San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

2006 Area Source Emissions Inventory Methodology
050 – INDUSTRIAL NATURAL GAS COMBUSTION

I. Purpose

This document describes the Area Source Methodology used to estimate emissions of carbon monoxide (CO), nitrogen oxides (NOx), fine particulate matter less then 10 microns (PM_{10}), volatile organic compounds (VOC), and sulfur oxides (SOx) from the combustion of natural gas from industrial sources not reported through the District's point source inventory. An area source is a collection of similar emission units within a geographic area (ie., a County). Area sources collectively represent individual sources that are small and numerous, and that may not have not been inventoried as specific point, mobile, or biogenic sources. The California Air Resources Board (CARB) has grouped these individual sources with other like sources into area source categories. These source categories are grouped in such a way that they can be estimated collectively using one methodology.

II. Applicability

The emission calculations from this Area Source Methodology apply to facilities that are identified by the following Category of Emission Source (CES) codes and Reconciliation Emission Inventory Codes (REIC):

Table 1. Emission inventory codes.

CES	REIC	Description
66787	050-040-0110-0000	Industrial Stationary - I.C. Engines - Natural Gas
47142	050-995-0110-0000	Industrial Natural Gas Combustion (Unspecified)

III. Point Source Reconciliation

Emissions from the area source inventory and point source inventory are reconciled against each other to prevent double counting. This is done using relationships created by the California Air Resources Board (ARB) between the area source REIC and the point sources' Standard Industry Classification (SIC) code and emissions process Source Category Code (SCC) combinations. The area sources in this methodology reconcile against processes in our point source inventory with the SIC/SCC combinations listed in Appendix A.

IV. Methodology Description

This area source methodology is a top down estimation of emissions from the combustion natural gas by the industrial sector in the San Joaquin Valley Air Pollution Control District. The industrial sector consumes natural gas for process uses (primarily heat), boiler fuel, space heat, electricity generation and feedstock. These end uses are divided into two categories: 1) stationary internal combustion engines - reciprocating engines and turbines, and 2) unspecified. The "unspecified" category includes external combustion sources such as heaters, boilers, and burners. The amount of natural gas delivered to industrial sources in each county within the District was obtained from the California Energy Commission (Gough, 2007). From this, the amount of natural gas reported to the District's point source inventory as consumed was subtracted. The difference between the amount of natural gas reported delivered and the amount reported consumed was considered the area source process rate. To estimate area source emissions, the area source process rate was assigned to end uses and then multiplied by emission factors.

V. Activity Data

Consumption. Total natural gas deliveries to the industrial sector for each county in the district in was obtained from the California Energy Commission (Gough, 2007) and is presented below. Industrial deliveries exclude companies whose primary function is to generate electricity or produce oil and gas as determined by their company SIC. Emissions from these industries are tabulated in other EICs. The District's point source inventory of industrial natural gas combustion processes was then reconciled against the amount of natural gas reported delivered to industrial sources within the District. The area source consumption was calculated as the difference between the industrial natural gas deliveries and the industrial consumption reported through the point source inventory (Table 2).

Table 2. 2006 industrial natural gas consumption (MMSCF).

County	Industrial Deliveries Reported by CEC	Industrial Point Source Consumption	Reconciled Area Source Consumption
Fresno	8,868.32	5,691.36	3,176.96
Kern	7,106.00	3,136.98	3,969.01
Kings	3,163.25	2,435.93	727.31
Madera	3,332.25	1,625.83	1,706.42
Merced	7,529.53	5,683.38	1,846.15
San Joaquin	7,231.04	5,861.54	1,369.50
Stanislaus	7,279.97	5,569.08	1,710.89
Tulare	6,960.05	5,521.34	1,438.70
Total	51,470.41	35,525.48	15,944.93

Categorization. To categorize industrial natural gas end use, we used a 1994 report prepared by the Energy Information Administration (EIA) entitled "How Changing Energy Markets Affects Manufacturing." This study divided industrial natural gas consumption into the three main end use categories presented in Table 3.

Table 3. Industrial natural gas consumption categories.

