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 maintenance area as a commitment under the current CO State Implementation Plan (SIP), the federal Air Emission Reporting Requirements (AERR) 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 2008. This CO inventory was developed concurrently with similar inventories for ozone precursors (VOC, NO_x and CO), and PM (including PM_{10}, $PM_{2.5}$, NO_x, SO_x, and NH_3), 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" by adopting the designation of point sources as outlined in the AERR:

> *We are basing the requirement for point source format reporting on whether the source is major under 40 CFR part 70 for the pollutants for which reporting is required, i.e., CO, VOC, NO_x, SO_2, $PM_{2.5}$, PM_{10}, lead and NH_3 but without regard to emissions of HAPs…this approach will result in a more stable universe of reporting point sources, which in turn will facilitate elimination of overlaps and gaps in estimating point source emissions, as compared to nonpoint source emissions. Under this requirement, states will know well in advance of the start of the inventory year which sources will need to be reported. (US EPA, 2008)*

Additionally, EPA guidance requires emission inventories prepared for SIP development purposes to consider point sources within 25 miles of the CO maintenance area. No additional point sources met this reporting threshold.

This point source inventory includes actual CO emissions for the year 2008 and a typical day during the CO season (defined as November through January). A description and map of the maintenance area are provided in Chapter 1.

Several tables have been constructed to provide the point source emissions and category totals. Table 2.2–1 provides an alphabetical list of all point sources and their location, while Table 2.4–1 shows the 2008 annual and average CO season-day emissions broken out by facility. 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

The Maricopa County Air Quality Department (MCAQD) identified point sources within Maricopa County through its electronic permit system database, Environmental Management System (EMS), and the 2008 annual emissions reports submitted to the department. A total of 21 stationary sources were identified as point sources using the definition described in Section 2.1.

There are no additional point sources within the 25-mile boundary around the CO maintenance 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 contains an alphabetical listing of all point sources, including a unique business identification number, NAICS industry classification code, business name, and physical address.

Table 2.2–1. Name and location of all point sources in Maricopa County.

ID #	NAICS	Business name	Address	City	ZIP	
245	337122	AF Lorts Manufacturing Company	8120 W Harrison St	Tolleson	85353	
3313	221112	APS West Phx Power Plant	4606 W Hadley St	Phoenix	85043	
43063	221112	Dynegy Arlington Valley LLC	39027 W Elliot Rd	Arlington	85322	*
44439	221112	Gila River Power Station	1250 E Watermelon Rd	Gila Bend	85337	*
1418	326299	Goodrich Corporation	3414 S 5th St	Phoenix	85040	
355	336412	Honeywell-Engines Systems & Services	111 S 34th St	Phoenix	85034	
3300	92811	Luke AFB - 56th Fighter Wing	14002 W Marauder St	Glendale	85309	
62	33711	Mastercraft Cabinets Inc.	305 S Brooks	Mesa	85202	
44186	221112	Mesquite Generating Station	37625 W Elliot Rd	Arlington	85322	*
43530	221112	New Harquahala Generating Co	2530 N 491st Ave	Tonopah	85354	*
20706	32614	New Wincup Holdings, Inc.	7980 W Buckeye Rd	Phoenix	85043	
52382	221112	Ocotillo Power Plant	1500 E University Dr	Tempe	85281	
1341	33992	Penn Racquet Sports Inc.	306 S 45th Ave	Phoenix	85043	
42956	221112	Redhawk Generating Facility	11600 S 363rd Ave	Arlington	85322	*
303	332431	Rexam Beverage Can Company	211 N 51st Ave	Phoenix	85043	
3315	221112	Santan Generating Station	1005 S Val Vista Rd	Gilbert	85296	
4175	424710	SFPP LP Phoenix Terminal	49 N 53rd Ave	Phoenix	85043	
3316	221112	SRP Agua Fria Generating Station	7302 W Northern Ave	Glendale	85303	
3317	221112	SRP Kyrene Generating Station	7005 S Kyrene Rd	Tempe	85283	
552	337122	Thornwood Furniture Mfg	5125 E Madison St	Phoenix	85034	
174	325998	W. R. Meadows Of Arizona, Inc.	4220 S Sarival Ave	Goodyear	85338	

* = Facility is outside the CO maintenance area.

