the jurisdiction of the requesting entities on behalf of such entities.

Dated: June 12, 1990.

Raoul L. Carroll,

General Counsel.

[FR Doc. 90-15129 Filed 6-28-90; 8:45 am]

BILLING CODE 8320-01-M

Summary of Legal Interpretation of the General Counsel Precedent Opinion 15-90, Benefit Determination Involving Validity of Marriage of Transsexual Veterans

AGENCY: Department of Veterans Affairs.

ACTION: Notice.

SUMMARY: The Department of Veterans Affairs (VA) is publishing a summary of a legal interpretation issued by the Department's General Counsel involving veterans' benefits under laws administered by VA. This interpretation is considered precedential by VA and will be followed by VA officials and employees in future claim matters. It is being published to provide the public, and, in particular, veterans' benefit claimants and their representatives, with notice of VA's interpretation regarding the legal matter at issue—Is a transsexual veteran, who undergoes sexual reassignment surgery and then marries a member of the veteran's original gender, entitled to the additional VA benefits normally provided on account of a spouse?

EFFECTIVE DATE: May 25, 1990.

FOR FURTHER INFORMATION CONTACT: Mr. Jay D. Farris, Chief, Law Library, Department of Veterans Affairs, 810 Vermont Avenue, NW., Washington, DC 20420, (202) 233-6442.

SUPPLEMENTARY INFORMATION: VA regulations at 38 CFR 2.6(e)(9) and 14.507 authorize the Department's General Counsel to issue written legal opinions having precedential effect in adjudications and appeals involving veterans' benefits under laws administered by VA. The General Counsel's intrepretations on legal matters, contained in such opinions, are conclusive as to all VA officials and employees not only in the matter at issue but also in future adjudications and appeals, in the absence of a change in controlling statute or regulation or a superseding written legal opinion of the General Counsel.

VA publishes summaries of such opinions in order to provide the public with notice of those interpretations of the General Counsel which must be followed in future benefit matters and to assist veterans' benefit claimants and their representatives in the prosecution of benefit claims. The future text of such opinions, with personal identifiers deleted, may be obtained by contacting the VA official named above.

A summary of the General Counsel's opinion designated O.G.C. Prec. 15-90, Benefit Determinations Involving Validity of Marriage of Transsexual Veterans, requested by VA District Counsel (362/02), Houston, TX, is as follows:

Held: Under Texas law, where a veteran has anatomically changed his/her sex by undergoing sexual-reassignment surgery and has thereafter legally married a member of his/her former sex, his/her marriage partner may be considered the veteran's spouse for the purpose of determining entitlement to additional vocational rehabilitation allowance payable on account of a dependent spouse.

Dated: June 12, 1990

Raoul L. Carroll,

General Counsel.

[FR Doc. 90-15135 Filed 6-28-90; 8:45 am]

BILLING CODE 8320-01-M

Sunshine Act Meetings

Federal Register
Vol. 55, No. 126
Friday, June 29, 1990

This section of the FEDERAL REGISTER contains notices of meetings published under the "Government in the Sunshine Act" (Pub. L. 94-409) 5 U.S.C. 552b(e)(3).

MERIT SYSTEMS PROTECTION BOARD

TIME AND DATE: 2 p.m., Thursday, July 12, 1990.

PLACE: Eighth Floor, 1120 Vermont Avenue, NW., Washington, DC.

STATUS: Open.

MATTERS TO BE CONSIDERED: Briefing and discussion of the Board's fiscal year 1991 research agenda.

CONTACT PERSON FOR ADDITIONAL INFORMATION: Robert E. Taylor, Clerk of the Board, (202) 653-7200.

Dated: June 27, 1990.

Robert E. Taylor,

Clerk of the Board.

[FR Doc. 90-15302 Filed 6-27-90; 1:34 p.m.]

BILLING CODE 7400-01-M

federal register

Friday
June 29, 1990

Part II

Environmental Protection Agency

40 CFR Part 52
Approval and Promulgation of Implementation Plans; Illinois; Final Rule

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 52

[FRL 3787-8]

Approval and Promulgation of Implementation Plans

AGENCY: United States Environmental Protection Agency (USEPA).

ACTION: Notice of final rulemaking.

SUMMARY: USEPA is today promulgating Federal revisions to the Reasonably Available Control Technology (RACT) rules for volatile organic compounds (VOC) contained in the Illinois State Implementation Plan (SIP) for ozone. These Federal revisions correct certain noted deficiencies in the existing RACT rules adopted by the State of Illinois. USEPA is promulgating the rules for the following six counties in the Chicago area: Cook, DuPage, Kane, Lake, McHenry, and Will. In addition, USEPA is taking final rulemaking on revisions to the Illinois ozone SIP submitted by the State.

DATES: The effective date of this rulemaking is July 30, 1990, for all sources located in Cook, DuPage, Kane, Lake, McHenry, and Will Counties in Illinois.

The date by which, and after which, these rules apply to all sources is the effective date, with the following exceptions:

These rules do not apply to Allsteel in Kane County and Viskase in Cook County until January 1, 1991.

The four perfluorocarbon classes listed below shall not be considered as volatile organic compounds or volatile organic material for the 3M Bedford Park facility in Cook County for a period of time not to exceed one year from the date USEPA acts on 3M's petition which seeks to have these perfluorocarbon classes designated as exempt compounds: (1) Cyclic, branched, or linear, completely fluorinated alkanes, (2) cyclic, branched, or linear, completely fluorinated ethers with no unsaturations, (3) cyclic, branched, or linear, completely fluorinated tertiary amines with no unsaturations, and (4) sulfur containing perfluorocarbons with unsaturations and with sulfur bonds only to carbon and fluorine. USEPA will provide public notice in the **Federal Register** of its action on this petition.

The date by which all sources must achieve final compliance with these rules is July 1, 1991, with the following exceptions:

The four perfluorocarbon classes listed below shall not be considered as volatile organic compounds or volatile organic material for the 3M Bedford Park facility in Cook County for a period of time not to exceed one year from the date USEPA acts on 3M's petition which seeks to have these perfluorocarbon classes designated as exempt compounds: (1) Cyclic, branched, or linear, completely fluorinated alkanes, (2) cyclic, branched, or linear, completely fluorinated ethers with no unsaturations, (3) cyclic, branched, or linear, completely fluorinated tertiary amines with no unsaturations, and (4) sulfur containing perfluorocarbons with unsaturations and with sulfur bonds only to carbon and fluorine. USEPA will provide public notice in the **Federal Register** of its action on this petition.

Petroleum Refining and Related Industries: Asphalt Materials must submit to USEPA: (1) By September 1, 1990, a monitoring plan consistent with subpart R (section 215.446) of Illinois Administrative Code 215, and (2) by October 1, 1990, the first monitoring report pursuant to subpart R (section 215.449) of Illinois Administrative Code 215.

The incorporation by reference of certain publications in these rules is approved by the Director of the Office of the Federal Register (OFR) as of July 30, 1990.

ADDRESSES: The docket for the final Federal regulations (Docket No. 5A-89-1), which contains the public comments and the complete support documentation, is located for public inspection and copying at the following addresses. (It is recommended that you telephone Randolph O. Cano at (312) 886-6036 before visiting the Region V office.) A reasonable fee may be charged for copies.

U.S. Environmental Protection Agency, Region V, Air and Radiation Branch, Twenty Sixth Floor, Southeast, 230 South Dearborn Street, Chicago, Illinois 60604.

U.S. Environmental Protection Agency, Docket No. 5A-89-1, Air Docket (LE-131), Room M1500, Waterside Mall, 401 M Street, SW., Washington, DC 20460.

A file on the Federal regulations is available at the following location: Illinois Environmental Protection Agency, Division of Air Pollution Control, 1340 North Ninth Street, Springfield, Illinois 62702.

In addition, a file related to USEPA's rulemaking action on the revisions to the Illinois ozone SIP submitted by the State has been prepared. The file, which contains copies of the SIP revisions, public comments, and support documentation, is available at the addresses identified above.

FOR FURTHER INFORMATION CONTACT: Randolph O. Cano, Air and Radiation Branch (5AR-26), U.S. Environmental Protection Agency, Region V, Chicago, Illinois 60604, (312) 886-6036.

SUPPLEMENTARY INFORMATION:

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I. Background

A. *Wisconsin* v. *Reilly*

On January 18, 1989, pursuant to a complaint filed by the State of Wisconsin, Judge Evans of the United States District Court for the Eastern District of Wisconsin ordered USEPA to promulgate ozone implementation plans for northeastern Illinois and northwestern Indiana within 14 months (*Wisconsin* v. *Reilly*, No. 87-C-0395, E.D. Wis., January 18, 1989). On September 22, 1989, USEPA and the States of Illinois and Wisconsin signed a settlement agreement in an attempt to substitute a more acceptable schedule for promulgation of a plan for the control of ozone in the Chicago area. On November 6, 1989, the District Court vacated its prior order and ordered all further proceedings stayed pending performance of the settlement agreement.

The settlement agreement calls for the use of a more sophisticated air quality model (*i.e.*, a photochemical reactive grid model), allows more time for USEPA to promulgate a Federal Implementation Plan (FIP) using this model, and requires interim emission reductions while the modeling study is being performed. The interim emission reductions consist of Federal promulgation of revised VOC RACT rules for Illinois and, if necessary, for Indiana to remedy deficiencies in the

States' regulations. Specifically, the settlement agreement requires USEPA to: (a) Propose as federal measures by December 31, 1989, RACT rules, in accordance with the May 25, 1988, document entitled "Issues Relating to VOC Regulation Cutpoints, Deficiencies, and Deviations" (also known as the "Blue Book"), for Illinois which remedy the deficiencies described in Exhibit B of the settlement agreement, and (b) promulgate by March 16, 1990, those rules for which Illinois fails to meet any of the 1989 interim milestones specified in Exhibit C of the settlement agreement; or six months after any 1990 interim milestone specified in Exhibit C, those rules for which Illinois fails to meet any of the 1990 interim milestones, but no later than December 31, 1990.[1,2] Exhibit C establishes the following milestones for the State: (a) by September 30, 1989—the Illinois Environmental Protection Agency (IEPA) proposals must be filed with the Illinois Pollution Control Board (IPCB), (b) by December 22, 1989—the IPCB must decide the Economic Impact Study question and publish the first notice, (c) by March 16, 1990—the IPCB must hold hearings and publish the second notice, and (d) by May 25, 1990—the Joint Committee on Administrative Rules must complete action and IPCB must adopt the final rule.

On December 27, 1989 (54 FR 53080), USEPA proposed to promulgate Federal revisions to the VOC RACT rules to correct all of the deficiencies described in Exhibit B. These deficiencies apply to nine different rules: Solvent Metal Cleaning, Surface Coating, Printing and Publishing Operations, Synthetic Organic Chemical Manufacturing Industry (SOCMI) Leaks, Petroleum Refinery Leaks, Pharmaceutical Manufacturing, Bulk Gasoline Plants, Major Non-CTG (Control Techniques Guidelines) Generic Rules, and General Provisions (which include definitions, test methods and procedures, a requirement that any alternative emission limitation or variance must be submitted to USEPA for approval, and procedures for determining the vapor pressure of organics). In the Federal Register notice, USEPA also proposed rulemaking on revisions to the Illinois ozone SIP submitted by the State.

It should be noted that pursuant to the settlement agreement, IEPA submitted to the IPCB on September 29, 1989, a proposal for revisions to the State rules to correct some of the deficiencies described in Exhibit B. The IEPA proposal consisted of revisions which correct all of the deficiencies contained in three rules (SOCMI Leak, Bulk Gasoline Plant, and Solvent Metal Cleaning), but only some (or none) of the deficiencies contained in the other six rules. Thus, the State met the first milestone for some of the deficiencies. For the six rules containing deficiencies which are not included in IEPA's September 29, 1989, proposal, the settlement agreement, as modified by the Court's order of May 1, 1990, currently requires USEPA to promulgate these rules by June 8, 1990.

On October 5, 1989, the IPCB adopted IEPA's proposal for first notice. On October 5, 1989, the IPCB adopted IEPA's proposal for first notice. On October 27, 1989, the IPCB decided that an Economic Impact Study need not be prepared, thereby satisfying the second milestone with respect to the rules included in IEPA's proposal. Public hearings on these rules were held in December 1989 and January 1990.

On February 8, 1990, however, the IPCB removed two of the rules in IEPA's proposal (i.e., the Generic Rule and the SOCMI Leak Rule) and placed them in a subdocket. As a result of this separation of dockets, IEPA must under State law procedural requirements repropose the rule amendments to the IPCB. The IPCB's action means that it would not meet the third milestone for these two rules and that USEPA must federally promulgate the SOCMI Leak Rule by September 16, 1990 (i.e., six months after the missed 1990 milestone date).

On March 16, 1990, the IPCB issued its second notice on the remaining rules in IEPA's proposal. The second notice, however, stated that the IPCB will only proceed with a minor amendment to the Surface Coating Rule and some of the amendments to the General Provisions Rule; it will not proceed with the bulk of IEPA's proposal. Thus, the third milestone has been met for only a few of the deficiencies described in Exhibit B. The few rule revisions still alive in the State's rulemaking process are, however, too fragmented to be approved by USEPA as stand alone rules. Consequently, the IPCB's action means that USEPA must federally promulgate the Solvent Metal Cleaning Rule and Bulk Gasoline Plant Rule also by September 16, 1990 (i.e., six months after the missed 1990 milestone date). Because the State has not corrected (and will not, in the near future, be able to correct) completely any of the deficient rules, USEPA must promulgate rules which correct all of the deficiencies. The expeditiousness demanded by the Court orders, necessitates USEPA to move forward with its promulgation at this time.

B. Summary of Today's Action

Today's final rulemaking addresses the Part D requirement for RACT for the Chicago portion of the Illinois SIP.[3] Today, USEPA is taking final action: (a) to adopt Federal RACT rules for inclusion in the Illinois plan, (b) to approve certain pending State RACT rules for inclusion in the Illinois plan, and (c) to disapprove certain State RACT rules. In total, today's notice establishes a comprehensive set of RACT rules applicable to the sources in Cook, DuPage, Kane, Lake, McHenry, and Will Counties in Illinois.

USEPA is promulgating these Federal RACT rules to replace part or all of the federally approved individual State rules in the SIP. The resultant plan for Illinois consists of some federally approved (State) rules and some federally promulgated (Federal) rules. This mixed Federal-State rule approach provides the best model for the State to secure eventually a total federally approved State plan by indicating the corrections Illinois must make in its rules, and is consistent with the District Court's orders. USEPA hopes that this mixed Federal-State plan is only temporary. USEPA strongly encourages the State to adopt these Federal rules and submit them to USEPA for approval as a SIP revision.

In the spirit of establishing the State rules in the implementation plan, USEPA directs any source seeking a revision to the Federal rules to apply to the State initially to obtain a SIP revision. Upon submittal to and approval by USEPA, the revised State rule would replace the applicable Federal rule and would become the federally enforceable rule for that source. USEPA believes that it has met its responsibilities under section 110 with this notice of final rulemaking. Section 110(c) only requires the Administrator to "* * * promptly prepare and publish proposed regulations setting forth an

[1,2] On March 13, 1990, USEPA filed a Motion to Modify Settlement Agreement to Allow More Time to Promulgate Certain Interim Measures with the District Court. In its motion, USEPA asked that the March 16, 1990, promulgation date be extended to June 8, 1990. For several reasons, the March 16, 1990, deadline for final rulemaking has proved impossible to meet (i.e., rulemaking is very complex and raises a number of technical and legal issues; voluminous comments were received only shortly before the deadline; and coordinated review of and response to the comments among various USEPA Regional and Headquarters' offices is necessary). On May 1, 1990, the District Court granted USEPA's motion.

