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TECHNICAL BACKGROUND DOCUMENT FOR THE REPORT TO CONGRESS ON REMAINING WASTES FROM FOSSIL FUEL COMBUSTION:

INDUSTRY STATISTICS AND WASTE MANAGEMENT PRACTICES

March 15, 1999

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1.0 INTRODUCTION

This document describes and presents some of the data sources and analyses supporting the Report to Congress on Remaining Wastes from Fossil Fuel Combustion. Specifically, it includes detailed data and supplemental information supporting the sections of the Report to Congress that:

- Provide an overview of each industry sector
- Describe the population of potentially affected facilities
- Provide statistics on technologies and fuels used in each sector
- Characterize the waste management practices applied in each sector.

The industry sectors discussed in the Report to Congress are listed below:

- Coal-fired utilities that comanage large-volume and low-volume wastes
- Coal-fired non-utilities
- Fluidized bed combustion facilities, both utility and non-utility
- Oil-fired facilities, both utility and non-utility
- Natural gas-fired facilities, both utility and non-utility.

The first section of this document presents summary information relating to the characterization of the fossil fuel combustion industry as a whole. The remaining sections are organized along industry sector lines, with the exception that some information on oil-fired non-utilities is presented along with that for coal-fired non-utilities because some of the same data sources were used for both categories of non-utilities.

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2.0 FOSSIL FUEL COMBUSTION UNIVERSE

2.1 DATA SOURCES

The following data sources were used to compile information on the fossil fuel combustion universe as a whole:

- The 1994 Edison Electric Institute (EEI) Power Statistics Database (EEI, 1994): The EEI database is derived from a variety of sources, including utility reports, government forms and databases, other utility databases, and trade magazine surveys. The database is extensive and includes various data on individual utility power plants relevant to this study, including capacity, technology, waste generation rates, and waste management practices.

- U.S. EPA 1990 National Interim Emission Inventory (EPA, 1990): The database was compiled by EPA based on the 1985 National Acid Precipitation Assessment Program (NAPAP) inventory. It includes information on all major stationary sources of criteria pollutant emissions permitted under the Clean Air Act (CAA), as well as data on non-utility fossil fuel combustors, such as capacity, technology, fuel usage, and emissions. The database has some limitations. It does not include data for very small point sources and is missing data for certain geographic regions; however, it is the best available source for characterizing the non-utility universe.

2.2 INDUSTRY UNIVERSE

The following tables are based on data in the 1994 EEI Power Statistics Database and the U.S. EPA 1990 National Interim Emissions Inventory. Table 2-1 characterizes the universe by industry sector and fuel. Table 2-2 compares utility and non-utility conventional coal combustion technologies.

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Table 2-1. Fossil Fuel Combustion Industry in the United States

Industry Category and Fuel	Number of Boilers	Capacity (MWe)	Percent of Capacity*
Utilities	**2,319**	**469,242**	**75%**
Coal-fired	1,251	320,834	52%
Oil-fired	280	43,447	7%
Natural gas-fired	788	104,961	17%
Non-Utilities	**15,618**	**148,021**	**24%**
Coal-fired	2,288	32,895	5%
Oil-fired	5,245	43,363	9%
Natural gas-fired	6,907	46,663	8%
Other fossil fuels	1,178	14,100	2%
Fluidized Bed Combustion	**123**	**4,591**	**1%**
Total	**18,060**	**621,854**	**100%**

* Capacity percentages shown are calculated based on the sum of the total capacities presented in the various sources. Because these capacity data are from different sources and different points in time, the percentages should be treated as estimates only.
Sources: EEI, 1994; EPA, 1990; CIBO, 1997

Table 2-2. Comparison of Utility and Non-Utility Conventional Coal Combustion Technologies

Sector	Combustion Technology	Number of Boilers	Percent of Boilers	Capacity (MWe)	Percent of Coal-Fired Capacity	Average Capacity/ Boiler (MWe)
Non-Utility	Pulverized Coal Boilers	522	23%	15,066	46%	29
	Stokers	1,745	76%	17,040	52%	10
	Cyclones	21	1%	789	2%	38
	Coal-Fired Total	**2,288**	**100%**	**32,895**	**100%**	**14**
Utility	Pulverized Coal Boilers	1,068	85%	294,035	92%	275
	Stokers	94	8%	1,077	<1%	11
	Cyclones	89	7%	25,727	8%	289
	Coal-Fired Total	**1,251**	**100%**	**320,839**	**100%**	**256**

Sources: EEI, 1994; EPA, 1990

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3.0 COMANAGED WASTES AT COAL-FIRED UTILITIES

3.1 DATA SOURCES

EPA relied on the 1994 EEI Power Statistics Database to characterize this sector. Additionally, the following data sources were used to compile information on coal-fired utilities that comanage wastes:

- The 1993 Department of Energy (DOE) Coal Combustion Waste Management Study (DOE, 1993): In 1993, ICF Resources prepared a study of utility coal combustion for the DOE's Office of Fossil Energy. The DOE study used data from the EEI 1989 Power Statistics Database to characterize the utility coal combustion industry and its waste management practices.

- EPRI Coal Combustion By-Products and Low-Volume Wastes Comanagement Survey (EPRI, 1997): In 1997, EPRI sent a four-page questionnaire to all electric utilities with more than 100 megawatts (MW) of coal-fired generating capacity. The survey gathered data on the design of coal combustion management units and the types and volumes of waste managed. The EPRI comanagement survey data presented in this report are based on EPA's analysis of the survey responses.

3.2 REPRESENTATIVENESS OF THE EPRI COMANAGEMENT SURVEY

The total annual volume of large-volume coal combustion wastes (CCWs) reported disposed by the units in the EPRI comanagement survey is nearly 62-million tons. This quantity is two-thirds of the total generation of CCWs in 1995, as reported by the American Coal Ash Association (ACAA). Therefore, the units in the EPRI survey capture the majority of CCW generated annually.

Based on comparison with data from other sources (i.e., the DOE study and EEI Power Statistics Database), the EPRI survey sample appears representative of the population of CCW management units in terms of the types of units included (see Table 3-1). The sample also encompasses the majority of CCW disposed in terms of volume. When its geographic distribution is examined in comparison with the more extensive EEI database, however, the EPRI survey is not as representative. Figure 3-1 shows the distribution of EPRI respondents. While, in total, the EPRI units are distributed similarly to the EEI units, the EPRI survey may not accurately represent the relative share of each management practice in a few states. For example, the survey captures only landfills in Wisconsin, when, based on the EEI data, disposal in surface impoundments is significant in that state. Figure 3-1 highlights the states in which the EPRI proportion of unit types differs significantly from that in the EEI data.

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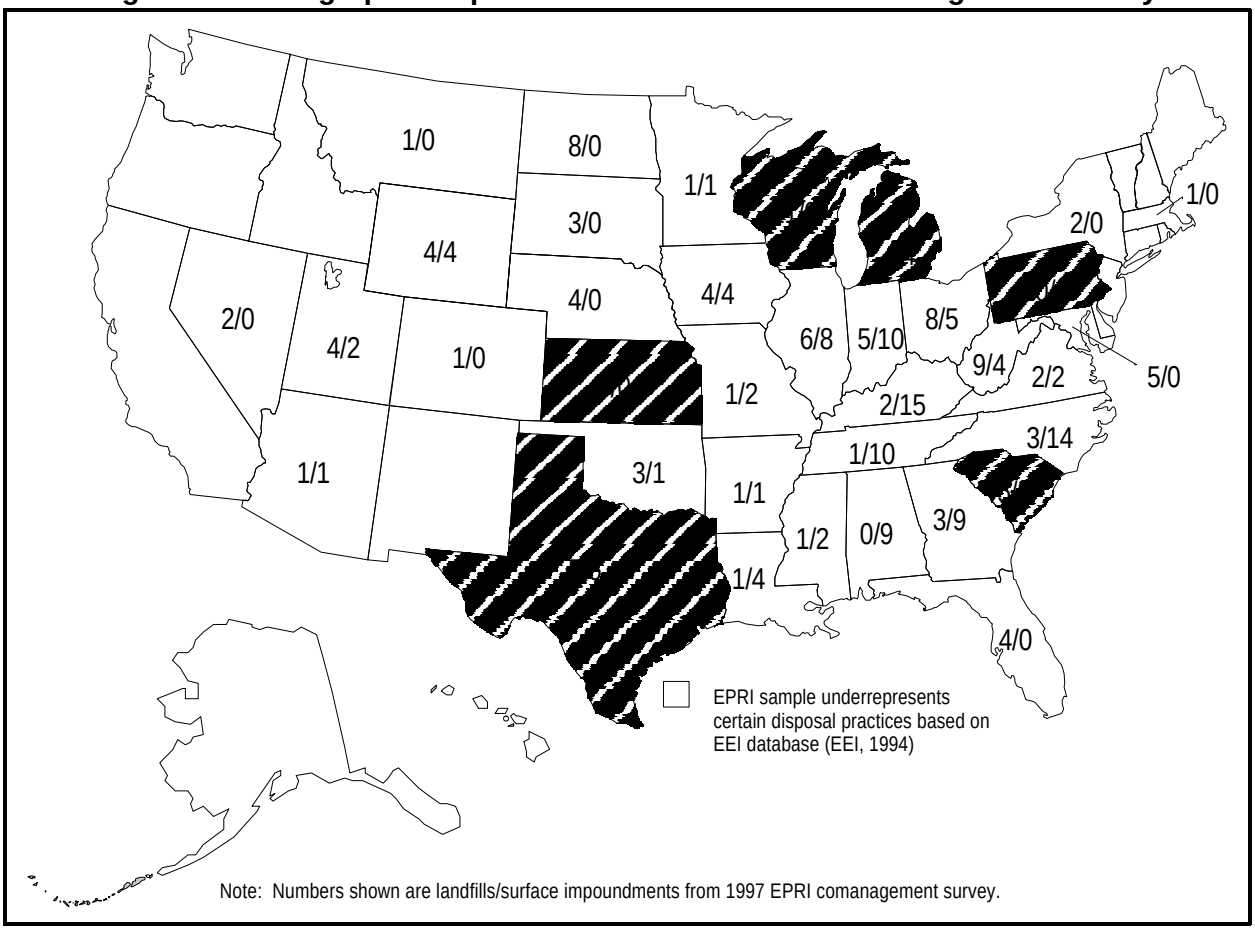
Table 3-1. CCW Management Units by Type

Unit Type	DOE Study (1989 data)		EEI Power Statistics Database (1994 data)		EPRI Comanagement Survey (1995 data)	
	Number	Percent	Number	Percent	Number	Percent
Surface Impoundment	321	52%	286	51%	120	45%
Landfill	273	44%	275	49%	133	50%
Other	24	4%	n/a	n/a	13	5%
Total	**618**	**100%**	**561**	**100%**	**266**	**100%**

n/a = not applicable
Sources: DOE, 1993, EEI, 1994; EPRI, 1997

Figure 3-1. Geographic Representativeness of EPRI Comanagement Survey



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3.3 PREVALENCE OF COMANAGEMENT

EPA analyzed the responses to the EPRI comanagement survey to determine which of the facilities in the survey comanaged wastes according to the definition of comanagement in the 1993 Regulatory Determination (58 FR 42466, 8/9/93). The detailed results of this analysis are provided in Appendix A. Based on this analysis, EPA found that, of the 253 active CCW management landfills and surface impoundments in the EPRI survey, 206 (or 81 percent) comanaged large-volume wastes with at least one low-volume waste. These 206 comanagement units accounted for nearly 53-million tons (84 percent) of the 63-million tons per year of large-volume utility coal combustion waste (UCCW) reported by all active units in the survey.

Like the population as a whole, the newer comanagement units also show an increasing trend toward the use of landfilling. Their size characteristics (capacity, area, and height or depth) do not differ significantly from those of the population as a whole. The combinations of large-volume UCCWs disposed in comanagement units are nearly identical to those in Table 3-2. The geographic distribution of comanagement facilities parallels that of the EPRI survey respondents as a group (see Figure 3-1.)

3.4 WASTE MANAGEMENT PRACTICES

This section presents information on waste management practices at coal-fired utilities to supplement and support the analysis provided in the Report to Congress.

Table 3-1 presented the distribution of waste management units by type. Although there are an approximately equal number of landfills and surface impoundments, landfilling is the more significant practice in terms of the quantity of large-volume UCCW managed. Table 3-3 shows the annual volume of CCW managed by unit type for the units in the EPRI comanagement survey and the EEI Power Statistics database. According to these data, landfills currently manage more than half the large-volume UCCW disposed annually. Table 3-2 shows the types of large-volume UCCWs managed.

In addition to large-volume UCCWs, most units also manage low-volume combustion wastes. The EPRI comanagement survey does not reveal the amount of each type of low-volume waste comanaged. Analyzing the total quantity of low-volume waste is possible, however. For those survey respondents providing data, Table 3-4 presents estimates of the total quantity of low-volume waste and compares this estimate with the total quantity of large-volume CCWs. Estimating the exact quantity of low-volume

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wastes comanaged is difficult because of the variation in solids content in liquid waste. The ranges presented in Table 3-4 are based on upper and lower bounds of 2.5 and 0.1 percent solids, respectively.

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Table 3-2. Combinations of Large-Volume UCCW Managed

Types of Large-Volume CCW	Number of Units	Percent
Single Large-Volume CCW	**80**	**31%**
Fly ash	42	16%
Bottom ash	22	8%
Boiler slag	1	>1%
FGD waste	15	6%
Two Large Volume UCCWs	**140**	**54%**
Fly ash and bottom ash	119	46%
Fly ash and boiler slag	3	1%
Fly ash and FGD waste	8	3%
Bottom ash and boiler slag	6	2%
Bottom ash and FGD waste	4	2%
Three-Large Volume UCCWs	**37**	**14%**
Fly ash, bottom ash, and boiler slag	16	6%
Fly ash, bottom ash, and FGD waste	21	8%
All Four Large-Volume UCCWs	**4**	**2%**
Total	**261**	**100%**
Source: EPRI, 1997		

Table 3-3. CCW Management Unit Type by Quantity Disposed

Unit Type	EPRI Comanagement Survey (1995 data)		EEI Power Statistics Database (1994 data)	
	Quantity (tons/year	Percent	Quantity (tons/year)	Percent
Surface Impoundment	10,474,229	33%	28,934,720	41%
Landfill	41,342,904	67%	41,849,100	59%
Total	**61,817,133**	**100%**	**70,783,820**	**100%**
Sources: EPRI, 1997; EEI, 1994				

The Report to Congress presents waste management unit size data from the EPRI comanagement survey. Table 3-5 summarizes complementary data from the EEI Power Statistics Database. The units in the EPRI comanagement survey have greater average capacities than those in the EEI database. This result may be because the EEI database includes more small generators than the EPRI comanagement survey. Figure 3-2 shows complete size distribution data from the EPRI comanagement survey.

