1.0 OVERVIEW

1.1 PURPOSE OF CAM

Compliance assurance monitoring (CAM) is intended to provide a reasonable assurance of compliance with applicable requirements under the Clean Air Act (CAA) for large emission units that rely on pollution control device equipment to achieve compliance. Monitoring is conducted to determine that control measures, once installed or otherwise employed, are properly operated and maintained so that they continue to achieve a level of control that complies with applicable requirements. The CAM approach establishes monitoring for the purpose of: (1) documenting continued operation of the control measures within ranges of specified indicators of performance (such as emissions, control device parameters, and process parameters) that are designed to provide a reasonable assurance of compliance with applicable requirements; (2) indicating any excursions from these ranges; and (3) responding to the data so that the cause or causes of the excursions are corrected.

1.2 CAM PROCESS

This section provides an overview of the process of implementing CAM. The overall process can be represented by four major steps: (1) CAM applicability determination, (2) CAM submittal, (3) review and approval of CAM submittal, and (4) CAM implementation. The following paragraphs describe each of these four major steps of the CAM process in more detail. Figure 1-1 presents a flow diagram for this process. The important steps and decision blocks in these figures are labeled with a number enclosed in brackets (e.g., **[23]**) that is cross-referenced to the description of the CAM process that follows.

1.2.1 Applicability Determination

The first major step in the CAM process is the determination of the applicability of CAM **[1]** to each pollutant-specific emissions unit (hereafter referred to as "emissions unit," or simply "unit"). Section 64.2 of the CAM rule specifies the criteria for making this determination, and Table 1-1 summarizes the applicability requirements for Part 64. If the unit satisfies all of the applicability requirements listed in Table 1-1, the unit is subject to CAM. Otherwise, Part 64 does not apply to the emissions unit. Essentially, for a unit to be subject to Part 64, the unit must: be located at a major source for which a Part 70 or 71 permit is required; be subject to an emission limitation or standard; use a control device to achieve compliance; have potential precontrol emissions of at least 100 percent of the major source amount; and must not otherwise be exempt from CAM. If the unit does not meet all of these requirements, the unit is not subject to CAM **[2]**. It should be emphasized that the applicability determination is made on a pollutant-by-pollutant basis for each emissions unit.

The term "emission limit or standard" is defined in § 64.1 to mean any applicable requirement that constitutes an emission limitation, emission standard, standard of performance, or means of emission limitation as defined under the Act. Part 64 states that the term "applicable requirement," shall have the same meaning as provided under Part 70. Therefore, Part 64 establishes that only those emission limitations or standards that are applicable requirements as defined in Part 70 and included as Federally enforceable permit conditions in a Part 70 permit are subject to the requirements of Part 64. Additional language in the Part 64 definition of "emission limitation or standard" clarifies that, for the purposes of Part 64, the definition of "emission limitation or standard" does not include general operation requirements that an owner or operator may be required to meet, such as requirements to obtain a permit, to operate and maintain sources in accordance with good air pollution control practices, to develop and maintain a malfunction abatement plan, or to conduct monitoring, submit reports or keep records. The complete definition of a major source is provided in Figure 1-2.