REIC Category	Description	Combustion Process	Industrial Natural Gas Consumption
050-040-0110-0000	Industrial Stationary - I.C. Engines - Natural Gas	Turbines/Reciprocating Engines	6%
050-995-0110-0000	Industrial Natural Gas Combustion (Unspecified)	Heaters, Boilers, and Furnaces	84%
	Feedstock Non-combustion Processes	Natural Gas used in the synthesis of other products	10%

The Feedstock category does not involve natural gas combustion and will not be considered in this area source methodology.

VI. Emission Factors

CO, NOx, SOx, VOC and PM emission factors for reciprocating engines and "unspecified" industrial natural gas combustion were obtained from the EPA's AP-42 document (EPA, 1998 & 2000b). The SOx emission factor for all processes was obtained from San Joaquin Valley Air Pollution Control District Policy APR 1720.

For internal combustion (IC) engines, the NOx, VOC, CO, and PM10 emission factors were taken from AP-42, section 3.2, table 3.2-2 (EPA, 2000b). The NOx and CO emission factors were used under the assumption that the IC engines are 4-stroke lean-burn engines operating at normal conditions and less than 90% load. The Total Organic Gas (TOG) emission factor was speciated into a VOC emission factor using CARB's speciation profile. The PM_{10} emission factor is also taken from the same table. In an effort to provide a more conservative estimate, the total PM (condensable) emission factor was speciated into PM_{10} emissions using CARB's speciation profiles.

For small boilers, the NOx, VOC, CO, and PM10 emission factors were taken from AP-42, section 1.4, tables 1.4-1 and 1.4-2 (EPA, 1998). The NOx and CO emission factors were taken under the assumption that these were small, uncontrolled boilers. The VOC emission factor was taken directly from AP-42 because it would be higher than the speciated TOC emission factor and therefore be a more conservative emission factor. The PM10 emission factor was obtained by applying the CARB speciation profile to the total PM emission factor.

Table 4. Industrial natural gas combustion emission factors.

Combustion process	Emissions (pounds per million cubic feet)				
	NO_x	CO	SO_x	VOC	PM_{10}
Reciprocating Engines	864	568	2.9	4.7	10.2
Unspecified	100	84	2.9	5.5	7.6

VII. Emissions Calculations

A. Assumptions

1. Natural gas deliveries are accurately reported by the California Energy Commission.

2. EIA's study of the end-use consumption of natural gas within the manufacturing sector accurately describes the end-use consumption of natural gas by the industrial sector within the District.

3. The AP-42 emission factors selected for reciprocating engines and unspecified devices are representative.

4. All non-permitted natural gas powered internal combustion engines within the District are 4-stroke lean-burn engines.

5. All non-permitted unspecified natural gas combustion devices within the District are uncontrolled small boilers.

B. Sample Calculations:

The emissions for each criteria pollutant within this area source methodology can be calculated using the following equation:

$$Emissions\left(\frac{tons}{yr}\right) = Fuel\ Consumption\left(\frac{MMSCF}{yr}\right) \times \left(\%\ End\ Use\ \right) \times Emission\ Factor\left(\frac{lbs\ of\ Emissions}{MMSCF}\right) \times \left(\frac{1\,ton}{2000\,lbs}\right)$$

For NO_x emissions due to natural gas combustion in unspecified industrial sources in Fresno County:

Given:

1. The reconciled area source consumption of natural gas by the industrial sector in Fresno County was 3,177 MMSCF (million std. cubic feet) in 2006.

2. 84% of industrial end use was for unspecified sources.

3. The NOx emission factor for unspecified industrial natural gas combustion is 100 pounds per million cubic feet of natural gas burned.

Calculate Emissions:

$$NOx\ Emissions = \left(\frac{3{,}177\ MMSCFt}{Year}\right) \times (0.84) \times \left(\frac{100\ lb\ of\ NOx}{MMSCF}\right) = \frac{266{,}868\ lbs\ of\ NOx}{Year}$$

$$NOx\ Emissions = \left(\frac{266{,}868\ lbs\ of\ NOx}{Year}\right) \times \left(\frac{1\ ton}{2{,}000\ lbs}\right) = \frac{133.4\ tons\ of\ NOx}{Year}$$

VIII. Temporal Variation

The following section outlines the daily, weekly, and monthly consumption of natural gas within the San Joaquin Valley for each end use category due to temporal variations.