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Table 3-4. Quantities of Comanaged Low-Volume Waste

Unit Type	Number of Units Reporting	Large-Volume CCW (thousand cubic yards/ year)[a]	Low-Volume Waste (thousand cubic yards/year)				Percent of Large-Volume CCW
			Solids[b]	Liquids[c]	Solid Fraction of Liquids[d]	Total Solids[e]	
Surface Impoundment	94	15,380	567	676,105	676 – 16,903	1,243 – 17,469	8 – 114 %
Landfill	57	21,736	528	60,550	61 – 1,514	589 – 2,042	3 – 9 %
Total	151	37,115	1,095	736,655	737 – 18,416	1,832 – 19,512	5 – 53 %

[a] Total large-volume wastes reported in EPRI (1997)
[b] Total volume of solid low-volume wastes reported in EPRI (1997)
[c] Total volume of liquid low-volume wastes reported in EPRI (1997) (converted from million gallons per year)
[d] Range calculated from column C using assumption of 0.1 to 2.5 percent solids in liquid low-volume waste, based on figures reported by EPRI
[e] Total of column B and range in column D, representing total solid volume of solid and liquid low-volume wastes (i.e., solid wastes plus solids settled from liquid waste)
[f] Range in column D as a percentage of large-volume waste reported in column A

Table 3-5. Size of CCW Management Unit

	Landfills		Surface Impoundments	
	Capacity (cubic yards)	Area (acres)	Capacity (cubic yards)	Area (acres)
Number of Units	59	125	136	212
Minimum	72,600	2	12,100	0.23
Maximum	96,800,000	1,420	57,757,333	4,750
Mean	6,184,906	152	4,427,890	117

Source: EEI, 1994

The Report to Congress describes environmental controls, such as liners, using data from the EPRI comanagement survey. Table 3-6 compares liner data from each of the three sources. The percentages of each type of unit with a liner present are similar for all three sources. Landfills are more likely to be lined (43 to 57 percent) than surface impoundments (28 to 29 percent).

Tables 3-7 through 3-11 provide detailed data on certain environmental control characteristics that are presented at the summary level in the Report to Congress.

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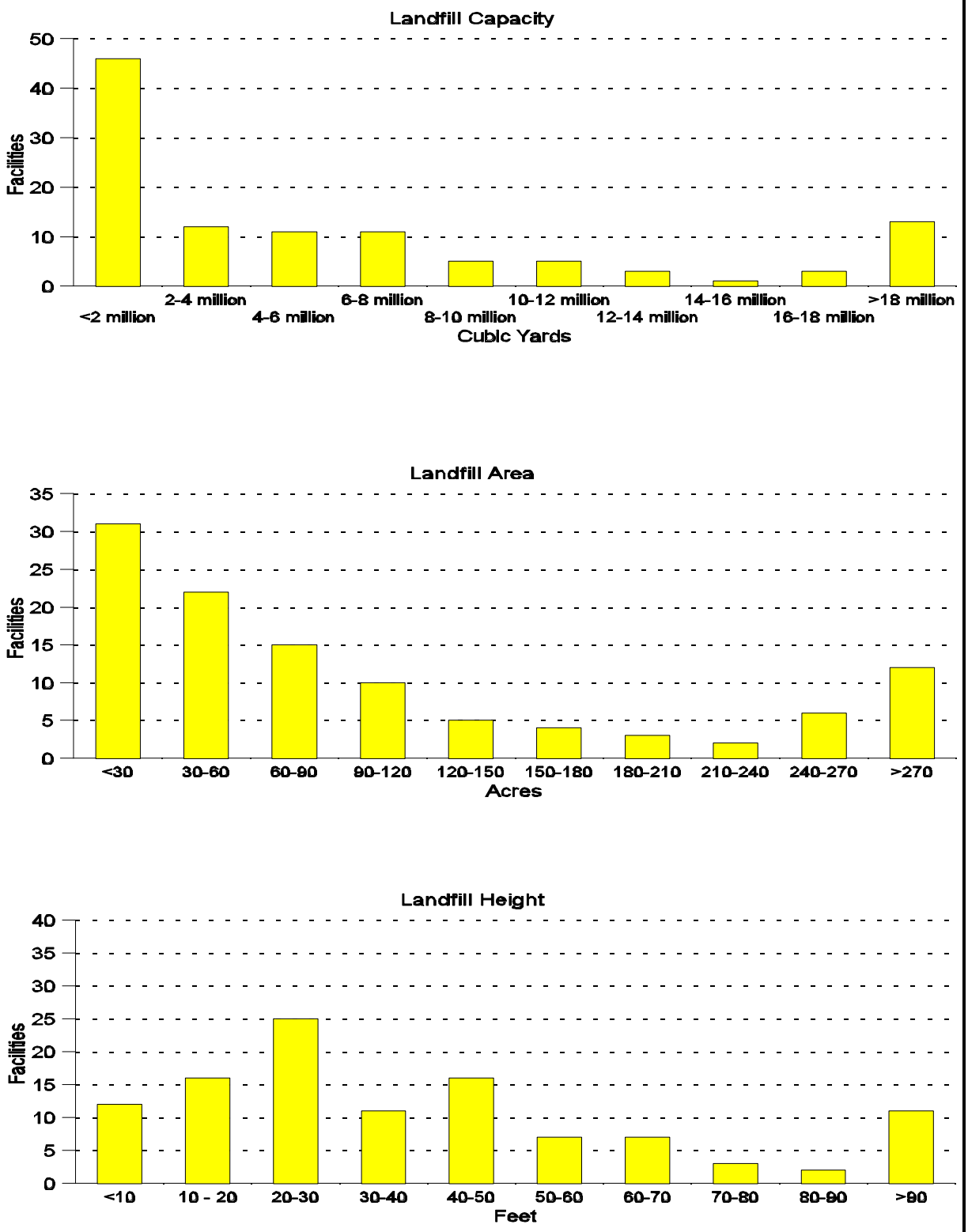
Figure 3-2. Coal Combustion Waste (CCW) Management Unit Size Distributions



Source: EPRI, 1997

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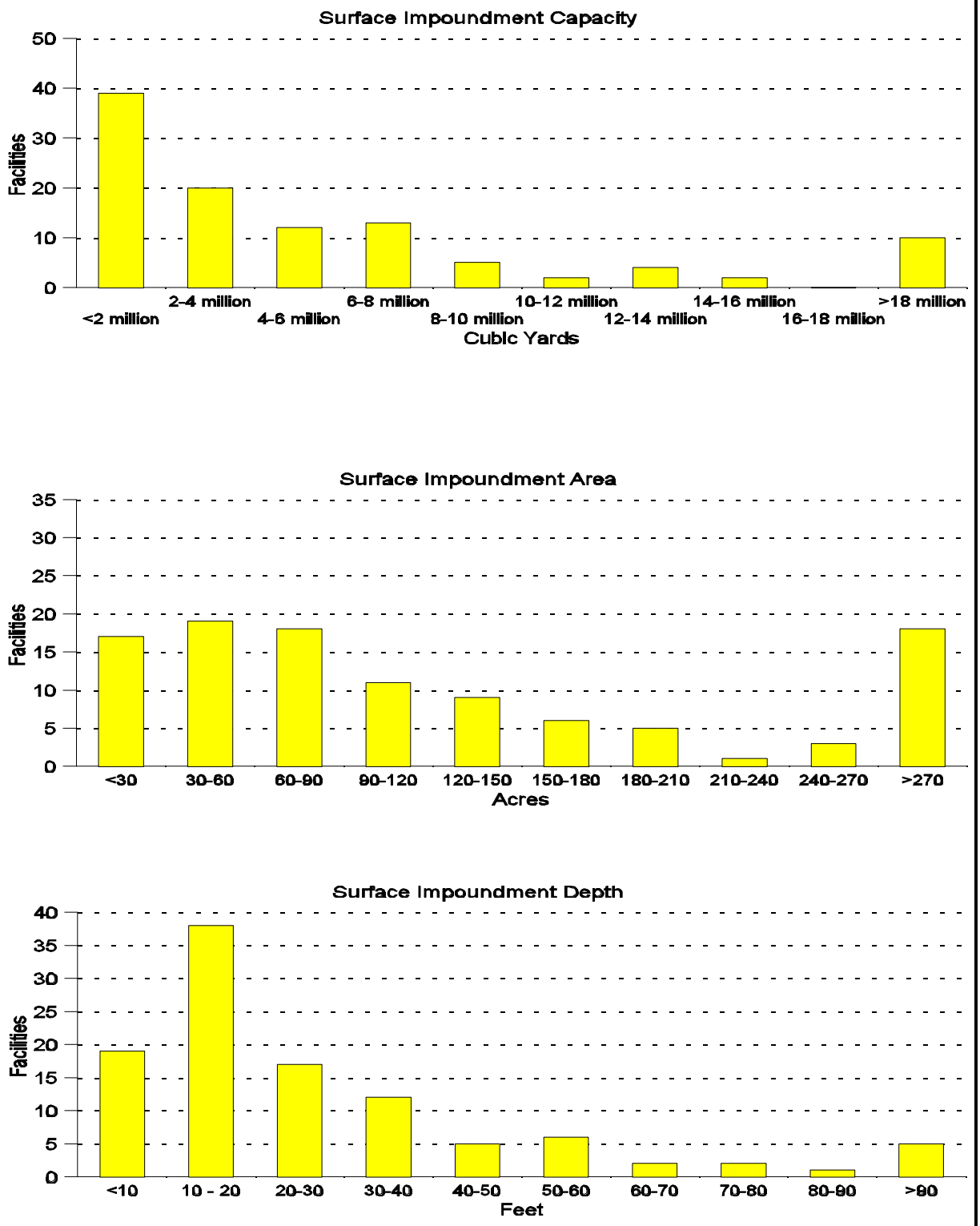
Figure 3-2. Coal Combustion Waste (CCW) Management Unit Size Distributions (continued)



Source: EPRI, 1997

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Table 3-6. CCW Management Unit Lining Characteristics

Data Source	Landfills		Surface Impoundments	
	Number Reporting Data	Percent Lined	Number Reporting Data	Percent Lined
DOE Study (1989 data)	273	43%	321	29%
EEI Power Statistics Database (1994 data)	96	44%	191	28%
EPRI Comanagement Survey (1995 data)	131	57%	123	28%
Sources: DOE, 1993; EEI, 1994; EPRI, 1997				

Table 3-7. Comanagement Unit Liner Types

Liner Type	Landfills		Surface Impoundments	
	Number	Percentage	Number	Percentage
None/Soil	**40**	**43%**	**82**	**74%**
Lined	**54**	**57%**	**29**	**26%**
Compacted ash	8	9%	0	0%
Compacted clay	27	29%	24	22%
Geosynthetic	10	11%	4	4%
Composite	8	9%	3	2%
Double	1	1%	0	0%
Total	**94**	**100%**	**111**	**100%**
Source: EPRI, 1997				

Table 3-8. Active Comanagement Unit Cover Types

Cover Type	Landfills		Surface Impoundments	
	Number	Percentage	Number	Percentage
None	**4**	**6%**	**33**	**70%**
Capped	**67**	**94%**	**14**	**30%**
Soil/sand	32	45%	11	24%
Compacted clay	25	35%	3	6%
Geosynthetic	1	1%	0	0%
Soil/sand and compacted clay	7	10%	0	0%
Soil/sand and geosynthetic	1	1%	0	0%
Soil/sand and fly ash	1	1%	0	0%
Total	**71**	**100%**	**47**	**100%**
Source: EPRI, 1997				

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Table 3-9. Management Unit Cover Types

Cover Type	Number	Percentage
None	**10**	**19%**
Capped	**43**	**81%**
Soil/sand	26	49%
Compacted clay	13	24%
Geosynthetic	1	2%
Soil/sand and compacted clay	0	0%
Soil/sand and geosynthetic	1	2%
Soil/sand and fly ash	1	2%
Other	1	2%
Total	**53**	**100%**

Source: EPRI, 1997

Table 3-10. Types of Ground-Water Performance Standards Applied to Comanagement Units

Type of Standard	Landfills		Surface Impoundments	
	Number	Percentage	Number	Percentage
Nondegradation	35	48%	20	39%
Numerical	35	48%	30	59%
Site-Specific	22	30%	4	8%
Other	1	1%	4	8%

Note: Percentages sum to greater than 100 percent because standards may be characterized as of more than one type (e.g., a site-specific nondegradation standard).
Source: EPRI, 1997

Table 3-11. Comanagement Unit Permit Types

Type of Permit	Landfills (94 units)		Surface Impoundments (110 units)	
	Number	Percentage	Number	Percentage
Local	7	7%	0	0%
Federal	2	2%	7	6%
State	86	91%	93	85%
None	5	5%	12	11%

Note: Percentages sum to greater than 100 percent because units may have multiple permits.
Source: EPRI, 1997

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4.0 NON-UTILITY COAL COMBUSTION WASTES

4.1 DATA SOURCES

EPA relied on the U.S. EPA 1990 National Interim Emissions Inventory (EPA, 1990) to characterize this sector. Extensive analysis of this data source was presented in two earlier reports, listed below:

- *Non-utility Fossil Fuel Combustion: Sources and Volumes*, revised draft report, December 1996
- *Fossil Fuel Combustion: Risk Comparison between the Utility and Non-utility Industries*, draft report, October 1997.

This section provides some additional analysis based on the U.S. EPA 1990 National Interim Emissions Inventory that was not presented in those previous reports. In addition, the following data source also was used in the Report to Congress to compile information on coal-fired non-utilities:

> Council of Industrial Boiler Owners (CIBO) Non-Utility Survey (CIBO, 1997): As part of its report on fluidized bed combustion (FBC) waste, the CIBO Special Project also sent a survey to all CIBO member companies and to a select list of other companies known to operate non-utility boilers. The purpose of this non-utility survey was to collect information on conventional combustion for comparison to FBC. This included relevant information on non-utility capacity, technology, and waste management practices. The non-utility survey was less detailed than the FBC survey. The CIBO non-utility survey data presented in this report are based on EPA's analysis of the survey responses.

Responses to the CIBO survey were provided to EPA electronically. Appendix B of this document presents the details of these responses.

4.2 AIR POLLUTION CONTROLS AT COAL-FIRED NON-UTILITIES

Table 4-1 identifies desulfurization technology at coal-fired non-utilities, while Table 4-2 shows particulate controls at coal-fired non-utilities.