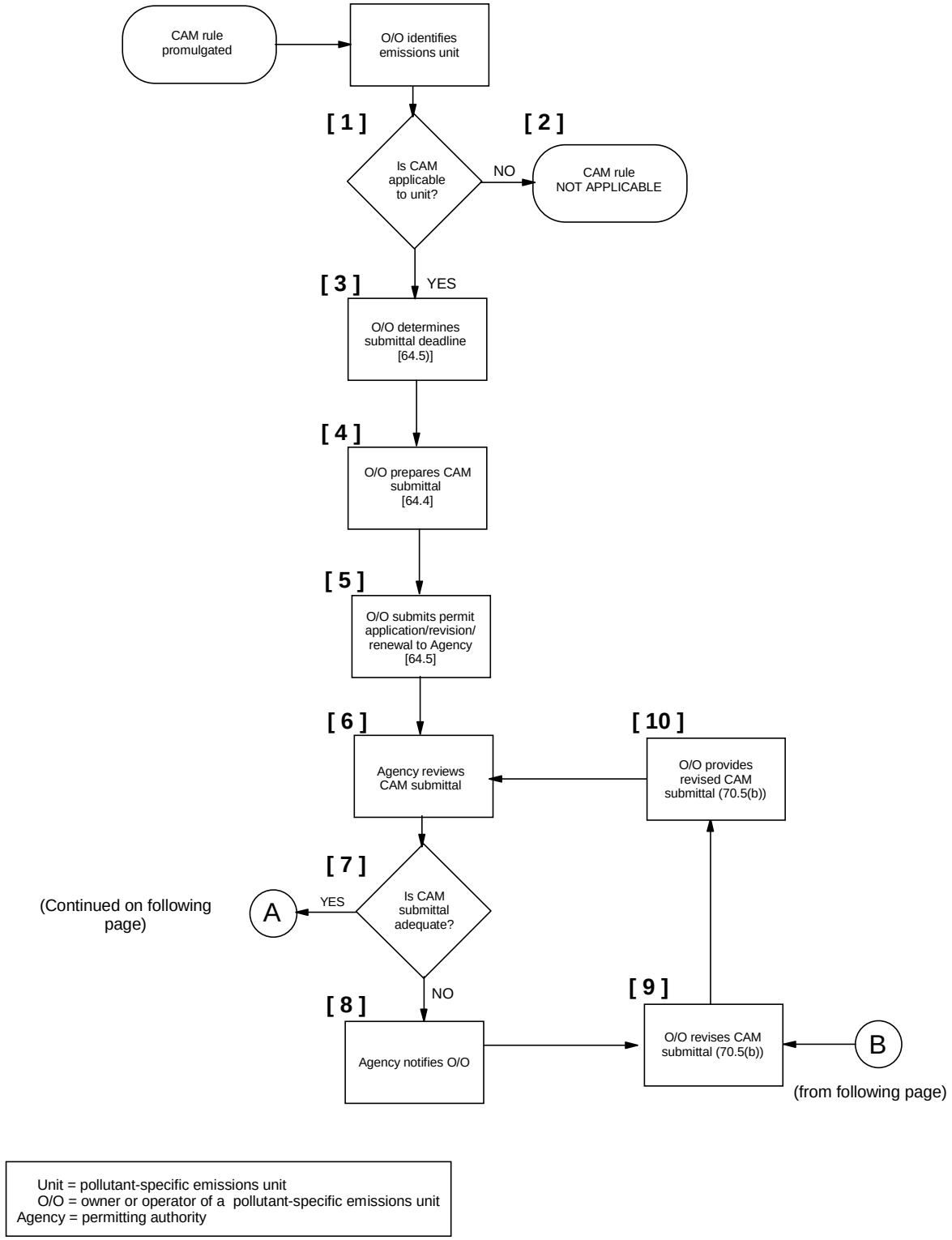

Figure 1-1. Flow diagram for CAM process.