[3] USEPA will address the RACT rules for Indiana, pursuant to the District Court's order, in a future Federal Register notice.

implementation plan * * *" and, if necessary, "* * * promulgate any such regulations * * *". It does not require the Administrator to be responsible also for promulgating subsequent revisions to this plan. Consequently, USEPA believes that a SIP revision, and not a FIP revision, is the appropriate way to initiate changes to the rules being promulgated today. Should the State fail to respond adequately to such a proposed SIP revision, the source may then pursue revision of the Federal rules through USEPA.

Finally, the State should also be aware that while RACT rules are an integral part of a part D plan, there are other equally important requirements that still need to be addressed in order to provide for attainment. USEPA expects the State to take the lead in adopting rules necessary to satisfy the remaining requirements of part D, regardless of USEPA's own efforts to develop an attainment FIP for the Chicago area.

II. Review of Public Comments

On December 27, 1989 (54 FR 53080), a notice of the proposed Federal rules and on USEPA's proposed action on certain State rules was published in the Federal Register. A public hearing on the proposed Federal rules was held in January 17, 1990. In response to requests made at the public hearing for additional time to comment on the proposed rules, on January 30, 1990, (55 FR 3073), USEPA extended the public comment period from February 16, 1990 until March 2, 1990.

Under the Administrative Procedures Act (APA) and the USEPA is responsible, following the public hearing and the public comment period, for considering seriously each piece of information submitted by the public and, based upon the comments making decisions on the final rules, including modifying the proposed rules, if appropriate. USEPA has carried out that duty. Modifications to the proposed rules, which are discussed below, have been made in response to the public comments. None of these modifications, however, has altered substantially the character of the original regulatory scheme and the Administrator has, therefore, determined that there is no need for further hearings or comments.

During the comment period, USEPA received 28 different sets of comments, including the public hearing transcript. A summary of the significant comments, criticisms, and new data submitted in written or verbal presentations during the public comment period, and USEPA's full responses are provided below. A more thorough listing of the comments, along with USEPA's responses, is contained in the docket for this rulemaking (see "Public Comments and USEPA Responses on Notice of Proposed Rulemaking (54 FR 53080, December 27, 1989)", April 1990).

A. Procedural Issues

Comment: Several commentors stated that USEPA failed to give adequate notice for the public hearing (*i.e.*, at least 30 days notice) and, thus, has violated the requirements of the CAA, the APA, and 40 Code of Federal Regulations (CFR) 51.102. Consequently, the commentors charged that the hearing held on January 17, 1990, is insufficient, and that a new hearing is required. One commentor notified USEPA that he may now bring suit to require a proper public hearing. In conclusion, the commentors claimed that they were prejudiced by USEPA's failure to provide proper notice and that any rules subsequently adopted are void.

Response: Since April 1989, USEPA has solicited interest in the development of a FIP for ozone for the Chicago area. Such solicitation has included public meetings, publication of an advance notice of proposed rulemaking (ANPR) (see 54 FR 29063, July 11, 1989), maintaining a list of interested parties (note, there are over 180 names/parties currently on this list), and routinely notifying each person on its mailing list of significant developments. In the latest of a series of these public notifications, USEPA sent a letter on December 15, 1989, to each person on the mailing list concerning the January 17, 1990, public hearing. Contrary to the objections of the commentors that this notification was limited on scope and did not represent a prominent advertisement, USEPA believes that this letter did properly inform those expected to be most concerned with USEPA's rulemaking of the upcoming hearing. In fact, almost all of the parties that presented oral testimony at the hearing or presented written comments during the comment period were on USEPA's mailing list in December and were sent copies of the December 15 letter. Consequently, by directly notifying the known parties concerned with development of FIP rules, USEPA has more than satisfied any claim that it must publish an advertisement of the hearing in the area. (As noted below, such an advertisment is not required of USEPA to satisfy the public notice requirements.)

According to section 307(d)(5) of the CAA, the Administator is required to "* * * give interested persons an opportunity for the oral presentation * * *" of information.[4] Beyond that, section 110(c)(1) of the CAA requires that, if the State held no "public hearing" on the plan, USEPA shall provide the "opportunity for such hearing". Neither of these sections, however, identifies a specific time period for public notice of such opportunity for "oral presentation" or "public hearing". The Federal Register Act (44 U.S.C. chapter 15, section 1508), however, states that a "* * * notice of hearing or of opportunity to be heard, required or authorized to be given by an Act of Congress * * *" shall be deemed to have been given, * * * when the notice is published in the Federal Register at such a time that the period between the publication and the date fixed in the notice for the hearing * * * is (1) not less than the time specifically presented for the publication of the notice by the appropriate Act of Congress; or (2) not less than fifteen days when time for publication is not specifically prescribed by the Act, without prejudice, however to the effectiveness of a notice less than fifteen days where the shorter period is reasonable." Because the CAA specifies no time for publication of the notice, the applicable standard is "not less than fifteen days", unless some shorter period would be reasonable. USEPA believes that the December 27 publication of its hearing notice fulfills the requirement for at least 15 days prior notice.

The public hearing requirements of § 51.102 only apply to States (*e.g.*, "* * * States must conduct * * *"; "* * * (the State must prepare and return * * *"; and "* * * (t)he State must submit * * *"). There is no provision in § 51.102 which imposes the requirements of this section on USEPA when it is required to promulgate a plan pursuant to section 110(c). Even if § 51.102 did apply to USEPA, then it should be noted that § 51.102(g)(2) allows the Administrator

[4] The procedural requirements of the APA, rather than the CAA, apply to the portions of this rulemaking involving approval of the State rules. It should be noted that section 553(b) of the APA states that the NPR shall include "* * * statement of the time, place, and nature of public rule making proceedings * * *". In addition, it requires that "* * * the agency shall give interested persons an opportunity to participate in the rule making through submission of written data, views, or arguments with or without opportunity for oral presentation." Thus, informal (or notice-and-comment) rulemaking under the APA does not require the Agency to hold any oral hearings. Consequently, USEPA believes that its holding of a public hearing (with prior notice), and its acceptance of public comments for more than two months after publication of the NPR, fully satisfies the requirements of the APA to the extent they apply here.

to accept procedures different from those identified in § 51.102(d) (*e.g.*, with respect to 30 days prior notice), if these alternate procedures ensure public participation and provide "* * * adequate public notification of the opportunity to participate." As discussed above, USEPA believes it has provided adequate notification.

Comment: Two commentors pointed out that it was inappropriate for USEPA to simply receive comments at the hearing and not explain or clarify its proposed actions. One commentor claimed that the opportunity for rebuttal presumes the Agency will answer questions at the hearing. Another commentor stated that USEPA should schedule an additional hearing, giving proper notice, at which it provides testimony or information regarding the effect and scope of these rules and answers industry's questions regarding these rules and their implementation.

Response: USEPA feels that the public hearing held on January 17, 1990, fulfilled the obligations in the CAA to "give interested persons an opportunity for the oral presentation of data, views, or arguments, in addition to an opportunity to make written submissions." The appropriate forum for responding to public comments is the final rulemaking notice published in the **Federal Register**, which USEPA has done here. Congress considered and rejected a requirement in the CAA that USEPA be subject to cross-examination at its public hearings. (See *Small Refinery Lead Phase-Down Task Force v. USEPA*, 705 F. 2d 506, 521–522 (D.C. Cir. 1983) citing H.R. 6161, 95th Cong., 1st session Section 305(a), 307(d)(5)(B) (1977).)

Comment: Several commentors felt that the comment period was not sufficient. Some felt that once the record is complete, a minimum of 30 additional days from then is appropriate. Some felt that the 65 days provided was not enough time to review the record and submit comments. One commentor had just received information in response to a Freedom of Information Act (FOIA) request at the end of the comment period and did not have time to review the information and prepared comments.

Response: Section 307 of the CAA requires USEPA to "allow any person to submit written comments, data, or documentary information * * *" No time period is specified. Typically, the comment period is 30–60 days. USEPA provided as much time as possible within the court-sanctioned schedule. The comment period was extended once in response to concerns expressed at the public hearing. Providing additional time would further hinder USEPA's ability to comply with the Court orders. In the case of the commentor who had just received a response to its FOIA request, an extension is also unwarranted because USEPA did not directly consider the information received under the FOIA request in the development of the proposal. Furthermore, section 307(d)(5)(A)(iv) specifically states that "the Administrator shall keep the record of such proceeding open for thirty days after completion of the proceeding to provide an opportunity for submission of rebuttal and supplementary information." USEPA believes that the 45-day post-hearing period for comments meets this requirement.

Comment: Several commentors stated that USEPA was required to perform a Regulatory Impact Analysis (RIA) because the expected cost impacts shown in the technical support document (TSD) exceeded $100 million per year (e.g., the annual impacts associated with only the generic rule were estimated in the initial draft TSD to be $168.5 million).

Response: The annual costs of the regulation have been reviewed and revised, and are still estimated at less than $100 million/yr; thus, no RIA is required. The draft technial support document presented impacts on two different baselines, the SIP baseline and the State rule baseline. The SIP baseline approach did not recognize any State regulations which had not been previously approved as part of Illinois' ozone SIP. Therefore, it assumed that all sources which would be regulated by a proposed Federal rule (which had no comparable federally approved SIP rule, such as the generic rule) were uncontrolled sources. The second approach was that of the State rule baseline, which recognized that many sources were already subject to a State regulation and required to have controls in place.

USEPA clearly stated in the TSD that it "* * * believes that the actual impact of the proposed Federal rules is closer to those calculated with respect to the State rule baseline." Most sources which have controls in place to comply with the State rule may not need to replace or alter their control equipment or operating procedures to comply with the comparable Federal rule. Therefore, the true impacts would be best estimated by considering the incremental impacts attributed to the sources subject to the proposed Federal rule which were not subject to the State rule.

The $168.5 million annual cost cited by the commentor represents the compliance cost of the generic non-CTG rule under the SIP baseline. The true impact of the generic rule which USEPA expects is that calculated on the State rule baseline, which is considerably less (on the order of $9 million annually). USEPA recognizes that the dual impact approach had the potential to cause confusion, but feels that the TSD clearly outlined the rationale regarding the impacts presented. However, to avoid further confusion, the final version of the TSD only displays impacts on one basis, that of the State rule baseline.

Comment: Several commentors believed that USEPA had not provided a sufficient statement of basis and purpose as required by section 307(d) of the CAA. Objections include the absence of "sufficient factual data" in the notice and the docket, no analysis or interpretation of the data provided, no explanation of the reasoning, and no legal or technical basis for many of the proposed rules. Another felt that USEPA had not clearly articulated its objectives in advancing this proposal. One of the commentors believed that USEPA improperly delegated its statutory duty to prepare a statement of basis and purpose to a private contractor.

Response: Section 307(d)(3) of the CAA requires that the NPR shall be published in the **Federal Register**, shall be accompanied by a statement of its basis and purpose, and shall specify the period available for public comment. The statement of basis and purpose shall include a summary of: (a) The factual data on which the proposed rule is based, (b) the methodology used in obtaining the data and in analyzing the data, and (c) the major legal interpretations and policy considerations underlying the proposed rule.

Because the requirements of section 307(d)(3) (*e.g.*, statement of basis and purpose) apply to the promulgation of an implementation plan by the Administrator under section 110, USEPA needs to ensure that a statement of basis and purpose is provided for the proposed Federal rules. The preamble in the NPR is intended to serve as the statement of basis and purpose for the Federal rules, as noted in the "Document Drafting Handbook", OFR, April 1986. The preamble appeared on pages 53081–53094 of the December 27, 1989, **Federal Register**. These 14 pages: (1) Present the background for the proposed rulemaking; (2) address USEPA's proposed action on various State submitted rules; (3) address USEPA's proposed Federal rules; (4) present a tabular summary of the VOC rules for Illinois; (5) summarize the environmental and economic impacts of the proposed Federal rules; and (6) review various regulatory analyses (*e.g.*,

impact on small entities, and reporting and recordkeeping requirements).

The factual data on which the proposed rule is based, as well as the methodology used to obtain and analyze these data, are summarized on pages 53081–53085, and 53089–53091. On these pages, USEPA addressed its RACT guidance, the application of this guidance to identify deficiencies with the State's RACT rules, and the reasons for the proposed Federal revisions. USEPA believes that these pages summarize the basis for its proposed rules.

The major legal interpretations and policy underlying the proposed rule are reviewed on pages 53081–53083 and 53087–53089. On these pages, USEPA discussed its CAA authority for promulgating Federal rules, the history of Illinois' efforts to adopt a SIP, the lawsuit and subsequent court orders directing USEPA to promulgate these RACT rules, the need for stationary source RACT control, the applicability of the proposed rules to specific nonattainment and attainment counties in the Chicago area, and the relationship of the Federal rules to the existing federally approved State rules. USEPA believes that these pages summarize the major legal and policy issues involved in this rulemaking.

Finally, the use of contractor assistance by the Agency in carrying out its mandates is not unusual and was proper in this instance. Although the contractor prepared a draft of the preamble, USEPA reviewed and revised it, as necessary. Nothing in section 307(d) of the CAA prohibits USEPA from delegating initial drafting work to a contractor.

Comment: One commentor stated that the TSD appears to have been finalized after the proposal was received at the OFR for publication. Therefore, USEPA could not have considered the TSD in preparing the NPR, even though the TSD is supposed to be the statement of basis and purpose for the NPR.

Response: The NPR was sent to the OFR on December 18 and was scheduled for publication during the week of December 24. The TSD included in the docket, although dated December 26, was essentially completed by December 5.[5] The only reason the date of December 26 appeared on the TSD was to match the TSD with the NPR by date. In retrospect, USEPA admits that assuming the earliest possible publication date of the NPR (during the week of December 24) as the date of the TSD has created some confusion, and realizes now that it should have simply maintained the December 5 date.

Comment: Several commentors claimed that USEPA has violated section 307(d)(6) of the CAA because it failed to have a complete rulemaking record available for public inspection prior to the public hearing. Items which were cited as missing included: (a) Previous SIP revision proposals and USEPA's disapproval process, (b) supporting documentation for CTGs and the Blue Book, (c) information related to the draft guideline on capture efficiency testing, (d) background documents for post-87 policy, (e) State proceedings that interpret the CTGs and their applicability to Illinois industries, and (f) dockets from IPCB rulemaking.

Response: All information relied upon by USEPA in developing its proposed rules were included in the docket at the time of the proposal. Several items, although not relied upon by the Agency for proposal, have been subsequently place in the docket at the request of these commentors. Additional information, such as public comments, were included promptly upon receipt. Regarding the specific items reported missing, USEPA wishes to note that the relevant CTGs, the post-1989 policy, and the draft guideline on capture efficiency were included in the docket. USEPA believes, however, that it is not necessary to include background information on all of these documents, as well as previous State SIP revision proposals or proposals, because USEPA is not rulemaking on the background material and these SIP proposals or proceedings at this time. Also, although the complete IPCB rulemaking dockets were not available to USEPA, the full IEPA submittals (which contained much of the IPCB dockets) were included in the docket for this rulemaking (section XIX: Additional Information About Illinois State Rules) and were available upon request at the Region V office.

B. General Issues

1. Statutory Authority

Comment: Several commentors believed that there is inadequate statutory support for USEPA's proposal. They felt that to propose Federal rules simultaneously with section to propose disapproval of State rules is inconsistent with the spirit and letter of the CAA; that USEPA must allow the State the opportunity to revise its own rules, pursuant to the provisions of section 110(c); and that USEPA may promulgate its own FIP only when a SIP fails to satisfy the requirements of section 110(a)(2) (A)–(H), the revision is disapproved by USEPA in final rulemaking, and the State is notified of the deficiency by USEPA and the State fails to remedy the deficiency in a timely manner.