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Table 4-1. Desulfurization Technology at Coal-Fired Non-Utilities

	Number of Boilers	Percent of Boilers
None	1,875	95.76%
Particulate Controls	4	0.20%
Combustion Controls	2	0.10%
FGD Technology	77	3.93%
Total	**1,958**	**100.00%**

Source: EPA, 1990

Table 4-2. Particulate Controls at Coal-Fired Non-Utilities

Particulate Control Technology	PC Boilers		Stoker Boilers		All Boilers		Average Capacity in million MBtu
	Number	Percent	Number	Percent	Number	Percent	
None	47	9.42%	165	13.59%	295	13.45%	74.03
Gravity Collector	16	3.21%	43	3.54%	104	4.74%	
ESP	184	36.87%	101	8.32%	353	16.09%	162.6
Fabric Filter	59	11.82%	113	9.31%	219	9.98%	
Mechanical	38	7.62%	551	45.39%	764	34.82%	
Combination	118	23.65%	164	13.51%	343	15.63%	
Scrubber and Miscellaneous	37	7.41%	77	6.34%	116	5.29%	
Total	**499**		**1,214**		**2,194**		

Note: Not all non-utility boilers provided data on particulate controls. Total may not sum because not all boilers reported their type (PC vs. Stoker vs. other).
Source: EPA, 1990

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5.0 FLUIDIZED BED COMBUSTION WASTE

5.1 DATA SOURCES

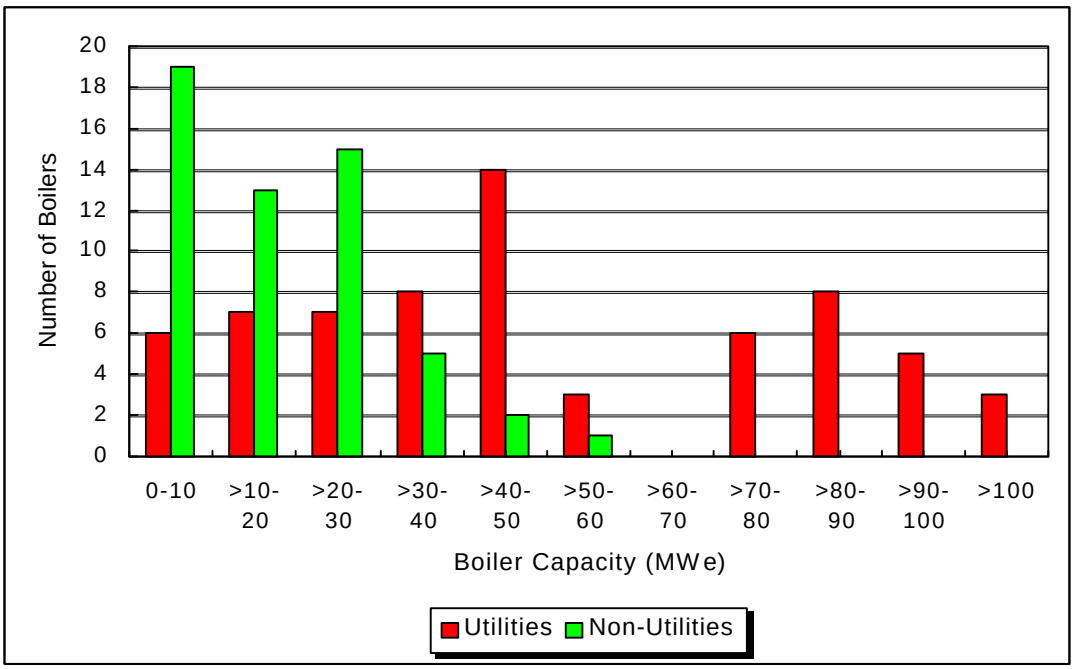
The following data source was used to compile information on fluidized bed combustion (FBC):

Council of Industrial Boiler Owners (CIBO) Fossil Fuel Fluidized Bed Combustion (FBC) Survey (CIBO, 1997): CIBO has established a program, entitled the Special Project on Non-Utility Fossil Fuel Ash Classification (CIBO Special Project), to characterize and assess the impact of management of non-utility fossil fuel combustion wastes. As part of the Special Project, CIBO prepared a report on wastes from fossil fuel-fired FBC. For the report, CIBO sent a voluntary questionnaire to every fossil fuel-fired FBC plant, both utility and non-utility, in the United States. This survey collected general facility information, characterized process inputs and outputs, gathered data on waste generation and characteristics, and captured details of FBC waste management practices. The CIBO FBC survey data presented in this report are based on EPA's analysis of the survey responses.

5.2 FBC UNIVERSE

Appendix C details EPA's characterization of the FBC universe based on the information provided by CIBO. It lists FBC facilities, their locations, and Standard Industrial Classification codes, and provides data on boiler capacity. Figure 5-1 compares the capacities of FBC boilers at utilities with those at non-utilities.

Figure 5-1. Distribution of Boiler Capacities at FBC Facilities: Utilities vs. Non-Utilities



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Source: CIBO, 1997

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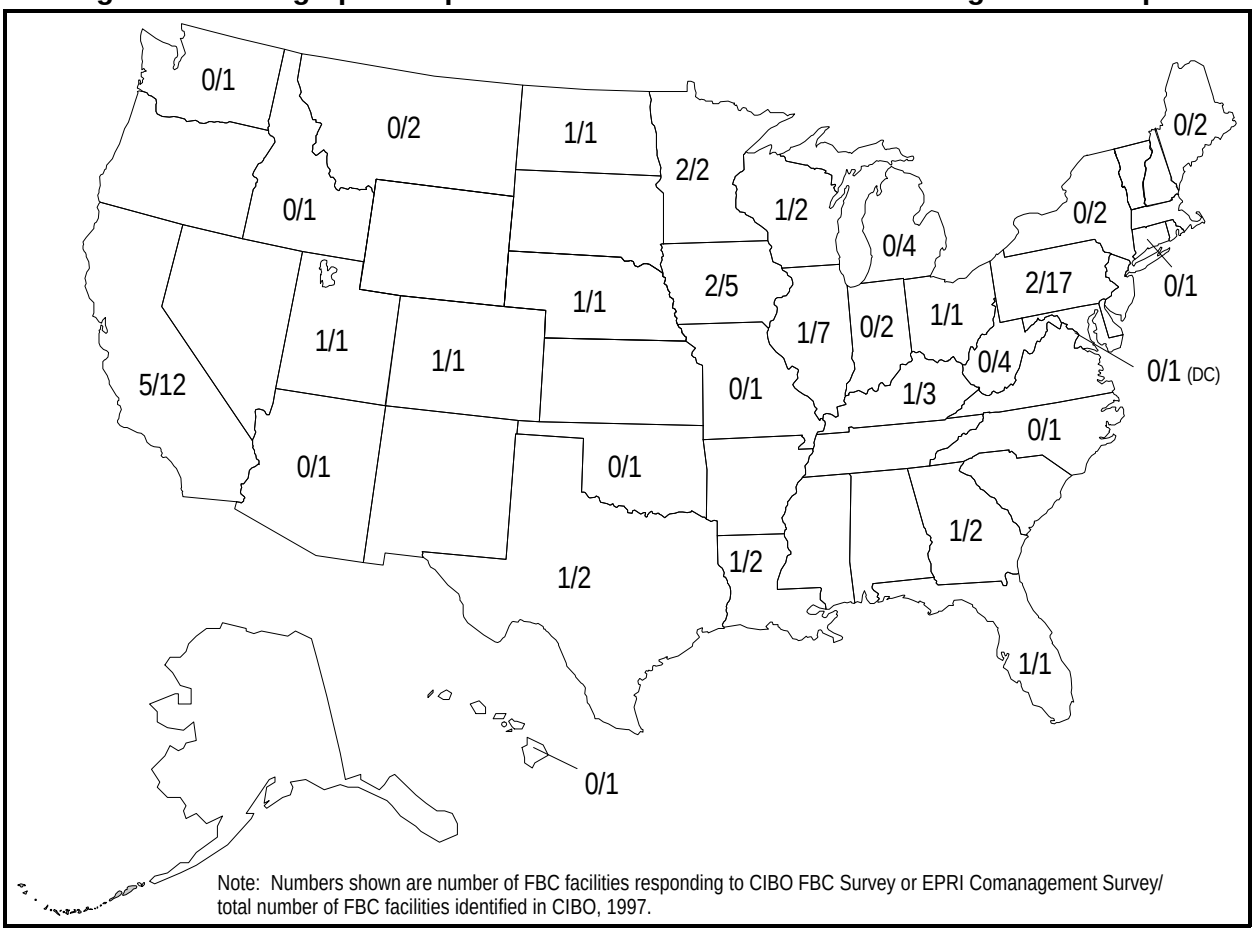
5.3 REPRESENTATIVENESS OF THE CIBO FBC SURVEY

CIBO reports a total of 84 facilities using FBC technology. Forty-five of these responded to the CIBO FBC survey, with 20 of the respondents providing information about waste management units. Adding the three EPRI FBC facilities, these 23 facilities cover 27 percent of all U.S. facilities using FBC. Sixteen of the facilities in the sample are in the electric generating industry. The other seven facilities are in the pulp and paper and food products industries. Figure 5-2 shows the geographic distribution of the FBC waste management sample compared to the full population of FBC facilities. The sample of facilities is geographically representative of the full population, with the exception of two states that appear under-represented in the sample—Pennsylvania and Illinois.

Figure 5-2. Geographic Representativeness of FBC Waste Management Sample



Note: Numbers shown are number of FBC facilities responding to CIBO FBC Survey or EPRI Comanagement Survey/ total number of FBC facilities identified in CIBO, 1997.

Table 5-1 estimates the quantity of waste managed in the FBC landfills and surface impoundments responding to the CIBO Survey (plus three additional FBC units responding to the EPRI comanagement survey). Based on these estimates, landfills responding to the survey account for approximately 74 percent

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of the FBC waste managed. Because surface impoundments are expected to be less common than represented by the sample, in the population as a whole, landfills likely manage an even greater proportion of the total FBC waste generated than indicated in Table 5-1.

Table 5-1. FBC Waste Managed by Unit Type

Unit Type	Estimated Quantity (tons in 1995)	Percent
Surface Impoundment (4 units)	550,970[a]	26%
Landfill (17 units)	1,565,124[b]	74%
Total	**2,116,094**	**100%**

[a] Quantity reported by four surface impoundments in the CIBO FBC survey.
[b] Nine landfills responded to the CIBO FBC survey questions about quantity managed, reporting a total of 828,595 tons in 1995. The other eight landfills were assumed to managed an average quantity of FBC waste to arrive at an estimate for all 17 landfills in the sample.

5.4 WASTE MANAGEMENT PRACTICES

This section presents information on waste management practices at coal-fired utilities to supplement and support the analysis provided in the Report to Congress. Table 5-2 provides detailed data on liners at FBC waste management units. Table 5-3 shows the types and quantities of waste managed in 1995 by each of 12 FBC waste management units that reported commingling FBC wastes with other wastes.

Table 5-2. FBC Waste Management Unit Liner Types

Liner Type	Landfills		Surface Impoundments	
	Number	Percentage	Number	Percentage
None/Bedrock/*In-Situ* Clay or Shale*	**7**	**58%**	**3**	**75%**
Lined	**5**	**42%**	**1**	**25%**
Compacted ash	1	8%	0	0%
Compacted clay or shale	1	8%	0	0%
Synthetic	1	8%	1	25%
Compacted clay and plastic	2	17%	0	0%
Total	**12**	**100%**	**4**	**100%**

* Survey data did not distinguish between units with no liners and those with bedrock, *in-situ* clay, or shale liners.
Sources: CIBO, 1997; EPRI, 1997

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Table 5-3. FBC Wastes Commingled with Other Wastes

Unit Type	Types of Waste Comanaged	Non-FBC Waste (tons)	FBC Waste (tons)	Non-FBC Waste/ FBC Waste [a]
Comanagement with Other Combustion Wastes Only				
Surface Impoundment	Boiler fireside cleaning waste, primary scrubber solids	323,700	6,400	50.6
Landfill	Brine water treatment sludge, settling pond dredged soils, lime water treatment sludge, cooling tower blowdown	5,000[b]	210,730	0.024
Landfill	Water treatment sludge, plant wastewater[c]	50[b]	291,409	0.0002
Landfill	Boiler blowdown, regenerant waste, cooling tower blowdown	--	17,246	--
Landfill	Demineralizer regenerant, boiler chemical cleaning waste, coal pile runoff, boiler blowdown, coal mill rejects/pyrites, air heater or precipitator washes, water treatment waste	--	--	--
Landfill	Water softening sludge, boiler blowdown	--	--	--
Comanagement with Mixed Waste				
Landfill	Conventional boiler ash, wastepaper deinking sludge	492,400	41,900	11.8
Landfill	Coal slag, asphalt pavement	1,060	29,577	0.036
Landfill	Construction debris	10	--	--
Landfill	Municipal solid waste	--	--	--
Landfill	Municipal solid waste	--	--	--
Unknown	Silica sand, ash	100	--	--

[a] Ratio of non-FBC waste to FBC waste comanaged
[b] Incomplete total (does not include all types of waste comanaged)
[c] Facility is a power generation facility only; therefore, wastewater is expected to be a low-volume combustion waste
Note: Data shown are for individual units reporting comanagement in the CIBO FBC survey or EPRI comanagement survey.

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6.0 OIL COMBUSTION WASTES

6.1 DATA SOURCES

EPA relied on the 1994 EEI Power Statistics Database (EEI, 1994) to characterize this sector. In addition, the following data source was used to compile information on oil-fired utilities:

> EPRI Oil Combustion By-Products: Chemical Characteristics Management Practices, and Ground Water Effects Report (EPRI, 1998): In 1998, EPRI prepared a study of byproducts from oil combustion. This report includes estimates of utility oil combustion waste generation and also contains detailed summaries of waste management practices at 17 oil-fired utility sites. These data were collected via telephone surveys and site visits. The 17 facilities described in the EPRI oil combustion report account for 32 percent of oil-fired utility generating capacity and 46 percent of utility No. 6 fuel oil consumption.

6.2 OIL-FIRED UTILITY UNIVERSE

This section describes the universe of oil-fired utilities, based on the 1994 EEI Power Statistics Database. Appendix D provides a list of oil-fired utilities along with greater detail about each facility's characteristics.

As of December 1994, there were 177 utility facilities in the United States and its territories that combusted oil either as the primary fuel or as an alternate fuel in units that primarily burned coal or gas during the year. As seen in Table 6-1, more than half of those facilities (94 facilities) had units that burned oil as the primary fuel. A total of 64 facilities operated units that combusted only oil (i.e., no alternate fuels were burned within those units); the remaining 30 units burned oil primarily but supplemented the oil during the year with gas.

Of the 64 utility facilities with oil-only units, 43 of these were facilities that had no other units powered by fuels other than oil (i.e., they were strictly oil combustion facilities). An additional 14 of the 64 were facilities that primarily combusted coal (two of these also combusted gas) but operated at least one unit that combusted only oil in a unit serving as a peaking unit. The remaining seven oil-only units were at combined oil and gas facilities.

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Table 6-1. Characterization of Utility Facilities with Units that Combust Oil

Number of Facilities	Percent of Total	Category Description
177		Total facilities operating units that burned oil in whole or in part
94	53%	Combusted oil as primary fuel
43		Combusted oil only
13		Operated oil-only units as well as units that used no oil
8		Operated oil-only units as well as shared fuel units
30		Combusted oil as primary fuel in shared fuel units (no oil-only units)
83	47%	Combusted oil as alternate fuel in unit that primarily burned gas/coal
66		Gas facility with unit burning oil as alternate fuel
17		Coal or coal/gas facilities with unit burning oil as alternate fuel
Source: EEI, 1994		

The universe of utility facilities that combusted oil in units in 1994 also may be viewed from the perspective of facilities that generated oil ash as the only "large-volume" Bevill Wastes. As presented in Table 6-2, a total of 136 utility facilities potentially generated only oil ash in 1994. Of these, 43 were the stand-alone oil facilities discussed above; the remaining 93 facilities combust gas as the only other fuel at the facility. Because the Agency believes that gas combustion does not generate ash of any significance, no other wastes than the oil combustion wastes will be present at these facilities. At the 41 other facilities, coal is combusted, generating the much larger volume coal combustion wastes.