A. Daily

ARB Code 24. 24 hours per day - uniform activity during the day

B. Weekly

ARB Code 7. 7 days per week - uniform activity every day of the week

C. Monthly

Monthly activity in California is relatively uniform as illustrated by 2006 industrial natural gas consumption data from the U.S. Department of Energy's Energy Information Administration presented below:

Table 5. California industrial natural gas consumption.

Month (2006)	Natural Gas Consumption (million cubic feet)	Activity Level (% of annual)
January	60,043	8.20%
February	59,659	8.15%
March	61,924	8.46%
April	60,888	8.32%
May	58,174	7.95%
June	57,333	7.83%
July	59,573	8.14%
August	62,997	8.61%
September	64,032	8.75%
October	63,729	8.71%
November	60,995	8.33%
December	62,708	8.57%
Total	732,055	100.00%

IX. Spatial Variation

Industrial natural gas deliveries in 2006 for each county in the SJVAPCD were provided by the California Energy Commission (Gough, 2007) and were presented previously in Section V. Within each county, activity can be assigned to parcels zoned for industrial activity.

X. Growth Factor

Growth factors are developed by either the District's Planning Department or CARB for each EIC. These factors are used to estimate emissions in future years. The growth factors associated with this emissions category may be obtained from the Air Quality Analysis Section of the District's Planning Department.

XI. Control Level

Emission units within this area source category may be subject to the following District Rules:

Table 6. District rules applicable to REIC 050-040-0110-0000 and 050-995-0110-0000.

Rule No.	Rule Description
4701	Internal Combustion Engines - Phase 1
4702	Internal Combustion Engines - Phase 2
4703	Stationary Gas Turbines
4305	Boilers, Steam Generators, and Process Heaters - Phase 2
4306	Boilers, Steam Generators, and Process Heaters - Phase 3
4307	Boilers, Steam Generators, and Process Heaters - 2.0 MMBtu/hr to 5.0 MMBtu/hr
4308	Boilers, Steam Generators, and Process Heaters (0.075 MMBtu/hr to 2.0 MMBtu/hr)
4309	Dryers, Dehydrators and Ovens
4311	Flares
4313	Lime Kilns
4351	Boilers, Steam Generators, and Process Heaters - Phase 1

Control levels associated with this emissions category may be obtained from the Air Quality Analysis Section of the District's Planning Department.

XII. ARB Chemical Speciation

CARB has developed organic gas profiles in order to calculate reactive organic gasses (ROG), volatile organic compounds (VOC) or total organic gas (TOG) given any one of the three values. For each speciation profile, the fraction of TOG that is ROG and VOC is given. The organic gas profile codes can also be used to lookup associated toxics. CARB's speciation profiles for industrial natural gas combustion processes are presented in Table 7. Organic gas profile #719 is applied to REIC 050-040-0110-0000 (Industrial stationary IC engines, natural gas). Organic gas

profile #3 is applied to REIC 050-995-0110-0000 (Industrial natural gas combustion, unspecified).

Table 7. CARB chemical speciation profiles for 050-040-0110-0000, 050-995-0110-0000.

Profile Description	ARB Organic Gas Profile#	Fractions	
		ROG	VOC
Internal Combustion Engines - Reciprocating - Natural Gas	719	0.091428	0.091428
External Combustion Boiler - Natural Gas	3	0.422181	0.422181

CARB has developed particulate matter speciation profiles in order to calculate particulate matter (PM), particulate matter with a diameter less than or equal to 10 microns (PM_{10}) or particulate matter with a diameter less than or equal to 2.5 microns ($PM_{2.5}$) given any one of the three values. For each speciation profile, the fraction of PM that is PM_{10} and $PM_{2.5}$ is given. The particulate matter profile codes can also be used to lookup associated toxics. CARB's speciation profiles for industrial natural gas combustion processes are presented in Table 8. Particulate matter profile #123 is applied to REIC 050-040-0110-0000 (Industrial stationary IC engines, natural gas). Particulate matter profile #120 is applied to REIC 050-995-0110-0000 (Industrial natural gas combustion, unspecified).