Response: The commentors fail to grasp the significance of the District Court's January 18, 1989, and November 6, 1989, orders. Very simply, Judge Evans has found that the Chicago area is not in attainment of the ozone National Ambient Air Quality Standards (NAAQS), the statutory attainment date has past, the State has failed to submit a plan meeting the requirements of part D of the CAA, and USEPA is now required by the terms of the CAA to promulgate a plan which must provide for attainment. Although Judge Evans initially ruled on January 18, 1989, that USEPA must promulgate a full attainment plan by March 18, 1990, his order of November 6, 1989, anticipates that only certain interim control measures need be adopted (either by Federal promulgation or by State submittal) by that date. It should, therefore, be understood that the expeditious promulgation of RACT rules as Federal measures is proceeding as an alternative to the promulgation of a full attainment FIP within this same timeframe, as initially ordered by Judge Evans. Furthermore, the timeframes and procedures referred to by the commentors were those envisioned to be effective prior to the statutory attainment date of December 31, 1987, before which it was assumed that the States were making reasonable efforts towards attainment. Because attainment of the ozone NAAQS was not achieved in Northeast Illinois by that date, Judge Evans found that USEPA must act expeditiously to meet its legal obligations under the CAA. The contemporaneous proposal to disapprove certain State rules and to promulgate substitute Federal rules is in keeping with the expeditious manner in which the Agency must act in the post-1987 era in order to meet its obligations under the CAA and the Court orders.

USEPA's proposal and promulgation of RACT rules for Illinois is consistent with and mandated by its responsibility under section 110(c)(1)(B) and section 110(c)(1)(C) of the CAA. Section 110(c)(1)(B) of the CAA states that the Administrator shall promulgate such a Federal plan if "* * * the plan, or any portion thereof, submitted for such State is determined by the Administrator not

[5] The first draft of the TSD was delivered by the contractor to USEPA on October 20, 1989. Subsequent revised drafts were delivered on November 17, 1989, and December 5, 1989. USEPA considers the December 5, 1989, draft, along with a few subsequent minor revisions, to represent the final TSD for the proposed rulemaking.

to be in accordance with the requirements of this section." In its January 18, 1989, order, the Court stated that "once a State plan is disapproved, the Administrator has a nondiscretionary duty to formulate a Federal plan * * *". In view of USEPA's September 30, 1988, disapproval of the Illinois SIP, the Court found that "* * * an order requiring the Administrator to perform his statutory task is appropriate." As noted above, on November 6, 1989, the Court vacated its original order, allowing an ozone implementation plan to be set in place under the terms of the settlement agreement entered into by the parties. One of USEPA's interim requirements (prior to promulgating the full plan) under the settlement agreement is to adopt VOC RACT rules for Illinois in the event that the State fails to adopt and submit to USEPA approvable rules itself. Thus, these RACT rules are being promulgated by USEPA pursuant to its authority under section 110(c)(1)(B) to promulgate a plan that will provide for attainment and maintenance of the ozone NAAQS in northeastern Illinois. In that the settlement agreement identified the RACT deficiencies, and accounted for their correction, the Court has already acknowledged that pursuant to section 110(c)(1)(B), Federal promulgation of rules to correct certain RACT deficiencies is necessary.

Furthermore, on May 26, 1988, pursuant to section 110(a)(2)(H) of the CAA, the USEPA Region V Regional Administrator, Valdas V. Adamkus, notified Illinois Governor James R. Thompson that the Illinois SIP (including portions of the SIP that USEPA has approved) was substantially inadequate to attain and maintain the ozone NAAQS in the Chicago-Gary-Lake County (IL), IL–IN–WI consolidated metropolitan statistical area (CMSA). USEPA called upon Illinois to revise its SIP to correct a number of deficient VOC RACT rules, and to adopt a number of other rules deemed necessary by USEPA. These rules were to be promulgated and submitted to USEPA by August 1989. Because Illinois did not complete these actions, and thus failed to respond adequately to USEPA's SIP Call, section 110(c)(1)(C) provides further authority for USEPA to promulgate RACT rules.

In addition, USEPA believes that the settlement agreement provided the State with sufficient notice of deficiencies in its implementation plan which must be revised by a certain date. It specifically commits Illinois to submit to USEPA "* * * some or all of the reasonable available control technology (RACT) rules and RACT rule improvement specified for Illinois in Exhibit B." Although the settlement agreement was signed in late September 1989, USEPA provided Illinois with information regarding all of the Exhibit B deficiencies as early as June 1989. Thus, not only was Illinois informed and aware of those portions of its plan which needed revision, but it agreed to the timeframe for revising its plan. In other words, USEPA (and the State) clearly established the period for the State to revise its implementation plan (pursuant to section 110(c)(1)(C)).

Given the short timeframe for Federal promulgation, USEPA decided to propose all revisions even though Illinois was attempting to adopt some of the RACT rule revisions. As noted in the NPR, if the State adopts these proposed revisions according to the schedule set forth in the settlement agreement, then USEPA would approve State rules (and promulgation of related Federal rules may not be necessary for some of these rules). However, as noted above, the IPCB recently deferred action on all but a few "partial" rules. These "partial" rules are too fragmented to be accepted as stand-alone Federally-approved rules. Therefore, USEPA must proceed with Federal promulgation on rules which correct all of the deficiencies. USEPA, of course, still encourages and expects the State to adopt rules meeting these Federal requirements as its own and submit them to USEPA for approval as SIP revisions.

With regard to the new rules Illinois has submitted for approval, USEPA would normally first disapprove deficient State rules and then allow the State a short period of time to adopt corrected rules. In this case, however, USEPA is under court order to promulgate RACT rules by June 8, 1990. In addition, for many of the deficient rules, USEPA has already informed Illinois either verbally or in writing of the specific deficiencies in the rules. Further, USEPA has not seen any indication for Illinois that it intends to proceed promptly to promulgate RACT rules either in response to USEPA's SIP Call or USEPA's proposal to promulgate Federal RACT rules pursuant to Judge Evans' order. Thus, it appears that providing Illinois a short time to correct the noted deficiencies would not be productive in this case. Nothing in the CAA requires USEPA to give the State additional time under these circumstances.

Comment: Several commentors felt that USEPA had exceeded its authority by proposing a Federal plan that goes beyond the scope of the SIP Call and the settlement agreement. One commentor stated that they had supported the settlement agreement with the understanding that: (a) No additional rules would be adopted until the modeling study was completed, (b) enhancements to the State's motor vehicle inspection and maintenance program were adopted, (c) only the deficiencies listed in USEPA's SIP Call were corrected, and (d) USEPA would only promulgate rules to correct deficiencies which Illinois did not adopt through its current rulemaking effort before the IPCB.

The commentors felt that the proposed rules go far beyond the settlement agreement in many areas and the USEPA should limit this rulemaking to just those deficiencies listed in its SIP Call. Specifically, 7 of the 22 deficiencies listed in Exhibit B of the settlement agreement (coke oven by-product plant rule, SOCMI leak rule, specialty high gloss catalyzed coatings rule, power driven fastener coatings rule, pharamaceutical manufacturing rule, generic rule, and heavy off-highway vehicle products/diesel electric locomotive coating rule) were not listed in the SIP Call and, thus, should not be included in this rulemaking. Furthermore, five issues raised in the NPR are not even mentioned in Exhibit B (internal offset rule, marine propulsion equipment coatings rule, pharmaceutical manufacturing rule, printing and publishing rule, and heatset web offset rule) and, thus, should not be included in this rulemaking.

The commentor believed that USEPA is using the settlement agreement as a means to promulgate a FIP for northeastern Illinois. Promulgation of rules beyond the correction of specific RACT rule revisions before completion of the new modeling study is inappropriate. If these rules are later found to be unnecessary, then it will be difficult, if not impossible, to un-do them.

One commentor noted there is no reason to conduct the modeling study if USEPA adopts such extensive rules that it renders the purpose of the study moot. That commentor believed that the settlement agreement intended that the Federal rules be in effect only until the modeling study is completed.

The State of Wisconsin stated that the proposed Federal rules address the objectives and commitments of the settlement agreement, and encouraged expeditious adoption and implementation of the proposed rule changes.

Response: Here, too, most of the commentors fail to grasp the

significance of the District Court's January 18, 1989, and November 6, 1989, orders. As noted above, Judge Evans has found that the Chicago area is not in attainment of the ozone NAAQS, the statutory attainment date has past, the State has failed to submit an approvable part D plan, and USEPA is now required to promulgate a plan which must provide for attainment. Consistent with the Judge's orders, USEPA must expeditiously promulgate certain interim control measures as indentified in Exhibit B while it is also developing a full attainment plan. This plan, as provided for by the settlement agreement, is to be based on a more sophisticated air quality modeling analysis. Available air quality analyses (*e.g.*, see the July 11, 1989, ANPR) indicate that the ultimate emission reduction needed for attainment is so large that these rules are necessary, although not sufficient, to provide for attainment. As noted in the NPR, reductions beyond the level of control in the CTGs may even be necessary. These rules do, however, provide for progress towards attainment, while a full attainment plan is being developed. These rules are necessary to comply with the RACT and reasonable further progress (RFP) requirements of section 172(b)(3) of the CAA, unless and until the subsequent air quality modeling indicates that they are not needed to demonstrate attainment, which is an unlikely result given the available information.

The commentors' claim that only those deficiencies specifically identified in the June 17, 1988, letter associated with the May 1988 SIP Call to Illinois should be corrected lacks merit because, as stated in the June 17, 1988, letter: (a) Deficiencies were specified in that letter only for previously approved rules, (b) the State must modify those previously submitted rules, for which USEPA had not yet completed its review, should USEPA determine these rules do not satisfy Federal requirements, and (c) the State was told to review independently its rules against USEPA's RACT guidance and correct any other deficiencies. Thus, USEPA maintains that the scope of the SIP Call is broader than the 16 specified deficiencies. In any case, USEPA believes that the proposed rules are, for the most part, consistent with Exhibit B of the settlement agreement.

The commentor's objection to USEPA's consideration of certain outstanding rules is inconsistent and partially incorrect. The commentors have not objected to the inclusion of certain other rules not cited in Exhibit B which USEPA has proposed to approve in this rulemaking. The commentors also have not recognized that deficiencies with the internal offset, pharamaceutical manufacturing, printing and publishing, and heatset web offset rules are cited in Exhibit B. Although the marine propulsion equipment coating rule was not cited in Exhibit B, USEPA believes both that it would be inappropriate to include this subsequently identified deficiency in its comprehensive Federal coating rule that it can promulgate a rule which corrects this deficiency pursuant to its authority under section 110(c)(1)(B), which provide for USEPA promulgation of a plan when the submitted State plan does not comply with the CAA.

Comment: One commentor believed that, since Illinois is in compliance with the settlement agreement, most of the proposed rules are not necessary. One commentor asked which of the proposed rules USEPA will take action on by March 18, 1990, and how IPCB approvals will affect the FIP proposal.

Response: Pursuant to the settlement agreement, the State of Illinois agreed to submit to the USEPA, "* * * some or all of the reasonably available control technology (RACT) rules and RACT rule improvements specified for Illinois in Exhibit B * * *". As noted above, IEPA proposed only some of the deficiencies to the IPCB by the required date. Thus, most of the deficiences remain unaddressed by the State. Furthermore, the IPCB has not adopted enough of IEPA's proposal to correct completely even one rule. Consequently, as above, USEPA cannot defer to the State any longer and it is, therefore, necessary for USEPA to move forward now with promulgation of Federal rules to correct all of the deficiencies, in order to satisfy its obligation to the court under the CAA.

2. Federal/State Rule Mix

Comment: Most commentors objected to the alternate proposal of a comprehensive set of Federal rules, stating that this option exceeded USEPA's statutory authority and its obligations under the settlement agreement. One commentor did not understand the role of the existing State rules and questioned whether they would continue to be in effect, and whether the proposed generic rule would replace the existing State generic rule. The commentor felt that the overlap of Federal/State rules was confusing. Another commentor expressed support for a mixed Federal/State plan, but felt it should comprise, as much as possible, federally approved State provisions, since the CAA places the obligation for attaining and maintaining the NAAQS upon each individual State. One commentor stated, however, that in no instance could they support either a permanent mix of Federal and State rules or a comprehensive set of Federal rules. The mix would only complicate compliance matters for the regulated community, and the comprehensive plan would ignore the years of State rulemaking proceedings.

Still another commentor stated that they supported a Federal/State rule mix, but a very temporary and limited one, and not permanent Federal rules in any case. However, the commentor noted that the Federal/State rule mix will leave the regulated community in a State of confusion regarding what is the applicable rule.

IEPA supported the mixed Federal/State combination of rules. IEPA cited several problems with a comprehensive set of Federal rules (*i.e.*, needless duplication of effort, enforcement difficulties, conflicting language, needless duplicate regulation, and inconsistency with the terms of the settlement agreement). IEPA did, however, urge USEPA to limit applicability of the Federal definitions to the Federal rules being promulgated to avoid any alteration of State rules, and Federal interpretations which would violate the decision by the United States Court of Appeals of the Seventh Circuit in the case of *Bethlehem Steel Corp.* v. *Gorsuch*, 742 F.2d 1028 (7th Cir. 1984), described more fully below.

Response: After reviewing the public comments on this issue, USEPA shares the position with the majority of commentors that the mix-match approach is the best option as the interim approach, until Illinois submits and USEPA approves substitute SIP rules. The resultant plan for Illinois will now consist of some federally approved (State) rules and some federally promulgated (Federal) rules. USEPA believes that this approach provides the best model for the State to secure eventually a total federally approved SIP, by highlighting the changes Illinois must make to its rules to gain full USEPA approval. To clarify which rules are federally promulgated rules (i.e., FIP rules) and which rules are federally approved State rules (i.e., SIP rules) under this mixed Federal-State plan approach, USEPA has included a document with the complete set of rules in the docket for this rulemaking action. This document contains all of the RACT rules for the Chicago area and indicates which rules are Federal rules and which are State rules. USEPA believes that this

document is sufficiently clear to avoid any confusion as to which provisions apply to a particular source.

In the NPR, USEPA specifically requested public comment on an alternative approach (i.e., a comprehensive Federal plan) because of the effect of several changes proposed, by USEPA, including changes to the definitions, the test methods and procedures, and the exemptions, variances, and alternative means of control portions of the General Provisions section. The General Provisions section applies to each of the individual source category rules. It could, therefore, be argued that changes to the General Provisions section result (indirectly) in changes to the individual source category rules. If USEPA relied on its previous approval of the State rules for the individual source categories (while changing portions of the General Provisions section), then USEPA may be making the original State rules more stringent as a matter of Federal law than Illinois had initially intended. This may conflict with a decision by the United States Court of Appeals for the Seventh Circuit in the *Bethlehem* case.

The Circuit Court, in the *Bethlehem* case, ruled that USEPA could not, through its authority to partially approve or disapprove a plan revision, make a plan more stringent than the State had ever intended it to be. The Court did, however, indicate that USEPA could modify the plan through formal rulemaking under section 110(c) rather than through partial SIP approval. USEPA believes that its adherence to the procedural requirements of sections 110(c) and 307(d) of the CAA in proposing and promulgating the Federal RACT rule revisions avoids the procedural issue identified in *Bethlehem* and hence is consistent with the Court's ruling.

Furthermore, in its comments, IEPA endorsed the mix-match approach. Although it is not clear whether IEPA's letter represents "State intent", USEPA recognizes it as the only comment received on this matter from any State agency or office. IEPA did, however, urge USEPA to limit the applicability of the Federal definitions to the Federal rules. IEPA believed that such a limitation would avoid any alteration of State rules contrary to State intent and would result in compliance with the *Bethlehem* decision. The Court in *Bethlehem* was primarily concerned with federalism issues and the adverse effect of USEPA's partial approval in altering State rules contrary to State intent. USEPA has limited applicability of its definitions to the final Federal rules. By restricting the applicability of its definitions, per the State's recommendation, USEPA believes that the federalism concerns raised in the *Bethlehem* decision will not be implicated. In fact, federalism is served by the mix-match approach (with the limitation on the Federal definitions) by allowing many State rules to remain in effect under the SIP.