Table 6-2. Characterization of Utility Facilities that Generated Oil Combustion Wastes

Number of Facilities	Description
177	Total facilities operating baseload units that burned oil in whole or in part
136	Facilities that generate oil combustion wastes only
43	Combusted oil only
93	Combusted oil and gas
41	Facilities that generate coal and oil combustion wastes
Source: EEI, 1994	

Oil combustion by utilities is primarily a regional phenomenon, with utilities in Florida (39 percent), New England (21 percent), and the mid-Atlantic (26 percent) being the most significant consumers of oil (see Figure 6-1, the percent by state of the total consumption of oil-fired utilities within the United

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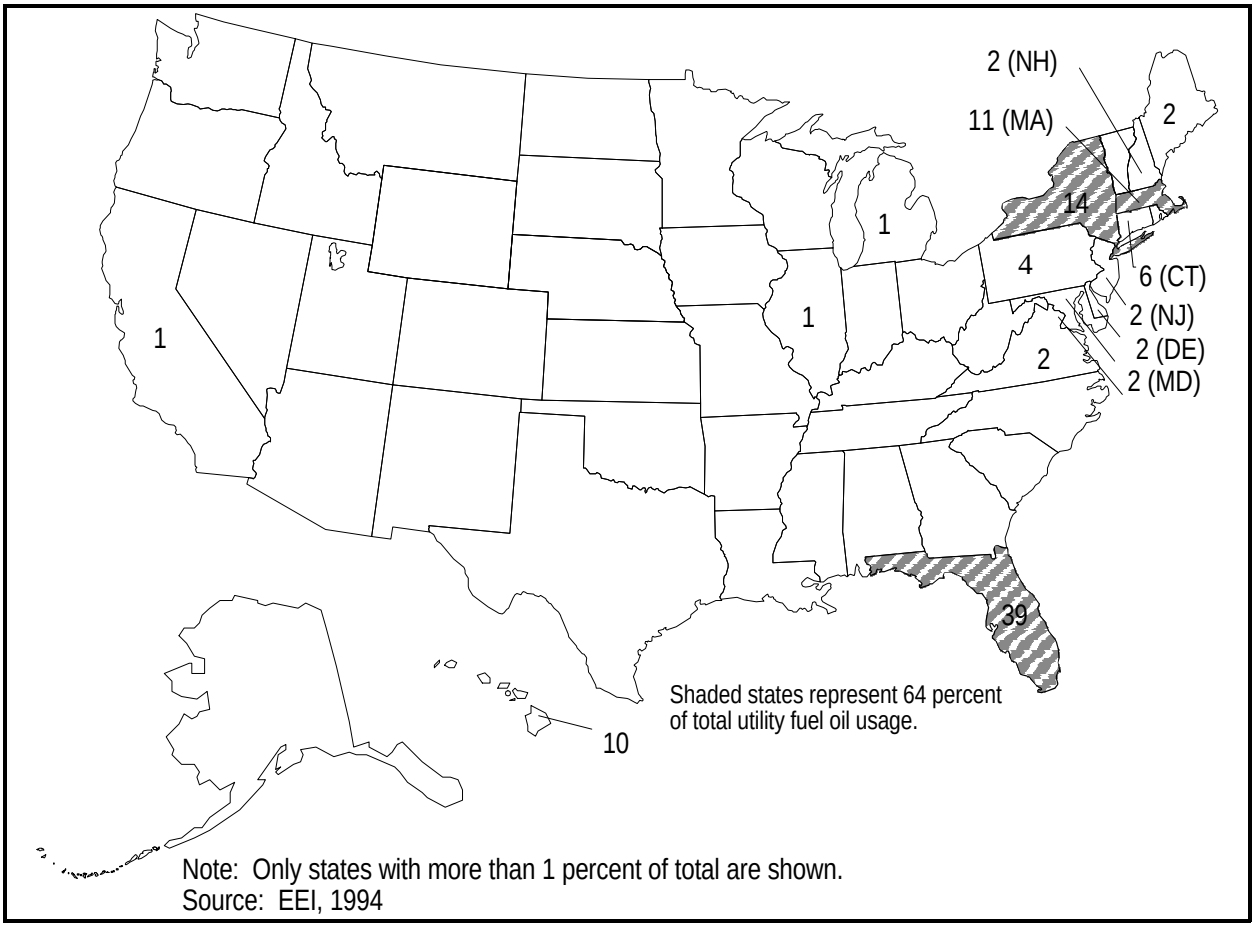
Figure 6-1. Percent by State of Total Oil Consumption by Utility Oil-Fired Power Plants



States). New York, Massachusetts, and Florida represent approximately two-thirds of the total utility fuel oil usage (EIA, 1997). This phenomenon is directly associated with the operation of facilities with baseload units in those regions. Of all the states, Florida, with 11, has the largest number of facilities operating oil-fired units as baseload units (see Table 6-3).

Table 6-3. Locations of Utilities with Oil-Fired Baseload Units

Number of Facilities	Location
40	Total facilities operating baseload units that burned oil
11	Florida
13	Islands (GU, HI, PR, VI)
6	New England (MA, ME, CT)
10	Mid-Atlantic (NY, NJ, MD, DE)
Source: EEI, 1994	

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In addition to the regions that consume the majority of the utility oil, utilities in one state and three territories burn only oil. The four islands—Puerto Rico (four facilities), the Virgin Islands (two facilities), Guam (two facilities), and Hawaii (eight facilities)—are dependent on oil for electricity from fossil fuel sources. In addition to the 13 facilities indicated above as operating baseline units, 2 facilities operate cycling units and a third operates a pair of peak load units. Hawaii, as seen in Figure 6-1, burned 10 percent of the total oil consumed; data for oil consumption within the territorial islands were not available.

6.3 WASTE MANAGEMENT PRACTICES

The Report to Congress describes oil combustion waste management based on practices reported by the facilities covered in the EPRI oil combustion report. Table 6-4 summarizes practices at the facility level for those facilities that have oil-fired units only.

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Table 6-4. Waste Management at Oil-Only Facilities in EPRI Oil Combustion Study

EPRI Facility Number	Number of Units	Capacity of Units (MW)	FA Recy-Same Units?	FA Managed	FA (tons)	BA Managed	BA (tons)	SSB Basin Capacity (mgal)	SSB Basin Cap. (cu yd) (calc'd)	SSB Basin Surface Area (acre)	Aver. Depth (feet) (calc'd)	SSB Liner	SSB – Fire Side Wash	SSB – Other Waste?	SSB Solids (tons/yr)	SSB Solids Management	SSB Basin Cap. (cu ft) (calc'd)
3	2	800	Yes	wet to SSB	(w/ SBSs)	dry–of–LF/VR	100	0.6	2,968	0.5	3.68	lined	Yes	Yes?(1)	400	Dew/off LF/VR/Con	80,208
5	3	1,028	Yes	wet to SSB	(w/ SBSs)	dry–off–LF/VR	200	1.7	8,409	1.1	4.74	lined	Yes	Yes?(1)	770	Dew/off LF/VR/Con	227,257
6	4	1,255	Yes	wet to SSB	(w/ SBSs)	dry–off–LF/VR	100	1.0	4,946	0.7	4.38	unlined	Yes	Yes?(1)	1,100	Dew/off LF/VR/Con	133,681
7	2	1,600	Yes	wet to SSB	(w/ SBSs)	dry–off–LF/VR	100	2.5	12,365	1.1	6.97	lined	Yes	Yes?(1)	1,200	Dew/off LF/VR/Con	334,201
8	2	804	Yes	wet to SSB	(w/ SBSs)	dry–off–LF/VR	100	0.8	3,957	0.6	4.09	unlined	Yes	Yes?(1)	700	Dew/off LF/VR/Con	106,944
9	2	558	Yes	wet to SSB	(w/ SBSs)	dry–off–LF/VR	100	0.8	3,957	1.3	1.89	unlined	Yes	Yes?(1)	1,200	Dew/off LF/VR/Con	106,944
10	2	620	Yes	wet to SSB	(w/ SBSs)	dry–off–LF/VR	100	1.5	7,419	0.9	5.11	unlined	Yes	Yes?(1)	800	Dew/off LF/VR/Con	200,521
12	4	1,200	Yes	wet to SSB	(w/ SBSs)	dry–off–Landfill	162	4.5	22,258	3.1*		lined	Yes	Yes?(1)	1,463	Dew/off NHWLF	601,563
15	2	380	Yes	wet to SSB	(w/ SBSs)	dry–off–Landfill	83	4.5	22,258	3.1*		lined	Yes	Yes?(1)	742	Dew/off NHWLF	601,563
29	2	1,144	No	Dew/off VR	3,270@50%m	dry–off–VR	70	1.5	7,419	1.0*		lined	Yes	??	3,340	Dew/off VR	200,521
43	2	1,600	Yes	wet to SSB	(w/ SBSs)	dry–off–LF/VR	100	0.7	3,462	0.1	21.48	lined	Yes	Yes?(1)	1,200	Dew/off LF/Con or OnWP	93,576
66	3	445	No	dry to AB	90 (dry)	dry to AB	(2)	25.0	123,655	12.8	5.99	unlined	Yes	??	90	Dew/off LF	3,342,014
67	3	1,100	No	None (3)	(na)	wet to SSB	(na)	25.0	123,655	3.8#		lined	Yes	Yes	200	In place	3,342,014
						Totals (13)		5.4	26,671.3	2.3	6.48						
						Adjusted (11)		1.8	9,038.0	1.2							
						Adjusted for ponds (no sump)					4.41						

Abbreviations:
FA = Fly ash
BA = Bottom ash
SSB = Settling basin solids
AB = Ash Basin (dry)
VR = Vanadium recovery
LF = Landfill (presumably non-hazardous)
Con = Used in concrete products
WP = Wastepile
On = Onsite
Off = Offsite
Dew = Dewatered

Notes:
(1) Boiler chemical cleaning water
(2) Reported as 30–60 cuft every 24 months
(3) Reported Fly Ash vacuumed out of boiler and sent to SSB, no air pollution control at this facility

* = Not reported, calculated using average depth
\# = Used 20 feet as depth as they were bunkers much like units at Plant 43 in study

Source: EPRI, 1998. Facilities 27 and 28 manage both coal and oil combustion wastes and are not included in this summary.

7.0 REFERENCES

CIBO (Council of Industrial Boiler Owners). 1997. *Fossil Fuel Fluidized Bed Combustion By-Products Survey*. Electronic database. November.

DOE (U.S. Department of Energy). 1993. *Coal Combustion Waste Management Study*. Prepared for DOE, Office of Fossil Energy by ICF Resources, Incorporated. February.

EEI (Edison Electric Institute). 1994. *Edison Electric Institute Power Statistics Database*.

EIA (Energy Information Administration, DOE). 1997. *Annual Energy Review 1997*. U.S. Department of Energy.

EPA (U.S. Environmental Protection Agency). 1990. *U.S. EPA 1990 National Interim Emissions Inventory*. Electronic database.

EPRI (Electric Power Research Institute). 1997. *Coal Combustion By-Products and Low-Volume Wastes Comanagement Survey*. Draft Report. June.

EPRI. 1998. *Oil Combustion By-Products: Chemical Characteristics, Management Practices, and Groundwater Effects*. March.

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Appendix A: Comanagement at Facilities in the EPRI Comanagement Survey

Comanages?	Facility ID	Facility State	Facility Status	Pond (Q9)	Landfill (Q9)	Minefill (Q9)	Other Facility (Q9)
Yes	2	IL	Active	Yes	No	No	No
Yes	27	MI	Active	Yes	No	No	No
Yes	55	IL	Active	Yes	No	No	No
Yes	63	IA	Active	Yes	No	No	No
Yes	64	IA	Active	Yes	No	No	No
Yes	68	MN	Active	Yes	No	No	No
Yes	69	KY	Active	Yes	No	No	No
Yes	77	VA	Active	Yes	No	No	No
Yes	79	VA	Active	Yes	No	No	No
Yes	84	IN	Active	Yes	No	No	No
Yes	92	IA	Active	Yes	No	No	No
Yes	107	AZ	Active	Yes	No	No	No
Yes	114	MI	Active	Yes	No	No	No
Yes	115	MI	Active	Yes	No	No	No
Yes	120	WV	Active	Yes	No	No	No
Yes	122	WV	Active	Yes	No	No	No
Yes	124	OH	Active	Yes	No	No	No
Yes	125	OH	Active	Yes	No	No	No
Yes	129	MI	Active	Yes	No	No	No
Yes	131	WV	Active	Yes	No	No	No
Yes	136	OH	Active	Yes	No	No	No
Yes	138	KY	Active	Yes	No	No	No
Yes	145	KY	Active	Yes	No	No	No
Yes	146	KY	Active	Yes	No	No	No
Yes	147	KY	Active	Yes	No	No	No
Yes	149	KY	Active	Yes	No	No	No
Yes	150	KY	Active	Yes	No	No	No
Yes	151	KY	Active	Yes	No	No	No
Yes	156	IN	Active	Yes	No	No	No
Yes	159	NC	Active	Yes	No	No	No
Yes	161	NC	Active	Yes	No	No	No

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Comanages?	Facility ID	Facility State	Facility Status	Pond (Q9)	Landfill (Q9)	Minefill (Q9)	Other Facility (Q9)
Yes	163	NC	Active	Yes	No	No	No
Yes	165	NC	Active	Yes	No	No	No
Yes	167	NC	Active	Yes	No	No	No
Yes	169	SC	Active	Yes	No	No	No
Yes	171	NC	Active	Yes	No	No	No
Yes	172	NC	Active	Yes	No	No	No
Yes	175	MO	Active	Yes	No	No	No
Yes	176	MO	Active	Yes	No	No	No
Yes	179	IL	Active	Yes	No	No	No
Yes	181	IN	Active	Yes	No	No	No
Yes	182	IN	Active	Yes	No	No	No
Yes	183	IN	Active	Yes	No	No	No
Yes	188	TX	Active	Yes	No	No	No
Yes	190	TX	Active	Yes	No	No	No
Yes	192	AR	Active	Yes	No	No	No
Yes	194	OK	Active	Yes	No	No	No
Yes	195	TX	Active	Yes	No	No	No
Yes	199	GA	Active	Yes	No	No	No
Yes	200	GA	Active	Yes	No	No	No
Yes	201	GA	Active	Yes	No	No	No
Yes	202	GA	Active	Yes	No	No	No
Yes	203	GA	Active	Yes	No	No	No
Yes	204	GA	Active	Yes	No	No	No
Yes	205	GA	Active	Yes	No	No	No
Yes	206	GA	Active	Yes	No	No	No
Yes	220	MS	Active	Yes	No	No	No
Yes	224	UT	Active	Yes	No	No	No
Yes	226	UT	Active	Yes	No	No	No
Yes	228	TX	Active	Yes	No	No	No
Yes	229	TX	Active	Yes	No	No	No
Yes	230	TX	Active	Yes	No	No	No
Yes	231	NC	Active	Yes	No	No	No
Yes	233	NC	Active	Yes	No	No	No
Yes	234	NC	Active	Yes	No	No	No