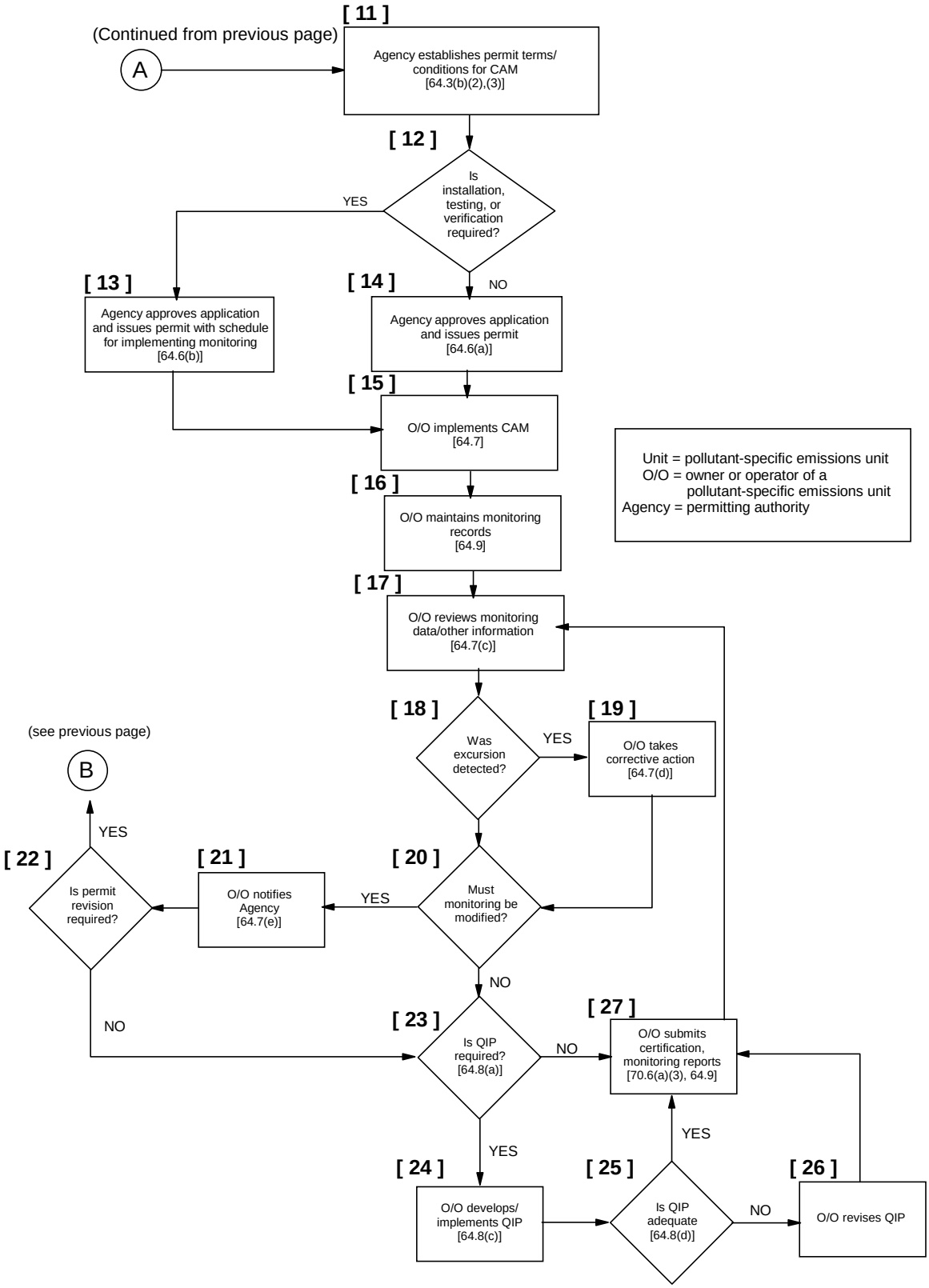

Figure 1-1. (continued)

TABLE 1-1. APPLICABILITY REQUIREMENTS FOR CAM

Part 64 reference	Requirement
§ 64.2(a)	Unit is located at major source that is required to obtain Part 70 or 71 permit
§ 64.2(a)(1)	Unit is subject to emission limitation or standard for the applicable pollutant
§ 64.2(a)(2)	Unit uses a control device to achieve compliance (See § 64.1 for definition of control device.)
§ 64.2(a)(3)	Potential precontrol emissions of applicable pollutant from unit are at least 100 percent of major source amount
§ 64.2(a)(b)	Unit is not otherwise exempt (See Table 1-2 for list of specific exemptions.)

Major source means any stationary source (or any group of stationary sources that are located on one or more contiguous or adjacent properties, and are under common control of the same person (or persons under common control) belonging to a single major industrial grouping and that are described in paragraph (1), (2), or (3) of this definition. For the purposes of defining "major source," a stationary source or group of stationary sources shall be considered part of a single industrial grouping if all of the pollutant emitting activities at such source or group of sources on contiguous or adjacent properties belong to the same Major Group (i.e., all have the same two-digit code) as described in the Standard Industrial Classification Manual, 1987.

(1) A major source under Section 112 of the Act, which is defined as:

(I) For pollutants other than radionuclides, any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit, in the aggregate, 10 tons per year (tons/yr) or more of any hazardous air pollutant which has been listed pursuant to Section 112(b) of the Act, 25 tons/yr or more of any combination of such hazardous air pollutants, or such lesser quantity as the Administrator may establish by rule. Notwithstanding the preceding sentence, emissions from any oil or gas exploration or production well (with its associated equipment) and emissions from any pipeline compressor or pump station shall not be aggregated with emissions from other similar units, whether or not such units are in a contiguous area or under common control, to determine whether such units or stations are major sources; or

(ii) For radionuclides, "major source" shall have the meaning specified by the Administrator by rule.

(2) A major stationary source of air pollutants, as defined in Section 302 of the Act, that directly emits or has the potential to emit, 100 tons/yr or more of any air pollutant (including any major source of fugitive emissions of any such pollutant, as determined by rule by the Administrator). The fugitive emissions of a stationary source shall not be considered in determining whether it is a major stationary source for the purposes of Section 302(j) of the Act, unless the source belongs to one of the following categories of stationary source:

(I) Coal cleaning plants (with thermal dryers);
(ii) Kraft pulp mills;
(iii) Portland cement plants;
(iv) Primary zinc smelters;
(v) Iron and steel mills;
(vi) Primary aluminum ore reduction plants;
(vii) Primary copper smelters;
(viii) Municipal incinerators capable of charging more than 250 tons of refuse per day;
(ix) Hydrofluoric, sulfuric, or nitric acid plants;
(x) Petroleum refineries;
(xi) Lime plants;
(xii) Phosphate rock processing plants;

Figure 1-2. Definition of major source.

