

## 2. Point Sources

### 2.1 Introduction and scope

This carbon monoxide (CO) inventory is one of a number of emission inventory reports being prepared to meet US EPA reporting requirements. In addition to preparing periodic emissions inventories for the CO nonattainment area (NAA) as a commitment under the current CO State Implementation Plan (SIP), the federal Consolidated Emission Reporting Rule (CERR) requires that state and local agencies prepare emissions estimates on a county basis, and submit data electronically to the US EPA for inclusion in the National Emission Inventory (NEI) for 2002. This CO inventory is being developed concurrently with similar inventories for ozone precursors (VOC, NO<sub>x</sub> and CO), and PM (including PM<sub>10</sub>, PM<sub>2.5</sub>, NO<sub>x</sub>, SO<sub>x</sub>, and NH<sub>3</sub>), as part of Maricopa County's requirements under the respective SIPs.

In order to provide consistency among all these inventories, it was decided to standardize the definition of a “point source”. While the US EPA has defined minimum point source reporting thresholds for various pollutants, EPA guidance also notes that:

... we encourage organizations to provide facility-specific emissions data for all point sources, regardless of size, where they are already included in the S/L/T [state/local/tribal] emission inventory. (US EPA, 2003)

As Maricopa County has an established annual reporting program for sources with air quality permits, the thresholds for defining a point source are lower than the minimums required by EPA. For the purposes of this inventory, a point source is a stationary operation within Maricopa County or within 25 miles of the CO nonattainment area, which in 2002 emitted:

- 25 English (short) tons or more of carbon monoxide (CO); or
- 10 tons or more of volatile organic compounds (VOC), oxides of nitrogen (NO<sub>x</sub>), or sulfur oxides (SO<sub>x</sub>); or
- 5 tons or more of particulate matter less than 10 microns (PM<sub>10</sub>) or ammonia compounds (NH<sub>x</sub>).

While the above approach results in some anomalies (e.g., a facility treated as a point source may have very low, or no, emissions of a certain pollutant), a uniform definition of “point source” ensures that all data sets, which are prepared for a variety of purposes, will be comparable.

This point source inventory includes actual CO emissions for the year 2002 and a typical day during the CO season (defined as November through January). A description and map of the nonattainment area are provided in Chapter 1. Questions concerning point source emissions may be directed to Bob Downing of MCESD at (602) 506-6790.

Several tables have been constructed to provide the point source emissions and category totals. Table 2.2–1 summarizes all point sources by location and permitting authority. Table 2.2–2 provides an alphabetical list of all point sources and their location, while Table 2.3–1 shows the 2002 annual and average CO season-day emissions broken out by facility. Table 2.5–1 lists the 2002 annual and CO season-day emissions broken out by individual process types, and Table

2.6–1 summarizes point source CO emissions by source category. Note that totals shown in all tables may not equal the sum of individual values due to independent rounding.

## 2.2 Identification of CO point sources

Maricopa County Environmental Services Department (MCESD) identified point sources within Maricopa County through its permit system database and the 2002 annual emissions reports submitted to the department. In addition, the permit system was reviewed to locate new facilities that were not included in the previous emission inventory, and to identify sources that have ceased operations since the 1999 periodic inventory was compiled.

A total of 172 point sources were identified using the emission thresholds described in Section 2.1. Of the 172 stationary point sources, 111 MCSED-permitted sources reported some level of CO emissions – 97 within the CO nonattainment area, and 14 outside the CO NAA. There are 2 additional point sources (Hexcel Corp. and SRP Desert Basin Generating Station) within the 25-mile boundary around the CO nonattainment area, with permits issued by the Pinal County Air Quality Control District (PCAQCD). While the Arizona Department of Environmental Quality (ADEQ) retains permitting authority for a limited number of industrial source categories in Maricopa County, no ADEQ-permitted facilities are considered point sources, and are addressed instead as area sources.

**Table 2.2–1. Number of stationary point sources by location and permitting authority.**

Location	Total no. of facilities	Facilities reporting CO emissions
<b>Within the CO nonattainment area:</b>		
– Maricopa County-permitted sites	<b>153</b>	<b>97</b>
<b>Outside the CO nonattainment area:</b>		
– Maricopa County-permitted sites	17	14
– Pinal County-permitted sites	2	2
<b>Total outside NAA:</b>	<b>19</b>	<b>16</b>
<b>Grand total:</b>	<b>172</b>	<b>113</b>

Table 2.2–2 contains an alphabetical list of all point sources, including a unique business identification number, NAICS industry classification code, business name (including any changes from the 1999 periodic inventory), and physical address.

**Table 2.2–2. Name and location of all point sources.**

<b>Within the CO nonattainment area:</b>						
ID #	NAICS	Business name	Address	City	ZIP	
1074	22132	23rd Ave. Wastewater Treatment Plant (formerly <i>City of Phoenix 23rd Ave. WWTP</i> )	2470 S. 22nd Ave.	Phoenix	85009	
1075	22132	91st Ave. Wastewater Treatment Plant	5615 S. 91st Ave.	Tolleson	85353	
245	337122	A. F. Lorts Company Inc.	8120 W. Harrison St.	Tolleson	85353	
1952	811121	Adesa Phoenix LLC	400 N. Beck Ave.	Chandler	85226	
1239	332321	AG Products	2525 W. Broadway Rd..	Phoenix	85041	
35541	33121	Allied Tube & Conduit Corp.	2525 N. 27th Ave.	Phoenix	85009	
199	327332	Ameron Intl. Water Transmission Group (formerly <i>Ameron Pipe</i> )	2325 S. 7th St.	Phoenix	85034	