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Comanages?	Facility ID	Facility State	Facility Status	Pond (Q9)	Landfill (Q9)	Minefill (Q9)	Other Facility (Q9)
Yes	235	NC	Active	Yes	No	No	No
Yes	236	NC	Active	Yes	No	No	No
Yes	237	NC	Active	Yes	No	No	No
Yes	238	SC	Active	Yes	No	No	No
Yes	240	NC	Active	Yes	No	No	No
Yes	245	LA	Active	Yes	No	No	No
Yes	247	LA	Active	Yes	No	No	No
Yes	248	LA	Active	Yes	No	No	No
Yes	254	OH	Active	Yes	No	No	No
Yes	259	WY	Active	Yes	No	No	No
Yes	260	WY	Active	Yes	No	No	No
Yes	261	WY	Active	Yes	No	No	No
Yes	262	WY	Active	Yes	No	No	No
Yes	269	KY	Active	Yes	No	No	No
Yes	271	KY	Active	Yes	No	No	No
Yes	272	IL	Active	Yes	No	No	No
Yes	274	Il	Active	Yes	No	No	No
Yes	275	IL	Active	Yes	No	No	No
Yes	276	IL	Active	Yes	No	No	No
Yes	277	IL	Active	Yes	No	No	No
Yes	279	AL	Active	Yes	No	No	No
Yes	280	AL	Active	Yes	No	No	No
Yes	281	AL	Active	Yes	No	No	No
Yes	282	AL	Active	Yes	No	No	No
Yes	283	AL	Active	Yes	No	No	No
Yes	288	MS	Active	Yes	No	No	No
Yes	293	TN	Active	Yes	No	No	No
Yes	294	TN	Active	Yes	No	No	No
Yes	296	TN	Active	Yes	No	No	No
Yes	297	TN	Active	Yes	No	No	No
Yes	301	AL	Active	Yes	No	No	No
Yes	303	TN	Active	Yes	No	No	No
Yes	304	TN	Active	Yes	No	No	No
Yes	306	TN	Active	Yes	No	No	No

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Comanages?	Facility ID	Facility State	Facility Status	Pond (Q9)	Landfill (Q9)	Minefill (Q9)	Other Facility (Q9)
Yes	309	TN	Active	Yes	No	No	No
Yes	311	TN	Active	Yes	No	No	No
Yes	312	TN	Active	Yes	No	No	No
Yes	313	KY	Active	Yes	No	No	No
Yes	314	KY	Active	Yes	No	No	No
Yes	317	KY	Active	Yes	No	No	No
Yes	320	AL	Active	Yes	No	No	No
Yes	324	IN	Active	Yes	No	No	No
Yes	325	IN	Active	Yes	No	No	No
Yes	326	IN	Active	Yes	No	No	No
Yes	327	IN	Active	Yes	No	No	No
Yes	330	WV	Active	Yes	No	No	No
Yes	3	WI	Active	No	Yes	No	No
Yes	4	WI	Active	No	Yes	No	No
Yes	6	MI	Active	No	Yes	No	No
Yes	7	WI	Active	No	Yes	No	No
Yes	8	WI	Active	No	Yes	No	No
Yes	14	SD	Active	No	Yes	No	No
Yes	17	NE	Active	No	Yes	No	No
Yes	20	NE	Active	No	Yes	No	No
Yes	23	NE	Active	No	Yes	No	No
Yes	24	NY	Active	No	Yes	No	No
Yes	26	MI	Active	No	Yes	No	No
Yes	30	ND	Active	No	Yes	No	No
Yes	40	MN	Active	No	Yes	No	No
Yes	42	IN	Active	No	Yes	No	No
Yes	44	WI	Active	No	Yes	No	No
Yes	49	NY	Active	No	Yes	No	No
Yes	53	IL	Active	No	Yes	No	No
Yes	54	IL	Active	No	Yes	No	No
Yes	57	ND	Active	No	Yes	No	No
Yes	65	KS	Active	No	Yes	No	No
Yes	66	PA	Active	No	Yes	No	No
Yes	67	PA	Active	No	Yes	No	No

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Comanages?	Facility ID	Facility State	Facility Status	Pond (Q9)	Landfill (Q9)	Minefill (Q9)	Other Facility (Q9)
Yes	70	IA	Active	No	Yes	No	No
Yes	71	WY	Active	No	Yes	No	No
Yes	73	WV	Active	No	Yes	No	No
Yes	81	WI	Active	No	Yes	No	No
Yes	86	MO	Active	No	Yes	No	No
Yes	87	ND	Active	No	Yes	No	No
Yes	89	MT	Active	No	Yes	No	No
Yes	91	ND	Active	No	Yes	No	No
Yes	95	NV	Active	No	Yes	No	No
Yes	96	CO	Active	No	Yes	No	No
Yes	100	ND	Active	No	Yes	No	No
Yes	101	PA	Active	No	Yes	No	No
Yes	102	PA	Active	No	Yes	No	No
Yes	103	ND	Active	No	Yes	No	No
Yes	104	ND	Active	No	Yes	No	No
Yes	106	PA	Active	No	Yes	No	No
Yes	109	KS	Active	No	Yes	No	No
Yes	112	PA	Active	No	Yes	No	No
Yes	113	MI	Active	No	Yes	No	No
Yes	116	MI	Active	No	Yes	No	No
Yes	117	FL	Active	No	Yes	No	No
Yes	118	PA	Active	No	Yes	No	No
Yes	121	WV	Active	No	Yes	No	No
Yes	134	WV	Active	No	Yes	No	No
Yes	135	OH	Active	No	Yes	No	No
Yes	139	VA	Active	No	Yes	No	No
Yes	140	VA	Active	No	Yes	No	No
Yes	141	IL	Active	No	Yes	No	No
Yes	142	OK	Active	No	Yes	No	No
Yes	143	GA	Active	No	Yes	No	No
Yes	144	GA	Active	No	Yes	No	No
Yes	152	TX	Active	No	Yes	No	No
Yes	153	TX	Active	No	Yes	No	No
Yes	154	AZ	Active	No	Yes	No	No

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Comanages?	Facility ID	Facility State	Facility Status	Pond (Q9)	Landfill (Q9)	Minefill (Q9)	Other Facility (Q9)
Yes	155	IN	Active	No	Yes	No	No
Yes	157	FL	Active	No	Yes	No	No
Yes	158	FL	Active	No	Yes	No	No
Yes	168	NC	Active	No	Yes	No	No
Yes	178	IL	Active	No	Yes	No	No
Yes	180	IL	Active	No	Yes	No	No
Yes	187	TX	Active	No	Yes	No	No
Yes	189	TX	Active	No	Yes	No	No
Yes	191	AR	Active	No	Yes	No	No
Yes	198	GA	Active	No	Yes	No	No
Yes	207	PA	Active	No	Yes	No	No
Yes	208	PA	Active	No	Yes	No	No
Yes	210	WV	Active	No	Yes	No	No
Yes	211	WV	Active	No	Yes	No	No
Yes	212	WV	Active	No	Yes	No	No
Yes	215	WV	Active	No	Yes	No	No
Yes	223	FL	Active	No	Yes	No	No
Yes	225	UT	Active	No	Yes	No	No
Yes	241	WI	Active	No	Yes	No	No
Yes	242	WI	Active	No	Yes	No	No
Yes	243	WI	Active	No	Yes	No	No
Yes	244	WI	Active	No	Yes	No	No
Yes	246	LA	Active	No	Yes	No	No
Yes	251	OH	Active	No	Yes	No	No
Yes	255	UT	Active	No	Yes	No	No
Yes	256	UT	Active	No	Yes	No	No
Yes	257	WY	Active	No	Yes	No	No
Yes	258	WY	Active	No	Yes	No	No
Yes	263	UT	Active	No	Yes	No	No
Yes	264	SC	Active	No	Yes	No	No
Yes	265	SC	Active	No	Yes	No	No
Yes	266	SC	Active	No	Yes	No	No
Yes	267	SC	Active	No	Yes	No	No
Yes	268	SC	Active	No	Yes	No	No

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Comanages?	Facility ID	Facility State	Facility Status	Pond (Q9)	Landfill (Q9)	Minefill (Q9)	Other Facility (Q9)
Yes	289	WI	Active	No	Yes	No	No
Yes	291	MD	Active	No	Yes	No	No
Yes	292	MD	Active	No	Yes	No	No
Yes	318	KY	Active	No	Yes	No	No
Yes	339	MD	Active	No	Yes	No	No
Yes	28	MI	Active	No	No	Yes	No
Yes	90	MT	Active	No	No	Yes	No
Yes	105	CO	Active	No	No	Yes	No
Yes	222	MO	Active	No	No	Yes	No
Yes	286	WV	Active	No	No	Yes	No
Yes	328	IN	Active	No	No	Yes	No
Yes	336	VA	Active	No	No	No	Yes
Yes	337	OK	Active	No	No	No	Yes
Yes	128	IN	Closed	Yes	No	No	No
Yes	221	MS	Closed	Yes	No	No	No
Yes	308	TN	Closed	Yes	No	No	No
No	94	IA	Active	Yes	No	No	No
No	126	OH	Active	Yes	No	No	No
No	130	IN	Active	Yes	No	No	No
No	148	KY	Active	Yes	No	No	No
No	186	LA	Active	Yes	No	No	No
No	197	GA	Active	Yes	No	No	No
No	300	AL	Active	Yes	No	No	No
No	316	KY	Active	Yes	No	No	No
No	321	AL	Active	Yes	No	No	No
No	11	IL	Active	No	Yes	No	No
No	13	WY	Active	No	Yes	No	No
No	15	SD	Active	No	Yes	No	No
No	29	ND	Active	No	Yes	No	No
No	32	OH	Active	No	Yes	No	No
No	36	OH	Active	No	Yes	No	No
No	39	OH	Active	No	Yes	No	No
No	41	SD	Active	No	Yes	No	No
No	51	OK	Active	No	Yes	No	No

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Comanages?	Facility ID	Facility State	Facility Status	Pond (Q9)	Landfill (Q9)	Minefill (Q9)	Other Facility (Q9)
No	52	IL	Active	No	Yes	No	No
No	62	IA	Active	No	Yes	No	No
No	72	NV	Active	No	Yes	No	No
No	85	IN	Active	No	Yes	No	No
No	93	IA	Active	No	Yes	No	No
No	98	NE	Active	No	Yes	No	No
No	110	KS	Active	No	Yes	No	No
No	111	KS	Active	No	Yes	No	No
No	123	OH	Active	No	Yes	No	No
No	137	OH	Active	No	Yes	No	No
No	177	KS	Active	No	Yes	No	No
No	184	IN	Active	No	Yes	No	No
No	193	OK	Active	No	Yes	No	No
No	196	TX	Active	No	Yes	No	No
No	209	PA	Active	No	Yes	No	No
No	213	WV	Active	No	Yes	No	No
No	214	WV	Active	No	Yes	No	No
No	232	NC	Active	No	Yes	No	No
No	239	NC	Active	No	Yes	No	No
No	249	OH	Active	No	Yes	No	No
No	250	OH	Active	No	Yes	No	No
No	270	KY	Active	No	Yes	No	No
No	284	IA	Active	No	Yes	No	No
No	287	MS	Active	No	Yes	No	No
No	290	MD	Active	No	Yes	No	No
No	298	TN	Active	No	Yes	No	No
No	329	IN	Active	No	Yes	No	No
No	333	MA	Active	No	Yes	No	No
No	338	MD	Active	No	Yes	No	No
No	56	IL	Active	No	No	Yes	No
No	58	ND	Active	No	No	Yes	No
No	119	IN	Active	No	No	No	Yes
No	334	VA	Active	No	No	No	Yes
No	335	WI	Active	No	No	No	Yes

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Comanages?	Facility ID	Facility State	Facility Status	Pond (Q9)	Landfill (Q9)	Minefill (Q9)	Other Facility (Q9)
No	1	WI	Closed	No	No	No	No
No	5	MI	Closed	No	No	No	No
No	9	WI	Closed	No	No	No	No
No	10	IL	Closed	No	No	No	No
No	16	WY	Closed	No	No	No	No
No	18	TX	Closed	No	No	No	No
No	19	TX	Closed	No	No	No	No
No	21	NE	Closed	No	No	No	No
No	22	NE	Closed	No	No	No	No
No	31	ND	Closed	No	No	No	No
No	33	OH	Closed	No	No	No	No
No	34	OH	Closed	No	No	No	No
No	35	OH	Closed	No	No	No	No
No	37	OH	Closed	No	No	No	No
No	38	OH	Closed	No	No	No	No
No	45	WI	Closed	No	No	No	No
No	46	WI	Closed	No	No	No	No
No	47	WI	Closed	No	No	No	No
No	48	WI	Closed	No	No	No	No
No	59	IA	Closed	No	No	No	No
No	60	IA	Closed	No	No	No	No
No	61	IA	Closed	No	No	No	No
No	74	WV	Closed	No	No	No	No
No	80	VA	Closed	No	No	No	No
No	82	IN	Closed	No	No	No	No
No	83	IN	Closed	No	No	No	No
No	88	MT	Closed	No	No	No	No
No	99	ND	Closed	No	No	No	No
No	108	KS	Closed	No	No	No	No
No	127	IN	Closed	No	No	No	No
No	132	WV	Closed	No	No	No	No
No	133	WV	Closed	No	No	No	No
No	160	NC	Closed	No	No	No	No
No	164	NC	Closed	No	No	No	No

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Comanages?	Facility ID	Facility State	Facility Status	Pond (Q9)	Landfill (Q9)	Minefill (Q9)	Other Facility (Q9)
No	166	NC	Closed	No	No	No	No
No	170	NC	Closed	No	No	No	No
No	173	NC	Closed	No	No	No	No
No	185	IN	Closed	No	No	No	No
No	216	WV	Closed	No	No	No	No
No	217	PA	Closed	No	No	No	No
No	218	PA	Closed	No	No	No	No
No	219	WV	Closed	No	No	No	No
No	273	IL	Closed	No	No	No	No
No	295	TN	Closed	No	No	No	No
No	299	TN	Closed	No	No	No	No
No	302	AL	Closed	No	No	No	No
No	305	TN	Closed	No	No	No	No
No	307	TN	Closed	No	No	No	No
No	310	TN	Closed	No	No	No	No
No	315	KY	Closed	No	No	No	No
No	319	TN	Closed	No	No	No	No
No	322	AL	Closed	No	No	No	No
No	331	NC	Closed	No	No	No	No
No	332	NC	Closed	No	No	No	No

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Appendix B: CIBO Non-Utility Survey