(xiii) Coke oven batteries
(xiv) Sulfur recovery plants;
(xv) Carbon black plants (furnace process);
(xvi) Primary lead smelters;
(xvii) Fuel conversion plants;
(xviii) Sintering plants;
(xix) Secondary metal production plants;
(xx) Chemical process plants;
(xxi) Fossil-fuel boilers (or combination thereof) totaling more than 250 million British thermal units per hour heat input;
(xxii) Petroleum storage and transfer units with a total storage capacity exceeding 3,000,000 barrels;
(xxiii) Taconite ore processing plants;
(xxiv) Glass fiber processing plants;
(xxv) Charcoal production plants;
(xxvi) Fossil-fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input; or
(xxvii) All other stationary source categories regulated by a standard promulgated under Section 111 of 112 of the Act, but only with respect to those air pollutants that have been regulated for that category;

(3) A major stationary source as defined in Part D of title I of the Act, including:

(I) For ozone nonattainment areas, sources with the potential to emit 100 tons/yr or more of volatile organic compounds or oxides of nitrogen in areas classified as “marginal” or “moderate,” 50 tons/yr or more in areas classified as “serious,” 25 tons/yr or more in areas classified as “severe,” and 10 tons/yr or more in areas classified as “extreme”; except that the references in this paragraph to 100, 50, 25 and 10 tons/yr of nitrogen oxides shall not apply with respect to any source for which the Administrator has made a finding, under Section 182(f) (1) or (2) of the Act, that requirements under Section 182(f) of the Act do not apply;

(ii) For ozone transport regions established pursuant to Section 184 of the Act, sources with the potential to emit 50 tons/yr or more of volatile organic compounds;

(iii) For carbon monoxide nonattainment areas:

(A) That are classified as “serious,” and

(B) in which stationary sources contribute significantly to carbon monoxide levels as determined under rules issued by the Administrator, sources with the potential to emit 50 tons/yr or more of carbon monoxide; and

(iv) For particulate matter (PM-10) nonattainment areas classified as “serious,” sources with the potential to emit 70 tons/yr or more of PM-10.

Figure 1-2. (continued)

Section 64.1 defines the term "control device" as it pertains to the CAM rule. The following sections discuss procedures for estimating potential precontrol device emissions and exemptions to CAM, respectively.

1.2.1.1 Estimating Potential Precontrol Device Emissions

In order to determine the applicability of Part 64, owners and operators of emissions units that may be subject to the CAM rule must estimate potential precontrol device emission rates for the regulated pollutant (§ 64.2). The two basic approaches to performing this estimate are based on: (1) the controlled potential to emit and the control device efficiency for the subject emissions unit; or (2) uncontrolled emission test data from measurements taken prior to the control device inlet or uncontrolled emission factors. Guidance on estimating potential to emit is provided in the *White Paper for Streamlined Development of Part 70 Permit Applications* (White Paper No. 1), published by EPA in July 1995. White Paper No. 1 specifies the types of information that can be used to estimate potential to emit. These types of information, which also are recommended as the basis for estimating potential precontrol device emissions, include the following:

1. Emission test data;
2. Emission factors published in EPA documents and data bases such as *Compilation of Air Pollutant Emission Factors* (AP-42), the locating and estimating (L&E) documents, and the factor information and retrieval (FIRE) data base;
3. Emission factors from other publications, such as the *Air Pollution Engineering Manual* and vendor literature;
4. Emission factors developed by State and local regulatory agencies; and
5. Reasonable engineering estimates, such as mass balances.

As stated previously, the first approach to estimating potential precontrol device emissions uses the potential to emit and the control device control efficiency for the subject control device. The information sources listed above provide control device efficiencies explicitly and/or information that can be used to estimate control device efficiency. For example, for many types of emissions units, AP-42 provides both controlled and uncontrolled emission factors, from which control efficiencies can be calculated. The second approach to estimating potential precontrol device emissions requires test data on uncontrolled emissions or the emission factor for uncontrolled emissions and the annual production rates used to calculate the potential to emit for the subject emissions unit.

In general, the use of available information is adequate for estimating potential emissions. Although emissions test data would be useful for estimating potential precontrol device emissions, conducting emissions tests for the sole purpose of making an applicability

determination is not expected. Figure 1-3 provides examples of how precontrol device emissions can be estimated. Figure 1-4 lists some technical references that may be useful for estimating emissions for the purpose of determining CAM applicability.

1.2.1.2 Exemptions to Part 64

Section 64.2(b) lists several specific exemptions to the CAM rule. These exemptions are summarized in Table 1-2. First, certain emission limitations or standards are exempted, including: new source performance standards (NSPS) or national emission standards for hazardous air pollutants (NESHAP) proposed after November 15, 1990, stratospheric ozone requirements, Acid Rain Program requirements, requirements that apply solely under an emissions trading program that allows emission credit trading or selling, requirements that cap total emissions in accordance with § 70.4(b)(12), and limits or standards for which the Part 70 or 71 permit specifies a continuous compliance determination method that does not use an assumed control factor.

Table 1-3 includes NSPS and NESHAP proposed after November 15, 1990. This table does not include rules that were amended after Nov. 15, 1990. It includes only those NSPS and NESHAP with an original proposal date after Nov. 15, 1990. Whether emission standards amended after Nov. 15, 1990 are exempt from CAM would depend on the nature of the amendment and whether the amended rule includes monitoring requirements that satisfy CAM. Currently, only one such rule has been identified. An amendment to subpart L of Part 61 (National Emission Standard for Benzene Emissions from Coke By-Product Recovery Plants) was published in the *Federal Register* on September 19, 1991, that added provisions for the use of carbon adsorbers and vapor incinerators as alternative means of complying with the standards for process vessels, storage tanks, and tar-intercepting sumps. The added provisions include testing, monitoring, recordkeeping, and reporting requirements for the alternative controls. Therefore, emissions units subject to the amended part of this rule are exempt from the CAM rule.