**Table 2.2–2. Name and location of point sources (continued).**

<b>ID #</b>	<b>NAICS</b>	<b>Business name</b>	<b>Address</b>	<b>City</b>	<b>ZIP</b>
292	325412	Anabolic Laboratories Inc. (formerly <i>Health Factors International Inc.</i> )	429 S. Siesta Ln.	Tempe	85281
3313	221112	APS West Phoenix Power Plant	4606 W. Hadley St.	Phoenix	85043
3938	332812	Arizona Galvanizing Inc.	15775 Elwood St.	Goodyear	85338
4364	61131	Arizona State University	1551 S. Rural Rd.	Tempe	85287
36485	54185	Billboard Poster Company Inc.	3940 W. Montecito Ave.	Phoenix	85019
43124	313230	Bonded Logic Inc.	411 E. Ray Rd.	Chandler	85225
3441	42471	BP West Coast Products LLC	5333 W. Van Buren St.	Phoenix	85043
458	32191	Bryant Industries Inc.	788 W. Illini St.	Phoenix	85041
217	327123	Building Products Co.	4850 W. Buckeye Rd	Phoenix	85043
3442	493190	Caljet (formerly <i>Caljet/Williams</i> )	125 N. 53rd Ave.	Phoenix	85043
60598	337211	Case Furniture & Design LLC	4645 W. Polk St.	Phoenix	85043
1317	321991	Cavco Industries LLC (35th Ave.)	2602 S. 35th Ave.	Phoenix	85009
1318	321991	Cavco Industries LLC (Litchfield Rd.)	1366 S. Litchfield Rd.	Goodyear	85338
1316	321991	Cavco Industries LLC (Durango Plant)	2502 W. Durango St.	Phoenix	85009
4145	61111	Cave Creek School District	33606 N. 60th St.	Cave Creek	85331
1267	32732	Cemex Mesa Plants #61 & #71	1901 N. Alma School Rd.	Mesa	85201
1266	212321	Cemex USA (Phoenix)	11701 W. Indian School	Phoenix	85063
1268	212321	Cemex USA (Sun City)	24004 N. 107th Ave.	Sun City	85373
1310	32311	Century Graphics LLC	2960 Grand Ave.	Phoenix	85017
1426	32311	Cesar Color Inc.	3433 E. Wood St.	Phoenix	85040
4401	32732	Chandler Ready Mix Inc.	6500 N. 115th Ave.	Glendale	85323
51073	52312	Charles Schwab & Co. Inc.	2121 S. Price Rd.	Chandler	85248
3297	42471	Chevron USA Inc.	5110 W. Madison St.	Phoenix	85043
3976	33711	Cholla Custom Cabinets Inc.	1727 E. Deer Valley Dr.	Phoenix	85024
4083	32191	Chris Fischer Productions Inc.	4741 W. Polk St.	Phoenix	85043
399	32739	Coreslab Structures (Ariz) Inc.	5026 S. 43rd Ave.	Phoenix	85041
1198	32311	Courier Graphics Corp.	2621 S. 37th St.	Phoenix	85034
4368	32191	Craftsmen in Wood Mfg.	5441 W. Hadley St.	Phoenix	85043
4023	321918	Creative Shutters Inc.	2009 W. Ironwood Dr.	Phoenix	85021
3744	325991	Desert Sun Fiberglass	21412 N. 14th Ave.	Phoenix	85027
130	331512	Dolphin Inc.	740 S. 59th Ave.	Phoenix	85043
508	337122	Eagle Industries LLC (formerly <i>Samuel Lawrence Furniture Co.</i> )	601 S. 65th Ave.	Phoenix	85043
45493	811121	Earnhardt Ford	7300 W. Orchid Ln.	Chandler	85226
3305	311812	Earthgrains Baking Companies Inc.	738 W. Van Buren St.	Phoenix	85007
26	423810	Empire Machinery Co.	1725 S. Country Club Dr.	Mesa	85210
1505	32191	Executive Door	3939 W. Clarendon Ave.	Phoenix	85019
544	321991	Fleetwood Homes of Arizona Inc. #21	6112 N. 56th Ave.	Glendale	85311
27728	334413	FlipChip International LLC (formerly <i>Flip Chip Technologies</i> )	3701 E. University Dr.	Phoenix	85034
41751	326121	GCR Truck Tire Center	2815 N. 32nd Ave.	Phoenix	85009
4050	311812	General Mills (formerly <i>Pillsbury Bakeries &amp; Food Service</i> )	1120 W. Fairmont Dr.	Tempe	85282
4173	562212	Glendale Municipal Sanitary Landfill	11480 W. Glendale Ave.	Glendale	85301
781	62211	Good Samaritan Regional Medical Ctr.	1111 E. McDowell Rd.	Phoenix	85006
1418	326299	Goodrich Aircraft Interior Products (formerly <i>BF Goodrich Aircraft Evacuation Sys.</i> )	3414 S. 5th St.	Phoenix	85040
36772	212321	GTI Capital Holdings LLC	3636 S. 43rd Ave.	Phoenix	85009
699	212321	Hanson Aggregates of Arizona (Phoenix)	4002 S. 51st Ave.	Phoenix	85043
31565	32614	Henry Products Inc.	302 S. 23rd Ave.	Phoenix	85009
529	32614	Highland Products Inc.	43 N. 48th Ave.	Phoenix	85043
4543	32311	Hogue Printing Inc.	159 W. 1st Ave.	Mesa	85210
3536	311812	Holsum Bakery Inc.	2322 W. Lincoln St.	Phoenix	85009

**Table 2.2–2. Name and location of point sources (continued).**

<b>ID #</b>	<b>NAICS</b>	<b>Business name</b>	<b>Address</b>	<b>City</b>	<b>ZIP</b>
3802	311812	Holsum Bakery Tempe	710 W. Geneva Dr.	Tempe	85252
1059	336412	Honeywell Engines Systems & Service (formerly <i>Honeywell Aerospace Services</i> )	1944 E. Sky Harbor Cir.	Phoenix	85034
355	336412	Honeywell International Inc.	111 S. 34th St.	Phoenix	85034
354	331314	Imsamet of Arizona	3829 S. Estrella Pkwy.	Goodyear	85338
777	32614	Insulfoam	3401 W. Cocopah St.	Phoenix	85009
3966	334413	Intel Corp. Ocotillo Campus (Fab 12 & 22) (formerly <i>Intel Corp. Ocotillo Campus Fab 12</i> )	4500 S. Dobson Rd.	Chandler	85248
983	334419	Isola Laminate Systems Corp.	165 S. Price Rd.	Chandler	85224
3317	221112	Kyrene Generating Station (formerly <i>SRP Kyrene Steam Plant</i> )	7005 S. Kyrene Rd.	Tempe	85283
341	325991	L & M Laminates & Marble	813 E. University Dr.	Phoenix	85034
4182	337122	Legends Furniture Inc.	5555 N. 51st Ave.	Glendale	85301
857	334412	Litton Electro-Optical Systems	1215 S. 52nd St.	Tempe	85281
3300	92811	Luke Air Force Base	14002 W. Marauder St.	Glendale	85309
744	3325	M. E. Global Inc. (formerly <i>M. E. West Castings Inc.</i> )	5857 S. Kyrene Rd.	Tempe	85283
1248	325991	Maax Spas	25605 S. Arizona Ave.	Chandler	85248
31261	21231	Madison Granite Supplies	30600 N. 23rd Ave.	Phoenix	85027
4111	337121	Magic Woods Inc.	4210 N. 39th Ave.	Phoenix	85019
205	322232	Mail-Well Envelope	221 N. 48th Ave.	Phoenix	85043
353	326199	Marlam Industries Inc.	834 E. Hammond Ln.	Phoenix	85034
61268	327390	Master Block Inc.	12620 W. Butler Dr.	El Mirage	85335
62	33711	Mastercraft Cabinets Inc.	305 S. Brooks	Mesa	85202
3326	352991	Mesa Fully Formed Inc.	1111 S. Serrine St.	Mesa	85210
1414	212321	Mesa Materials Inc. (Mesa)	3410 N. Higley Rd.	Mesa	85205
1415	212321	Mesa Materials Inc. (Phoenix)	7845 W. Broadway Rd.	Phoenix	85043
29474	423930	Metal Management Arizona Inc.	3640 S. 35th Ave.	Phoenix	85009
1203	334413	Microchip Technology Inc. (Chandler)	2355 W. Chandler Blvd.	Chandler	85224
1875	334413	Microchip Technology Inc. (Tempe)	1200 S. 52nd St.	Tempe	85281
226	32739	Monier Lifetile LLC	1832 S. 51st Ave.	Phoenix	85043
882	311942	Morton Salt Glendale Facility	13000 W. Glendale Ave.	Glendale	85307
881	334413	Motorola Inc.	1300 N. Alma School Rd.	Chandler	85224
223	333112	MTD Southwest Inc.	550 N. 54th St.	Chandler	85226
693	333415	Munters Corp.	802 S. 59th Ave.	Phoenix	85043
34197	327420	National Gypsum Co.	1414 E. Hadley St.	Phoenix	85034
948	32614	Nesco Manufacturing Inc.	1510 W. Drake Dr.	Tempe	85283
1309	337122	New Directions Inc.	2940 W. Willetta St.	Phoenix	85009
1331	337122	Oak Canyon Manufacturing Inc. (formerly <i>Aspen II</i> )	3021 N. 29th Dr.	Phoenix	85017
3953	33711	Oakcraft Inc.	7733 W. Olive Ave.	Peoria	85345
27925	337122	Oasis Bedroom Co.	2022 N. 22nd Ave.	Phoenix	85009
52382	221112	Ocotillo Power Plant	1500 E. University Dr.	Tempe	85281
3982	32311	O'Neil Printing Inc.	366 N. 2nd Ave.	Phoenix	85003
3970	337122	Pacific Designs	2425 W. Sherman St.	Phoenix	85043
1344	321991	Palm Harbor Homes Inc.	309 S. Perry Ln.	Tempe	85281
733	811412	Pan-Glo West	2401 W. Sherman St.	Phoenix	85009
419	336412	Parker Hannifin GTFSD	7777 N. Glen Harbor Bd.	Glendale	85307
1341	33992	Penn Racquet Sports Inc.	306 S. 45th Ave.	Phoenix	85043
1014	327121	Phoenix Brick Yard	1814 S. 7th Ave.	Phoenix	85007
562	51111	Phoenix Newspapers Inc.	22600 N. 19th Ave.	Phoenix	85027
148	331528	Presto Casting Co.	5440 W. Missouri Ave.	Glendale	85301
60889	326212	Purcell's Western States Tire	420 S. 35th Ave.	Phoenix	85009
1030	32311	Quebecor World Phoenix Division	1850 E. Watkins St.	Phoenix	85034