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Appendix C: FBC Facilities

List of FBC Facilities					
Owner	**Facility Name**	**City**	**State**	**SIC Code**	**Source of SIC Code**
Abbott Laboratories		Casa Grande	Arizona	2023	Envirofacts
AES	AES Thames Inc.	Uncasville	Connecticut	4911	CIBO Survey
AES Corporation	AES Shady Point	Panama	Oklahoma	4911	CIBO Survey
AES Corporation	AES Barbers Point	Kapolei	Hawaii	4911	CIBO Survey
Air Products	Stockton Cogen Company	Stockton	California	4911	CIBO Survey
Air Products and Chemicals, Inc.	Cambria Cogen Company	Ebensburg	Pennsylvania	4911	CIBO Survey
American Bituminous Power Partners	Grant Town	Grant Town	West Virginia	4953	Envirofacts
Anderson Clayton Foods		Jacksonville	Illinois	2099	SIC Manual
Archibald Power Corporation	Archibald Cogen	Archibald	Pennsylvania	4931	CIBO Survey
Archer Daniels Midland	ADM Des Moines Cogen	Des Moines	Iowa	2075	CIBO Survey
Archer Daniels Midland	ADM Mankato Cogen	Mankato	Minnesota	2075	CIBO Survey
Archer Daniels Midland Co	ADM Lincoln Cogen	Lincoln	Nebraska	2075	CIBO Survey
Archer Daniels Midland Co	ADM Cedar Rapids Cogen	Cedar Rapids	Iowa	2075	CIBO Survey
Ashland Petroleum Company	Boiler Plant	Catlettsburg		2911	Envirofacts
A. E. Stanley Manufacturing Company		Decatur	Illinois	2046	Envirofacts
A.C.E. Cogeneration Co.	A/C Power- Ace Operations	Trona	California	4910	CIBO Survey
B & W and NRG, Inc	Sunnyside Cogen	Sunnyside	Utah	4911	CIBO Survey
Barton Brands Distillery		Bardstown	Kentucky	2085	Envirofacts
Black River Limited Partnership	Fort Drum H.T.W. Cogeneration Facility	Fort Drum	New York	4931	CIBO Survey
Boise Cascade	Rumford Cogeneration Company	Rumford	Maine	2621	SIC Manual
B. F. Goodrich Company		Henry	Illinois	2869	Envirofacts
Central Soya Company		Marion	Ohio	2075	Envirofacts
CH POSDEF Inc.	POSDEF Power Company, L.P.	Stockton	California	4931	CIBO Survey
Citgo, Conoco, Vista, Entergy	NISCO	Westlake	Louisiana	4911	CIBO Survey
Correctional Facility		Danville	Illinois	9223	SIC Manual
Department of Municipal Services	City of Wyandotte Power Plant	Wyandotte	Michigan	9199	CIBO Survey
East Stroudsberg University		East Stroudsberg	Pennsylvania	8221	SIC Manual
Ebensburg Power Company	Ebensburg Power Company	Ebensburg	Pennsylvania	4911	CIBO Survey
Fort Howard Corporation	Fort Howard	Rincon	Georgia	2621	CIBO Survey
Fort Howard Corporation	Fort Howard Corporation	Green Bay	Wisconsin	2621	CIBO Survey
Foster Wheeler Mount Carmel, Inc.	Mount Carmel Power Plant	Marion Heights	Pennsylvania	4911	SIC Manual
General Motors Corporation	Power Plant	Warren	Michigan	3714	Envirofacts
General Motors Corporation	Power Plant	Pontiac	Michigan	3711	Envirofacts
Georgetown University	Power Plant	Washington	DC	8221	SIC Manual
Gilberton Power Company	Gilberton Power Co.	Frackville	Pennsylvania	4911	CIBO Survey
Griffin Industries, Inc.	Boiler Plant	Newberry	Indiana	5191	Envirofacts
GWF Power Systems	GWF Power Systems-Hanford	Hanford	California	4911	CIBO Survey

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List of FBC Facilities					
Owner	**Facility Name**	**City**	**State**	**SIC Code**	**Source of SIC Code**
GWF Power Systems	GWF Power Systems-East Third Street	Pittsburg	California	4911	CIBO Survey
Idaho National Energy Lab		Idaho Falls	Idaho	8733	SIC Manual
Inter-Power/AhlCon Partners, L.P.	Colver Power Project	Colver	Pennsylvania	4911	CIBO Survey
Investors	ADM Decatur Cogen	Decatur	Illinois	2075	CIBO Survey
Iowa Beef Processors, Inc.		Amarillo	Texas	2011	SIC Manual
Iowa State University	Physical Plant	Ames	Iowa	8221	SIC Manual
Kimberly Clark Corporation	Power Plant	Chester	Pennsylvania	2621	Envirofacts
Lake Resources	North Branch Power Plant	Bayard	West Virginia	4911	SIC Manual
Lauhoff Grain Company		Danville	Illinois	2075	Envirofacts
Mantiwoc Public Utilities		Mantiwoc	Wisconsin	4931	SIC Manual
Michigan State University	Michigan State University	East Lansing	Michigan	8221	CIBO Survey
Midwest Grain Products		Pekin	Illinois	2085	Envirofacts
Montana Dakota Utilities Co.	R.M. Heskett Station	Mandan	North Dakota	4911	CIBO Survey
Morgantown Energy	Morgantown Cogeneration Plant	Morgantown	West Virginia	4911	Envirofacts
Mt. Poso Cogeneration Company	Mt. Poso Cogen Plant	Bakersfield	California	4931	CIBO Survey
Northeastern Power Company		McAdoo	Pennsylvania	4911	SIC Manual
Northern States Power Company	Black Dog Steam Plant	Burnsville	Minnesota	4910	CIBO Survey
Panther Creek Partners	Panther Creek	Nesquehaning	Pennsylvania	4911	CIBO Survey
Purdue University	Purdue Wade	West Lafayette	Indiana	8221	CIBO Survey
P.H. Glatfelter Company		Spring Grove	Pennsylvania	2621	Envirofacts
Quaker State Oil	Congo Refinery	Newell	West Virginia	2911	Envirofacts
Rio Bravo Jasmin CA	Rio Bravo Jasmin	Bakersfield	California	4931	CIBO Survey
Rio Bravo Poso CA Joint Venture	Rio Bravo Poso	Bakersfield	California	4931	CIBO Survey
Rosebud Energy	Colstrip Power Plant	Colstrip	Montana	4911	SIC Manual
Schuykill Energy Resources, Inc.	Saint Nichols Power Plant	Shenandoah	Pennsylvania	4911	SIC Manual
Scrubgrass Generating, Co. L.P	Scrubgrass Generating Plant	Kennerdell	Pennsylvania	4911	CIBO Survey
Southeast Paper Mfg Company		Dublin	Georgia	2621	Envirofacts
Southern Electric Interntational	UDG Niagara	Niagara Falls	New York	4911	SIC Manual
Tacoma Public Utilities	Steam Plant #2	Tacoma	Washington	4931	SIC Manual
Tampella Services, Inc.	Piney Creek Project	Clarion	Pennsylvania	4911	CIBO Survey
Tennessee Valley Authority	Shawnee Power Plant	West Paducah	Kentuckey	4911	Envirofacts
Texas-New Mexico Power Company	Texas-New Mexico	Bremond	Texas	4911	CIBO Survey
Tri-State Generation and Transmission Association	NUCLA Generating Station	Nucla	Colorado	4911	Envirofacts
University of Iowa	University of Iowa Main Power Plant	Iowa City	Iowa	8221	CIBO Survey
University of Missouri-Columbia	University of Missouri-Columbia	Columbia	Missouri	4911	CIBO Survey
University of North Carolina	Chapel Hill Power Plant	Chapel Hill	North Carolina	8221	SIC Manual
University of Northern Iowa		Cedar Falls	Iowa	4911	Envirofacts

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List of FBC Facilities					
Owner	**Facility Name**	**City**	**State**	**SIC Code**	**Source of SIC Code**
US Generation Company	Northampton Generating Company	Northampton	Pennsylvania	4911	CIBO Survey
U.S. Generating	Cedar Bay	Jacksonville	Florida	4931	CIBO Survey
Westwood Energy Properties L.P.	Westwood Generating Facility	Joliett	Pennsylvania	4911	CIBO Survey
Wheelabrator Environmental Systems, Inc.	Wheelabrator Frackville Energy Co, Inc.	Frackville	Pennsylvania	4931	CIBO Survey
Worcester Energy Company, Inc.	Down East Peat	Aurora	Maine	4911	SIC Manual
Yellowstone Energy Limited Partnership	Yellowstone Power Plant	Billings	Montana	4911	SIC Manual

FBC Boiler Capacity				
Owner	**Facility Name**	**Number of Boilers**	**Capacity (MW)**	**Capacity Calculation** [a]
Utilities				
Yellowstone Energy Limited Partnership		2	28.5	assumed equal capacity
			28.5	
A.C.E. Cogeneration Co.	A/C Power- Ace Operations	1	106	reported by CIBO
Northern States Power Company	Black Dog Steam Plant	1	100	reported by CIBO
Lake Resources	North Branch Power Plant	2	40	assumed equal capacity
			40	
Foster Wheeler Mount Carmel. Inc.	Mount Carmel Power Plant	1	40	reported by CIBO
Air Products	Stockton Cogen Company	1	49	reported by CIBO
Rosebud Energy	Colstrip Power Plant	1	42	reported by CIBO
Scrubgrass Generating, Co. L.P	Scrubgrass Generating Plant	2	41.5	assumed equal capacity
			41.5	
Schuykill Energy Resources, Inc.	Saint Nichols Power Plant	1	80	reported by CIBO
GWF Power Systems	GWF Power Systems-Hanford	1	20	reported by CIBO
Ebensburg Power Company	Ebensburg Power Company	1	52	reported by CIBO
Gilberton Power Company	Gilberton Power Co.	2	40	calculated capacity
			40	
AES Corporation	AES Barbers Point	2	90	calculated capacity
			90	
B & W and NRG, Inc	Sunnyside Cogen	1	55	reported by CIBO
Citgo, Conoco, Vista, Entergy	NISCO	2	100	calculated capacity
			100	
Air Products and Chemicals, Inc.	Cambria Cogen Company	2	42.5	assumed equal capacity
			42.5	
AES Corporation	AES Shady Point	4	80	calculated capacity
			80	
			80	

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FBC Boiler Capacity				
Owner	Facility Name	Number of Boilers	Capacity (MW)	Capacity Calculation [a]
			80	
Inter-Power/AhlCon Partners, L.P.	Colver Power Project	1	85	reported by CIBO
University of Missouri-Columbia	University of Missouri-Columbia	1	20	reported by CIBO
Tennessee Valley Authority	Shawnee Power Plant	1	160	reported by CIBO
Southern Electric International	UDG Niagara	1	52	reported by CIBO
GWF Power Systems	GWF Power Systems-East Third Street	1	20	reported by CIBO
Texas-New Mexico Power Company	Texas-New Mexico	1	100	reported by CIBO
Tampella Services, Inc.	Piney Creek Project	1	30	reported by CIBO
US Generation Company	Northampton Generating Company	1	110	reported by CIBO
Morgantown Energy	Morgantown Cogeneration Plant	2	35	assumed equal capacity
			35	
Montana Dakota Utilities Co.	R.M. Heskett Station	1	75	reported by CIBO
Worcester Energy Company, Inc.	Down East Peat	3	4.67	assumed equal capacity
			4.67	
			4.66	
AES	AES Thames Inc.	2	90	assumed equal capacity
			90	
University of Northern Iowa		1	7.5	reported by CIBO
Tri-State Generation and Transmission Association	NUCLA Generating Station	1	100	reported by CIBO
Panther Creek Partners	Panther Creek	2	41.5	calculated capacity
			41.5	
Northeastern Power Company		2	24.75	assumed equal capacity
			24.75	
Westwood Energy Properties L.P.	Westwood Generating Facility	1	30	reported by CIBO
Rio Bravo Jasmin CA	Rio Bravo Jasmin	1	37	reported by CIBO
Wheelabrator Environmental Systems, Inc.	Wheelabrator Frackville Energy Co, Inc.	1	42	reported by CIBO
U.S. Generating	Cedar Bay	3	83.3	calculated capacity
			83.3	
			83.3	
Black River Limited Partnership	Fort Drum H.T.W. Cogeneration Facility	3	18.67	calculated capacity
			18.67	
			18.66	
Rio Bravo Poso CA Joint Venture	Rio Bravo Poso	1	37	reported by CIBO
CH POSDEF Inc.	POSDEF Power Company, L.P.	1	49.9	reported by CIBO
Mt. Poso Cogeneration Company	Mt. Poso Cogen Plant	1	49.9	reported by CIBO
Archibald Power Corporation	Archibald Cogen	1	21.5	reported by CIBO
Tacoma Public Utilities	Steam Plant #2	2	10	assumed equal capacity
			10	

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FBC Boiler Capacity				
Owner	**Facility Name**	**Number of Boilers**	**Capacity (MW)**	**Capacity Calculation** [a]
Mantiwoc Public Utilities		1	20	reported by CIBO
American Bituminous Power Partners	Grant Town	2	40	assumed equal capacity
			40	
TOTAL		**67**	**3,478.2**	
Non-Utilities				
Iowa Beef Processors, Inc.		1	7	reported by CIBO
Abbott Laboratories		1	13.6	reported by CIBO
A. E. Stanley Manufacturing Company		2	25	assumed equal capacity
			25	
Lauhoff Grain Company		1	20	reported by CIBO
Central Soya Company		1	4	reported by CIBO
Archer Daniels Midland	ADM Des Moines Cogen	1	8	reported by CIBO
Archer Daniels Midland	ADM Mankato Cogen	1	6	reported by CIBO
Investors	ADM Decatur Cogen	6	28.6	calculated capacity
			24.3	
			24.3	
			24.3	
			24.3	
			24.2	
Archer Daniels Midland Co	ADM Lincoln Cogen	1	9	reported by CIBO
Archer Daniels Midland Co	ADM Cedar Rapids Cogen	4	30	calculated capacity
			30	
			30	
			30	
Barton Brands Distillery		1	1	reported by CIBO
Midwest Grain Products		1	3.5	reported by CIBO
Anderson Clayton Foods		1	7	reported by CIBO
Kimberly Clark Corporation	Power Plant	1	55	reported by CIBO
P. H. Glatfelter Company		1	44	reported by CIBO
Boise Cascade	Rumford Cogeneration Company	2	40	assumed equal capacity
			40	
Southeast Paper Mfg Company		1	60	reported by CIBO
Fort Howard Corporation	Fort Howard Corporation	1	32	reported by CIBO
Fort Howard Corporation	Fort Howard	3	16	calculated capacity
			16	
			8	
B. F. Goodrich Company		1	12.5	reported by CIBO
Quaker State Oil	Congo Refinery	2	12	assumed equal capacity
			12	
Ashland Petroleum Company	Boiler Plant	2	32.5	assumed equal capacity

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FBC Boiler Capacity				
Owner	**Facility Name**	**Number of Boilers**	**Capacity (MW)**	**Capacity Calculation** [a]
			32.5	
General Motors Corporation	Power Plant	1	26	reported by CIBO
General Motors Corporation	Power Plant	1	3	reported by CIBO
Griffin Industries, Inc.	Boiler Plant	1	4	reported by CIBO
Georgetown University	Power Plant	1	2.8	reported by CIBO
Iowa State University	Physical Plant	2	20	assumed equal capacity
			20	
East Stroudsberg University		2	4	assumed equal capacity
			4	
University of North Carolina	Chapel Hill Power Plant	2	14	assumed equal capacity
			14	
University of Iowa	University of Iowa Main Power Plant	1	20	reported by CIBO
Michigan State University	Michigan State University	1	30	reported by CIBO
Purdue University	Purdue Wade	1	23	reported by CIBO
Idaho National Energy Lab		2	6.8	assumed equal capacity
			6.8	
Department of Municipal Services	City of Wyandotte Power Plant	1	20	reported by CIBO
Correctional Facility		3	1	assumed equal capacity
			1	
			1	
TOTAL – Non-utilities		**55**	**1,033**	

[a] CIBO reported capacity at the facility level only. Where a facility had more than one boiler, individual capacities were calculated by comparing boiler output reported in the CIBO survey. If boiler output was not reported, facility capacity was assumed to be divided equally among the boilers.

