	Wet	Bituminous
Dallman	IL	3	Wet	Bituminous
DB Wilson	KY	1	Wet	Bituminous
Duck Creek	IL	1	Wet	Bituminous
East Bend	KY	2	Wet	Bituminous
Eddystone	PA	1	Wet	Bituminous
Eddystone	PA	2	Wet	Bituminous
Elrama	PA	1	Wet	Bituminous
Elrama	PA	2	Wet	Bituminous
Elrama	PA	3	Wet	Bituminous
Elrama	PA	4	Wet	Bituminous
Gibson	IN	5	Wet	Bituminous
Green	KY	1	Wet	Bituminous
Green	KY	2	Wet	Bituminous
HL Spurlock	KY	2	Wet	Bituminous

Hunter	UT	1	Wet	Bituminous
Hunter	UT	2	Wet	Bituminous
Hunter	UT	3	Wet	Bituminous
Huntington	UT	1	Wet	Bituminous
Intermountain	UT	1	Wet	Bituminous
Intermountain	UT	2	Wet	Bituminous
JB Sims	MI	3	Wet	Bituminous
JR Endicott	MI	1	Wet	Bituminous
Kintigh	NY	1	Wet	Bituminous
Marion	IL	4	Wet	Bituminous
McIntosh	FL	3	Wet	Bituminous
Merom	IN	1	Wet	Bituminous
Merom	IN	2	Wet	Bituminous
Mill Creek	KY	1	Wet	Bituminous
Mill Creek	KY	2	Wet	Bituminous
Mill Creek	KY	3	Wet	Bituminous
Mill Creek	KY	4	Wet	Bituminous

Mitchell	PA	3	Wet	Bituminous
Morrow	MS	1	Wet	Bituminous
Morrow	MS	2	Wet	Bituminous
Newton	IL	1	Wet	Bituminous
Paradise	KY	1	Wet	Bituminous
Paradise	KY	2	Wet	Bituminous
Petersburg	IN	3	Wet	Bituminous
Petersburg	IN	4	Wet	Bituminous
Pleasants	WV	1	Wet	Bituminous
Pleasants	WV	2	Wet	Bituminous
Reid Gardner	NV	1	Wet	Bituminous
Reid Gardner	NV	2	Wet	Bituminous
Reid Gardner	NV	3	Wet	Bituminous
Reid Gardner	NV	4	Wet	Bituminous
RM Schahfer	IN	17	Wet	Bituminous
RM Schahfer	IN	18	Wet	Bituminous
Seminole	FL	1	Wet	Bituminous

Seminole	FL	2	Wet	Bituminous
Sikeston	MO	1	Wet	Bituminous
Southwest	MO	1	Wet	Bituminous
St. Johns River	FL	1	Wet	Bituminous
St. Johns River	FL	2	Wet	Bituminous
Trimble County	KY	1	Wet	Bituminous
Widows Creek	AL	7	Wet	Bituminous
Widows Creek	AL	8	Wet	Bituminous
Winyah	SC	2	Wet	Bituminous
Winyah	SC	3	Wet	Bituminous
Winyah	SC	4	Wet	Bituminous

TABLE 9g. COAL-FIRED ELECTRIC UTILITY STEAM GENERATING UNITS WITH WET SCRUBBERS USING LIGNITE COAL

Plant	State	Unit no.	Scrubber type	Coal source
Antelope Valley	ND	1	Wet	Lignite
Antelope Valley	ND	2	Wet	Lignite

Coal Creek	ND	1	Wet	Lignite
Coal Creek	ND	2	Wet	Lignite
Dolet Hills	LA	1	Wet	Lignite
Gibbons Creek	TX	1	Wet	Lignite
Limestone	TX	1	Wet	Lignite
Limestone	TX	2	Wet	Lignite
Martin Lake	TX	1	Wet	Lignite
Martin Lake	TX	2	Wet	Lignite
Martin Lake	TX	3	Wet	Lignite
MR Young	ND	2	Wet	Lignite
Pirkey	TX	1	Wet	Lignite
San Miguel	TX	1	Wet	Lignite
Sandow	TX	4	Wet	Lignite

TABLE 9h. COAL-FIRED ELECTRIC UTILITY STEAM GENERATING UNITS WITH WET SCRUBBERS USING SUBBITUMINOUS COAL

Plant	State	Unit no.	Scrubber type	Coal source
Apache	AZ	2	Wet	Subbituminous
Apache	AZ	3	Wet	Subbituminous
Cholla	AZ	1	Wet	Subbituminous
Cholla	AZ	2	Wet	Subbituminous
Cholla	AZ	3	Wet	Subbituminous
Cholla	AZ	4	Wet	Subbituminous
Clay Boswell	MN	4	Wet	Subbituminous
Colstrip	MT	1	Wet	Subbituminous
Colstrip	MT	2	Wet	Subbituminous
Colstrip	MT	3	Wet	Subbituminous
Colstrip	MT	4	Wet	Subbituminous
Coronado	AZ	1	Wet	Subbituminous
Coronado	AZ	2	Wet	Subbituminous
Craig	CO	1	Wet	Subbituminous
Craig	CO	2	Wet	Subbituminous
Fayette	TX	3	Wet	Subbituminous

Four Corners	NM	1	Wet	Subbituminous
Four Corners	NM	2	Wet	Subbituminous
Four Corners	NM	3	Wet	Subbituminous
Four Corners	NM	4	Wet	Subbituminous
Four Corners	NM	5	Wet	Subbituminous
Holcomb	KS	1	Wet	Subbituminous
Jeffrey	KS	1	Wet	Subbituminous
Jeffrey	KS	2	Wet	Subbituminous
Jeffrey	KS	3	Wet	Subbituminous
Jim Bridger	WY	1	Wet	Subbituminous
Jim Bridger	WY	2	Wet	Subbituminous
Jim Bridger	WY	3	Wet	Subbituminous
Jim Bridger	WY	4	Wet	Subbituminous
LA Cygne	KS	1	Wet	Subbituminous
Laramie River	WY	1	Wet	Subbituminous
Laramie River	WY	2	Wet	Subbituminous
Laramie River	WY	3	Wet	Subbituminous

Lawrence	KS	4	Wet	Subbituminous
Lawrence	KS	5	Wet	Subbituminous
Muscatine	IA	9	Wet	Subbituminous
Naughton	WY	3	Wet	Subbituminous
Oklaunion	TX	1	Wet	Subbituminous
Plains	NM	1	Wet	Subbituminous
San Juan	NM	1	Wet	Subbituminous
San Juan	NM	2	Wet	Subbituminous
San Juan	NM	3	Wet	Subbituminous
San Juan	NM	4	Wet	Subbituminous
Sherburne County	MN	1	Wet	Subbituminous
Sherburne County	MN	2	Wet	Subbituminous
Spruce	TX	1	Wet	Subbituminous
Thomas Hill	MO	3	Wet	Subbituminous
WA Parish	TX	8	Wet	Subbitiminous
Wyodak	WY	1	Wet	Subbituminous