**Table 2.2–2. Name and location of point sources (continued).**

<b>ID #</b>	<b>NAICS</b>	<b>Business name</b>	<b>Address</b>	<b>City</b>	<b>ZIP</b>
537	327999	Red Mountain Mining Inc.	4250 N. Bush Hwy.	Mesa	85215
1503	321991	Redman Homes Inc.	400 E. Ray Rd.	Chandler	85225
303	332431	Rexam Beverage Can Company	211 N. 51st Ave.	Phoenix	85043
4318	32732	River Ranch Plant	5159 N. El Mirage Rd.	Litchfield Pk	85340
759	32613	Rogers Corp. Advanced Circuit Materials	100 S. Roosevelt Ave.	Chandler	85226
1437	334412	Sanmina Phoenix Division (formerly <i>Hadco Phoenix Inc./Sanmina Phx. Div.</i> )	5020 S. 36th St.	Phoenix	85040
3315	221112	Santan Generating Station (formerly <i>Santan Generating Plant</i> )	1005 S. Val Vista Rd.	Gilbert	85296
266	332312	Schuff Steel Co.	420 S. 19th Ave.	Phoenix	85009
42636	62211	Scottsdale Health Care Hospital	7400 E. Osborn Rd.	Scottsdale	85251
4175	493190	SFPP LP	49 N. 53rd Ave.	Phoenix	85043
70634	42471	Shell Oil Phoenix Terminal (formerly <i>Texaco Phoenix Terminal</i> )	5325 W. Van Buren St.	Phoenix	85043
27933	562212	Skunk Creek Landfill	3165 W. Happy Valley Rd	Phoenix	85027
4471	332311	Skyline Steel Inc.	631 W. Commerce Ave.	Gilbert	85233
31627	115111	South Mountain Gin	6411 S. 51st Ave.	Laveen	85339
3316	221112	SRP Agua Fria	7302 W. Northern Ave.	Glendale	85303
4131	334413	ST Microelectronics	1000 E. Bell Rd.	Phoenix	85022
1444	327123	Staco Architectural Roof Tile	3530 E. Elwood St.	Phoenix	85040
582	337122	Stone Creek Inc.	4221 E. Raymond St.	Phoenix	85040
281	212321	Sun State Rock & Materials	11500 W. Beardsley Rd.	Sun City	85373
101	31161	Sunland Beef Co.	651 S. 91st Ave.	Tolleson	85353
52471	325188	Superior Lime & Chemical	320 S. 27th Ave.	Phoenix	85009
3978	337122	Team Two Design Assoc Inc.	310 S. 43rd Ave.	Phoenix	85009
249	336411	The Boeing Company	5000 E. McDowell Rd.	Mesa	85215
937	336211	The Heil Company	1500 S. 7th St.	Phoenix	85034
232	72111	The Phoenician Resort	6000 E. Camelback Rd.	Scottsdale	85251
1102	325412	The Procter & Gamble Mfg Co.	2050 S. 35th Ave.	Phoenix	85009
552	337122	Thornwood Furniture Mfg.	5125 E. Madison St.	Phoenix	85034
363	337122	Thunderbird Furniture	7501 E. Redfield Rd.	Scottsdale	85260
56	32739	TPAC Division of Kiewit Western Co.	3052 S. 19th Ave.	Phoenix	85009
1210	337122	Trendwood Inc. (15th Ave.)	2402 S. 15th Ave.	Phoenix	85007
1211	337122	Trendwood Inc. (University Dr.)	261 E. University Dr.	Phoenix	85004
819	336399	TRW Vehicle Safety Systems Inc.	11202 E. Germann Rd.	Queen Creek	85242
169	811111	U Haul Intl. Technical Center	11298 S. Priest Dr.	Tempe	85284
1228	325991	Ultra Installations Inc.	245 S. Mulberry	Mesa	85202
234	311514	United Dairymen of Arizona	2008 S. Hardy Dr.	Tempe	85282
260	212321	United Metro Plant #11	3640 S. 19th Ave.	Phoenix	85009
213	212321	United Metro Plant #12	11920 W. Glendale Ave.	Glendale	85307
403	331316	VAW of America	249 S. 51st Ave.	Phoenix	85043
2	32412	Vulcan Materials Co. (El Mirage)	14521 N. 115th Ave.	El Mirage	85335
90	32732	Vulcan Materials Co. (Phoenix)	4830 S. 43rd Ave.	Phoenix	85041
174	325998	W. R. Meadows of Arizona Inc.	2636 S. Sarival Ave.	Goodyear	85338
141	424910	Western Organics Inc.	2807 S. 27th Ave.	Phoenix	85009
4384	321918	Western Shutter LLC	4038 E. Madison St.	Phoenix	85034
2703	42471	Western States Petroleum	450 S. 15th Ave.	Phoenix	85007
20706	32614	Wincup Holdings Inc.	7980 W. Buckeye Rd.	Phoenix	85043
1382	33711	Woodcase Fine Cabinetry Inc. (formerly <i>McCarthy Cabinet Co.</i> )	3255 W. Osborn Rd.	Phoenix	85017
72	337122	Woodstuff Manufacturing Inc.	1635 S. 43rd Ave.	Phoenix	85009

**Table 2.2–2. Name and location of point sources (continued).**

The following point sources are **outside** the CO nonattainment area:

ID #	NAICS	Business name	Address	City	ZIP
31606	115111	Acme Gin Co. Inc.	7401 S. Wilson Rd.	Buckeye	85326
1874	212321	Alleco Stone LLC	10401 S. Miller Rd.	Buckeye	85326
31643	562212	Allied Waste Industries Inc.	24427 S. Hwy 85	Buckeye	85326
31637	115111	Anderson Clayton Corp. Valencia Gin	25500 W. Southern Ave.	Buckeye	85326
1218	562212	Butterfield Station	40404 S. 99th Ave.	Mobile	85239
1389	541380	DaimlerChrysler AZ Proving Grounds	33040 N. 203rd Ave.	Wittmann	85361
43063	221112	Duke Energy Arlington Valley LLC	39027 W. Elliot Rd.	Arlington	85322
1488	115111	Farmers Gin Inc.	8400 S. Turner St.	Buckeye	85326
10211		Hexcel Corp. †	1214 W. Gila Bend Hwy.	Casa Grande	85222
725	212321	Kilauea Crushers Inc.	Hwy 74	Wickenburg	85358
1879	562212	Northwest Regional Landfill	19401 W. Deer Valley Rd	Surprise	85374
98	221113	Palo Verde Nuclear Generating Station	5801 S. Wintersburg Rd.	Tonopah	85354
428	115111	Paloma Gin Properties LLC	I-8	GilaBend	85337
289	115111	Phoenix Agro Invest Inc.	51040 W. Valley Rd.	Aguila	85320
42956	221112	Pinnacle West Energy Corp.	11600 S. 363rd Ave.	Arlington	85322
44182	332312	Quincy Joist Company	22253 W. Southern Ave.	Buckeye	85326
246	321991	Schult Homes	231 N. Apache Rd.	Buckeye	85326
10469	221112	SRP Desert Basin Generating Station †	1872 N. Burris Rd.	Casa Grande	85222
398	212321	Wickenburg Facility	44605 Grand Ave.	Wickenburg	85390

† Source is located in Pinal County.