Comment: Two commentors believed that under either approach, USEPA's proposal would serve to supplant the entire Illinois regulatory system. USEPA's rules will in effect put the State entirely out of the business of making and enforcing regulations. The commentors maintained that this is contrary to the structure and intent of the CAA for a Federal-State partnership.

Response: Once again, the commentors fail to grasp the significance of the District Court's January 18, 1989, and November 6, 1989, orders. As noted above, Judge Evans has found that the Chicago area is not in attainment of the ozone NAAQS, the statutory attainment date has past, the State has failed to submit an approvable Part D plan, and USEPA is now required to promulgate a plan which must provide for attainment. Pursuant to the Judge's orders, USEPA must expeditiously promulgate certain interim control measures while it is also developing a full attainment plan.

The Federal-State partnership envisioned by the CAA did not result in attainment of the ozone NAAQS for Northeast Illinois by December 31, 1987. The State's failure to submit an approvable SIP resulted in litigation, the result of which was a court order directing USEPA to assume control of ozone planning for Northeast Illinois. This burden shifted from the State to USEPA when USEPA disapproved in final the Illinois SIP on September 30, 1988. In its January 18, 1989, order, the District Court found that USEPA was "* * * now under an obligation to formulate a federal plan."

USEPA's need to move forward on a Federal plan (and to no longer defer to the State) is further supported by the absence of State corrections for the deficiencies identified in the 1988 SIP Call and in Exhibit B of the settlement agreement (i.e., formal notification under section 110(a)(2)(H) of the CAA and court orders have not been enough to prompt the State to act). Because the State has not revised its own plan, the Court has found that the CAA mandates that USEPA step in and do the State's job.

3. General Comments Regarding Federal Rulemaking

Comment: The Illinois Environmental Regulatory Group (IERG) stated that its March 2, 1990, comments represent its notice, pursuant to section 304(b) of the CAA, of its intent to file a citizen's suit in Federal District Court if USEPA fails to cure the deficiencies noted in its comments.

Response: USEPA acknowledges IERG's notice, but believes that any such notice is premature until USEPA has taken final action. USEPA wishes to point out that it has addressed each pertinent comment, but does not agree with many of the comments. Thus, USEPA will not be modifying its proposed rules or rulemaking procedures as desired by the commentor. IERG's recourse after final action is to seek review from the United States Court of Appeals for the Seventh Circuit under section 307(b) of the CAA. Section 304(b) of the CAA does not give district courts jurisdiction to review final agency actions.

Comment: Two commentors felt that USEPA is "tilting the playing field" against Illinois. One commentor stated that this cannot be justified and is not intended under either the CAA or the settlement agreement. Deficiencies were noted in the settlement agreement for Indiana and Wisconsin, but USEPA has not initiated action on these deficiencies. There appears no certainty that the Wisconsin RACT deficiencies will be corrected any time in the near future.

Response: Both Indiana and Wisconsin submitted draft regulations to USEPA, during 1989, addressing virtually all of their deficiencies. All of Indiana's and Wisconsin's rule corrections have now been submitted to USEPA in final (or near final) form. There is no indication that Illinois is close to finalizing (or even proposing) approvable RACT rules. Thus, Federal promulgation is the surest means of "leveling the playing field" in the near term. The commentor should also realize that pursuant to the settlement agreement, USEPA is responsible for ensuring that the Indiana RACT rules are corrected (either through federal promulgation or approval of an adequate SIP revision), but that Wisconsin is solely responsible for ensuring that its RACT rules are corrected.

Comment: One commentor believed that the proposed regulations are unduly burdensome and provide little or no benefit in terms of VOC reductions or progress toward attainment. Another

commentor claimed there was no documented air quality benefit and the NPR is regulation for regulation sake. On the other hand, another commentor noted that this proceeding does not deal with air quality; RACT is based on technical feasibility, economic reasonableness, and other factors; and air quality is not a direct consideration of RACT under the CAA.

Response: Once again, the commentors fail to grasp the significance of the District Court's January 18, 1989, and November 6, 1989, orders. As noted above, Judge Evans has found that the Chicago area is not in attainment of the ozone NAAQS, the statutory attainment date has past, the State has failed to submit an approvable Part D plan, and USEPA is now required to promulgate a plan which must provide for attainment. Pursuant to the Judge's orders, USEPA must expeditiously promulgate certain interim control measures while it is also developing a full attainment plan. These rules are necessary requirements of section 172(b)(3) of the CAA, pending development of the full attainment plan.

USEPA believes that the impacts associated with the Federal regulations are reasonable for these source categories in general, although the regulations will impact individual companies differently. Due to the lack of specificity, the argument provided by the commentor is not convincing that impacts are excessive or unreasonable. USEPA did give attention and consideration to those companies that contended that the regulation was unreasonable for their situation and that provided information to support their assertion. These companies are discussed in section E below.

The ultimate emission reduction needed for attainment is so large that these rules are necessary, although not sufficient, to provide for attainment. As noted in the NPR, reductions beyond the level of control in the CTGs may even be necessary. These rules do, however, provide for progress towards attainment, while a full attainment plan is being developed. In addition, the CAA requires implementation of RACT for these sources without regard to the extent of emission reductions attributable to such technology.

Comment: One commentor believed that USEPA must attempt to minimize the cost and distribute the regulatory burden in connection with demonstrating attainment in the Chicago area, and consider the reductions that could occur in mobile source emissions. The commentor cited an analysis which purports to show that the Federal Motor Vehicle Control Program is likely to provide significant VOC reduction over the next 5 years and that such automobile emission reductions are very likely to be enough for attainment of the NAAQS.

Also, IPCB recently took steps to reduce volatility from mobile sources by adopting Gasoline Volatility Rules. Illinois is investigating even more stringent controls on mobile sources in order to reduce ozone. The stationary source controls proposed in the NPR clearly would result in overcontrol and unreasonable total cost.

Response: As a first step towards promulgating a complete FIP pursuant to the Court orders, and in addition to it being a condition of the settlement agreement, USEPA believes that it is appropriate to take rulemaking action now on RACT rules for the greater Chicago area for the following reasons. First, the CAA requires that States submit SIPs that implement all reasonably available control measures as expeditiously as practicable and make reasonable further progress toward attainment through the implementation of RACT at a minimum on existing sources in nonattainment areas. These rules will provide interim emission reductions while USEPA and the States develop a full attainment demonstration and other necessary control requirements. USEPA has maintained this interpretation of the RACT requirement in these circumstances since 1979 (see 44 FR 20372, April 4, 1979, and 46 FR 7182, January 22, 1981).

Second, traditional stationary source RACT rules are easier to both develop and implement than innovative areawide controls and transportation control measures. Thus, they represent a logical way to achieve reasonable further progress during the period before USEPA can develop a full-scale attainment FIP. Furthermore, the legislative history of the CAA demonstrates Congress' desire that transportation/motor vehicle controls be dealt with by State and local governments. Accordingly, Congress adopted part D sanctions to create a new means of inducing such State/local planning.[8] Thus, Federal promulgation of motor vehicle controls as a first step towards attainment does not seem appropriate.

Third, USEPA is confident that given the large emission reduction shortfall in the Chicago area, as described in the July 11, 1989 ANPR (54 FR 29063), all of these requirements plus numerous other areawide and transportation controls (and perhaps tightening of stationary source controls beyond RACT) will be necessary to support any attainment demonstration for the Chicago area.

Finally, Illinois has already completed rulemaking and submitted several RACT rules. It is appropriate for USEPA to act on these rules as SIP revisions and at the same time promulgate Federal measures to enhance the RACT provisions as necessary to meet the statutory and regulatory requirements.

In addition, the analysis cited by the commentor suffers from several faults. First, no quantitative estimate of the reduction in VOC emissions required to attain and maintain the ozone NAAQS has been made by the commentor. The commentor's conclusion is based on a qualitative guess using improperly adjusted (as noted below) ambient air quality data trends. Thus, no supportable attainment demonstration has been provided.

Second, the analysis appears to assume that reduction in VOC emissions will provide an equivalent reduction in ambient zone concentrations. This assumption is inconsistent with the nonlinearity of the photochemical system.

Third, no justification has been provided for the projected reduction in future VOC emission levels. It is not clear how these reductions were determined.

Finally, the analysis dismisses the high ozone concentrations which occurred during the summer of 1988 because of "abnormal" meteorology. USEPA has previously considered and rejected the argument that the above normal temperature conditions which occurred during recent summers, such as 1983 and 1988, qualify as exceptional events. Year-to-year variability in meteorological conditions should be expected, and there is no guarantee that such conditions will not happen again. The occurrence of comparable, above normal temperature conditions during two other recent summers, 1983 and 1987, further invalidates any claim that 1988 was "abnormal". Thus, it is inappropriate to dismiss 1988 ambient data on the basis of meteorological conditions.

Comment: Two commentors felt it was "incomprehensible" that the proposal did not contain a provision requiring Stage II vapor recovery equipment at gasoline stations. Emissions from motor vehicle refueling are one of the largest, if not the largest,

[8] On November 2, 1989, (54 FR 46271), USEPA proposed to limit highway funding in Cook, DuPage, Kane, and Lake Counties based on the State's failure to make reasonable efforts to submit a revised plan with enhanced motor vehicle inspection and maintenance program.

uncontrolled sources of ozone precursors in northeastern Illinois. The Agency's failure to deal with such an important aspect of the problem makes its proposal unsustainable. The commentors maintained that the CAA requires the Agency to implement Stage II vapor recovery because it is a reasonable available control measure. USEPA's failure to require its implementation is a violation of the CAA.

Response: As noted above, USEPA believes that numerous area, mobile, and point source controls will be needed to provide for attainment here. This rulemaking does not, however, represent the complete attainment plan for the Chicago areas. USEPA, at this time, is only promulgating Federal rules to correct specific deficiencies with certain Illinois stationary source rules. Because USEPA has not notified the State either pursuant to the settlement agreement or a Notice of SIP Deficiency that its plan is deficient with respect to Stage II vapor controls and because the interim emission reductions required by the settlement agreement do not include Stage II controls, adopting such a rule change in this final rulemaking without prior notice raises difficult legal and procedural concerns. USEPA does, however, recognize the viability of Stage II controls and will consider it for inclusion in the full attainment plan (required by the settlement agreement to be promulgated by 1993 and 1994). The CAA does not prohibit USEPA from adopting certain RACT rules in advance of other control measures.

Comment: One commentor felt that USEPA should delay final action on this proposal until Congress provides definitive guidance in the pending Amendments to the CAA. Another commentor noted that USEPA may not disregard the requirements of an existing statue on the chance that Congress may later amend it.

Response: USEPA is not able to wait for this anticipated action on the part of Congress because it is under a court order to act at this time. The settlement agreement is based on the current CAA and USEPA must act in accord with existing law.

Comment: One commentor noted that some of the rules proposed are in direct conflict with existing federally-approved State rules and USEPA failed to provide a satisfactory method of dealing with the conflict. USEPA would require that if the existing federally-approved regulations and the new regulations conflict in such a way that a source would violate the existing rule while moving toward compliance with the new rules, then the source must apply for a site-specific variance from the existing State rule. In view of USEPA's past failure to act promptly on SIP revisions, this would put companies in jeopardy of enforcement.

Response: The existing federally approved SIP rules for any source continue to apply and to be fully enforceable, until the date on which the source is required to comply with a revised rule. The existing SIP will continue in force if there is any delay or lapse in the applicability of the revised rule. To allow a gap in compliance for CTG and major non-CTG sources when the statutory attainment date has past and the area is still nonattainment is environmentally unacceptable. If the existing and revised rules conflict so that a source cannot comply with the existing SIP while moving toward compliance with the revised rule, however, then the source may apply for a site-specific exemption from the existing SIP from the State. All such exemptions granted by the State must, in turn, be submitted to and approved by USEPA before such exemption from the SIP is effective.

No commentors identified any cases where the proposed Federal rules would create any such obvious conflicts. Thus, while USEPA appreciates the commentor's concern about political conflicts, USEPA believes based on the lack of any specific examples that the practical effect of requiring site-specific SIP revisions for this reason may not be significant. Because obtaining a site-specific plan revision the State and subsequent approval from USEPA can take a while, USEPA encourages any such affected plant to initiate the process with the State as soon as possible. It is unlikely that either the State or USEPA would initiate enforcement action against a company based on a conflict between State and Federal rules while such a variance proceeding is pending.

Comment: One commentor questioned how USEPA would handle enforcement of the Federal RACT rules.

Response: USEPA would have primary responsibility to enforce the rules. In the interest of having the State assume control of the plan, the Agency hopes the State will develop adequate legal authority to supplement USEPA's enforcement responsibility with its own in the interim period until the State can submit a complete set of approvable RACT rules.

4. Potential to Emit and Operating Permits

Comment: Several commentors objected to the use of potential emission rates in determining the applicability of certain regulations. One commentor believed that the use of a potential emissions applicability requirement for printing facilities could greatly overstate actual emission due to the nonuniform nature of typical printing operations. One commentor contended that requiring emission levels to be determined prior to add-on controls was contrary to past rulings in the courts (i.e., a facility's potential to emit must take into consideration not only the effect of pollution control equipment on the emission levels but also any federally enforceable permit conditions which restrict hours of operation or amounts of materials combusted or produced). (see *Alabama Power Co.* v. *Costle*, 636 F.2d 323 (D.C. Cir. 1980) and *U.S.* v. *Louisiana Pacific Corp.*, 682 F. Supp. 1122 (D.Colo. 1987) and 682 F. Supp. 1141 (D.Colo. 1988).) The commentor added that requiring potential to emit to be used fails to consider that many sources do not operate 24 hours/day or 365 days/year and never will do so.

Response: USEPA has historically used a source's "potential to emit" as a benchmark for deciding whether it is appropriate to require RACT for the source under the RACT requirement of section 172(b)(3) of the CAA. According to USEPA's past interpretation of "potential to emit" (44 FR 20376), this term means the maximum capacity of a source to emit a pollutant absent control equipment. In reviewing the comments received on this issue, USEPA acknowledges that some confusion could result from the use of the same term with a different meaning in the context of the new source review (NSR) provisions of the CAA. Consequently, USEPA has decided to use a different term for purposes of these RACT rules. USEPA will use the term "maximum theoretical emissions" to describe those sources subject to these RACT requirements. This term will have the same meaning as USEPA historically gave to the term "potential to emit" in the RACT context. Maximum theoretical emissions will be used only to determine applicability for purposes of RACT rules. As discussed in the Blue Book, the RACT exemption levels for printing operations and major non-CTG sources shall be based on the maximum theoretical tons per year emissions calculated assuming design capacity (or maximum production), 8760 hours of operation per year (or maximum capacity), and no add-on controls (or absent control equipment).[7] Because

[7] For printing and major non-CTG sources, USEPA's RACT guidance (as discussed in the Blue

Continued

control efficiency is somewhat variable and possibly uncertain, USEPA believes that subject and exempt facilities can be better identified if add-on controls are not accounted for in the calculation of maximum theoretical emissions. Furthermore, although USEPA realizes that most sources will not in fact operate continually year round, USEPA believes that because maximum theoretical emissions represent what a source is capable of emitting, it provides a more stable characterization of the source than actual emissions, which may also be quite variable and are often extremely difficult to ascertain. Thus, a source's maximum theoretical emissions is a measure for determining whether a source is of sufficient size, and, therefore, has the ability to apply controls at a reasonable cost.