The term “continuous compliance determination method” is defined in § 64.1 of the rule. A continuous compliance determination method is a method which (1) is used to determine compliance with an emission limitation or standard on a continuous basis, consistent with the averaging period established for the emission limitation or standard, and (2) either provides data in units of the standard or is correlated directly with the compliance limit. Table 1-4 lists examples of continuous compliance determination methods and identifies some specific regulations that incorporate these continuous compliance determination methods. Note that for a monitoring method to be a continuous compliance method it must incorporate items (1) and (2)

identified above (and specified in the Part 64 definition of continuous compliance determination); the examples cited in Table 1-4 incorporate these two items. If a unit is subject to both exempt and nonexempt emission limitations or standards, Part 64 still applies to the unit.

Second, § 64.2(b)(2) exempts backup utility power emissions units that are owned by a municipality and for which the owner or operator provides documentation in the Part 70 or 71 permit application that: the unit is exempt from all Part 75 monitoring requirements; the unit is operated solely to provide electricity during peak demand or emergency periods; and the average annual emissions for the three previous years is less than 50 percent of the major source amount and emissions are expected to remain below the 50 percent level.

EXAMPLE I:	**Potential Precontrol Device Emissions Based on Potential to Emit and Estimated Control Efficiency**
Emissions unit:	Container glass melting furnace
Control device:	Venturi scrubber
Pollutant:	SO_2
Potential to emit:	10.6 tons/yr (based on title V applicability determination for subject emissions unit)
Control efficiency:	94 % (based on AP-42, Table 11.15-1)
Potential precontrol device emissions	10.6 × 100/(100-94) = 177 tons/yr
EXAMPLE II:	**Potential Precontrol Device Emissions Based on Uncontrolled Emission Factor From AP-42**
Emissions unit:	Hot mix asphalt dryer, drum mix process
Control device:	Fabric filter
Pollutant:	PM-10
Basis for potential to emit:	
Production rate:	210 tons/hr
Operating capacity:	8,760 hr/yr
Uncontrolled emission factor:	4.3 lb/ton (AP-42, Table 11.1-5)
Potential precontrol device emissions:	210 × 8,760 × 4.3 = 7,910,000 lb = 3,960 tons/yr

Figure 1-3. Examples of potential precontrol device emission estimates.

For potential to emit:

1. *White Paper for Streamlined Development of Part 70 Permit Applications*, U. S. Environmental Protection Agency, Research Triangle Park, NC, July 10, 1995.

For emission factors and control efficiencies:

1. *Compilation of Air Pollutant Emission Factors, Volume I: Stationary Point and Area Sources, AP-42, Fifth Edition*, U. S. Environmental Protection Agency, Research Triangle Park, NC, January 1995.
2. Buonicore, A. and W. Davis (ed.), *Air Pollution Engineering Manual*, Air and Waste Management Association, Van Nostrand Reinhold, New York, NY, 1992.
3. *APTI Course 413, Control of Particulate Emissions, Student Manual*, EPA 450/2-80-086, U. S. Environmental Protection Agency, Research Triangle Park, NC, October 1981.
4. *APTI Course 415, Control of Gaseous Emissions, Student Manual*, EPA 450/2-81-005, U. S. Environmental Protection Agency, Research Triangle Park, NC, December 1981.
5. *APTI Course SI: 431, Air Pollution Control Systems for Selected Industries, Self-Instructional Guidebook*, EPA 450/2-82-006, U. S. Environmental Protection Agency, Research Triangle Park, NC, June 1983.

Figure 1-4. Useful references for estimating potential precontrol device emissions.

TABLE 1-2. SUMMARY OF CAM RULE EXEMPTIONS

Part 64 reference	
EXEMPTED EMISSION LIMITATIONS OR STANDARDS[a]	
§ 64.2(b)(1)(I)	Post-11/15/90 NSPS or NESHAP (see Table 1-3)
§ 64.2(b)(1)(ii)	Stratospheric ozone protection requirements
§ 64.2(b)(1)(iii)	Acid Rain Program requirements
§ 64.2(b)(1)(iv)	Emission limitations, standards, or other requirements that apply solely under an approved emission trading program
§ 64.2(b)(1)(v)	Emissions cap that meets requirements of § 70.4 (b) (12)
§ 64.2(b)(1)(vi)	Emission limitations or standards for which a Part 70 or 71 permit specifies a continuous compliance determination method that does not use an assumed control factor (see Table 1-4 for examples.)
EXEMPTED EMISSIONS UNITS	
§ 64.2 (c) (2)	Backup utility power units that: • are owned by a municipality; • are exempt from all monitoring requirements in Part 75; • are operated solely for providing electricity during peak periods or emergency situations; and • for which actual emissions for the previous 3 years are less than 50 percent of the major source cutoff and are expected to remain so.