### 2.3 Procedures for estimating emissions from point sources

Both annual and average season-day CO emissions were estimated from annual source emission reports, MCESD investigation reports, permit files and logs, or telephone contacts with sources. For most of the sources, material balance methods were used for determining emissions. Emissions were estimated using the emission factors from AP–42, source tests, engineering calculations, or manufacturers' specifications.

MCESD distributes annual emissions survey forms to nearly all facilities for which MCESD has issued an operating permit. Facilities are required to report detailed information on stacks, control devices, operating schedules, and process-level information concerning their annual activities. (See Appendix 2.1 for a copy of the instructions to complete the emissions inventory.) These instructions include examples and explanations on how to complete the annual emissions reporting forms that facilities must submit to MCESD. Activity data reported for the December–February winter season is presumed to be representative of the November–January CO season.

After a facility has submitted an annual emissions report to MCESD, emissions inventory staff check all reports for missing and questionable data, and check the accuracy and reasonableness of all emissions calculations with AP–42, the Factor Information and REtrieval (FIRE) software, and other EPA documentation. Control efficiencies are determined by source tests when available, or by AP–42 factors, engineering calculations, or manufacturers' specifications. MCESD has conducted annual emissions surveys for permitted facilities since 1988, and the department's database system, EMS, contains numerous automated quality assurance/quality control checks for data input and processing.

### 2.3.1 Example 1: Ocotillo Power Plant

General Facility Information: Arizona Public Service (APS) operates a peaking electric generating plant with two steam units (gas/oil-fired boilers) and two natural-gas turbines. APS provided its total annual fuel consumption for each unit, as well as daily and seasonal operating activity. Total annual emissions from boilers and turbines are summed to obtain the facility's total annual CO emissions. The Ocotillo power plant provided the following information. The following data were used to calculate emissions from boilers and turbines:

SCC	Source type	Annual fuel consumption	CO emission factor	CO emissions (lbs/yr)
10100604	Natural gas boilers	3,406.56 MMCF	24 lb/ MMCF	81,757.0
20100201	Natural gas turbines	673.59 MMCF	83.64 lb/ MMCF	56,339.0

#### Calculation of annual CO emissions:

Annual emissions (lbs) = Annual fuel consumption × emission factor

$$\begin{aligned} \text{CO emissions from natural-gas boilers} &= 3,406.56 \text{ MMCF} \times 24 \text{ lb CO/MMCF} \\ &= 81,757 \text{ lbs CO/yr} \end{aligned}$$

$$\begin{aligned} \text{CO emissions from natural-gas turbines} &= 673.59 \text{ MMCF} \times 83.64 \text{ lb CO/MMCF} \\ &= 56,339 \text{ lbs CO/yr} \end{aligned}$$

$$\begin{aligned} \text{Total CO emissions} &= 81,757 \text{ lbs} + 56,339 \text{ lbs} \\ &= 138,096 \text{ lbs/yr} \\ &= 69.05 \text{ tons CO/yr} \end{aligned}$$

#### Calculation of CO season-day emissions:

APS provided seasonal operating data for each boiler and turbine. The activity reported for the December–February time period ranged from 14 to 37 percent among all natural-gas fired equipment. The average season-day emissions were calculated individually, as illustrated in the following example for Steam Unit No. 1 burning natural gas:

$$\begin{aligned} \text{CO season-day emissions} &= \text{annual emissions} \times \text{seasonal activity factor} \div (\text{days/week} \times \text{weeks/season}) \\ &= 50,986 \text{ lb CO} \times 19\% \div (7 \text{ days/wk} \times 13 \text{ wks/season}) \\ &= 106.5 \text{ lbs CO/season day} \end{aligned}$$

The daily calculations for each boiler and turbine were then summed to derive total CO season-day emissions.

### 2.3.2 Example 2: Imsamet of Arizona

General Facility Information: This secondary foundry facility has two electric arc furnaces (EAFs) and two heat treat furnaces. Carbon monoxide emissions of 21.5 lbs/hr of operation were calculated from stack tests conducted on the electric arc furnaces in 1999. Seasonal activity levels for each process are also reported annually.

#### Calculation of annual CO emissions:

$$\begin{aligned} \text{Annual emissions (lbs)} &= \text{Total hours of operation} \times \text{emission factor} \\ &= 7,503 \text{ hrs/yr} \times 21.5 \text{ lb CO/hr} \\ &= 161,315 \text{ lbs CO/yr} = 80.66 \text{ tons CO/yr} \end{aligned}$$

Calculation of CO season-day emissions:

$$\begin{aligned}
 \text{CO season-day emissions} &= \text{Annual emissions} \times \text{seasonal activity factor} \div (\text{days/week} \times \text{weeks/season}) \\
 &= 161,315 \text{ lbs/yr} \times 26\% \div (7 \text{ days/wk} \times 13 \text{ wks/season}) \\
 &= 460.9 \text{ lbs CO/day}
 \end{aligned}$$

Table 2.3–1 provides a list of annual and season-day CO emissions from those point sources that reported CO emissions, broken out by location (inside or outside the CO nonattainment area).