USEPA recognizes that this definition of the term "maximum theoretical emissions" is defined differently from the term "potential to emit" in the NSR program, which was the subject of the court rulings referred to by the commentor. USEPA acknowledges that for purposes of the NSR program, USEPA must consider federally enforceable physical or operational limitations on the capacity of a source, including air pollution control equipment, and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed (see, for example, 40 CFR 51.15(a)(3)). USEPA believes, however, that it is not improper to use a similar term here with a different definition, provided that its use is clearly defined. While the D.C. Circuit Court of Appeals found that the CAA mandates the consideration of pollution controls in determining the potential to emit for the NSR program, the Court explicitly relied on Congress' desire to limit the NSR program to "major" sources of air pollution and its finding that Congress specifically intended USEPA to take into account the anticipated functioning of air pollution control equipment in determining which sources are "major" (see *Alabama Power Co.* v. *Costle*, 636 F.2d at 352–355).[8] There is a different statutory directive for the purposes of establishing emission limitations and standards pursuant to section 110 and RACT requirements of section 172(b)(3). Unlike section 169(1) of the CAA, the definition of RACT in section 172(b)(3) contains no express considerations regarding applicability. Thus, the court cases cited by the commentors are not relevant here. USEPA concludes that it is reasonable to require RACT for all sizeable VOC sources based on maximum theoretical emissions, as described above.

Finally, it should be noted that sources subject to these regulations, based on the use of maximum theoretical emissions as the applicability criteria, may apply for an alternative RACT determination if they believe that the emission limitations and standards of the Federal regulations are not technologically or economically reasonable.

Comment: Two commentors believed that the exemption provisions for several categories, in which the 100 TPY emission rate as limited by a federally enforceable construction permit can be used to determine applicability, should be expanded to include construction and operating permits. This would be consistent with Illinois' system and would prevent a totally new permit system from having to be developed. They believed that there was no reason to differentiate between operating permits and construction permits when determining limitations on the potential to emit. One commentor felt that the provision for exemption based on a federally enforceable construction permit or FIP or SIP revision limiting emissions was unclear and too complex. Another commentor maintained that the use of SIP or FIP revisions to limit potential emissions is administratively impractical and that operating permits should also be an acceptable means of limiting the potential to emit. The commentor suggested that USEPA establish legal and administrative standards needed to make operating permits federally enforceable.

Response: USEPA believes that IEPA's operating permit program is neither federally enforceable, nor consistent with USEPA requirements set forth in a June 28, 1989, **Federal Register** policy statement (54 FR 27274) concerning federal enforceability of State operating permits. According to this policy statement, State operating permits will be considered federally enforceable if issued pursuant to permitting programs that meet five specified criteria. Furthermore, the operating permit program must first be approved by USEPA as meeting these criteria before USEPA will consider such permits to be federally enforceable. Although USEPA approved the State's operating permit program on May 31, 1972 (37 FR 10862) and again in modified form on February 21, 1980 (45 FR 11477), it has yet to approve it as meeting the criteria of its June 28, 1989, policy statement. A brief assessment of the State's program, however, indicates that it does not satisfy all of these criteria (e.g., there is no provision requiring compliance with the conditios in the State operating permit). Consequently, USEPA does not recognize State operating permits in Illinois as being federally enforceable.

IEPA appears to concede that Illinois operating permits are not federally enforceable by acknowledging two procedural flaws in its current operating permit program: (a) Lack of public comments on draft permits, and (b) failure to label the permit as being federally enforceable. IEPA's suggestion that USEPA correct deficiencies in its operating permit program in this rulemaking is inappropriate because USEPA has not identified the State's operating system as being deficient (e.g., this was not included in either the May 26, 1988, SIP Call, the settlement agreement, or the December 27, 1989, NPR). Thus, promulgating a Federal operating permit program in this final rulemaking without prior proposal raises difficult legal and procedural concerns. The proper method for revising the IEPA permit system is through a separate rulemaking action, which the State may elect to do. If so, then the revised program must be consistent with USEPA's June 28, 1989, policy statement.

Finally, because Illinois's operating permits are not federally enforceable, conditions and limitations in those permits cannot be accepted in lieu of federally enforceable conditions and limitations in the RACT rules now being promulgated.

Comment: One commentor believed that an IEPA operating permit is federally enforceable and that this is the preferred method of site-specific determinations and that USEPA must confront the question of whether operating permits are federally enforceable. Two commentors questioned the role of State permits in USEPA's enforcement of the FIP. Another commentor stated that there is no basis for precluding the emission limitations in operating permits. In *People of State of Illinois* v. *Commonwealth Edison Company*, 490 F. Supp. 1145 (1980), the court held that the requirement that an operating permit be

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Book) allows federally enforceable operating restrictions (except air pollution control equipment) to be taken into account when determining applicability. Sources may voluntarily apply for such restrictions.

[8] The Court of Appeals for the Seventh Circuit recently decided a case involving the term "potential to emit" in the context of the NSR provisions of the CAA (*Wisconsin Electric Power Company* v. *Reilly*, Nos. 88–3264, 89–1339, 7th Cir., slip opinion, January 19, 1990). For the reasons described in the text above, this case has no applicability to the RACT rules USEPA is promulgating today.

obtained constituted an emission limitation under the CAA, and therefore is federally enforceable. In *Citizens for a Better Environment* v. *EPA* (649 F. 2d 522 (7th Cir. 1981)), the court held that State operating permits were federally enforceable to the extent their requirements were intended to require compliance with the SIP. Another commentor believed that operating permits are federally enforceable because the operating permit requirements have been part of the Illinois SIP since 1971. Consequently, failure to have a permit is a violation of Federal law.

Response: At issue here is how a particular permit is to be used. The exemptions allowed in the RACT rules being promulgated today are being allowed only for those sources whose permit conditions are federally enforceable and, thus, are viewed by USEPA as being equivalent to the conditions of the rule which would otherwise be applicable. Illinois SIP Rule 103(b), which was approved by USEPA as part of the SIP on May 31, 1972 (37 FR 10862) and again in modified form on February 21, 1980 (45 FR 11477), governs operating permits. This rule makes it a condition of operation that a source so governed obtain a permit, but contains no provision requiring compliance with the conditions in the permit. Because there is no requirement in SIP Rule 103(b) that a source with an operating permit shall not operate unless it is in compliance with all conditions of the operating permit, the conditions of the operating permit cannot be accepted as equivalent to the conditions of the promulgated RACT rule. In the case of *Illinois* v. *Comm. Ed.*, 490 F. Supp. 1145 (1980), Commonwealth Edison was operating without the operating permit required by SIP Rule 103(b). An enforcement action was brought, and Commonwealth Edison defended on grounds that the requirement that it obtain an operating permit was not "an emission standard or limitation" under the CAA and, therefore, was not enforceable under the CAA. The Court found that the requirement was "an emission standard or limitation" and was enforceable under the CAA. The Court merely stated that if a source did not obtain an operating permit, a Federal action could be brought to have it ordered to do so; nothing was stated about the enforceability of the conditions of the operating permit. In *CBE* v. *USEPA*, 649 F.2d 522 (1981), Illinoiis had submitted, and USEPA had approved, Rule 203(f) as a part of the SIP. CBE challenged USEPA's approval of the rule as being arbitrary and capricious. The rule required owners or operators of potential sources of fugitive particulate matter to submit to the State "operating programs" to "significantly reduce" fugitive particulate emissions, and required that the source "shall be operated" under the provisions of the operating program. CBE argued that because "significant reduction" was not defined, the standard could not be enforced. The Court found that argument "premature", and concluded that a source which "does not comply with the operating program required" was subject to an enforcement action of USEPA, the State, or any citizen. The Illinois operating permit rule, however, unlike Rule 203(f) has no "shall be operated" language, and places no conditions on the operation of the source; it only requires a source to have a permit. *CBE* v. *USEPA* is, therefore, inapplicable to the enforceability of the Illinois operating permit rule (Rule 103(b)). As noted above, operating permits are only federally enforceable if issued under a federally approved permitting system, and USEPA has never approved Illinois' program on that basis.

C. Federal Rules

1. General Provisions

a. *Geographic applicability—Comment:* Several commentors questioned the rationale for including McHenry and Will counties in the regulated area, while another commentor objected only to the inclusion of Will County. Another commentor supported the six-county applicability for the RACT rules on the basis that it was consistent with the existing State VOC control in the Chicago area.

In particular, one of the commentors maintained that USEPA's argument regarding emissions is improper in light of emission inventory errors and USEPA's reliance on past modeling is ill-founded. The commentor further noted that it was improper and a violation of the *Bethlehem* decision to reject every other part of the State's regulations, but them to select one part for preservation in a different context. Another commentor claimed that the inclusion of McHenry and Will Counties is inconsistent with USEPA's November 2, 1989, proposed Federal highway funding sanctions (and proposed enhancement to I/M program) for northeast Illinois, which did not apply to those counties, and with the understanding in the settlement agreement that new modeling is needed.

Response: USEPA stands by the rationale cited in the NPR for applying the Federal rules to the attainment counties of McHenry and Will, as well as the nonattainment counties of Cook, DuPage, Kane, and Lake. In brief, USEPA believes that requiring RACT for certain VOC sources in McHenry and Will Counties in important for several reasons. First, Illinois has recognized the contribution of these counties to the ozone nonattainment problem in the Chicago area by including emission sources located in them in the area for which the State constructed its Chicago attainment demonstration in both its 1979 and 1982 part D ozone SIPs. Second, as USEPA has stated on previous occasions subsequent to its redesignation of McHenry and Will Counties as attainment for ozone, that redesignation was based on several incorrect assumptions. Third, USEPA believes that stationary sources of VOC located in McHenry and Will Counties make a significant contribution to the ozone nonattainment problem in the greater Chicago area, and that the ozone NAAQS cannot reasonably be attained unless RACT rules are applied in these two counties. Thus, USEPA is requiring these rules in McHenry and Will Counties in order to meet the attainment related requirements of the CAA for the designated Chicago nonattainment area. Finally, the State has also, in its public comments, endorsed the inclusion of McHenry and Will Counties in the area to be regulated.[9]

USEPA's decision to apply the RACT rules now in McHenry and Will Counties, but not in Grudy and Kendall Counties (which are also in the Chicago CMSA), does not mean that the application of RACT in the latter two counties might not be appropriate in the future. Rather, the Agency believes that in the first phase of correcting existing ozone SIPs in the absence of a modeled attainment demonstration, only those counties in the historical Chicago demonstration area, and that were subject to the 1983 SIP call by USEPA to correct deficiencies in VOC RACT rules, should be subject to the RACT corrections.

The commentor's objection based on perceived errors in the emissions inventory for these two counties and

[9] USEPA's action to subject all six counties to the same level of control [RACT] through this rulemaking will not necessarily require the State to control emissions beyond RACT in these counties equally as part of its future, revised "attainment" SIP. The State may control these emissions to the extent necessary beyond RACT, provided the revised plan produces progress and attainment in accordance with the requirements of the CAA.

USEPA's reliance on past modeling results is not persuasive. With respect to the emissions inventory, a comparison of the current State data base (which the commentor endorsed) and the FIP inventory indicates very good agreement, when certain factors such as biogenic emissions and rule effectiveness for point sources are accounted for. With respect to prior modeling results, it should be noted that USEPA's determination that these counties were upwind on days when the NAAQS was exceeded was based primarily on a qualitative assessment of actual ambient data, not on any mathematical modeling analyses. As noted in the TSD, existing modeling results do not permit a quantitative assessment of the contribution from McHenry and Will Counties and, consequently, a qualitative assessment was necessary. USEPA recognizes that pursuant to the settlement agreement, a state-of-the-art modeling analysis will be conducted.

Comment: One commentor stated that USEPA has no authority to change Will County from attainment to nonattainment for ozone. Another commentor recommended that if McHenry and Will were mistakenly redesignated to attainment, the USEPA should correct the designation.

Response: USEPA is not redesignating Will County, which is currently classified as an attainment county.[10] In fact, the United States Court of Appeals for the Seventh Circuit has previously found that USEPA cannot unilaterally redesignate an area. Furthermore, USEPA is not requiring that these counties develop the full panoply of rules as required by part D. For instance, these counties are not required to ban the construction of all major sources or major modifications of ozone precursors or to implement a motor vehicle I/M program. Rather, USEPA is requiring that McHenry and Will Counties implement RACT, which is admittedly one component of the part D planning obligations, although USEPA is not requiring it in those counties under part D. USEPA has determined that the implementation of RACT in McHenry and Will Counties is necessary under section 110 to provide for attainment and maintenance of the ozone NAAQS in the Chicago area. Furthermore, pursuant to section 110, USEPA has found the existing Illinois implementation plan to be deficient. Consequently, USEPA is adopting RACT rules pursuant to section 110, which applies to attainment and nonattainment areas, not part D.

Comment: One commentor questioned USEPA's authority to promulgate RACT rules in attainment counties.

Response: Judge Evans, in his order of January 18, 1989, found that the USEPA Administrator, on disapproving a State plan, has a nondiscretionary duty to formulate a Federal plan for ozone control, under section 110 of the CAA. (42 U.S.C. 7410(c)(1)(B)). Section 110 is the basis of the legal authority for Judge Evans' orders, and USEPA's CAA obligation. The FIP is to provide for attainment of the ozone NAAQS in the Northeast Illinois nonattainment area.

USEPA's interpretation of the CAA is that the Act does not restrict the application of controls to those counties designated as nonattainment. To the extent necessary to "insure attainment in any area" (section 110(a)(2)(B)) and to "provide for attainment in a nonattainment area" (section 172(a)) controls are incorporated in areas with sources of contributing emissions irrespective of their status under section 107 of the CAA. In these circumstances, for purposes of determining which sources in which areas must reduce their emissions in order to provide for attainment in the Chicago area, USEPA is relying substantially upon prior actions by the State of Illinois which indicate that Will and McHenry counties are properly part of the control strategy demonstration area. These actions include previous SIP submittals by the State which are convincing to USEPA that emissions in these two counties must be controlled to enable attainment of the ambient air quality standards in Chicago. In addition and as a result, USEPA identified these two counties when the notice of SIP deficiency was issued with respect to the Chicago area on May 26, 1988. During the intervening time between this action and the redesignation of these two counties, Illinois has not taken any action or presented any information to indicate that these counties should not be considered as part of the demonstration area.

With respect to the application of RACT in these counties, under these limited circumstances, USEPA believes that the Federal imposition of RACT under the authority of sections 110(a)(2)(B) and 172(a)[11] is the appropriate alternative for achieving emission reductions in these two counties in the interim period before the State and USEPA produce a reliable modeling demonstration of attainment for the Chicago area. These reductions will ensure progress toward attainment of the ozone NAAQS in the Chicago area. The State may, when submitting an approvable SIP, determine that more or less stringent controls are appropriate in these counties in accordance with USEPA guidance.

b. *Definitions—Comment:* One commentor felt that the proposed definition of coating, which includes adhesives, should be revised so that operations specifically regulated under the State generic rule for miscellaneous fabricated product manufacturing are excluded. The commentor noted that adhesive use was regulated by the State under its generic rule. Another commentor said that the coating definition does not make clear the meaning of "functional" coatings, and it is unclear what new types of operations USEPA intends to regulate with this change in the definition. Specifically, the commentor wondered whether adhesives applied to a plastic frame so that fabric can be applied to the frame and paint applied to plastic articles, such as automobile components, would be regulated. If so, the USEPA should repropose and provide an understandable statement of basis and purpose with respect to such applications.

Response: The definition of coating proposed in the Federal rule is "a material applied onto or impregnated into a substrate for protective, decorative, or functional purposes. Such materials include, but are not limited to, paints, varnishes, sealers, adhesives, thinners, diluents, and inks." This definition is compatible with national USEPA guidance, and a similar definition is being applied in all States as ozone SIPs are updated. The terms "protective" and "decorative" are by themselves too limiting in the context of the example coatings listed in the definition. For example, adhesives and inks normally are not applied in order to protect or decorate. Therefore, the broad term "functional" is included to encompass the other potential purposes for which a coating may be applied. The dictionary definition of functional is

[10] On June 6, 1988 (53 FR 20729), pursuant to the Mitchell-Conte Amendment of December 22, 1987, (contained in the Budget Reconciliation Act of 1987, Pub. L. 100-202), USEPA proposed to redesignate certain counties as nonattainment for ozone, including McHenry and Will Counties.