Table 8. CARB chemical speciation profiles for 050-040-0110-0000, 050-995-0110-0000.

Profile Description	ARB PM Profile#	Fractions	
		PM_{10}	$PM_{2.5}$
Stationary I.C. Engine - Natural Gas	123	0.994	0.992
Gaseous Material Combustion	120	1	1

XIII. Assessment Of Methodology

This area source estimate relies on point source and total District consumption of natural gas to determine area source consumption. It is important that both inventories be accurate and complete.

Although all internal combustion engines less than 50 horsepower are assumed to be reciprocating engines, there are proposals for microturbines within the District for use in the future. However, these microturbines are not expected to make a significant impact on the area source estimation.

The manner by which the EIA broke down the natural gas usage in the manufacturing sector (EIA, 1994) is used as a surrogate for the assignment of industrial natural gas consumption to devices. This is based on a national study performed in 1994 and representing the manufacturing sector only. Future research or studies could lead to a more accurate and up-to-date depiction of the natural gas consumption in the industrial sector.

XIV. Emissions

Following is the 2006 area source emissions inventory for REIC 050-040-0110-0000 (Industrial Stationary - I.C. Engines - Natural Gas) and 050-995-0110-0000 (Industrial Natural Gas Combustion - Unspecified) estimated by this methodology. Emissions are reported for each county in the District.

Table 9. Area source emissions for industrial natural gas combustion.

County	Emissions (tons/year)				
	NOx	CO	SOx	VOC[1]	PM_{10}[2]
INDUSTRIAL STATIONARY - I.C. ENGINES - NATURAL GAS					
Fresno	82.35	54.14	0.28	0.45	0.97
Kern[3]	102.88	67.63	0.35	0.56	1.21
Kings	18.85	12.39	0.06	0.10	0.22
Madera	44.23	29.08	0.15	0.24	0.52
Merced	47.85	31.46	0.16	0.26	0.56
San Joaquin	35.50	23.34	0.12	0.19	0.42
Stanislaus	44.35	29.15	0.15	0.24	0.52
Tulare	37.29	24.52	0.13	0.20	0.44
TOTAL	**413.3**	**271.71**	**1.4**	**2.24**	**4.86**
INDUSTRIAL NATURAL GAS COMBUSTION (UNSPECIFIED)					
Fresno	133.43	112.08	0.80	7.34	6.14
Kern[3]	166.70	140.03	1.00	9.17	7.67
Kings	30.55	25.66	0.18	1.68	1.41
Madera	71.67	60.20	0.43	3.94	3.30
Merced	77.54	65.13	0.47	4.26	3.57
San Joaquin	57.52	48.32	0.35	3.16	2.65
Stanislaus	71.86	60.36	0.43	3.95	3.31
Tulare	60.43	50.76	0.36	3.32	2.78
TOTAL	**669.7**	**562.54**	**4.02**	**36.82**	**30.83**

(1) The District only reports ROG to ARB. As noted in Section XII, ROG is the same as VOC.
(2) At this time, the District does not calculate PM2.5 emissions. PM2.5 emissions can be estimated using the speciation profiles found in Section XII.
(3) Includes both the Valley and non-Valley portions of Kern County.

Following is the 2006 point source emissions inventory for REIC 050-040-0110-0000 (Industrial Stationary - I.C. Engines - Natural Gas) and 050-995-0110-0000 (Industrial Natural Gas Combustion - Unspecified) estimated by this methodology. Emissions are reported for each county in the District.

Table 10. Point source emissions for industrial natural gas combustion.