**Table 2.3–1. Annual and CO season-day point source emissions, by facility.**

<b>Facilities within the CO nonattainment area:</b>			<b>Annual CO emissions (tons/yr)</b>	<b>Season-day CO emissions (lbs/day)</b>
<b>ID #</b>	<b>Business name</b>	<b>City</b>		
1074	23rd Ave. Wastewater Treatment Plant	Phoenix	50.91	258.7
1075	91st Ave. Wastewater Treatment Plant	Tolleson	4.03	43.0
245	A F Lorts Company Inc.	Tolleson	0.01	0.1
1952	Adesa Phoenix LLC	Chandler	0.01	0.0
35541	Allied Tube & Conduit Corp.	Phoenix	0.33	1.9
199	Ameron Intl. Water Transmission Group	Phoenix	0.53	11.0
292	Anabolic Laboratories Inc.	Tempe	0.12	0.9
3313	APS West Phoenix Power Plant	Phoenix	116.58	429.6
3938	Arizona Galvanizing Inc.	Goodyear	2.98	17.8
4364	Arizona State University	Tempe	15.14	138.7
43124	Bonded Logic Inc.	Chandler	0.16	1.3
217	Building Products Co.	Phoenix	16.73	92.3
3442	Caljet	Phoenix	4.30	23.6
4145	Cave Creek School District	Cave Creek	3.21	24.8
1267	Cemex Mesa Plants #61 & #71	Mesa	2.14	10.4
1310	Century Graphics LLC	Phoenix	0.04	0.3
1426	Cesar Color Inc.	Phoenix	0.41	3.1
51073	Charles Schwab & Co. Inc.	Chandler	0.92	5.0
3976	Cholla Custom Cabinets Inc.	Phoenix	0.01	0.1
1198	Courier Graphics Corp.	Phoenix	0.20	1.4
4368	Craftsmen in Wood Mfg.	Phoenix	0.06	0.5
130	Dolphin Inc.	Phoenix	1.71	12.1
508	Eagle Industries LLC	Phoenix	0.02	0.2
3305	Earthgrains Baking Companies Inc.	Phoenix	1.53	9.8
26	Empire Machinery Co.	Mesa	21.16	110.6
27728	FlipChip International LLC	Phoenix	0.28	1.5
4050	General Mills	Tempe	0.67	4.1
4173	Glendale Municipal Sanitary Landfill	Glendale	1.67	12.9
781	Good Samaritan Regional Medical Ctr.	Phoenix	8.24	31.5
1418	Goodrich Aircraft Interior Products	Phoenix	1.51	15.4
31565	Henry Products Inc.	Phoenix	0.49	3.0
529	Highland Products Inc.	Phoenix	1.15	9.2
3536	Holsum Bakery Inc.	Phoenix	2.77	21.3
3802	Holsum Bakery Tempe	Tempe	0.89	7.1
1059	Honeywell Engines Systems & Service	Phoenix	1.99	18.2
355	Honeywell International Inc.	Phoenix	20.13	110.6
354	Imsamet of Arizona	Goodyear	80.66	460.9
777	Insulfoam	Phoenix	0.94	6.0
3966	Intel Corp. Ocotillo Campus (Fab 12 & 22)	Chandler	14.69	118.9
983	Isola Laminate Systems Corp.	Chandler	9.14	58.6
3317	Kyrene Generating Station	Tempe	39.17	18.7

**Table 2.3–1. Annual and CO season-day point source emissions, by facility (continued).**

<b>ID #</b>	<b>Business name</b>	<b>City</b>	<b>Annual CO emissions (tons/yr)</b>	<b>Season-day CO emissions (lbs/day)</b>
3300	Luke Air Force Base	Glendale	10.75	86.0
744	M. E. Global Inc.	Tempe	56.22	427.1
31261	Madison Granite Supplies	Phoenix	14.59	112.3
205	Mail-Well Envelope	Phoenix	0.71	3.6
353	Marlam Industries Inc.	Phoenix	0.02	0.2
61268	Master Block Inc.	El Mirage	0.22	1.4
62	Mastercraft Cabinets Inc.	Mesa	0.13	1.6
1414	Mesa Materials Inc. (Mesa)	Mesa	16.28	75.1
1415	Mesa Materials Inc. (Phoenix)	Phoenix	11.22	51.8
29474	Metal Management Arizona Inc.	Phoenix	0.16	1.0
1203	Microchip Technology Inc.	Chandler	1.94	10.9
1875	Microchip Technology Inc.	Tempe	3.60	20.6
226	Monier Lifetile LLC	Phoenix	0.79	5.0
882	Morton Salt Glendale Facility	Glendale	3.82	29.4
881	Motorola Inc.	Chandler	1.85	24.4
223	MTD Southwest Inc.	Chandler	46.12	355.7
693	Munters Corp.	Phoenix	0.15	1.1
34197	National Gypsum Co.	Phoenix	16.15	103.9
3953	Oakcraft Inc.	Peoria	0.07	0.5
52382	Ocotillo Power Plant	Tempe	69.05	343.9
733	Pan-Glo West	Phoenix	0.63	4.8
1341	Penn Racquet Sports Inc.	Phoenix	3.88	30.6
1014	Phoenix Brick Yard	Phoenix	34.27	188.3
562	Phoenix Newspapers Inc.	Phoenix	0.27	3.9
148	Presto Casting Co.	Glendale	0.95	7.3
60889	Purcell's Western States Tire	Phoenix	0.15	1.2
1030	Quebecor World Phoenix Division	Phoenix	39.99	328.1
537	Red Mountain Mining Inc.	Mesa	1.43	11.0
303	Rexam Beverage Can Company	Phoenix	4.29	23.6
759	Rogers Corp. Advanced Circuit Materials	Chandler	35.74	194.3
1437	Sanmina Phoenix Division	Phoenix	1.53	9.8
3315	Santan Generating Station	Gilbert	339.66	1,042.9
266	Schuff Steel Co.	Phoenix	0.74	4.7
42636	Scottsdale Health Care Hospital	Scottsdale	1.38	10.5
4175	SFPP LP	Phoenix	8.96	49.2
70634	Shell Oil Phoenix Terminal	Phoenix	0.28	1.6
27933	Skunk Creek Landfill	Phoenix	0.59	3.2
31627	South Mountain Gin	Laveen	0.12	1.6
3316	SRP Agua Fria	Glendale	330.15	762.9
4131	ST Microelectronics	Phoenix	4.46	24.5
1444	Staco Architectural Roof Tile	Phoenix	0.05	0.5
281	Sun State Rock & Materials	Sun City	0.73	4.7
101	Sunland Beef Co.	Tolleson	10.21	60.1
249	The Boeing Company	Mesa	1.50	11.5
232	The Phoenician Resort	Scottsdale	9.98	52.8
1102	The Procter & Gamble Mfg Co.	Phoenix	0.70	5.4
56	TPAC Division of Kiewit Western Co.	Phoenix	0.80	6.2
819	TRW Vehicle Safety Systems Inc.	QueenCreek	3.18	20.0
234	United Dairymen of Arizona	Tempe	27.51	157.1
260	United Metro Plant #11	Phoenix	16.52	65.0
213	United Metro Plant #12	Glendale	30.45	171.9
403	VAW of America Inc.	Phoenix	10.65	68.3
2	Vulcan Materials Co. (El Mirage)	El Mirage	2.03	10.4

**Table 2.3–1. Annual and CO season-day point source emissions, by facility (continued).**

<b>ID #</b>	<b>Business name</b>	<b>City</b>	<b>Annual CO emissions (tons/yr)</b>	<b>Season-day CO emissions (lbs/day)</b>
174	W. R. Meadows of AZ Inc.	Goodyear	0.16	2.0
20706	Wincup Holdings Inc.	Phoenix	11.19	56.6
72	Woodstuff Manufacturing Inc.	Phoenix	0.07	0.5
<b>CO nonattainment area totals:</b>			<b>1,616.64</b>	<b>7,147.9</b>
<b>Facilities outside the CO nonattainment area:</b>				
31606	Acme Gin Co. Inc.	Buckeye	0.02	0.3
1874	Alleco Stone LLC	Buckeye	3.89	24.9
31643	Allied Waste Industries Inc.	Buckeye	0.90	5.8
31637	Anderson Clayton Corp. Valencia Gin	Buckeye	0.07	0.3
1218	Butterfield Station	Mobile	8.25	45.6
1389	DaimlerChrysler AZ Proving Grounds	Wittmann	0.06	0.3
43063	Duke Energy Arlington Valley LLC	Arlington	23.74	148.9
1488	Farmers Gin Inc.	Buckeye	0.13	2.0
10211	Hexcel Corp.	Casa Grande	10.13	77.9
1879	Northwest Regional Landfill	Surprise	1.42	9.1
98	Palo Verde Nuclear Generating Station	Tonopah	16.13	88.6
428	Paloma Gin Properties LLC	Gila Bend	0.07	1.0
289	Phoenix Agro Invest Inc.	Aguila	0.01	0.3
42956	Pinnacle West Energy Corp.	Arlington	89.70	461.3
10469	SRP Desert Basin Generating Station	Casa Grande	50.20	275.8
398	Wickenburg Facility	Wickenburg	1.56	12.0
<b>Total, outside the NAA:</b>			<b>206.27</b>	<b>1,154.1</b>
<b>Grand total:</b>			<b>1,822.90</b>	<b>8,301.9</b>

## 2.4 Emission reduction credits

A major source or major modification planned in a nonattainment area must obtain emissions reductions as a condition for approval. These emissions reductions, generally obtained from existing sources located in the vicinity of a proposed source, must offset the emissions increase from the new source or modification. The obvious purpose of acquiring offsetting emissions decreases is to allow an area to move towards attainment of the national ambient air quality standards while still allowing some industrial growth.