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Appendix D: Oil-Fired Utilities

SUMMARY OF RESULTS: FACILITIES WITH UNITS THAT DID OR COULD COMBUST OIL IN 1994

177				**Facilities with units that combusted oil in 1994 as primary or alternate fuel**	Oil Data Table D-1 (Unit Data in Oil Data Table D-2)
	94		**53.1%**	**Facilities with at least one unit that combusted oil as the primary fuel** (may also have units in which oil is shared-oil unit*)	
		43	24.3%	Facilities that combusted oil-only in oil-only units* (no other alternate fuel)	
		13	7.3%	Facilities that operated oil-only units* as well as units that used no oil (burned gas or coal only)	
		8	4.5%	Facilities that operated oil-only units* as well as shared-fuel** units	
		30	16.9%	Facilities with no oil-only units* but that combusted oil in shared-fuel units**	
	83		**46.9%**	**Facilities that combusted oil as an alternate fuel in a unit that was primarily combusting gas or coal**	
		66	37.3%	Gas Facilities	
		8	4.5%	Coal Facilities	
		9	5.1%	Coal and Gas Facilities	
177	**136**		**76.8%**	**Facilities that generate oil combustion wastes only**	
	41		**23.2%**	**Facilities that generate both coal and oil combustion wastes**	
61				**Facilities that could combust oil, but did not in 1994** (standby, operational but not combusting, designed to use oil but burning an alternate fuel only, etc.)	Oil Data Table D-3
319				**Facilities combusting oil, but for which oil is not considered either a primary or alternate fuel**	Oil Data Table D-4

* Oil-only units—units burn oil and no other fuels
**Shared-fuel units—units burn oil and a second fuel (coal or gas)

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OIL DATA TABLE D-1: UTILITY FACILITIES COMBUSTING OIL IN 1994

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OIL DATA TABLE D-2: UTILITY UNITS COMBUSTING OIL IN 1994

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OIL DATA TABLE D-3: UTILITY UNITS WITH CAPABILITY OF COMBUSTING OIL BUT IN WHICH NO OIL WAS COMBUSTED IN 1994

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TABLE D-4: FACILITIES WITH OIL CONSUMPTION REPORTED IN 1994 BUT FOR WHICH OIL IS NOT A PRIMARY OR SECONDARY FUEL

Sort	Plant Total Number of Facilities		Plant Type 319	Consumption Coal (t.tons)	Oil (t.bbls)	Gas (mcf)	Notes or Assumptions	Year of Data		C&G
246	Albright	1	C	513.2	6.7	0		1994	1	513.2
59	Allen	1	C	1403.6	30.9	0		1994	1	1403.6
305	Alma	1	C	378.5	1.6	0		1994	1	378.5
110	AM Williams	1	C	1393.72	6.25	0		1994	1	1393.72
218	Ames(IA)Two	1	C	226.4	2.9	0		1994	1	226.4
459	Amos	1	C	5327.5	66.3	0		1994	1	5327.5
406	Antelope Valley	1	C	5129.5	8.8	0		1994	1	5129.5
433	Arkwright	1	C	84.49	0.83	8.96		1994	1	93.45
112	Armstrong	1	C	607.2	5	0		1994	1	607.2
255	Asbury	1	C	846.5	1.5	0		1994	1	846.5
170	Asheville	1	C	821.2	5.3	0		1994	1	821.2
12	Ashtabula	1	C	840.46	14.3	0		1994	1	840.46
396	Atkins	1	G	0	0.8	1793.70		1994	1	1793.7
313	Avon Lake	1	C	1319.47	17.6	0		1994	1	1319.47
393	Baldwin	1	C	4108.1	14.5	0		1994	1	4108.1
217	Barry	1	C	3725.9	0.15	329.90		1994	1	4055.8
248	Bates	1	G	0	0.20	8488.10		1994	1	8488.1
420	Bay Shore	1	C	1158.7	6.9	0		1994	1	1158.7
303	BC Cobb	1	C	927.5	2.8	95.00		1994	1	1022.5
361	Beebee	1	C	162.4	1.5	0		1994	1	162.4
156	Belews Creek	1	C	4886	15.4	0		1994	1	4886
315	Belle River	1	C	4996	21	0		1994	1	4996
52	Ben French	1	C	133.94	1.09	4.96		1994	1	138.9
61	Big Bend (FL)	1	C	4549.5	36.7	0		1994	1	4549.5
83	Big Cajun One	1	G	0	0.9	3637.2		1994	1	3637.2
353	BigCajun Two	1	C	5781.5	48.7	0		1994	1	5781.5
41	Big Sandy	1	C	2314.8	35.9	0		1994	1	2314.8
162	Big Stone	1	C	2340	5	0		1994	1	2340
200	Blount Street	1	C/G	112.8	0.1	497.9		1994	1	610.7
92	Blue Valley	1	C	57.6	1.3	60.1		1994	1	117.7
247	Boardman (OR)	1	C	2199.2	9.9	0		1994	1	2199.2

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Sort	Plant Total Number of Facilities		Plant Type 319	Consumption Coal (t.tons)	Oil (t.bbls)	Gas (mcf)	Notes or Assumptions	Year of Data		C&G
100	Bonanza	1	C	1399.7	3.9	0		1994	1	1399.7
126	Bowen	1	C	8267.3	23.96	0		1994	1	8267.3
141	Brandon Shores	1	C	3503	51	0		1994	1	3503
254	Breed	1	C	**0**	**0.1**	**0**	Oil only reported--facility assumed on standby	1994	0	0
367	Bremo Bluff	1	C	401.6	5	0		1994	1	401.6
319	Broadway (CA)	1	G	0	0.7	3296.5		1994	1	3296.5
256	Bruce Mansfield	1	C	5133.7	40.6	0		1994	1	5133.7
302	Brunner Island	1	C	2684.7	**137.5**	0	3 Coal-only units; reportedly burning 58-33 t.bbls of oil per unit in 1994	1994	1	2684.7
279	Buck (NC)	1	C	205.3	19.7	0		1994	1	205.3
490	Bull Run (TN)	1	C	1877.3	50.2	0		1994	1	1877.3
58	Burlington (IA)	1	C	570.6	2.6	0		1994	1	570.6
281	Cabot-Holyoke	1	**O**	0	2.4	37.9	Facility reported on standby in 1994	1994	1	37.9
160	Cameo	1	C	275	0.1	15.2		1994	1	290.2
295	Canaday	1	G	0	0.59	1212.88		1994	1	1212.88
164	Canadys	1	C	990.22	0.5	1334.55		1994	1	2324.77
316	Cape Fear	1	C	480.4	5.1	0		1994	1	480.4
416	Carbon	1	C	630.5	1.6	0		1994	1	630.5
348	Cardinal	1	C	4008.3	36.4	0		1994	1	4008.3
39	Carlson	1	C	92.81	1.4	0		1994	1	92.81
477	Cayuga	1	C	2720.2	8.8	0		1994	1	2720.2
72	Centralia	1	C	6022.3	9.5	0		1994	1	6022.3
42	CH Stanton	1	C	993.1	8.7	0		1994	1	993.1
135	Chamois	1	C	128.6	0.4	0		1994	1	128.6
365	Chesapeake	1	C	1032	12.4	0		1994	1	1032
463	Chesterfield	1	C	2780.8	49.9	0		1994	1	2780.8
467	Cholla	1	C	3589.8	14.3	38.1		1994	1	3627.9
434	Clay Boswell	1	C	3701.1	14.8	0		1994	1	3701.1
8	Cliffside	1	C	862.4	17.6	0		1994	1	862.4
103	Clifty Creek	1	C	3925.6	4.1	0		1994	1	3925.6

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Sort	Plant	Total Number of Facilities	Plant Type 319	Consumption Coal (t.tons)	Oil (t.bbls)	Gas (mcf)	Notes or Assumptions	Year of Data		C&G
230	Clinch River (VA)	1	C	1655.7	6.6	0		1994	1	1655.7
322	Coal Creek	1	C	7235.5	6.3	0		1994	1	7235.5
332	Coffeen	1	C	2105.3	9.6	0		1994	1	2105.3
233	Colbert	1	C	2911.2	47.2	0		1994	1	2911.2
352	Coleto Creek	1	C	1804.2	4.5	0		1994	1	1804.2
419	Colstrip	1	C	9556.5	18.9	0		1994	1	9556.5
97	Columbia (WI)	1	C	3554.87	12.01	0		1994	1	3554.87
228	Conemaugh	1	C	4095.22	27.47	440.92		1994	1	4536.14
231	Conesville	1	C	3870.2	22.8	0		1994	1	3870.2
475	Cool Water	1	G	0	46.1	4212.7		1994	1	4212.7
469	Coronado	1	C	2879.9	9.1	0		1994	1	2879.9
168	Coughlin	1	G	0	2.87	5687.8		1994	1	5687.8
234	Council Bluffs	1	C	2753.2	30.9	44.4		1994	1	2797.6
147	Coyote	1	C	2100.6	15.2	0		1994	1	2100.6
50	CP Crane	1	C	719.2	4.6	0		1994	1	719.2
130	CR Lowman	1	C	1387.7	4	0		1994	1	1387.7
277	Crist	1	C/G	1777.4	11.2	514.3		1994	1	2291.7
411	Crystal River	1	C/N	5301.3	**103.8**	0	4 coal-only units; reportedly burning 13-38 t.bbls of oil per unit in 1994 (1 nuc unit)	1994	1	5301.3
296	Culley	1	C	891.9	0.7	26.2		1994	1	918.1
98	Cumberland	1	C	5618.9	69.6	0		1994	1	5618.9
487	Dale	1	C	355.6	3.9	0		1994	1	355.6
172	Dallman	1	C	938.65	4.09	0		1994	1	938.65
173	Dan River	1	C	165	10.3	0		1994	1	165
445	DaveJohnston	1	C	4361.4	12.2	0		1994	1	4361.4
153	DBWilson	1	C	1265.2	9.7	0		1994	1	1265.2
442	Decker	1	G	0	0.01	15369.4		1994	1	15369.4
186	Denton	1	G	0	8.61	3104.2		1994	1	3104.2
35	Dickerson	1	C	1157.8	46	0		1994	1	1157.8
450	Dubuque	1	C	92.3	0.3	32.3		1994	1	124.6
474	Duck Creek	1	C	1033.2	4.6	0		1994	1	1033.2
163	Dunkirk	1	C	1177.4	23.6	0		1994	1	1177.4

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Sort	Plant	Total Number of Facilities	Plant Type 319	Consumption Coal (t.tons)	Oil (t.bbls)	Gas (mcf)	Notes or Assumptions	Year of Data		C&G
455	East Bend	1	C	1483.2	11.9	0		1994	1	1483.2
60	Eastlake	1	C	2226.46	34.4	0		1994	1	2226.46
211	Eckert	1	C	370.55	9.18	0		1994	1	370.55
290	ED Edwards	1	C	1402.7	12	0		1994	1	1402.7
95	Edgewater (OH)	1	C	0	**45.9**	0	Oil only reported--designed as coal-only facility; not included as oil burner	1994	0	0
446	Edgewater (WI)	1	C	2537.81	7.52	0		1994	1	2537.81
166	El Centro	*	**O/G**	0	0.04	3256.4	Reportedly burned in unit that used no oil as alternate fuel (*Facility in "Oil Capable" list)	1994	1	3256.4
438	Elmer Smith	1	C	998.1	3.29	0		1994	1	998.1
24	Elrama	1	C	1067.3	24.3	0		1994	1	1067.3
87	Erickson	1	C	363.89	1.51	0		1994	1	363.89
229	EW Brown	1	C	1486.6	11.4	0		1994	1	1486.6
421	Fayette (TX)	1	C	5682.8	21.65	0		1994	1	5682.8
304	Flint Creek (AR)	1	C	1481.1	10.2	0		1994	1	1481.1
249	Fort Martin	1	C	2350.4	51.6	0		1994	1	2350.4
483	Gadsden New	1	C	109.56	0.59	57.37		1994	1	166.93
437	Gallagher	1	C	1316.9	39	0		1994	1	1316.9
34	Gallatin	1	C	2390.2	12.2	0		1994	1	2390.2
104	Gannon	1	C	2245.8	48.6	0		1994	1	2245.8
417	Gaston (AL)	1	C	4118.6	19.91	0		1994	1	4118.6
86	Gavin	1	C	5339.5	38.4	0		1994	1	5339.5
26	Genoa	1	C	661.6	18.6	0		1994	1	661.6
20	George Neal South	1	C	2661	7.4	0		1994	1	2661
85	Ghent	1	C	4513.8	25.5	0		1994	1	4513.8
265	Gibbons Creek	1	C	3624.7	4.8	118.7		1994	1	3743.4
461	Gibson	1	C	8071.1	67.7	0		1994	1	8071.1
407	Glen Lyn	1	C	667.1	22.4	0		1994	1	667.1
394	Gorgas Two	1	C	2973.3	22.3	0		1994	1	2973.3
178	Goudey	1	C	251.5	1.7	0		1994	1	251.5

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Sort	Plant Total Number of Facilities		Plant Type 319	Consumption Coal (t.tons)	Oil (t.bbls)	Gas (mcf)	Notes or Assumptions	Year of Data		C&G
324	Grainger	1	C	262.7	1.38	0		1994	1	262.7
82	Grand Tower	1	C	211.2	6.6	0		1994	1	211.2
343	Green	1	C	1481.3	12.7	0		1994	1	1481.3
447	Green River	1	C	464.6	2.7	0		1994	1	464.6
117	Greene County(AL)	1	C	1361	6	0		1994	1	1361
161	Greenidge	1	C	289.8	3.9	0		1994	1	289.8
96	Greens Bayou	1	G	0	0.5	8448.6		1994	1	8448.6
138	Hamilton (OH)	1	C/G	134.34	0.16	87.94		1994	1	222.28
385	Hammond	1	C	567.4	21.2	0		1994	1	567.4
132	Harbor Beach	1	C	96	7	0		1994	1	96
337	Harllee Branch	1	C	2772.2	8.6	0		1994	1	2772.2
345	Hastings	1	C	290.8	0.72	0		1994	1	290.8
150	Hatfields Ferry	1	C	3714	7.2	0		1994	1	3714
383	Hayden	1	C	1536.4	4.4	32.6		1994	1	1569
429	Healy	1	C	146.5	2.6	0		1994	1	146.5
107	HendersonTwo	1	C	738.7	5.39	0		1994	1	738.7
240	High Bridge	1	C	892.8	3.5	317.5		1994	1	1210.3
398	HL Spurlock	1	C	2127.2	10.6	0		1994	1	2127.2
198	Holtwood	1	C	386	1	0		1994	1	386
115	Homer City	1	C	4201.54	47.23	0		1994	1	4201.54
154	Hoot Lake	1	C	287.6	2.9	0		1994	1	287.6
426	Horseshoe Lake	1	G	0	0.1	2299.1		1994	1	2299.1
48	Hugo	1	C	1572.5	3.94	0		1994	1	1572.5
118	Hunlock	1	C	229	2.5	0		1994	1	229
91	Hunter	1	C	4277.1	19.3	0		1994	1	4277.1
77	Huntington	1	C	2818.1	7.5	0		1994	1	2818.1
137	Hutsonville	1	C	171.7	8.6	0		1994	1	171.7
101	Iatan	1	C	2792.3	6.25	0		1994	1	2792.3
408	Independence	1	C	5147.1	61.7	0		1994	1	5147.1
458	Indian River (DE)	1	C	1392.5	**83.4**	0	4 coal-only units; reportedly burning 6–37 t.bbls of oil per unit in 1994	1994	1	1392.5
15	Intermountain	1	C	4916.3	8.7	0		1994	1	4916.3