County	Emissions (tons/year)				
	NOx	CO	SOx	VOC[1]	PM_{10}[2]
INDUSTRIAL STATIONARY I.C. ENGINES NG (050-040-0110-0000)					
Fresno	0.47	0.28	0.23	0.42	0.50
Kern[3]	0.05	1.14	0.00	0.08	0.01
Kings	0.00	0.00	0.00	0.00	0.00
Madera	0.03	0.02	0.00	0.00	0.00
Merced	0.00	0.01	0.00	0.00	0.00
San Joaquin	0.14	0.65	0.00	0.16	0.00
Stanislaus	0.00	0.00	0.00	0.00	0.00
Tulare	0.30	1.64	0.12	0.55	0.32
TOTAL	**0.99**	**3.74**	**0.35**	**1.21**	**0.83**
INDUSTRIAL NG COMBUSTION (UNSPECIFIED) (050-995-0110-0000)					
Fresno	106.03	133.03	11.44	22.75	23.24
Kern[3]	86.07	70.67	3.54	9.27	12.25
Kings	47.13	57.01	4.46	10.29	13.29
Madera	162.46	41.47	7.71	10.34	10.82
Merced	96.05	166.34	6.76	15.32	16.51
San Joaquin	78.88	91.45	2.84	13.17	12.55
Stanislaus	118.50	74.32	7.06	8.71	20.24
Tulare	83.40	137.49	12.35	13.43	16.72
TOTAL	**778.52**	**771.78**	**56.16**	**103.28**	**125.62**

(1) The District only reports ROG to ARB. As noted in Section XII, ROG is the same as VOC.
(2) At this time, the District does not calculate PM2.5 emissions. PM2.5 emissions can be estimated using the speciation profiles found in Section XII.
(3) Includes only the Valley portion of Kern County.

Following is the 2006 total unreconciled (point source plus area source) emissions inventory for REIC 050-040-0110-0000 (Industrial Stationary - I.C. Engines - Natural Gas) and 050-995-0110-0000 (Industrial Natural Gas Combustion - Unspecified) estimated by this methodology. Emissions are reported for each county in the District.

Table 11. Total emissions for industrial natural gas combustion.

County	Emissions (tons/year)				
	NOx	CO	SOx	VOC[1]	PM_{10}[2]
INDUSTRIAL STATIONARY I.C. ENGINES NG (050-040-0110-0000)					
Fresno	82.82	54.42	0.51	0.87	1.47
Kern[3]	102.93	68.77	0.35	0.64	1.22
Kings	18.85	12.39	0.06	0.10	0.22
Madera	44.26	29.10	0.15	0.24	0.52
Merced	47.85	31.46	0.16	0.26	0.57
San Joaquin	35.64	23.99	0.12	0.35	0.42
Stanislaus	44.35	29.15	0.15	0.24	0.52
Tulare	37.59	26.16	0.25	0.75	0.76
TOTAL	**414.29**	**275.44**	**1.75**	**3.45**	**5.7**
INDUSTRIAL NG COMBUSTION (UNSPECIFIED) (050-995-0110-0000)					
Fresno	239.46	245.11	12.24	30.09	29.38
Kern[3]	252.77	210.70	4.54	18.44	19.92
Kings	77.68	82.67	4.64	11.97	14.70
Madera	234.13	101.67	8.14	14.28	14.12
Merced	173.59	231.47	7.23	19.58	20.08
San Joaquin	136.40	139.77	3.19	16.33	15.20
Stanislaus	190.36	134.68	7.49	12.66	23.55
Tulare	143.83	188.25	12.71	16.75	19.50
TOTAL	**1,448.22**	**1,334.32**	**60.18**	**140.1**	**156.45**

(1) The District only reports ROG to ARB. As noted in Section XII, ROG is the same as VOC.
(2) At this time, the District does not calculate PM2.5 emissions. PM2.5 emissions can be estimated using the speciation profiles found in Section XII.
(3) Includes both the Valley and non-Valley portions of Kern County.

Following is the net change in total unreconciled emissions between this update (2006 inventory year) and the previous update (2005 inventory year) for REIC 050-040-0110-0000 (Industrial Stationary - I.C. Engines - Natural Gas) and 050-995-0110-0000 (Industrial Natural Gas Combustion - Unspecified) estimated by this methodology. The change in emissions are reported for each county in the District.

Table 12. Net emissions change for industrial natural gas combustion (2006-2005).