[11] USEPA is not relying on the RACT requirements of part D, title I of the CAA (section 172(b)(3)) for purposes of applying these rules to sources in McHenry and Will Counties. Although the part D requirements do not apply to these two counties, the SIP must retain all existing requirements (RACT and otherwise) and be supplemented by any additional requirements as necessary to provide for attainment and maintenance both in those counties and in nearby designated nonattainment areas.

adequately clear and, as a result, USEPA does not consider the term "functional coating" to be ambiguous. All operations that apply coatings as described by this definition, and that satisfy the other applicability criteria, will be subject to regulation under this implementation plan.

Major non-CTG rules such as the "Generic Rule" are only intended to cover sources not included within a CTG category. The first consideration is whether a coating belongs within a CTG category. If an adhesive as used in a given application does not belong within a CTG category, it should then be considered for regulation as a non-CTG source. However, the status of such coatings when used in applications covered by a CTG is not affected by inclusion of the coating in a non-CTG generic rule.

With regard to the application of adhesives to a plastic frame so that a fabric can be applied to the frame, USEPA believes that such operations appear to be covered by the fabric coating limitations. The commentor failed to provide any source-specific information which would be needed to consider this matter further. For the application of paint to plastic articles, USEPA believes that such operations are not covered by the coating rule, but rather by the generic rule.

Comment: One commentor objected to the proposed modification to the definition of paper coating because there is no technical basis for including saturation operations in the definition and thereby subjecting saturation operations to the paper coating regulations. Both the Blue Book and the NPR only give conclusory statements that paper coating should cover saturation operations. However, they do not provide any justification or give any technical basis for this modification. A commentor added that the TSD fails to mention that saturation operations need to be regulated and that there would be no benefit in emission reduction from regulating saturation operations.

Response: The basis for the clarification in the paper coating definition was, as noted by the commentor, made in response to national USEPA guidance as provided in the Blue Book. The commentor has provided no basis to cause USEPA to change the proposed definition. The technical basis for regulating saturation operations as papercoaters is discussed at length in section E.5 below.

Comment: IEPA suggested several refinements to the proposed Federal definitions to clarify them and make them consistent with the RACT rules before the IPCB. Another commentor supported IEPA's suggested revisions with respect to the definitions used in the pharmaceutical manufacturing rule.

Response: Based on these comments and upon further consideration, USEPA has decided to modify the following definitions: actual emissions, afterburners, air dried coatings, allowable emissions, as applied, automobile or light-duty truck assembly (manufacturing) plant, binders, bulk gasoline plant, can, coating applicator, coating line, coating plant, condensate, control device, emission source, enclose, exterior base coating (coat), exterior end coating (coat), federally enforceable, final repair coat, fixed roof tank, gasoline, heavy liquid, interior body spray coating (coat), magnet wire coating, maximum theoretical emissions (potential emissions/potential to emit), metal furniture coating, overvarnish, petroleum refinery, plant, prime coat, printing line, publication rotogravure printing line, roll coater, roll printer, sealer, source, specified air contaminant, submerged loading pipe (submerged fill pipe), topcoat, vapor recovery system, vinyl coating, volatile organic material, and volatile organic compound. The following definitions have been added: Accelacota, air suspension coater/dryer, airless spray, air-assisted airless spray, brush or wipe coating, capture, capture device, capture efficiency, control device efficiency, electrostatic bell or disc spray, electrostatic spray, gas/gas method, heated airless spray, hood, hood capture efficiency, liquid/gas method, lithographic printing line, magnet wire, multiple package coatings, organic compound, overall control, pharmaceutical coating operation, printing, refrigerated condensor, roller coating, and tablet coating operation. These definitions, added at the request of the commentors, serve only to clarify (and not to modify the intent of) the proposed rules. As such, USEPA believes that including these new definitions in the promulgated rule is appropriate (i.e., reproposal is unnecessary). In addition, the following definitions are not used, or are redundant, in the Federal rules and, thus, have been deleted: actual heat input, agency, ambient air, British thermal unit, building, structure, facility, or installation, emission rate, emissions unit, can-seam spray, complete combustion, electrostatic application, electrostatic coating, excess air, flow coating, furniture coating application line, graphic arts coating facility, graphic arts coating line, gross heating value, heavy off-highway vehicle, interior base coating, liquid-mounted primary seal, petroleum liquid, photochemically reactive material, pressure tanks, reasonably available control technology, refinery, vapor-mounted primary seal, varnishes, and volatile petroleum liquid. The resulting definitions are now more consistent with those in the existing State rules. USEPA hopes that these changes will enhance Illinois's ability to adopt (in total) the Federal rules as soon as possible. It should be noted that the applicable definitions in the implementation plan will consist of the federally approved definition portions of the State rule (201.102, 211.122, and 215.104) and the definitions in the Federal General Provisions rule. The Federal definitions will supersede, for the purposes of the Federal rules, the definitions for the corresponding terms included in 201.102, 211.122, or 215.104 and will be the federally enforceable definition for these terms.

c. *Test methods and procedures—*

Comment: Several commentors objected to the inclusion of the draft document on capture efficiency protocol in the proposed test methods, since it had not been finalized or subject to public review. One of them believed that the temporary total enclosure test method described in the draft guideline document for measuring capture efficiency is not economically feasible for the flexible packaging converting industry, and that no data have been provided to show that the temporary total enclosure test method is more effective or reproducible than methods already in use to demonstrate capture efficiency. Another commentor felt it is clear that USEPA failed to review any technical support for the protocol before including it in the proposal. Still another commentor stated that the use of draft guidance documents for determining compliance with a regulation should not be allowed because the test procedures establish the regulatory limits. Without knowing the content of the finalized version of the guidance document one cannot adequately evaluate the compliance status of the facility or know the precise requirements of the regulation.

Response: USEPA's standard procedure is to propose test methods with regulations, as done in connection with the New Source Performance Standards (NSPS). The proposal of these capture efficiency protocols with the Chicago area Federal RACT rules provided an adequate opportunity for public comment on the protocols. As noted, many commentors objected to the inclusion of the draft protocols, but very few provided specific technical comments on them. The final capture efficiency protocols were issued on

April 16, 1990 (see "Guidelines for Developing Capture Efficiency Protocols"). Because USEPA received no comments justifying a change from using the draft protocols, and because the draft and final protocols contain few differences (as discussed below), the final document has been used as the basis for the promulgated RACT rules, as indicated in the proposed rules.

The commentor that mentioned the temporary total enclosure test method and its feasibility for the flexibile packaging converting industry should note that this is not the only recommended method in the final protocols. Capture efficiency may be measured using the building or room in which the affected source is located as the enclosure.

The technical support for the protocols was carefully reviewed before the protocols were included in the Federal rules. A comparison of the draft protocols and the final protocols shows that there are few differences. The final protocols recommend four procedures: gas/gas using temporary total enclosure, liquid/gas using temporary total enclosure, gas/gas using the building or room as the enclosure, and liquid/gas using the building or room as the enclosure.[12] If the building or room meets the requirements specified for a permanent total enclosure, then it is exempt from capture efficiency testing requirements. A few of the procedures in the draft protocols are not recommended in the final protocols: gas/gas with and without temporary total enclosure (draft protocol 1b), gas/gas with building as enclosure operating with and without affected facility operating (draft protocol 1c, option B), liquid/gas mass balance (draft protocol 2), and liquid/gas with building as enclosure operating with and without affected facility operating (draft protocol 3b, option B).[13] Draft protocols 1c, 2, and 3b were not recommended because they are highly sensitive to measurement errors and have high error propagation. These methods should only be used after careful consideration of the error in the measurements and the resultant uncertainty in capture efficiency. These draft protocols are not included in the final FIP rule and, as such, can only be used if approved as a site-specific SIP or FIP revision. The final document and FIP rule also contain Procedure T, which includes criteria and verification of a permanent or temporary total enclosure. These criteria are the same as those in the draft document, but for clarity have been included as Procedure T.

In light of the few differences between the draft and the final protocols, USEPA believes that the public had an adequate opportunity to comment on the use of the protocols in this FIP. The draft stated that "* * * the guideline and procedures will be updated based on any comments and as more details and information are gathered." USEPA did not receive any specific comments indicating that any given procedures should be retained in the final protocol. The final protocol still includes several test method procedures which USEPA believes are comparable in cost to the procedures deleted from the final protocol. Thus, USEPA concludes that the final protocol provides sources with reasonable flexibility in selecting procedures to demonstrate compliance.

Comment: One commentor noted specific problems which have arisen with the temporary enclosure method contained in the draft guideline capture efficiency document.

(1) Room air currents which are normally experienced may be shielded from the process by the temporary enclosure, giving false capture results.

(2) While the guidance specifies the flow rate design of natural draft openings, the specifications may not entirely preclude flow channeling within the enclosure, which in turn could cause toxic or explosive concentrations of the VOC species to be experienced. This concern may pose liability considerations for the company and regulating agency.

(3) Total enclosures may be difficult, if not impossible, to construct given the area and operating constraints of some coating lines.

(4) It is difficult to maintain the integrity of the capture enclosure throughout the test if material transport and operating personnel access is constantly required.

(5) If a final and acceptable vapor-vapor capture testing method can be developed, it will take years before local regulatory agencies and professional testing firms develop expertise in all aspects of temporary enclosure construction, safety considerations, and potential flaws in the methodology.

It appears unreasonable that the current regulatory proposal should consider this the sole method of available VOC emissions capture testing.

Response: USEPA is aware of, and considered, these specific concerns before finalizing the protocols. USEPA offers the following responses to each concern.

(1) Although shielding of room air currents is a potential problem, USEPA believes that this may actually boost the capture efficiency measured. The protocol attempts to compensate for this by obtaining a concentration from the ducts going to the control device before constructing the temporary total enclosure, then monitoring the concentration in the ducts after construction. If the concentration is different, then the air flow should be adjusted to maintain the initial concentration. If this can be accomplished, then it would eliminate the bias associated with the situation described by the commentor.

(2) There is a requirement to monitor the concentration of organics within the enclosure to ensure that it does not exceed the Occupational Safety and Health Administration limits. This would occur well before an explosive limit would be reached.

(3) USEPA acknowledges that it may be difficult for all facilities to construct total enclosures, although USEPA did study a number of facilities and did not find an instance where this was the case. The final rule, however, allows for case-by-case relief in such situations through a SIP or FIP revision.

(4) USEPA believes that access should be a consideration in the design of the enclosure to minimize any problems.

(5) USEPA disagrees with the comment concerning gas/gas methods. all the measurements required by the gas/gas method are standard, routine procedures with which testing firms and regulatory agencies are familiar. Furthermore, the amount of time to develop expertise in the construction of temporary total enclosures is exaggerated by the commentor.

Comment: One commentor agreed that Methods 24 and 24A and the other referenced test methods for determining the VOC content of coatings, inks, and fountain solutions are appropriate for determining the VOC content of these materials, but felt that these methods are not suitable for determining the quantity of VOC emitted from a process. In many printing processes, there is significant solvent retention in the product, causing actual emissions to be

[12] If a source uses a control device that recovers VOC, an explicit measurement of capture efficiency may not be necessary. The liquid/liquid recovery method may be used.

[13] In addition, the gas/gas and liquid/gas protocols which allocated measured fugitive emissions by the capacity of operating facilities (draft protocols 1c, option C and 3b, option C) have been deleted from the final protocol document. These protocols were deleted because they involved crossline averaging and, thus, necessitated compliance with the Emissions Trading Policy Statement. This presented many administrative and enforceability problems which are unnecessary and burdensome for the facility and USEPA.

much less than the amount determined from these test methods.

Response: USEPA believes that the solvent retained in a printed product generally is eventually released and becomes air emissions, and that owners and operators should be held responsible for such retained solvents. Exceptions can be made in the form of a site-specific SIP or FIP revision only if the owner/operator can provide sufficient evidence that the solvent becomes chemically or otherwise permanently bonded to the coating as it cures and that no VOC will be emitted from the product after it leaves the plant.

Comment: One commentor felt that the proposed continuous emission monitoring (CEM) requirements for catalytic afterburners and carbon adsorbers are inappropriate. In catalytic control systems, temperature rise across the catalytic bed varies with VOC input, and so is not a meaningful indicator of performance. Carbon adsorbers consist of multiple units which cycle and undergo variable emission rates at various points in the cycle. Further, the requirement that CEMs operate at all times is unreasonable because it is difficult to keep these systems on-line, and it does not make sense to shut down a process due to a monitor malfunction. Finally, the application of monitoring requirements to the printing industry, especially small printers, is unnecessary, infeasible, and extremely expensive.

Response: USEPA believes that the monitoring requirements are feasible and necessary to ensure that controls maintain their intended level of operation. USEPA intends for monitoring equipment to be used whenever the monitored process is in operation. Any deviations are more appropriately considered in the enforcement process, where discretion can be exercised as considered appropriate.

A requirement must be in place to assure that catalytic beds continue to maintain adequate control efficiency. An alternative to monitoring temperature rise across the bed would be to monitor the VOM concentration of each catalytic afterburner bed exhaust. The proposed requirements in § 52.741(a)(4)(iv)(B) have been revised in the final rules to reflect this alternative.

The portion of a carbon adsorber cycle just prior to desorption is a time of increased emissions. As the adsorber approaches saturation, the exhaust VOC concentration will increase as the available retention sites are reduced. However, the maximum exhaust concentration from a well-operated system should not exceed some low level of about 20 to 100 ppm. USEPA maintains that VOC concentration is a useful indicator of the regeneration cycle. The continuous monitor will be used to indicate whether adsorbers are being properly operated and maintained.

Finally, USEPA disagrees that the proposed monitoring requirements for the printing industry will pose the problems raised by the commentor. The printing industry has a higher applicability cut-off level than other coating sources (i.e., 100 ton per year maximum theoretical versus 15 pounds per day actual). Thus, "small" printers will be exempt from the Federal rules. The subject printing plants are considered to be a sizeable source and should have continuous monitors to ensure that their control equipment is operating properly. These larger sources should be able to absorb the costs of such monitoring.

Comment: One commentor had several comments on the proposed compliance testing requirements as they relate to printing operations. The commentor stated that there is no need to perform efficiency testing of individual units if the overall efficiency of the system, as determined by the liquid/liquid test protocol (i.e., the NSPS 30-day overall materials mass balance), has been found to meet the overall control requirements. For publication rotogravure printing, the commentor asserted that 30-day overall materials mass balance technique would be the most representative approach. Any short-term non-continuous test method is inappropriate for the determination of the performance of a complex, variable flow emissions control system. Since the detection limit for Method 25 is 50 ppm, the required efficiency for systems measured by this method should be 90 percent or 50 ppm, whichever is greater. Finally, USEPA should consider the use of screening tests to identify situations where more in-depth testing is warranted, because formal compliance testing is very expensive, and could be burdensome for smaller businesses.

Response: USEPA requires that compliance determinations be based upon daily or shorter time frames. Therefore, the liquid/liquid protocol may only be used, for purposes of demonstrating compliance with these Federal rules, if it is performed in accordance with the general procedures in 40 CFR 60.433, as revised by the restrictions in § 52.741(a)(iii). USEPA's test methods (e.g., Reference Methods 18 and 25) are appropriate for short-term variable flow emission control systems.

USEPA will not be including a 50 ppm control device efficiency limit in the final Federal rules because: (1) The Agency's long-standing RACT guidance is 90 percent control device efficiency, (2) no specific cases where 90 percent efficiency cannot be determined have been presented, and (3) use of a ppm standard could encourage dilution without control. The testing specified in the final rules is the only way compliance can be assured.

Finally, USEPA wishes to emphasize that the testing specified in the regulations, and not a screening test, is the only way a source's compliance can be assured.

Comment: The same commentor questioned the need for extensive daily records of the VOM content of materials for operations using add-on controls such as carbon adsorption equipment. The commentor believed that it should be sufficient to maintain the records that are required to calculate VOM input into the process and the volume of solvent recovered from the control system for the 30-day averaging period.