Table 2.4–1 provides a list of emission reduction credits for carbon monoxide. Two facilities shut down their equipment prior to 2002 and requested that their emissions continue to be listed in the emission inventory for possible future use as emission reduction credits. A third facility shut down operations in 2002 and received a credit generation certificate for their emissions from the Arizona Emissions Bank. In order for these emission reductions to be available in the future for offsetting, they must be: 1) explicitly included and quantified as growth in projection year inventories required in rate of progress plans or attainment demonstrations that were based on 1990 actual inventories, and 2) meet the requirements outlined in MCESD Rule 240 (Permit Requirements for New Major Sources and Major Modification to Existing Major Sources).

**Table 2.4–1. CO emission reduction credits.**

<b>Facility</b>	<b>CO emission reduction credits (tons)</b>
Anderson Clayton Oilseed Plant	2.28
Motorola (Mesa)	17
The Scottsdale Princess Cogeneration Partnership	12.95
<b>Total</b>	<b>32.23</b>

## 2.5 CO point source emissions by process type

Table 2.5–1 lists annual and CO season-day emissions from the 113 point sources that reported CO emissions.

**Table 2.5–1. Annual and CO season-day point source emissions, by process type.**

CATEGORY		Annual CO emissions (tons/yr)	Season-day CO emissions (lbs/day)
ID #	Business name		
<b>ELECTRICITY GENERATION:</b>			
<b>Fuel Combustion: Fuel Oil:</b>			
3313	APS West Phoenix Power Plant	0.00	0.0
43063	Duke Energy Arlington Valley LLC †	0.11	3.5
3317	Kyrene Generating Station	0.00	0.0
98	Palo Verde Nuclear Generating Station	0.00	0.0
3316	SRP Agua Fria	0.01	0.1
<b>Total Fuel Combustion: Fuel Oil</b>		0.13	3.5
<b>Fuel Combustion: Natural Gas</b>			
3313	APS West Phoenix Power Plant	116.58	429.6
43063	Duke Energy Arlington Valley LLC †	23.63	145.4
3317	Kyrene Generating Station	39.17	18.7
52382	Ocotillo Power Plant	69.05	343.9
42956	Pinnacle West Energy Corp. †	89.70	461.3
3315	Santan Generating Plant	339.66	1,042.9
3316	SRP Agua Fria	330.13	762.8
10469	SRP Desert Basin Generating Station †	50.20	275.8
<b>Total Fuel Combustion: Natural Gas</b>		1,058.12	3,480.5
<b>TOTAL ELECTRICITY GENERATION:</b>		<b>1,058.25</b>	<b>3,484.0</b>
<b>COMMERCIAL/INSTITUTIONAL FUEL COMBUSTION:</b>			
<b>Fuel Oil:</b>			
1074	23rd Ave. Wastewater Treatment Plant	0.03	0.0
1075	91st Ave. Wastewater Treatment Plant	0.45	13.1
4364	Arizona State University	0.02	0.0
4145	Cave Creek School District	0.05	0.5
51073	Charles Schwab & Co. Inc.	0.92	5.0
781	Good Samaritan Regional Medical Ctr.	4.96	13.5
3300	Luke Air Force Base	0.71	5.5
42636	Scottsdale Health Care Hospital	0.44	3.9
<b>Total Commercial/Institutional Fuel Oil:</b>		7.58	41.6
<b>Natural Gas:</b>			
1074	23rd Ave. Wastewater Treatment Plant	0.76	7.3
4364	Arizona State University	15.12	138.7
4145	Cave Creek School District	3.16	24.3
781	Good Samaritan Regional Medical Ctr.	3.28	18.0
3300	Luke Air Force Base	4.20	36.9
42636	Scottsdale Health Care Hospital	0.94	6.6
232	The Phoenician Resort	9.98	52.8
<b>Total Commercial/Institutional Natural Gas:</b>		37.44	284.7
<b>Other Fuels:</b>			
3300	Luke Air Force Base	0.61	3.6
<b>TOTAL COMMERCIAL/INSTITUTIONAL FUEL COMBUSTION:</b>		<b>45.63</b>	<b>329.9</b>

† Source is outside the CO nonattainment area.

**Table 2.5–1. Annual and CO season-day point source emissions, by process type (continued).**

CATEGORY		Annual CO emissions (tons/yr)	Season-day CO emissions (lbs/day)
ID #	Business name		
<b>INDUSTRIAL FUEL COMBUSTION:</b>			
<b>Industrial Fuel Oil:</b>			
1874	Alleco Stone LLC †	3.89	24.9
199	Ameron Intl. Water Transmission Group	0.18	7.1
3938	Arizona Galvanizing Inc.	0.66	5.1
1218	Butterfield Station †	0.26	1.7
1267	Cemex Mesa Plants #61 & #71	2.14	10.4
26	Empire Machinery Co.	2.25	12.1
1418	Goodrich Aircraft Interior Products	0.02	0.4
3966	Intel Corp.-Ocotillo Campus (Fab 12 & 22)	1.16	44.6
31261	Madison Granite Supplies	14.59	112.3
1414	Mesa Materials Inc. (Mesa)	16.28	75.1
1415	Mesa Materials Inc. (Phoenix)	11.22	51.8
29474	Metal Management Arizona Inc.	0.16	1.0
1203	Microchip Technology Inc. (Chandler)	0.01	0.3
1875	Microchip Technology Inc. (Tempe)	0.02	0.9
882	Morton Salt Glendale Facility	2.37	18.3
881	Motorola Inc.	0.44	17.1
34197	National Gypsum Co.	0.06	0.8
1879	Northwest Regional Landfill	1.42	9.1
98	Palo Verde Nuclear Generating Station	14.27	78.4
537	Red Mountain Mining Inc.	1.43	11.0
266	Schuff Steel Co.	0.74	4.7
281	Sun State Rock & Materials	0.73	4.7
260	United Metro Plant #11	0.16	2.1
213	United Metro Plant #12	0.19	1.2
2	Vulcan Materials Co. (El Mirage)	1.98	10.2
398	Wickenburg Facility †	1.56	12.0
<b>Total Industrial Fuel Oil:</b>		<b>78.22</b>	<b>517.2</b>
<b>Industrial Fuel Combustion: Natural Gas</b>			
245	A F Lorts Company Inc.	0.01	0.1
1952	Adesa Phoenix LLC	0.01	0.0
35541	Allied Tube & Conduit Corp.	0.33	1.9
199	Ameron Intl. Water Transmission Group	0.35	3.9
292	Anabolic Laboratories	0.12	0.9
3938	Arizona Galvanizing Inc.	2.32	12.7
43124	Bonded Logic Inc.	0.16	1.3
217	Building Products Co.	16.73	92.3
1310	Century Graphics LLC	0.04	0.3
1426	Cesar Color Inc.	0.41	3.1
1198	Courier Graphics Corp.	0.20	1.4
4368	Craftsmen in Wood Mfg.	0.06	0.5
130	Dolphin Inc.	1.71	12.1
508	Eagle Industries LLC	0.02	0.2
3305	Earthgrains Baking Companies Inc.	1.53	9.8
26	Empire Machinery Co.	18.91	98.5
27728	FlipChip International LLC	0.28	1.5
4050	General Mills	0.67	4.1

† Source is outside the CO nonattainment area.