County	Emissions (tons/year)				
	NOx	CO	SOx	VOC	PM_{10}
INDUSTRIAL STATIONARY I.C. ENGINES NG (050-040-0110-0000)					
Fresno	59.98	39.57	0.42	0.73	1.20
Kern	11.07	8.37	0.04	0.13	0.14
Kings	18.85	12.39	0.06	0.10	0.22
Madera	-0.18	-0.07	-0.00	-0.00	-0.00
Merced	47.85	31.46	0.16	0.26	0.57
San Joaquin	35.39	23.74	0.09	0.31	0.34
Stanislaus	38.93	25.59	0.13	0.21	0.46
Tulare	-23.59	-14.23	0.03	0.40	0.04
TOTAL	**188.3**	**126.82**	**0.93**	**2.14**	**2.97**
INDUSTRIAL NG COMBUSTION (UNSPECIFIED) (050-995-0110-0000)					
Fresno	88.79	102.73	4.09	12.86	9.51
Kern	19.28	-28.79	0.92	3.51	-0.45
Kings	40.94	34.69	2.10	5.82	7.38
Madera	14.78	5.86	1.22	2.64	-0.08
Merced	95.56	59.11	3.23	12.96	9.58
San Joaquin	-384.71	64.72	-263.70	6.91	3.86
Stanislaus	69.23	26.71	0.39	4.73	5.11
Tulare	-23.92	-22.19	4.11	0.60	-0.85
TOTAL	**-80.05**	**242.84**	**-247.64**	**50.03**	**34.06**

XV. Revision History

2006. The methodology was reformatted to the new District standard, and process rates were updated. A correction was made to the IC engine emission factors which resulted in an increase in emissions for this source category. The reduction in industrial unspecified natural gas combustion emissions in San Joaquin county is due to moving glass furnace emissions to the *Glass Manufacturing* source category .

2005. This is a new District methodology based upon one developed by Sonoma Technology as part of the Central California Ozone Study.

XVI. Update Schedule

In an effort to provide inventory information to ARB and other District programs and maximize limited resources, the District has developed an update cycle based on emissions within the source category as shown in Table 13.

Table 13. Area source update frequency criteria.

Total Emissions (Tons/Day)	Update Cycle (Years)
<1	4
>1 and <= 2.5	3
>2.5 and <=5	2
>5	1

Since NOx emissions exceed 5 tons per day, these area source estimates will be updated every year.

Table 14. Industrial natural gas combustion methodology update frequency.

EIC	Frequency (In years)	Source of Emissions (Point Source Inventory / Data Gathering)
050-040-0110-0000	1	Point Source Inventory / Data Gathering
050-995-0110-0000	1	Point Source Inventory / Data Gathering

XVII. References

1. E.H. Pechan and Associates. 2005. Appendix A: Industrial fuel combustion, Natural gas. In: Documentation for the draft 2002 nonpoint source national emission inventory for criteria and hazardous air pollutants (March 2005 version). Prepared for the Emissions Inventory Group (D205-01), U.S. Environmental Protection Agency. Pages A88-A90.

2. Energy Information Administration. 1994. How changing energy markets affect manufacturing. <http://www.eia.doe.gov/emeu/mecs/mecs94/special_topics/restructuring_mecs94.htm>

3. Gough, A., 2007. E-mailed 2006 natural gas delivery data from the California Energy Commission, Sacramento, CA to Yu Vu, San Joaquin Valley Unified APCD. (May 30, 2007).

4. Sonoma Technology, Inc. 2002. Central California ozone study, Attachment A: Natural gas combustion. <http://www.arb.ca.gov/ei/areasrc/ccosmethods.html>

5. United States Environmental Protection Agency (1998). AP 42 Section 1.4: Natural gas combustion. U.S. GPO, Washington D.C. <http://www.epa.gov/ttn/chief/ap42/ch01/final/c01s04.pdf>

6. United States Environmental Protection Agency (2000a). AP 42 Section 3.1: Stationary Gas Turbines. U.S. GPO, Washington D.C. <http://www.epa.gov/ttn/chief/ap42/ch03/final/c03s01.pdf>

7. United States Environmental Protection Agency (2000b). AP 42 Section 3.2: Natural gas-fired reciprocating engines. U.S. GPO, Washington D.C. <http://www.epa.gov/ttn/chief/ap42/ch03/final/c03s02.pdf>

XVIII. Appendices

Appendix A. Inventory Reconciliation Codes

XIX. Appendix A. Inventory Reconciliation Codes

Table 15. EIC, SCC and SIC codes in the District's 2006 point source inventory that reconciled to REIC 050-040-0110-000.