2.3 Procedures for estimating emissions from point sources

Both annual and average season-day CO emissions were estimated from annual source emission reports, MCAQD 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.

MCAQD distributes annual emissions survey forms to nearly all facilities for which MCAQD 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 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 MCAQD. 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 MCAQD, 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 (*webFIRE*) software, and other EPA documentation. Control efficiencies are determined by source tests when available, or by AP–42 factors, engineering calculations, or manufacturers' specifications. MCAQD 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 Application of rule effectiveness

Rule effectiveness reflects the actual ability of a regulatory program to achieve the emission reductions required by regulation. The concept of applying rule effectiveness in a SIP emission inventory has evolved from the observation that regulatory programs may be less than 100 percent effective for some source categories. Rule effectiveness (RE) is applied to those sources affected by a regulation and for which emissions are determined by means of emission factors and control efficiency estimates.

MCAQD has estimated RE for industrial processes that claimed emissions reductions through the use of a control device, RE calculations were performed separately for Title V and non-Title V sources. Overall RE values of 90.94% (for Title V processes) and 84.27% (for non-Title V) were calculated. (See Appendix 2 for details on the methods and data used in computing RE rates.)

2.4 Detailed overview of point source emissions

Table 2.4–1 provides a summary of annual and CO season-day emissions from all point sources, within and outside the CO maintenance area. Sources for which rule effectiveness has been applied (for CO emissions) are noted. Values of “0.00” and “0.0” for annual and season-day emissions denote a value below the level of significance (0.005 tons/yr and 0.05 lbs/day, respectively).

Table 2.4–1. Annual and CO season-day point source emissions, by facility.

ID #	Business name	City	Annual CO emissions (tons/yr)	Season-day CO emissions (lbs/day)
245	AF Lorts Manufacturing Company	Tolleson	0.0	0.06
3313	APS West Phx Power Plant	Phoenix	72.2	372.60
43063	Dynegy Arlington Valley LLC	Arlington *	41.5	97.98
44439	Gila River Power Station	Gila Bend * †	84.8	415.40
1418	Goodrich Corporation	Phoenix †	0.2	2.96
355	Honeywell-Engines Systems & Services	Phoenix	18.8	103.35
3300	Luke AFB - 56th Fighter Wing	Glendale	4.9	40.73
62	Mastercraft Cabinets Inc.	Mesa	0.0	0.68
44186	Mesquite Generating Station	Arlington * †	21.2	126.08
43530	New Harquahala Generating Co	Tonopah *	55.4	304.15
20706	New Wincup Holdings, Inc.	Phoenix	10.4	61.93
52382	Ocotillo Power Plant	Tempe	12.9	25.04
1341	Penn Racquet Sports Inc.	Phoenix	2.9	23.49
42956	Redhawk Generating Facility	Arlington *	163.4	716.74
303	Rexam Beverage Can Company	Phoenix	3.7	20.24
3315	Santan Generating Station	Gilbert	130.7	637.81
4175	SFPP LP Phoenix Terminal	Phoenix	9.6	52.73
3316	SRP Agua Fria Generating Station	Glendale	80.6	92.31
3317	SRP Kyrene Generating Station	Tempe	11.7	67.83
552	Thornwood Furniture Mfg	Phoenix	0.5	4.06
174	W. R. Meadows Of Arizona, Inc.	Goodyear	0.1	1.24

† = Facility is outside the CO maintenance area.
* = Facility for which rule effectiveness has been applied.

2.5 Emission reduction credits

A major source or major modification planned in a maintenance 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 2.5–1 provides a list of emission reduction credits for carbon monoxide. One previously operational facility maintains emission reduction credits in the Arizona Emissions Bank (http://www.azdeq.gov/environ/air/permits/eb.html) that is still valid for inclusion in this report.

Table 2.5–1. CO emission reduction credits.