**Table 2.5–1. Annual and CO season-day point source emissions, by process type (continued).**

CATEGORY		Annual CO emissions (tons/yr)	Season-day CO emissions (lbs/day)
ID #	Business name		
<b>INDUSTRIAL FUEL COMBUSTION: Natural Gas (cont'd.)</b>			
1418	Goodrich Aircraft Interior Products	0.38	7.0
31565	Henry Products Inc.	0.49	3.0
529	Highland Products Inc.	1.15	9.2
3536	Holsum Bakery Inc.	2.77	21.3
3802	Holsum Bakery Tempe	0.89	7.1
1059	Honeywell Engines Systems & Service	0.80	10.5
355	Honeywell International Inc.	3.76	20.6
777	Insulfoam	0.94	6.0
3966	Intel Corp. Ocotillo Campus (Fab 12 & 22)	13.53	74.3
983	Isola Laminate Systems Corp.	9.14	58.6
744	M. E. Global Inc.	3.99	26.0
205	Mail-Well Envelope	0.71	3.6
353	Marlam Industries Inc.	0.02	0.2
61268	Master Block Inc.	0.22	1.4
62	Mastercraft Cabinets Inc.	0.13	1.6
1203	Microchip Technology Inc. (Chandler)	1.93	10.6
1875	Microchip Technology Inc. (Tempe)	3.52	19.3
226	Monier Lifetile LLC	0.79	5.0
882	Morton Salt Glendale Facility	0.57	4.4
881	Motorola Inc.	1.40	7.3
223	MTD Southwest Inc.	0.08	1.6
693	Munters Corp.	0.15	1.1
34197	National Gypsum Co.	16.09	103.1
3953	Oakcraft Inc.	0.07	0.5
428	Paloma Gin Properties LLC	0.07	1.0
733	Pan-Glo West	0.63	4.8
1341	Penn Racquet Sports Inc.	3.88	30.6
289	Phoenix Agro Invest Inc.	0.01	0.3
1014	Phoenix Brick Yard	34.27	188.3
562	Phoenix Newspapers Inc.	0.27	3.9
148	Presto Casting Co.	0.95	7.3
60889	Purcell's Western States Tire	0.15	1.2
1030	Quebecor World Phoenix Division	39.99	328.1
303	Rexam Beverage Can Company	4.29	23.6
759	Rogers Corp. Advanced Circuit Materials	35.74	194.3
1437	Sanmina Phoenix Division	1.53	9.8
70634	Shell Oil Phoenix Terminal	0.28	1.6
31627	South Mountain Gin	0.12	1.6
4131	ST Microelectronics	4.46	24.5
1444	Staco Architectural Roof Tile	0.05	0.5
101	Sunland Beef Co.	10.21	60.1
249	The Boeing Company	1.05	8.1
1102	The Procter & Gamble Mfg. Co.	0.70	5.4
56	TPAC Division of Kiewit Western Co.	0.80	6.2
819	TRW Vehicle Safety Systems Inc.	2.77	17.0
234	United Dairymen of Arizona	27.51	157.1
260	United Metro Plant #11	16.36	62.9
213	United Metro Plant #12	30.25	170.7
403	VAW of America Inc.	8.03	51.5

† Source is outside the CO nonattainment area.

**Table 2.5–1. Annual and CO season-day point source emissions, by process type (continued).**

CATEGORY		Annual CO emissions (tons/yr)	Season-day CO emissions (lbs/day)
ID #	Business name		
<b>INDUSTRIAL FUEL COMBUSTION: Natural Gas (cont'd.)</b>			
2	Vulcan Materials Co. (El Mirage)	0.05	0.2
174	W. R. Meadows of AZ Inc.	0.16	2.0
20706	Wincup Holdings Inc.	11.19	56.6
72	Woodstuff Manufacturing Inc.	0.07	0.5
<b>Total: Industrial Fuel Combustion: Natural Gas</b>		343.21	2,068.0
<b>Industrial Fuel Combustion: Other</b>			
31606	Acme Gin Co. Inc. †	0.02	0.3
31643	Allied Waste Industries Inc. †	0.90	5.8
31637	Anderson Clayton Corp. Valencia Gin †	0.07	0.3
3976	Cholla Custom Cabinets Inc.	0.01	0.1
1389	DaimlerChrysler AZ Proving Grounds †	0.06	0.3
1488	Farmers Gin Inc. †	0.13	2.0
1418	Goodrich Aircraft Interior Products	1.10	8.0
882	Morton Salt Glendale Facility	0.87	6.7
98	Palo Verde Nuclear Generating Station	1.85	10.2
<b>Total: Industrial Fuel Combustion: Other</b>		5.01	33.7
<b>TOTAL: ALL INDUSTRIAL FUEL COMBUSTION:</b>		<b>426.44</b>	<b>2,618.9</b>
<b>INDUSTRIAL PROCESSES:</b>			
<b>Engine Testing:</b>			
1059	Honeywell Engines Systems & Service	1.19	7.6
355	Honeywell International Inc.	16.37	90.0
3300	Luke Air Force Base	5.12	39.4
223	MTD Southwest Inc.	46.04	354.1
249	The Boeing Company	0.29	2.3
<b>Total Engine Testing:</b>		69.01	493.3
<b>Other:</b>			
3442	Caljet	4.30	23.6
4175	SFPP LP	8.62	47.3
249	The Boeing Company	0.15	1.2
<b>Total Other Industrial Processes:</b>		13.06	72.1
<b>TOTAL: ALL INDUSTRIAL PROCESSES</b>		<b>82.07</b>	<b>565.5</b>
<b>MANUFACTURING PROCESSES:</b>			
<b>Electrical Equipment:</b>			
1875	Microchip Technology Inc.	0.06	0.3
<b>Fabricated Metal Products:</b>			
10211	Hexcel Corp.	10.13	77.9
<b>Secondary Metal Products:</b>			
354	Imsamet of Arizona	80.66	460.9
744	M. E. Global Inc.	52.24	401.1
403	VAW of America Inc.	2.62	16.8
<b>Total: Manufacturing: Secondary Metal Products:</b>		135.51	878.7
<b>Other:</b>			
819	TRW Vehicle Safety Systems Inc.	0.41	2.9
<b>TOTAL: ALL MANUFACTURING:</b>		<b>146.12</b>	<b>959.9</b>

† Source is outside the CO nonattainment area.

**Table 2.5–1. Annual and CO season-day point source emissions, by process type (continued).**

CATEGORY		Annual CO emissions (tons/yr)	Season-day CO emissions (lbs/day)
ID #	Business name		
<b>WASTE DISPOSAL:</b>			
<b>Landfills:</b>			
1218	Butterfield Station †	7.98	43.9
4173	Glendale Municipal Sanitary Landfill	1.67	12.9
27933	Skunk Creek Landfill	0.59	3.2
<b>Total: Landfills</b>		10.24	59.9
<b>Publicly Owned Treatment Works (POTWs):</b>			
1074	23rd Ave. Wastewater Treatment Plant	50.12	251.4
1075	91st Ave. Wastewater Treatment Plant	3.58	29.9
<b>Total: POTWs</b>		53.70	281.3
<b>Site Remediation:</b>			
3300	Luke Air Force Base	0.11	0.6
4175	SFPP LP	0.34	1.9
<b>Total Site Remediation:</b>		0.45	2.5
<b>TOTAL: ALL WASTE DISPOSAL:</b>		<b>64.40</b>	<b>343.7</b>
<b>TOTAL: ALL POINT SOURCES:</b>		<b>1,822.90</b>	<b>8,301.9</b>

† = Point source is outside the CO nonattainment area.