EIC	SCC	Point Source Type	SIC
50-040-0110-0000	20200202	INTERNLCOMBUSTION - INDUSTRIAL - NATURAL GAS - RECIPROCATING	3069, 3086, 3221, 3471, 3511, 3999
50-045-0110-0000	20200201	INTERNLCOMBUSTION - INDUSTRIAL - NATURAL GAS - TURBINE	3061
52-040-0110-0000	20200202	INTERNLCOMBUSTION - INDUSTRIAL - NATURAL GAS - RECIPROCATING	2022, 2033, 2037, 2099

Table 16. EIC, SCC and SIC codes in the District's 2006 point source inventory that reconciled to REIC 050-995-0110-000.

EIC	SCC	Point Source Type	SIC
50-005-0110-0000	10200601	EXTCOMB BOILER - INDUSTRIAL - NATURAL GAS - >100MMBTU/HR	1389, 1442, 2951, 3561
	10200602	EXTCOMB BOILER - INDUSTRIAL - NATURAL GAS - 10-100MMBTU/HR	2273, 2499, 2621, 2631, 2653, 2656, 2759, 2819, 2869, 2873, 2879, 2951, 2952, 3061, 3086, 3089, 3111, 3221, 3273, 3295, 3296, 3479, 3713, 7694
	10200603	EXTCOMB BOILER - INDUSTRIAL - NATURAL GAS - <10MMBTU/HR	2599, 2621, 2653, 2759, 2819, 2851, 2875, 2879, 2952, 3061, 3069, 3086, 3089, 3211, 3272, 3273, 3296, 3315, 3321, 3325, 3369, 3411, 3442, 3471, 3479, 3483, 3537, 3561, 3613, 3663, 3679, 3713, 3714, 3728, 3842, 6331
50-005-0240-0000	10201201	EXTCOMB BOILER - INDUSTRIAL - SLD WASTE-SPECIFY - SPEC MAT COMM FLD	8733

EIC	SCC	Point Source Type	SIC
50-010-0110-0000	30190003	CHEMICAL MFG - FUEL-FIRED EQPMNT - PROCESS HEATERS - NAT GAS	723, 2023, 2816, 2819, 3089, 7694
	30390003	PRIMARY METALS - FUEL-FIRED EQPMNT - PROCESS HEATERS - NAT GAS	3499
	30390023	PRIMARY METALS - FUEL-FIRED EQPMNT - FLARES - NAT GAS	1311
	30490003	SECONDARY METALS - FUEL-FIRED EQPMNT - PROCESS HEATERS - NAT GAS	3325, 3411, 3441, 3442, 3444, 3479, 3724
	30500206	PETROLEUM INDRY - ASPHALT CONCRETE - ASPHALT HEATER - NATURAL GAS	2951, 2952
	30590003	MINERAL PRODUCTS - FUEL-FIRED EQPMNT - PROCESS HEATERS - NAT GAS	2759, 2951, 3295
	30790003	WOOD PRODUCTS - FUEL FIRED EQPMNT - PROCESS HEATERS - NAT GAS	2431, 2434
	30890003	RUBBER/PLASTICS - FUEL FIRED EQPMNT - PROCESS HEATERS - NAT GAS	3086
	30990003	FABRICATED METALS - FUEL FIRED EQPMNT - PROCESS HEATERS - NAT GAS	3448
	39900601	INDUSTRIAL PROCES - MIS IND-FUEL EQPT - PROCESS HTER/FURNACE - NATURAL GAS	2657, 3411, 3495
	39990003	INDUSTRIAL PROCES - MIS IND-FUEL EQPT - PROCESS HEATERS - NAT GAS	1459, 2657, 2679, 2813, 2952, 3089, 3411, 3479, 3679
50-012-0110-0000	40201001	ORGANIC SOLVENT - SURFACE COATING - OVEN HEATER - NATURAL GAS	2431, 2656, 2674, 2732, 3088, 3312, 3354, 3399, 3411, 3441, 3442, 3444, 3479, 3493, 3495, 3499, 3585, 3621, 3663, 3713, 3728
50-070-0110-0000	39000689	INDUSTRIAL PROCES - INPROCESS FUEL - NATURAL GAS - NOT CLASSIFIED	2099, 3221, 3411, 3479, 3949
	39000699	INDUSTRIAL PROCES - INPROCESS FUEL - NATURAL GAS - NOT CLASSIFIED	1459, 2951, 3211, 3296, 3555
	39092050	INDUSTRIAL PROCES - INPROCESS FUEL - NATURAL GAS - WITHDRAWAL LOSS	1321