[a]Note: If nonexempt emission limitations or standards apply to the emissions unit, the unit is not exempt.

TABLE 1-3. PART 60 AND 63 RULES PROPOSED AFTER NOVEMBER 15, 1990

Source category	Subpart	Affected facility
New Source Performance Standards--40 CFR 60		
Municipal Solid Waste Landfills	Cc	Existing landfills
Municipal Waste Combustor Emissions	Cb, Eb	Medical waste combustors
Medical Waste Incinerators	Ec, Ce	Medical waste incinerators
Phosphate Fertilizer Industry	X	Granular triple superphosphate production
Municipal Solid Waste Landfills	WWW	New, modified MSW Landfills
SOCMI Wastewater	YYY	New, modified, and reconstructed facilities
National Emission Standards for Hazardous Air Pollutants–40 CFR 63		
HON	F,G,H,I, J, K	Process vents storage vessels, transfer racks, wastewater streams, and equipment leaks used to produce one or more of 396 SOCMI chemicals
Coke Oven Batteries and Source Categories	L	Coke Oven Batteries
Dry Cleaning	M	Dry Cleaning Machines (at major and area sources)
Chromium Electroplating	N	Electroplating or Anodizing Tank
Ethylene Oxide	O	Ethylene Oxide Sterilizers and Fumigators
Sterilizers Industrial Process Cooling Towers	Q	Industrial Process Cooling Towers using Chromium
Gasoline Distribution	R	Total Bulk Terminal and Breakout Station
Pulp and Paper	S	Pulp and Paper and Paperboard
Halogenated Solvent Cleaning	A,T	Halogenated Solvent Cleaning Machines at Major and Area Sources
Polymers and Resins Group I	U	Existing and new facilities that manufacture elastomers
Epoxy Resins Production and Non-nylon Polyamides Production	W	Existing and new facilities that manufacture polymers and resins
Secondary Lead Smelters	X	New and existing sec. lead smelters
Marine Tank Vessel Loading and Unloading Operations	Y	New and existing marine tank vessel loading and unloading operations
Phosphoric Acid Manufacturing and Phosphate Fertilizers Production	AA	New and existing major sources in phosphoric acid manufacturing and phosphate fertilizer production plants
Petroleum Refineries	CC	Petroleum Refinery Processes
Offsite Waste Recovery Operations	DD	Offsite Waste and Recovery Operations

TABLE 1-3. (CONTINUED)

Source category	Subpart	Affected facility
Magnetic Tape Manufacturing Operations	EE	Magnetic Tape Products
Aerospace Manufacturing and Rework	GG	New and existing commercial, civil, and military aerospace OEM and rework facilities that are major sources of HAPS
Shipbuilding and Ship Repair	II	Surface coating operations from new or existing shipbuilding or ship repair facilities
Wood Furniture	JJ	Existing and new wood furniture mfg. operations
Printing and Publishing	KK	Existing and new sources
Primary Aluminum Reduction Plants	LL	New or existing potline paste production operation, and anode bake furnace
Steel Pickling	CCC	New and existing facilities that pickle steel using acid
Mineral Wool	DDD	New or existing sources in mineral wool production plants
Flexible Polyurethane Foam Production	lll	New and existing major sources of HAP; applies to manufacture of molded, slabstock, and rebond foam
Pharmaceuticals	GGG	HAPS from new and existing facilities that manufacture pharmaceuticals
Polymers and Resins IV	JJJ	Existing and new facilities that manufacture one or more Group IV polymers and resins
Pesticide Active Ingredient Production	MMM	New and existing facilities that manufacture Pesticide Active Ingredients (PAI)
Wool Fiberlgass	NNN	New and existing sources in wool fiberglass
Polyether Polyols Production	PPP	Existing and new facilities that manufacture Polyether polyols located at major source plant sites.

Note: This table does not include rules that were amended after Nov. 15, 1990. It includes only those NESHAP and NSPS with an original proposal date after Nov. 15, 1990. Whether emission limitations or standards amended after Nov. 15, 1990 are exempt from CAM would depend on the nature of the amendment and whether the amended rule includes monitoring requirements that satisfy CAM. See Chapter 3 for a discussion of presumptively acceptable CAM.