## 2.6 Summary of point source emissions

Table 2.6–1 provides an overview of source category contributions to total point source emissions.

**Table 2.6–1. Summary of annual and season-day point source emissions, by source category.**

Source category	Maricopa County		CO nonattainment area	
	Annual emissions (tons/yr)	Season-day emissions (lbs/day)	Annual emissions (tons/yr)	Season-day emissions (lbs/day)
Electricity generation	1,058.25	3,484.0	894.61	2,598.0
Commercial/institutional fuel combustion	45.63	329.9	45.63	329.9
Industrial fuel combustion	426.44	2,618.9	401.93	2,472.6
Industrial processes	82.07	565.5	82.07	565.5
Manufacturing processes	146.12	959.9	135.99	882.0
Waste disposal	64.40	343.7	56.41	299.9
<b>All point sources:</b>	<b>1,822.90</b>	<b>8,301.9</b>	<b>1,616.64</b>	<b>7,147.9</b>

## 2.7 Quality assurance / quality control procedures

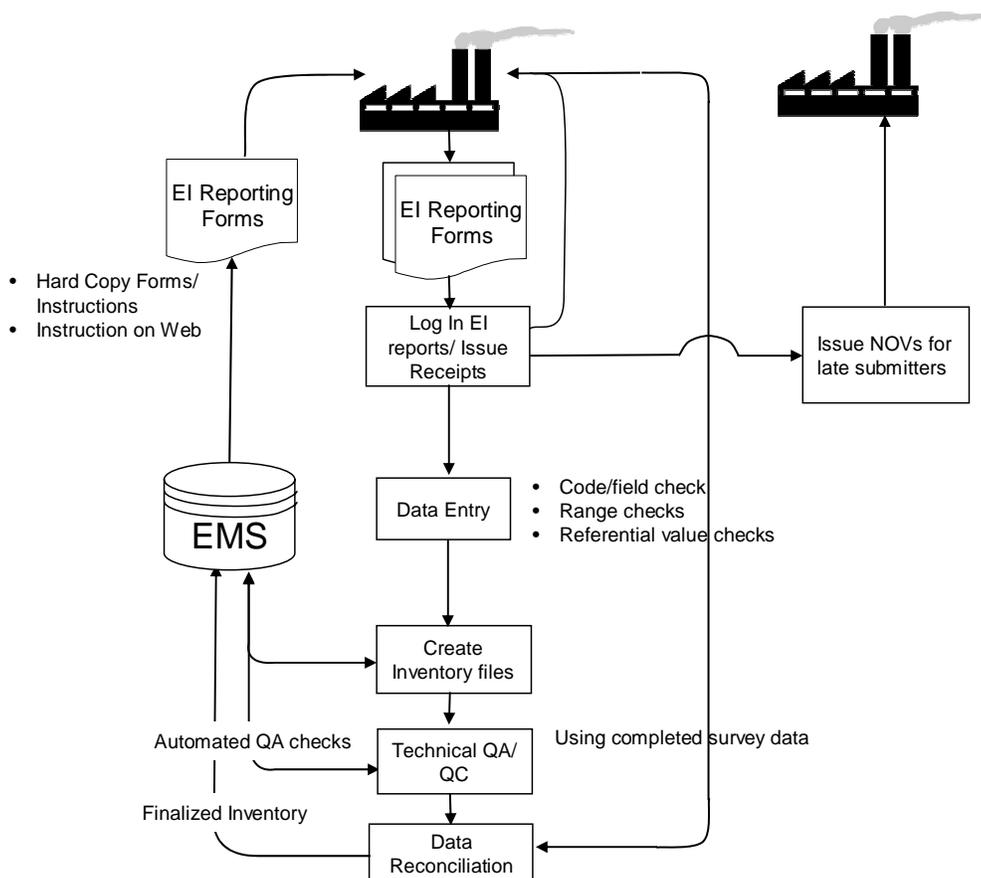
### 2.7.1 Emission survey preparation and data collection

The MCESD's Emissions Inventory (EI) Unit annually collects point source criteria pollutant emission data from sources in the county. MCESD annually reviews EPA guidance, documents from the Emission Inventory Improvement Program (EIIP), and other source materials to ensure that the most current emission factors and emission calculation methods are used for each year's survey. Each January, the EI Unit prepares a pre-populated hard copy of the preceding year's submissions and mails reporting forms to permitted sources, along with detailed instructions for completing the forms. (A copy of these instructions is included as Appendix 2.1). The EI Unit

asks sources to verify and update the data. The EI Unit also holds weekly workshops from January through April to assist businesses in completing EI forms.

The general data flow for data collection and inventory preparation is shown in Figure 2.7–1.

**Figure 2.7–1. Data flow for annual point source emission inventory reporting.**



### 2.7.2 Submission processing

Submitted EI reports are logged in as they are received, and receipts are issued for emissions fees paid. The data are input “as received” into the department's data base. During data entry, numerous automated quality control (QC) checks are performed, including:

- pull-down menus to minimize data entry errors (e.g., city, pollutant, emission factor unit, etc.)
- mandatory data field requirement checks (e.g., a warning screen appears if a user tries to save an emission record with a missing emission factor).
- range checks (e.g., were valid SCC, Tier, SIC, and NAICS codes entered?)
- referential value checks (e.g., emission factor units, annual throughput units)
- automatic formatting of date, time, telephone number fields, etc.

Automated quality assurance (QA) checks on the report that has been entered include the following:

- Comparing reported emission factors to SCC reference lists
- Comparing reported emission factors to material name reference list
- Checking the report for calculation errors. This includes annual throughput, emission factors, unit conversion factors (e.g., BTU to therms), capture efficiency, primary / secondary control device efficiency, and any offsite recycling credits claimed.
- Checking the report for completeness of required data.

When data entry is complete, an electronic version of the original data is preserved separately to document changes made during the technical review and QA/QC process.

When errors are flagged, the businesses are contacted and correct information is obtained and input to the EMS. Outstanding reporting issues are documented. Confidential business information (CBI) is identified by a checkbox on the form, and these data elements are flagged during data entry and are not transmitted to the EPA. To prepare the inventory for submittal to the National Emissions Inventory (NEI), the EI Unit runs Microsoft Access queries on the data in the EMS to pull fields for the NEI Input format (NIF) tables.

### ***2.7.3 Analysis of annual point source emissions data for this inventory***

Two environmental planners checked inventory accuracy and reasonableness, and assured that all point sources had been identified and that the methodology applied to calculate emissions was appropriate and that the calculations were correct. Other reasonableness checks were conducted by recalculating emissions using methods other than those used to make the initial emissions calculations and then comparing results. QA was conducted by checking all emissions reports submitted to MCESD for the year 2002 for missing and questionable data and by checking the accuracy and reasonableness of all emissions calculations made for such reports. Notes concerning follow-up calls and corrections to calculations were documented on each 2002 annual emissions report.

The QA point source coordinator reviewed checked calculations, identified errors, and performed completeness, reasonableness and accuracy checks.

## **2.8 References**

US EPA, 2003. 2002 National Emission Inventory (NEI) Preparation Plan (draft). USEPA Office of Air Quality Planning and Standards, Dec. 19, 2003. Available at: <http://www.epa.gov/ttn/chief/net/2002inventory.html>