EIC	SCC	Point Source Type	SIC
50-995-0110-0000	30490033	SECONDARY METALS - FUEL-FIRED EQPMNT - FURNACES - NAT GAS	2952, 3363, 3364
	30505020	MINERAL PRODUCTS - NONMETALLIC MINRL - ASPHALT HEATER - NATURAL GAS	1442
52-005-0110-0000	10200601	EXTCOMB BOILER - INDUSTRIAL - NATURAL GAS - >100MMBTU/HR	723, 2023, 2032, 2033, 2034, 2063, 2084, 7694
	10200602	EXTCOMB BOILER - INDUSTRIAL - NATURAL GAS - 10-100MMBTU/HR	179, 241, 2011, 2015, 2022, 2023, 2024, 2026, 2032, 2033, 2034, 2037, 2038, 2041, 2043, 2044, 2046, 2047, 2048, 2061, 2063, 2066, 2068, 2076, 2077, 2079, 2084, 2086, 2096, 2099
	10200603	EXTCOMB BOILER - INDUSTRIAL - NATURAL GAS - <10MMBTU/HR	179, 2011, 2015, 2023, 2024, 2026, 2032, 2033, 2034, 2037, 2041, 2043, 2047, 2048, 2051, 2068, 2076, 2077, 2084, 2087, 2098, 2099, 2874
52-010-0110-0000	30290003	FOOD/AGRICULTURE - FUEL-FIRED EQPMNT - PROCESS HEATERS - NAT GAS	191, 723, 724, 2011, 2015, 2022, 2023, 2026, 2033, 2034, 2041, 2043, 2044, 2048, 2051, 2066, 2068, 2077, 2095, 2096, 2099, 5143
	30291001	FOOD/AGRICULTURE - FUEL-FIRED EQPMNT - BROILING FOOD - NATURAL GAS	2013
52-020-0110-0000	10500206	EXTCOMB BOILER - SPACE HEATER - COMMERCL-INSTUTNL - NATURAL GAS	2099
52-070-0110-0000	39000689	INDUSTRIAL PROCES - INPROCESS FUEL - NATURAL GAS - NOT CLASSIFIED	2051, 2063
	39000699	INDUSTRIAL PROCES - INPROCESS FUEL - NATURAL GAS - NOT CLASSIFIED	2022, 2043

EIC	SCC	Point Source Type	SIC
130-130-0110-0000	30490013	SECONDARY METALS - FUEL-FIRED EQPMNT - INCINERATORS - NAT GAS	3411, 7694
	30790013	WOOD PRODUCTS - FUEL FIRED EQPMNT - INCINERATORS - NAT GAS	9223
	30890013	RUBBER/PLASTICS - FUEL FIRED EQPMNT - INCINERATORS - NAT GAS	3086, 3089
	30990013	FABRICATED METALS - FUEL FIRED EQPMNT - INCINERATORS - NAT GAS	4612
	40290013	ORGANIC SOLVENT - SURFACE COATING - INCIN./AFTERBURNER - NAT GAS	2752, 3411
130-132-0110-0000	39990023	INDUSTRIAL PROCES - MIS IND-FUEL EQPT - FLARES - NAT GAS	2869