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Sort	Plant	Total Number of Facilities	Plant Type 319	Consumption Coal (t.tons)	Oil (t.bbls)	Gas (mcf)	Notes or Assumptions	Year of Data		C&G
75	James De Young	1	C	173.24	0.61	5.62		1994	1	178.86
323	JC McNeil	1	Wood	0	5.6	157.6		1994	1	157.6
78	JC Weadock	1	C	840.6	3	0		1994	1	840.6
220	Jeffrey	1	C	7408.1	27.4	0		1994	1	7408.1
124	JH Campbell	1	C	3388	17.5	0		1994	1	3388
189	Jim Bridger	1	C	9036	30.2	0		1994	1	9036
215	JM Stuart	1	C	6383.4	27.3	0		1994	1	6383.4
342	John Sevier	1	C	2052.8	3.4	0		1994	1	2052.8
267	Johnsonville (TN)	1	C	3444.3	28.4	0		1994	1	3444.3
424	Joppa	1	C	4003.2	24.4	444.9		1994	1	4448.1
400	Joslin	1	G	0	0.1	6727.7		1994	1	6727.7
142	JR Endicott	1	C	128.8	3	0		1994	1	128.8
213	JR Whiting	1	C	857.8	1.2	0		1994	1	857.8
451	JS Cooper	1	C	703.3	5.84	0		1994	1	703.3
167	JT Deely	1	C	2660.4	10.92	0		1994	1	2660.4
250	Kammer	1	C	1786.6	4.4	0		1994	1	1786.6
191	Kanawha River	1	C	392.1	3.2	0		1994	1	392.1
266	Kendall Square	1	G	0	**199.7**	1423.6	Assumed data incorrect; reportedly gas only in 1994; no cons. data in other database	1994	1	1423.6
188	Keystone (PA)	1	C	4079.86	46.78	0		1994	1	4079.86
31	Killen	1	C	1277.1	60.9	0		1994	1	1277.1
7	Kingston	1	C	3856.4	16.8	0		1994	1	3856.4
285	Kintigh	1	C	1811.8	7.3	0		1994	1	1811.8
89	Kyger Creek	1	C	3261.7	5.5	0		1994	1	3261.7
177	LA Cygne	1	C	5166.3	45.18	0		1994	1	5166.3
90	Labadie	1	C	6092.8	69	0		1994	1	6092.8
10	Lake Catherine	*	G	0	42.2	10739.5	(*Facility also included in "Oil Capable" List, Oil Units on Standby and Not Combusting Oil)	1994	1	10739.5

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Sort	Plant: Total Number of Facilities		Plant Type: 319	Consumption: Coal (t.tons)	Consumption: Oil (t.bbls)	Consumption: Gas (mcf)	Notes or Assumptions	Year of Data		C&G
216	Lakeside (IL)	*	C/O	58.66	1.75	25.99	(*Facility also included in "Oil Capable" List, Oil Units on Standby and Not Combusting Oil)	1994	1	84.6
273	Lansing Smith	1	C	922.4	4.8	0		1994	1	922.4
180	Laramie River	1	C	7071.4	31.8	0		1994	1	7071.4
239	Laredo	1	G	0	0.4	7930.7		1994	1	7930.7
397	Lee (NC)	1	C	354.2	14.1	0		1994	1	354.2
432	Lee (SC)	1	C	228	7.2	0		1994	1	228
399	Leland Olds	1	C	3042.7	7.9	0		1994	1	3042.7
224	Limestone	1	C	9019.3	0.7	1497.2		1994	1	10516.5
252	Louisa	1	C	1604.9	0.3	166.3		1994	1	1771.2
314	Madgett	1	C	966.3	6.2	0		1994	1	966.3
195	Marion (IL)	1	C	570	3.71	0		1994	1	570
19	Marshall (NC)	1	C	4172.6	23.4	0		1994	1	4172.6
293	Martin Lake	1	C	13455.9	41.5	0		1994	1	13455.9
70	Mayo	1	C	1290.3	40.4	0		1994	1	1290.3
328	McDonough	1	C	1140.96	3.13	64.4		1994	1	1205.36
17	McIntosh (GA)	1	C	131.9	6.7	0		1994	1	131.9
43	McMeekin	1	C	640.15	1.64	0.02		1994	1	640.17
55	Merom	1	C	2430	19.1	0		1994	1	2430
169	Merrimack	1	C	1037.3	1.2	0		1994	1	1037.3
310	Mill Creek (KY)	1	C	3204.6	38.5	84.4		1994	1	3289
472	Miller	1	C	5269.8	22.81	2840.6		1994	1	8110.4
105	Milliken	1	C	641.4	4.5	0		1994	1	641.4
129	Minnesota Valley	1	C	63.2	0.27	25.8		1994	1	89
93	Mitchell (GA)	1	C	96	2.29	0		1994	1	96
297	Mitchell (WV)	1	C	3448.7	41.8	0		1994	1	3448.7
468	Monroe (MI)	1	C	8604	57	0		1994	1	8604
306	Monticello (TX)	1	C	6734.1	17.3	0		1994	1	6734.1
193	Montour	1	C	3237.6	**122.4**	0	2 coal-only units; reportedly burning 51–71 t.bbls of oil per unit in 1994	1994	1	3237.6

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Sort	Plant	Total Number of Facilities	Plant Type 319	Consumption Coal (t.tons)	Oil (t.bbls)	Gas (mcf)	Notes or Assumptions	Year of Data		C&G
24	Montrose	1	C	1683.2	4.49	0		1994	1	1683.2
389	Morrow	1	C	798.9	4.8	0		1994	1	798.9
486	Mount Storm	1	C	4367.7	64.6	0		1994	1	4367.7
88	Mount Tom	1	C	342.7	5.4	0		1994	1	342.7
114	Mountaineer	1	C	2836.9	51.6	0		1994	1	2836.9
106	MR Young	1	C	4282.5	37.8	0		1994	1	4282.5
380	Muscatine	1	C	741.9	0.9	17.6		1994	1	759.5
456	Muskingum River	1	C	2474.3	44.3	0		1994	1	2474.3
208	Naughton	1	C	2649.2	3.1	118.5		1994	1	2767.7
49	Navajo	1	C	7798.1	29.7	0		1994	1	7798.1
113	Nearman Creek	1	C	769.5	8.8	0		1994	1	769.5
181	Nebraska City	1	C	1666.2	12.7	0		1994	1	1666.2
379	Neil Simpson	1	C	87.58	1.82	0		1994	1	87.58
276	Nelson Dewey	1	C	608.91	1.1	0		1994	1	608.91
374	New Castle	1	C	589.4	5.1	0		1994	1	589.4
197	New Madrid	1	C	2921.6	3.3	0		1994	1	2921.6
232	Newton	1	C	2449.9	28.6	0		1994	1	2449.9
440	Niles (OH)	1	C	528	3.2	0		1994	1	528
330	Noblesville	1	C	104.8	2	0		1994	1	104.8
146	North Valmy	1	C	1561.1	11.64	0		1994	1	1561.1
244	Nueces Bay	1	G	0	0.2	21350.5		1994	1	21350.5
333	Oak Creek (WI)	1	C	2059.9	8.1	207.4		1994	1	2267.3
283	Oklaunion	1	C	3035.6	12.4	0		1994	1	3035.6
462	Ottumwa	1	C	2446.8	11.6	0		1994	1	2446.8
321	OW Sommers	1	G	0	2	14631.5		1994	1	14631.5
225	Painesville	1	C	113.1	0.5	16.37		1994	1	129.47
236	Paradise	1	C	5999	36.8	0		1994	1	5999
436	Pawnee	1	C	1817	0.1	124.6		1994	1	1941.6
11	Pearl	1	C	74	2.5	0		1994	1	74
203	Peru(IN)	1	C	2.18	0.16	0		1994	1	2.18
386	Petersburg	1	C	4699.7	28.3	0		1994	1	4699.7
102	Philip Sporn	1	C	1338.7	49.1	0		1994	1	1338.7
32	Picway	1	C	342.3	1.1	0		1994	1	342.3

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Sort	Plant	Total Number of Facilities	Plant Type 319	Consumption Coal (t.tons)	Oil (t.bbls)	Gas (mcf)	Notes or Assumptions	Year of Data		C&G
369	Pineville	1	C	28.2	0.1	0		1994	1	28.2
62	Platte	1	C	342.95	0.5	0		1994	1	342.95
194	Pleasant Prairie	1	C	5065.1	1.7	154.4		1994	1	5219.5
210	Pleasants	1	C	3129.5	53.1	0		1994	1	3129.5
350	Portland (PA)	1	C	634.6	33	0		1994	1	634.6
64	Potomac River	1	C	863.9	45.1	0		1994	1	863.9
300	Prairie Creek	1	C/G	575.7	2.7	20		1994	1	595.7
481	Quindaro Three	1	C	406.4	0.1	122.5		1994	1	528.9
335	Ratts	1	C	629	3.6	0		1994	1	629
376	Rawhide	1	C	1075.3	2	0		1994	1	1075.3
346	RD Nixon	1	C	619.4	3.8	0		1994	1	619.4
489	RE Burger	1	C	1110.9	4	0		1994	1	1110.9
391	RE Ritchie	1	G	0	0.4	8338		1994	1	8338
325	Reid	1	C	98.6	1.6	0		1994	1	98.6
392	Reid Gardner	1	C	1615.5	11.4	0		1994	1	1615.5
259	Rio Grande	1	G	0	0.02	11040		1994	1	11040
174	Riverbend (NC)	1	C	395.9	12	0		1994	1	395.9
360	Riverside (MN)	1	C	1050.4	2.9	37.3		1994	1	1087.7
288	Rivesville	1	C	137	4.4	0		1994	1	137
9	Robinson	1	C/N	224.8	1.9	0		1994	1	224.8
71	Rock River	1	C	299.59	1.8	0		1994	1	299.59
382	Rockport	1	C	10487	63.1	0		1994	1	10487
427	Rodemacher	1	C/G	1921	13.38	11800.4		1994	1	13721.4
149	Roxboro	1	C	4999.1	66.3	0		1994	1	4999.1
18	RP Smith	1	C	142.2	5.7	0		1994	1	142.2
33	RS Nelson	1	C/G	2314.2	10.9	16958.1		1994	1	19272.3
355	Rush Island	1	C	3049.6	5.6	0		1994	1	3049.6
74	Russell (NY)	1	C	383.2	7.86	0		1994	1	383.2
176	RW Miller	1	G	0	0.22	15917		1994	1	15917
47	Sabine	1	G	0	0.2	89379.8		1994	1	89379.8
238	Saguaro	1	G	0	0.7	1760.1		1994	1	1760.1

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Sort	Plant Total Number of Facilities		Plant Type 319	Consumption Coal (t.tons)	Oil (t.bbls)	Gas (mcf)	Notes or Assumptions	Year of Data		C&G
291	Sam Bertron	*	G	0	0.4	9124.8	(*Facility also included in "Oil Capable" List, Oil Units on Standby and Not Combusting Oil)	1994	1	9124.8
423	San Juan (NM)	1	C	5977.3	44.4	0		1994	1	5977.3
326	San Miguel	1	C	2715.4	13.4	0		1994	1	2715.4
354	Sandow	1	C	3349.1	9.1	0		1994	1	3349.1
454	Scherer	1	C	9300.9	23	0		1994	1	9300.9
36	Scholz	1	C	51.3	0.4	0		1994	1	51.3
199	Seminole (FL)	1	C	3484.1	37.8	0		1994	1	3484.1
318	Seward	1	C	565.36	15.13	0		1994	1	565.36
40	Shawnee (KY)	1	C	3591.2	27.5	0		1994	1	3591.2
16	Shawville	1	C	1384.44	59.98	0		1994	1	1384.44
22	Sherburne County	1	C	8498.5	17.4	0		1994	1	8498.5
190	Shiras	1	C	160.7	1.18	0		1994	1	160.7
111	Sikeston	1	C	382.4	7.9	0		1994	1	382.4
268	Sim Gideon	1	G	0	0.6	14931		1994	1	14931
57	Sioux	1	C	1548.1	10.1	0		1994	1	1548.1
403	Sixth Street (IA)	1	C	227.1	1.6	331.3		1994	1	558.4
223	Sooner	1	C	3241	11.2	0		1994	1	3241
425	Springerville	1	C	2995	5.7	0		1994	1	2995
159	St Clair	1	C/O	4342	**81**	190	Seven Coal Units; Burning 11-23 Tbbls Oil; Reporting No Oil as Alternate Fuel	1994	1	4532
66	St Johns River	1	C	3888.13	31.25	0		1994	1	3888.13
67	St Marys (OH)	1	C	24.3	0.2	4.8		1994	1	29.1
347	Stanton (ND)	1	C	1032.3	3	0		1994	1	1032.3
359	Sunbury	1	C	1138.6	15.8	0		1994	1	1138.6
182	Sutton	1	C	490.2	17.9	0		1994	1	490.2
476	Syl Laskin	1	C	142.9	3.4	0		1994	1	142.9
441	Tacoma Two	1	Wood	32.7	0.41	3.9		1994	1	36.6
80	Tanners Creek	1	C	1756.2	21.5	0		1994	1	1756.2

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Sort	Plant	Total Number of Facilities	Plant Type 319	Consumption Coal (t.tons)	Oil (t.bbls)	Gas (mcf)	Notes or Assumptions	Year of Data		C&G
413	Teche	1	G	0	0.33	12547.3		1994	1	12547.3
263	TH Allen	1	C	2038	21.9	0		1994	1	2038
381	Thomas Hill	1	C	2339.2	18.9	0		1994	1	2339.2
405	Titus	1	C	466.8	12.3	0		1994	1	466.8
443	Trenton Channel	1	C	1559	21	0		1994	1	1559
128	Trimble County	1	C	1458.85	7.45	0		1994	1	1458.85
271	Urquhart	1	C	528.64	1.1	1163.41		1994	1	1692.05
298	Venice (IL) Two	1	G	0	19.9	795.7		1994	1	795.7
401	Vermilion	1	C	306	4	0		1994	1	306
435	VJ Daniel	1	C	2129.3	8.9	0		1994	1	2129.3
29	Wabash River	1	C	1352.3	44.8	0		1994	1	1352.3
341	Wansley	1	C	3625.7	13.8	0		1994	1	3625.7
402	Warren (PA)	1	C	219.14	3.11	0		1994	1	219.14
351	Wateree (SC)	1	C	1642.93	31.88	0		1994	1	1642.93
185	WCBeckjord	1	C	1658.1	31.6	0		1994	1	1658.1
27	Weatherspoon	1	C	96.7	4.5	0		1994	1	96.7
84	Welsh	1	C	4831.3	26.4	0		1994	1	4831.3
54	Weston (WI)	1	C	1721	4.7	47.3		1994	1	1768.3
65	WH Sammis	1	C	5782.5	20	0		1994	1	5782.5
349	White Bluff	1	C	5620.8	27	0		1994	1	5620.8
356	Whitewater Valley	1	C	318.2	0.41	0		1994	1	318.2
373	Widows Creek	1	C	4033.6	36.5	0		1994	1	4033.6
46	Willow Island	1	C	336.5	2.2	0		1994	1	336.5
204	Winyah	1	C	2608.2	16.39	0		1994	1	2608.2
235	Wyodak	1	C	1958.3	4.2	0		1994	1	1958.3
145	Yates	1	C	1083.5	22.61	0		1994	1	1083.5
384	Yucca	1	G	0	2	1274.1		1994	1	1274.1
120	Zimmer	1	C	3506.2	40.9	0		1994	1	3506.2

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