The commentor gave the following example for heatset web offset operations. For heatset web offset operations utilizing incineration for control, the recordkeeping requirements impose a burden with no discernible benefits, since the system is required to operate at 90 percent control efficiency regardless of materials input. In fact, the recordkeeping requirement for offset operations with incincerators operating at 90 percent are actually more stringent than those for facilities using condensation recovery systems that are required to remove only 75 percent of the non-isopropyl alcohol emissions.

Response: The recordkeeping requirements specified in cases where control equipment is employed are necessary to assure that the control device is maintained and performing adequately, so that emissions are controlled to the required level.

USEPA agrees that the daily VOM content of each coating and ink is not necessary for printing lines complying solely by the use of add-on control. The recordkeeping requirements specified in § 52.741(h)(4)(iv)(B)(*1*) of the proposed rules have, therefore, been deleted. USEPA disagrees that the recordkeeping requirements for offset operations with incinerators is more stringent than for those using condensation recovery systems. Although offset operations using incinerators are required to record control device monitoring data, they are not required to record the VOM content of the fountain solution used for each day on each printing line.

Comment: One commentor had several comments concerning the

proposed test methods as they apply to auto coating operations. In § 52.741(a)(3), under the definition of volatile organic compound, USEPA has proposed that the VOC for compliance will be measured by the approved test methods. To be consistent with USEPA's "Protocol for Determining the Daily Volatile Organic Compound Emission Rate of Automobile and Light-Duty Truck Topcoat Operations" (December 1988), the commentor suggested that test procedure for deterimining VOC should only be applicable to the coatings being exposed to the cure ovens since the test method measures cure volatiles as well as formulation volatiles. Further, according to the commentor, the formulation VOC content should be used for the paint overspray in the application areas. Also, the commentor claimed that provision in § 52.741(a)(4)(i)(B)(*1*) covering the analytical method (i.e., Methods 24 will govern if there is any inconsistency between a Method 24 result and the formulation data) is inconsistent with the USEPA Automobile Topcoat Protocol, which allows the use of formulation data for the overspray coatings in the application areas and only requires Method 24 for the coating actually experiencing the cure oven.

Response: USEPA acknowledges that the "Protocol for Determining the Daily Volatile Organic Compound Emission Rate of Automobile and Light-Duty Truck Topcoat Operations" (December 1988) does allow the use of formulation data for the determination of VOC content for paint overspray.[14] USEPA agrees that automobile or light-duty truck topcoat operations using the protocol should be able to use formulation data to determine VOC content of overspray rather than having to demonstrate compliance using Method 24, as implied by the proposed rule. To clarify the applicable compliance procedures for automobile or light-duty truck topcoat operations, USEPA has both changed the title of § 52.741(a)(i)(4)(ii) from "Transfer Efficiency Test Protocol" to "Automobile or Light-Duty Truck Test Protocol", and the text to cover testing in general, not just transfer efficiency. Consequently, compliance for automobile or light-duty truck coating operations will be determined with USEPA's Topcoat Protocol. USEPA believes that this change should resolve any inconsistency in the applicable test procedures.

Comment: A commentor suggested that the specification of the size (one liter) of the container for the collection of samples (see § 52.741(a)(4)(A)) is unnecessary. It is recommended that instead the section be revised to indicate that one liter of sample should be collected as a minimum—the size of the container is irrelevant.

Response: The one-liter container size is specified for two reasons: (1) To ensure that enough material is available for analysis, and (2) to provide standardization, throughout industry, for the quantity of material to be analyzed. USEPA believes that, to ensure that samples are collected on an as-applied basis and are not simply a container of paint directly from the shelf, the one-liter size requirement is useful and has retained it in the final regulation.

Comment: One commentor noted that § 52.741(a)(4)(ii) references the procedures outlined in "Protocol for Determining the Daily Volatile Organic Compound Emission Rate of Automobile and Light-Duty Truck Topcoat Operations" (protocol), as a method for determining coating applicator transfer efficiency for topcoat coating operations. The referenced protocol was developed for calculating emission rates for compliance demonstration. Transfer efficiency is only one component of the calculation. The commentor recommended that paragraph (a)(4)(ii) be revised to include a statement that compliance with the topcoat limitation should be demonstrated in accordance with the emission rate calculations defined in the referenced protocol (as stated in § 52.741(e)(2)(ii) on alternative emission limitations) and that the use of the referenced protocol (a)(4)(ii) for compliance demonstration should be stated in § 52.741(e)(6)(ii)(A).

Response: In order to resolve any inconsistency in the applicable test procedures, USEPA has changed the title of § 52.741(a)(4)(ii) from "Transfer Efficiency Test Protocol" to "Automobile or Light-Duty Truck Test Protocol". Consequently, compliance for automobile or light-duty truck topcoat operations will be determined with USEPA's Topcoat Protocol. Because the protocol was originally intended to provide guidance in demonstrating compliance and does not contain regulatory language, however, the protocol (as written) connot be inserted into the regulation as a method of demonstrating compliance. This is because it includes latitude in the manner in which the source will demonstrate compliance. Therefore, the regulation has been revised to include a requirement that the owner or operator of coating line subject to the topcoat limitation must submit a proposal specifying how it will demonstrate compliance in accordance with the Topcoat Protocol. Recordkeeping and reporting requirements were also included in the regulation. These requirements have been added to strengthen the enforceability of the regulation.

Comment: One commentor questioned the applicability of the test procedures for movable bed carbon adsorption systems to fixed bed carbon adsorption systems.

Response: The test procedures defined in § 52.741(a)(4)(vi)(A) (*1*) and (*2*) are applicable to any carbon adsorption system, and the sections have been revised in the final regulation by deleting the term "fixed-bed".

Comment: One commentor strongly disagreed with the requirement that transfer efficiency credits can only be allowed if approved by the Administrator as a SIP or FIP revision for prime surface coating. The commentor recommended the adoption of a prime surfacer coat limit of 15.1 lbs VOC/gallon of solids applied, which is equivalent to 2.8 lbs VOC/gallon coating (minus water and non-VOC organic compounds) based on a transfer efficiency (TE) of 30 percent and a volume solids of 26 percent. By defining the limit at 15.1 lbs VOC/gallon solids applied (as the topcoat limit is defined in § 54.721(e)(1)(i)(A)(*3*)) an appropriate equivalency option is provided based on the process transfer efficiency without the unnecessary step of a SIP or FIP revision. Another commentor agreed with the basis of this comment.

Response: USEPA believes that the use of transfer efficiency credits can only be allowed if approved by the Administrator as a SIP or FIP revision on a case-by-case basis, unless the approved plan includes both a transfer efficiency test method and an established baseline for the source category in question, as is the case with the Topcoat Protocol. For prime surfacer, there is an established baseline (30 percent), but there is no approved test method. As indicated by its name, the Automobile Topcoat Protocol as currently written is only appropriate for evaluating the transfer efficiency for topcoat operations. It should be noted, however, that the procedures in the Topcoat Protocol could be used as a basis for a prime surfacer transfer efficiency test method. In the absense of a transfer efficiency method approved by USEPA for prime surfacer, site-

[14] This is because cure volatiles are not generated from oversprayed paint that does not cure. Methods 24 includes a 1-hour bake which generates cure volatiles. Therefore, use of Method 24 is appropriate only for coatings which go through an oven.

specific SIP or FIP revisions are required for the use of transfer efficiency credits for prime surface coating.

d. *Compliance dates—Comment:* Several commentors stated that the compliance date of April 1, 1991 was arbitrary and unreasonable for some sources. Two commentors contended that the compliance period of the generic rule does not allow enough time for compliance, and that a three-year period is more realistic. One commentor cited generally the time required for design, fabrication, and installation of control equipment, and for alteration of the plant, as justifying a compliance date of between two and two and a half years.

Response: USEPA appreciates that the proposed compliance date of the proposed Federal rules may be very difficult, if not impossible, for certain sources to meet. To provide all affected sources some additional time, therefore, the Agency has set a later general compliance date of July 1, 1991. This date allows approximately one year from the effective date of the Federal rules. None of the commentors provided detailed information substantiating the need for more than one year to comply. USEPA notes that sources have been aware of these requirements since the proposal of these rules. Thus, the compliance period is actually closer to one and a half years. Although USEPA would not expect sources to install control equipment based upon proposed rules, USEPA believes it is reasonable to expect sources to initiate contact with potential suppliers based upon such rules. This is routinely done in the context of the NSPS, which apply to sources commencing construction after the date USEPA proposes those standards. If additional time is needed to comply, then a source may apply for a delayed compliance order. Any compliance schedule must meet the CAA requirements for expeditiousness. The Agency has considered relaxed compliance dates for certain site-specific rules, and individual discussions of such rules are contained in section V of this document. In addition, although not addressed directly by any of the comments, USEPA has decided to extend the compliance date of the Federal rule for heatset web offset lithographic printing, paint and ink manufacturing, miscellaneous fabricated product manufacturing, miscellaneous formulation manufacturing, and miscellaneous organic chemical manufacturing for sources subject to the current State rule for these categories. The revision also extends the compliance date for these sources from the date of promulgation to July 1, 1991. Because the commentors felt that requiring compliance one year from the promulgation date would be too soon in some cases, then it is apparent that requiring compliance upon promulgation would also be too soon in those cases. Thus, USEPA believes it is appropriate to extend this compliance date also.

e. *Afterburners—Comment:* One commentor felt that the rules are unreasonable and are not RACT because they do not contain the provision for seasonal use of incinerators as contained in the Illinois SIP regulations. Also, USEPA should add a provision which allows for seasonal use of incinerators using more than one fuel. The commentor specifically cited an incinerator that uses both natural gas and electricity. Another commentor stated that they respected the energy efficient approach of this seasonal use of incinerators.

Response: The Federal RACT regulations do contain a provision for seasonal use of natural gas incinerators. Section 52.741(a)(6) states "The operation of any natural gas fired afterburner and capture system used to comply with § 52.741 is not required during the period of November 1 of any year to April 1 of the following year provided that the operation of such devices is not required for purposes of occupational safety or health, or for the control of toxic substances, odor nuisances, or other regulated pollutants." This differs from the Illinois SIP regulation which also allows seasonal use of oil-fired incinerators. National RACT guidance, however, limits this exemption only to natural gas-fired afterburners. USEPA acknowledges the support of the second commentor and will maintain this provision in the final rules. With regard to the natural gas/electric incinerator mentioned by the commentor, the exemption in the Federal rule only applies to the use of natural gas.

USEPA issued a policy in 1980 stating its intent to approve SIP provisions that exempt natural gas-fired afterburner systems from having to operate during the period of the year not prone to the formation of ozone in the ambient air. The policy was based primarily on the existence of a natural gas shortage and the unlikelihood of ozone violations during the winter months. USEPA has implemented this intent through the course of rulemakings on SIP submittals.

The suggestion by the first commentor that USEPA expand the use of seasonal exemptions to other types of afterburners has prompted the Agency to take another look at the basis for the current policy. The Agency's initial conclusion is that it sees no basis, such as an oil or electricity shortage, for exempting non-gas-fired afterburners from the FIP requirements during the winter months. For that reason, USEPA is not providing such an exemption. Moreover, the Agency is now reexamining whether the exemption included in the FIP rules (quoted above) is appropriate in light of today's energy-supply conditions.

Because owners of facilities that would operate gas-fired afterburners received no notice in USEPA's proposal that the Agency was considering deleting the exemption from the FIP rules, and because the commentors were not suggesting such a deletion, USEPA is for purposes of today's rules retaining the exemption, pending further analysis.

f. *Exemptions, variances, and alternative means of control—Comment:* Two commentors requested an explanation of the role of alternative compliance strategies, SIP revisions, and site-specific revisions in the Federal RACT rules. One commentor stated that USEPA's proposal does not provide an Adjusted Standard mechanism similar to that provided by the IPCB. One commentor suggested that wherever possible, the Federal rules should allow for alternative standards based on routine records, testing, and reports to demonstrate approvability, rather than requiring SIP or FIP revisions. One commentor objected to the proposed requirement that any variance, exemption, or alternative compliance strategy be submitted for USEPA approval. Another commentor believed that the language of the proposed rule is not clear as to whether plants currently operating under a permit allowing daily weighted averaging would be required to obtain a FIP revision or whether they would be "grandfathered in" so that only plants applying for permits to allow averaging after the promulgation of the rule would be required to obtain FIP revisions. This ambiguity should be clarified.

Response: According to section 110(i) of the CAA, the only way to revise the implementation plan is by a plan revision under section 110(a)(3), a plan promulgation under section 110(c), an order under section 113(d), an exemption under section 118, a suspension under section 110(f) or (g), or a primary nonferrous smelter order under section 119. Except for these six approaches, "* * * no order, suspension, plan revision, or other action modifying any requirement of an applicable implementation plan may be

taken . . . by the State or by the Administrator." Thus, unless the applicable implementation plan provides a State with the authority to modify the plan, such as with a federally approved generic bubble rule, a SIP revision under section 110(a)(3) is required to change the applicable plan.

USEPA policy, as described in the Blue Book, requires modifications of the implementation plan to be submitted to USEPA as a proposed SIP revision. The current State rules allow modifications without USEPA approval. This discretion was cited by USEPA as a deficiency in its May 26, 1988, SIP Call and June 17, 1988, follow-up letter to Illinois. Such State discretion renders the plan inadequate to ensure attainment and maintenance of the NAAQS.

Section 52.741(a)(7) of the proposed Federal regulations clearly states that "Notwithstanding the provisions of any other paragraphs of this section, any exemptions, variances, or alternatives to the control requirements, emission limitations, or test methods in the Illinois SIP or FIP can only be allowed if approved by the Administrator as a SIP or FIP revision". Regardless of whether a source is seeking a revision to a Federal rule or a State rule, USEPA encourages all sources to work through the State to obtain a SIP revision. If submitted to and approved by USEPA, then the SIP revision would replace that portion of the FIP. This would serve to both provide the source with the relief it seeks and to establish the State rule as the applicable rule; thereby restoring the State to its proper role as the lead planning agency.

A SIP or FIP revision is not required for any single line employing daily weighted averaging because this is an acceptable means of complying with the Federal limits. All plants employing averaging across lines (cross-line averaging), however, must have such averaging approved as a SIP or FIP revision. This requirement cannot be grandfathered because cross-line averaging must be demonstrated to satisfy USEPA's Emissions Trading Policy Statement (ETPS), and Illinois does not have an approved generic bubble rule. It should also be noted that several SIP and FIP provisions contain alternative emission limitations and alternative compliance sections which allow options of compliance methods which do not need to be approved as SIP or FIP revisions. The following subparts contain such alternative compliance sections: 52.741(e): Coating Operations (FIP), Subpart K: Use of Organic Material (SIP), and Subpart S: Rubber and Miscellaneous Plastic Products (SIP).

Comment: Two commentors asked whether alternative test methods must be approved through a SIP revision process. The commentors felt that this method was time-consuming and that a quicker approval process should be available. Another commentor noted that § 52.741(a)(4)(i)(B)(*4*) allows the Administrator to specify or allow the use of alternate test methods to determine the VOC content of the coatings. This should not be allowed since the test procedure establishes the regulatory limits. Changing the test procedure in effect can change the regulatory limit. Allowing the Administrator to arbitrarily specify alternate test methods would in effect allow the Administrator to arbitrarily change the emission limitations without appropriate public comment periods and without following the necessary rulemaking procedures.

Response: Sections 52.741(a)(4)(i)(B)(*4*) and 52.741(a)(4)(vi)(G) allow the Administrator to accept adaptations to the analytical method and test methods, if adequately documented. It is frequently necessary to make relatively minor changes to an approved test method so it can be applied to a source being tested. It is not practical to require that such minor changes be approved as a SIP or FIP revision.