ID	Facility Name	Emission Reduction Credits (tons)
1151	Freescale Semiconductor, Inc. (formerly Motorola Mesa)	12.5

2.6 Summary of point source emissions

Table 2.6–1 provides an overview of point source emissions for Maricopa County and the CO maintenance area.

Table 2.6–1. Annual and season-day point source CO emissions (including emission reduction credits).

Geographic area	Annual CO emissions (tons/yr)	Season-day CO emissions (lbs/day)
Maricopa County	738.04	3,235.7
CO Maintenance Area	371.77	1,575.4

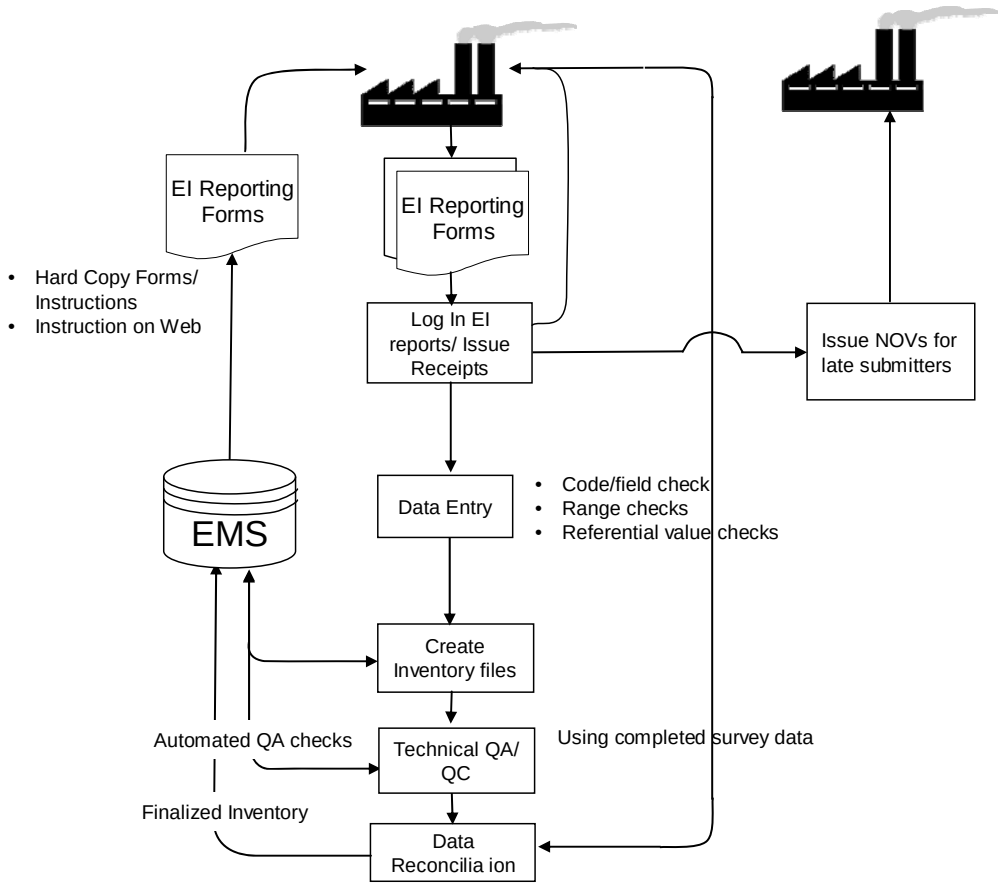
2.7 Quality assurance / quality control procedures

2.7.1 Emission survey preparation and data collection

The MCAQD's Emissions Inventory (EI) Unit annually collects point source criteria pollutant emission data from sources in the county. MCAQD 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 1). The EI Unit asks sources to verify and update the data. The EI Unit also holds periodic 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 MCAQD for the year 2008 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 2008 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, 2008. Air Emissions Reporting Requirements. 73 Fed. Reg. 76539. Available at: http://www.epa.gov/ttn/chief/aerr/final_published_aerr.pdf.