TABLE 1-4. EXAMPLES OF CONTINUOUS COMPLIANCE DETERMINATION METHODS

Monitoring method	Specific example
Continuous emission monitoring systems (CEMS) which are used to determine compliance with an emission limitation or standard on a continuous basis, consistent with the averaging period established for the emission limitation or standard and provide data in units of the standard	NO_x and SO_2 CEMS specified in Part 60 subpart Da, Standards of Performance for Electric Utility Steam Generating Units for which Construction is Commenced after September 18, 1978 NO_x and SO_2 CEMS specified in Part 60, subpart Db, Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units NO_x CEMS specified in Part 60, subpart Dc, Standards of Performance for Small-Industrial-Commercial-Institutional Steam Generating Units NO_x and SO_2, and CO CEMS specified in Part 60, subpart Ea, Standards of Performance for Municipal Waste Combustors SO_2 CEMS for Fluid Catalytic Cracking Units Regenerators specified in Part 60, subpart J, Standards of Performance for Petroleum Refineries.

1.2.2 CAM Submittals

The next major step is the preparation and submittal of the required information for CAM. However, before preparing the submittals, owners or operators of affected units should determine the submittal date for units that are subject to CAM **[3]**. Deadlines for CAM submittals are addressed in § 64.5. In specifying submittal deadlines, the CAM rule distinguishes between large emissions units and other units. Large units are those with the (postcontrol) potential to emit the applicable pollutant at least 100 percent of the major source amount. Beginning April 20, 1998, owners or operators of large units that are subject to Part 64 must submit the required information as part of the application of a Part 70 or 71 permit if, by that date, the application has not been filed or has not yet been determined to be complete. In addition, beginning that same date, if the owner or operator of a large unit is required to submit a significant permit revision for that unit, the CAM submittal for that unit must be submitted as part of the permit revision application. For all other large units and for all other affected emission units, CAM submittals are to be included with the renewal of the Part 70 or 71 permit for the unit. Section 64.5(b) further specifies that a permit reopening is not required to submit the information required by Part 64. However, if the permit is reopened for cause by EPA or the

permitting authority, the applicable agency may require the submittal of information for CAM as part of the permit reopening process.

Section 64.4 (a) requires owners or operators of affected units to prepare **[4]** and submit **[5]** several items that define the monitoring procedures that will be used to comply with the rule. Table 1-5 summarizes these required submittal items. Chapter 2 of this document describes the contents of CAM monitoring approach submittals and provides additional details on CAM submittal requirements; several example submittals are provided in Appendix A.

1.2.3 Review and Approval of CAM Submittal

As part of the process of issuing or denying Part 70 or 71 permit applications, the permitting authority reviews the CAM submittal (§ 64.6) **[6]**. To process the CAM submittal, the permitting authority follows the procedures specified in § 70.5 for Part 70 permit applications. First, the CAM submittal is reviewed for completeness and adequacy **[7]**. If additional information is needed or corrections are required, the permitting authority notifies the owner or operator **[8]**. Section 70.5(b) requires the owner or operator of the unit to revise or supplement the CAM submittal **[9]** and "promptly" provide the additional or revised information to the permitting authority **[10]**. Once the CAM submittal is determined to be acceptable, the permitting authority establishes permit terms or conditions for the affected emissions unit **[11]**. Table 1-6 summarizes the requirements that must, at a minimum, be specified in the permit.

If the monitoring proposed for the affected emissions unit requires installation, testing, or final verification of operational status **[12]**, the permitting authority may issue a permit with a schedule for completing the installation and testing, establishing applicable indicator ranges, or completing other required activities **[13]**.

1.2.4 CAM Implementation

Following approval and incorporation of the CAM requirements in the Part 70 or 71 permit **[13, 14]**, owners and operators of affected units must implement the monitoring **[15]** upon issuance of the permit, unless the permit specifies a later date (§ 64.7(a)). In such cases, monitoring must be implemented by the specified date. With the exception of periods when the monitoring system is under repair, maintenance, or QA/QC procedures, the monitoring must be conducted continuously or intermittently, as specified in the permit, during all periods when the emissions unit is in operation. In addition, § 64.7(b) requires owners and operators of units subject to CAM to maintain spare parts for routine repairs of monitoring instruments and equipment. Spare parts may be maintained by local vendors if there is no significant impact on immediate availability.

TABLE 1-5. SUMMARY OF SUBMITTAL REQUIREMENTS FOR CAM

Part 64 reference	Requirement[a]
§ 64.4(a)	Information on indicators, indicator ranges or process by which indicators are to be established, and performance criteria
§ 64.4(b)	Justification for the proposed elements of the monitoring
§ 64.4(c)	Control device operating data recorded during performance test, supplemented by engineering assessments or manufacturer's recommendations to justify the proposed indicator range
§ 64.4(d)	Test plan and schedule for obtaining data, if performance test data are not available
§ 64.4(e)	Implementation plan, if monitoring requires installation, testing, or other activities prior to implementation

[a] Sections 64.4 (f) and (g) do not specify additional items to be submitted, but allow owners and operators of affected units to provide one submittal for multiple units that are served by a single control device, and one submittal for an emission unit that is served by multiple control devices.

TABLE 1-6. SUMMARY OF REQUIRED PERMIT CONDITIONS OR TERMS

Part 64 reference	Requirement
§ 64.6(c)(1)	The approved monitoring approach, including the indicators to be monitored, the method of measuring the indicators, and the performance criteria specified in § 64.3 of the CAM rule
§ 64.6(c)(2)	The means of defining exceedances or excursions, the level which constitutes an exceedance or excursion or the means by which that level will be defined, the averaging period that associated with exceedances or excursions, and the procedures for notifying the permitting authority of the establishment or reestablishment of any exceedance or excursion level
§ 64.6(c)(3)	The obligation to conduct monitoring and satisfy the requirements of the §§ 64.7 through 64.9
§ 64.6(c)(4)	If appropriate, the minimum data availability requirement for valid data collection for each averaging period and, if appropriate, the minimum data availability requirement for the averaging periods in a reporting period

Section 64.9 specifies the reporting and recordkeeping requirements for CAM **[16]**. Monitoring reports must be submitted and records must be maintained in accordance with § 70.6(a)(3)(iii). As an alternative to paper records, § 64.9(b)(2) allows owners and operators of affected units to maintain records on alternate media, such as microfilm, computer files, magnetic tape disks, or microfiche provided that the records are readily accessible and the use of

such alternative media does not conflict with other recordkeeping requirements. Table 1-7 summarizes the reporting and recordkeeping requirements for CAM.

As CAM is implemented, owners and operators of affected emissions units periodically should review the monitoring data **[17]** to determine the need for additional measures to assure compliance with the applicable emission standards or limits. If an excursion or exceedance is detected **[18]**, the owner or operator must take the corrective actions **[19]** necessary to return the emissions unit and control system to normal operation and minimize the likelihood that similar excursions or exceedances recur. If the owner or operator determines that deviations occurred that the monitoring did not indicate as an excursion or exceedance, or the results of a subsequent compliance test indicate that the indicator ranges must be modified **[20]**, § 64.7(e) requires the owner or operator of the emissions unit to notify the permitting authority promptly **[21]**. If a permit revision is required **[22]**, the owner or operator of the unit must identify proposed revisions to the CAM submittal **[9]** and submit the proposed revisions to the permitting authority **[10]** for review and approval prior to implementing the plan.

After reviewing the report of excursions or exceedances, subsequent corrective actions taken, monitoring data, and other relevant information, the permitting authority or Administrator may require **[23]** the source to develop and implement a QIP **[24]**. In some cases, the Part 70 or 71 permit also may specify the threshold for requiring a source to implement a QIP. Quality improvement plans are discussed in Section 3.4 of this document.

If required by the permitting authority, owners or operators of affected units may be required to maintain written QIP's on file for inspection and review. When a QIP is required, owners or operators must develop and implement the QIP as quickly as possible and must notify the permitting authority if more than 180 days will be required for completing the improvements specified. If it is determined that the QIP was inadequate **[25]**, the permitting authority also may require the source to modify the QIP **[26]**.

TABLE 1-7. SUMMARY OF REPORTING AND RECORDKEEPING REQUIREMENTS FOR CAM

Part 64 reference	Requirement
MONITORING REPORT REQUIREMENTS	
§ 64.9(a)(2)(I)	Summary of the number, duration, and cause of excursions or exceedances and the corrective actions taken
§ 64.9(a)(2)(ii)	Summary of the number, duration, and cause of monitoring equipment downtime incidents, other than routine downtime for calibration checks
§ 64.9(a)(2)(iii)	Description of the actions taken to implement a QIP, and, upon completion of the QIP, documentation that the plan was completed and reduced the likelihood of similar excursions or exceedances
COMPLIANCE CERTIFICATIONS	
§ 70.69(a)(3)(iii)(A)	Identification of each term or condition of the permit that is the basis of the certification
§ 70.69(a)(3)(iii)(B)	Identification of the methods or other means used by the owner or operator for determining the compliance status with each term and condition during the certification period, and whether such methods or other means provide continuous or intermittent data
§ 70.69(a)(3)(iii)(C)	Status of compliance with the terms and conditions of the permit for the period covered by the certification and identification of each deviation and, as possible exceptions to compliance, any periods during which compliance was required and an excursion or exceedance occurred
§ 70.69(a)(3)(iii)(D)	Any other information required by the permitting authority
RECORDKEEPING REQUIREMENTS	
§ 64.9(b)	Records of monitoring data, monitor performance data, corrective actions taken, written QIP's, actions taken to implement a QIP, and other supporting information

In addition to the reporting requirements specified in § 64.9, § 70.6(a)(3)(iii) requires owners or operators of affected emissions units to submit monitoring reports with the required compliance certifications to the permitting authority at least semiannually **[27]**. Table 1-7 lists the types of information that must be included in the monitoring reports and compliance certifications.