Note: 52.741(a)(4)(vi)(G) has been added by USEPA in the final rules to provide the additional flexibility requested by the commentor. Similar provisions for the other test methods and procedures in 52.741(a)(4) were also considered, but were determined to be unnecessary.

An alternative to an existing test method must be approved as revision to the Illinois implementation plan. The chief purpose of these provisions is to allow companies to use more appropriate methods, if the specified method would give inaccurate results.

With respect to the timeliness of the SIP revision process, USEPA will to the extent possible classify such revisions as Table 3 SIP actions (see 54 FR 2214, January 9, 1989). Consequently, these revisions will be processed at the Regional Office level; thus, expediting USEPA's rulemaking.

Comment: One commentor noted that current USEPA policy states that SIP relaxations cannot be approved in nonattainment areas. Based on this policy, the commentor wondered if any variance that constituted a relaxation would be disapprovable. The commentor requested clarification on the procedures for obtaining a site-specific revision.

Response: The CAA requires that SIPs for areas not in attainment of the NAAQS by August 7, 1977, must provide for the implementation of RACT as expeditiously as practicable. 42 U.S.C. 7502(b)(2). USEPA has defined RACT as the lowest emission limitation that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility. 44 FR 53762 (September 17, 1979).

Through the issuance of CTGs, USEPA has identified pollutant control levels that USEPA presumes to constitute RACT for various categories of sources. Where the State finds the presumptive norm applicable to an individual source or group of sources, the State typically adopts requirements consistent with the presumptive norm.

States may develop case-by-case RACT determinations independently of USEPA's recommendation. USEPA will approve these RACT determinations as long as the State shows they will satisfy the CAA's RACT requirements based on adequate documentation of the economic and technical circumstances of the particular sources being regulated.[15]

In light of these requirements, USEPA will approve an alternative RACT requirement only if the State demonstrates that the requirement does in fact constitute RACT.[16] To make this

[15] More specifically USEPA has described RACT and the obligations of the States as follows:

Along with information, each CTG contains recommendations to the States of what USEPA calls the "presumptive norm" for RACT, based on USEPA's current evaluation of the capabilities and problems general to the industry. Where the States finds [sic] the presumptive norm applicable to an individual source or group of sources, USEPA recommends that the State adopt requirements consistent with the presumptive norm level in order to include RACT limitations in the SIP.

However, recommended controls are based on capabilities and problems which are general to the industry; they do not take into account the unique circumstances of each facility. In many cases appropriate controls would be more or less stringent. States are urged to judge the feasibility of imposing the recommended controls on particular sources, and adjust the controls accordingly.

The presumptive norm is only a recommendation. For any source or group of sources, regardless of whether they fall within the industry norm, the States may develop case-by-case RACT requirements independently of USEPA's recommendation. USEPA will propose to approve any submitted RACT requirement that the State shows will satisfy the requirements of the Act for RACT based on the economic and technical circumstances of the particular sources being regulated. 44 FR 53762–63 (September 17, 1979).

[16] Generally, USEPA does not allow relaxations in nonattainment areas where there is no approved attainment demonstration. USEPA wishes to clearly

Continued

demonstration, the State must show first that in fact the current SIP requirements do not represent RACT because pollution control technology necessary to reach the requirements is not (and is not expected to be) reasonably available, and second that the alternative limit is the most stringent limit that is technically feasible and economically reasonable. USEPA will determine whether the State makes this demonstration on a case-by-case basis, taking into account all the relevant facts and circumstances concerning each case. The demonstration requirements to support an alternative RACT limitation are discussed in more detail in appendix A of the November 9, 1988, notice of proposed rulemaking for Easco Aluminum Corporation (53 FR 45285).

2. Surface Coating

Comment: Several commentors objected to the change to the coating rules which made the coating applicator instead of the coating line the affected source. They felt this made the rule more stringent than the NSPS, inconsistent with Agency RACT guidance, and inconsistent with the SIP Call.

Response: Three compliance options are available for coating operations: use of only complaint coatings, daily weighted averaging of coatings, and add-on controls. For sources electing to comply through the use of compliant coatings, the Federal rules specify that the regulated unit is the coating applicator. This is consistent with the concept that each coating used meets the applicable emission limit. Alternatively, sources may elect to comply by either daily weighted averaging or add-on controls. In both of these cases, the Federal rules clearly state that the regulated unit is the coating line. Thus, USEPA believes its rules, as proposed, are consistent with established regulatory practice and that the commentors simply misunderstood the regulation.

Comment: One commentor felt that there is an apparent conflict between the stated deficiency regarding exemptions for coating facilities and the coating rules as proposed. Whereas the exemption cutoff is supposed to be 3 lb/hr or 15 lb/day actual emissions before add-on control or 10 TPY maximum theoretical emissions, the regulation contains an exemption level of 15 lb/day actual emissions. The commentor believed that this made the rule vague and confusing.

Response: Section 52.741(e)(3), Exemptions from Emission Limitations, states that "The limitations of paragraph (e) shall not apply to coating lines within a facility, that otherwise would be subject to the same subparagraph of paragraph (e)(1)(i) (because they belong to the same source category, e.g. can coating), provided that combined actual emissions of VOM from all lines at the facility subject to that subparagraph do not and will not exceed 6.8 kg/day (15 lbs/day) before the application of capture systems and control devices." USEPA's choice of a single exemption level is entirely consistent with the stated deficiency and Federal guidance. The exemption level is not calculated after controls as the commentor seems to believe, and, thus, does not make the rule vague or confusing.

Comment: One commentor felt that daily weighted averaging should not be restricted to a single coating line, but should be allowed across several lines. Elimination of the crossline averaging provision could require that some items be coated twice, resulting in increased emissions. A second commentor found the daily wieghted averaging proposal to be ambiguous. While a USEPA official at the public hearing stated that such provisions would not have to go through the SIP revision process, the NPR indicates otherwise.

Response: Intraline averaging (i.e., daily weighted averaging) is acceptable because the regulated unit is a coating line. Interline (i.e., cross-line) averaging constitutes a bubble which must be submitted for USEPA approval as a SIP or FIP revision. Interline averaging is permissible and, therefore, would be approved if the request meets the requirements of the ETPS—see 51 FR 43814, December 4, 1986. Because Illinois does not have a federally approved generic bubble rule, which ensures conformance with the ETPS, cross-line averaging is allowed only if approved as a site-specific SIP or FIP revision. Finally, USEPA does not believe that its position on cross-line averaging will result in items being coated twice and an increase in emissions. These Federal rules are primarily directed towards regulating the level of control technology and not production levels. Furthermore, it has not been demonstrated that the Federal rules will necessitate a source to coat some items twice. Even if this was the case, however, then USEPA believes that an increase in emissions can still be prevented (*e.g.*, through the use of add-on controls or the use of a federally approve SIP or FIP revision allowing cross-line averaging).

Comment: The proposal defines an acceptable averaging time for VOM compliance demonstrations to be either instantaneous or as daily weighted averages. For many facilities where complex material usage allocation schemes, production schedules, and equipment operations are experienced, compliance demonstrations on a 24-hour basis would be unreasonable. While past policy and guidance documents suggested that hourly or 24-hour averaging times were most appropriate, consideration was given in these documents to monthly averaging times under extenuating circumstances. In addition, Federal NSPS specify 30-day compliance averaging periods.

Response: USEPA policy states that averaging periods in excess of 24 hours are not allowed generically. Longer term averaging of emission control requirements, in general, may not be consistent with protecting the short-term ozone NAAQS. A facility can only obtain greater than daily averaging as a site-specific SIP revision if the elements of USEPA's January 20, 1984, policy memorandum are satisfied. Key elements of this policy are a demonstration that daily recordkeeping is infeasible, and a demonstration that there is an approved attainment demonstration for the area. The elements of the 1984 policy are necessary to assure that affected sources meet the requirement to apply RACT and not interfere with reasonable further progress toward attainment of the ozone NAAQS.

Comment: One commentor claimed that cetain coating/ink emission limits in the proposed rules are not based on the amount of solids applied, as is required when an averaging method or add-on controls are being used. Also, the commentor suggested that the actual density of the VOC in the coating, rather than the default value of 7.36 lb/gal, should be used in the equation given in (e)(1)(iii) if its value is known. Another commentor pointed out that equation in § 52.741(e)(1)(ii)(C)(2) contained an error.

Response: Allowable emissions are determined on a solids applied basis,

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state, however, its intent to revise (and possibly relax) the Federal plan, if found to be appropriate, for at least two sources (Allsteel in Kane County and Viskase in Cook County). The need to promulgate Federal regulations under the tight timeframe ordered by the Court has prevented USEPA from being able to consider fully the merits of proposed, alternative site-specific limits. Although for environmental and equity reasons, USEPA believes that it is necessary to establish emission limitations and standards for all sources at this time, USEPA will continue to consider the need to adopt as Federal measures site-specific limits for these two sources. As such, USEPA is deferring the effective date of these Federal rules for Allsteel and Viskase until January 1, 1991, in order to allow additional time for its consideration of this matter. If determined to be appropriate, then USEPA will propose revised Federal limits in the near future.

and actual emissions are determined on a volume of coating basis. USEPA maintains that this is properly reflected in the proposed rules. USEPA contends that the solvent density used in developing the CTG coating limits (7.36 lbs/gal) must be used in the equation given in (e)(1)(iii), for the purposes of determining allowable emissions. Also, the typographical error that existed in the equation has been corrected.

Comment: In § 52.741(e)(6)(ii)(C)(*1*), the proposed regulations require the submittal of any records showing violation of § 54.721(e)(1)(i) within 30 days following the occurrence of violation. This would be impossible for a source subject to § 52.741(e)(1)(i)(A)(*3*) to comply with since the emission calculations for the month cannot be completed until the data for the entire month have been compiled. Final emission calculation results would not be available until approximately 10 days after the last day of the month to allow for necessary data review and calculation time. If a violation occurred during the first week of the month, the 30 day time requirement could not be met. It was recommended that this requirement be revised.

Response: The rules presume that 30 days is sufficient both to identify and to report any violation. Because certain companies may have monthly recordkeeping practices, however, timely identification of violations may not occur. Therefore, for any source subject to § 52.741(e)(1)(i)(A)(*3*) the regulation has been modified to require that notification be provided within 15 days from the end of the month during which the violation has occurred.

3. Generic Rule

Comment: Two commentors asked whether the specific generic sources had been identified, and whether sewage treatment plants would be covered by the generic rule. Other commentors objected to the proposed generic source rule, believing that the affected industries should be stated, the rule is unsupported, and the rule appeared to exceed the guidance in the Blue Book as well as the terms of the litigation and the settlement agreement.

Response: USEPA feels that it has addressed the deficiencies cited in Exhibit B of the settlement agreement with regard to the generic rule and has not exceeded these or Federal USEPA guidance. A memo dated December 21, 1989, was prepared (and placed in the docket) which identified, based on the emissions inventory, companies which may be affected by the generic rule.[17] This is not a formal determination of affected facilities but may be used to gain some idea of which facilities may be affected. The cover sheet on this memorandum states:

> The review discussed in this memorandum is intended to provide a best estimate of the number of facilities affected by the proposed rule. It is not intended to be a formal determination of the exempt or subject status of each facility. While this review may assist USEPA in preliminarily indentifying the status of several facilities, this determination will be made in the future pursuant to the certification provisions of the proposed rule.

With regard to sewage treatment facilities, USEPA acknowledges that it did not intend, due to the lack of available technical justification, to subject these facilities to the generic rule. USEPA has, therefore, added sewage treatment plants to the list of exempt source categories specified in § 52.741(x). As such, sewage treatment plants are exempt from the Federal generic rule and, consequently, will not be regulated at this time.[18]

Comment: Two commentors felt that the provision requiring control of "Other Emission Sources" ignores earlier IPCB efforts and determinations as to the definition of RACT for these sources in Illinois. Another commentor added that USEPA's attempt to document the rational for the "catch-all" generic rule (§ 52.741(x)) is devoid of logic. The commentor contended that neither the TSD nor the NPR contain sufficient analysis or justification for the Federal rule. USEPA has improperly calculated the cost of this rule and has failed to consider the State's determination that coverage of "other emission sources" is simply not RACT in Illinois. Another commentor believed that § 52.741(x) goes beyond the Blue Book requirements, is more stringent than USEPA is requiring of other States, and is inconsistent with the terms of the settlement agreement. Another commentor felt that § 52.741(x) cannot effectively or fairly regulate diverse emission sources which may be covered by this requirement, and that USEPA should take the time to develop specific source type regulations. This commentor was especially concerned with the rule's applicability to aluminum cold rolling processes.

Response: USEPA wishes to point out that a "catch-all" generic rule is needed for the regulatory approach chosen by the State. This is because the Illinois category-specific approach may not cover all major non-CTG sources for the following reasons. First, the existing emission inventories may not be accurate with respect to actual emissions or maximum theoretical emissions, before add-on controls. Second, USEPA guidance clarifying existing policy on major non-CTG applicability was not established until May 25, 1988, when the Blue Book was released. This date is after the date when non-CTG rules were developed for many areas. Third, there is no compelling incentive for states to ensure that they have identified and developed RACT regulations for all major non-CTG sources. Consequently, a backstop generic major non-CTG rule is needed for Illinois. This rule would apply to all sources that should be subject to a major non-CTG rule, based upon Blue Book applicability criteria, only if the source is not already covered by a non-CTG source category rule. To be consistent with RACT, the control requirement of this rule should be at least as stringent as 3.5 pounds of VOC per gallon of coating or 81 percent overall control. Adoption of such a rule presents virtually no administrative drawbacks (sources covered by an existing non-CTG rule will not be affected) and produces potentially significant environmental benefits.

USEPA believes that it is being responsive to claims by individual companies or facilities that the regulations are not reasonable for their situation. Such cases are addressed in section E for facilities which provided detailed information supporting their argument. In the case of aluminum cold rolling processes, the commentor failed to provide any information which supported the claim that the control requirements of the generic rule are unrealistic for the cited industry. Consequently, USEPA has made no change in the proposed rule as it applies to this source category.

Comment: One commentor was concerned that sources employing a hexane extraction process for producing vegetable oil might be regulated under USEPA's proposed generic rule. Such sources are currently covered by subpart N of the Illinois regulations, and as such are specifically exempted from the State's generic rule. The commentor pointed out that no other States appear to be regulating this type of source, and

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[17] It should be noted that a reanalysis of the impact of the Federal generic rule was performed by USEPA's contractor to account for the additional exempt source categories. The list of affected facilities and estimated impacts in the reanalysis and the initial analysis are comparable.

[18] USEPA is currently working on control guidance for sewage treatment plants, which may result in the development of control requirements at some time in the future.

USEPA itself has in the past found that no control technology is available for controlling these emissions.

Response: USEPA was informed by IEPA that there were no major non-CTG vegetable oil processing plants in the Chicago area. There was, therefore, no reason for USEPA to document control technology for this source category. In view of the commentor's admission that it is a major source and a vegetable oil processing facility, however, USEPA has reconsidered its prior position. USEPA believes, however, that additional control technology for vegetable oil processing cannot be identified at this time and has abandoned efforts to do so either for NSPS or RACT (CTG) purposes. Therefore, the final rules include vegetable oil processing in the list of exempt source categories specified in § 52.741(x). As such, vegetable oil processing will be exempt from the Federal generic rule.

Comment: One commentor was concerned that the generic rule might impact a number of currently unpermitted sources. The commentor noted that bakeries had been specifically exempted from the rule, and felt that other food and food derivative processes in which VOM is not added and is not a primary product of the process, but is emitted secondarily, should also be exempted.

Response: The commentor did not describe in any more detail which specific processes would be included in this group of food and food derivative processes, other than bakeries which are already exempted. Therefore, USEPA has no basis for considering an appropriate categorical exemption beyond the bakery exemption. Any major non-CTG sources that are not exempted must apply reasonable controls, either as specifically stated in the regulation or through an approved alternative control plan. For example, a source that could not achieve an overall emission reduction of 81 percent as otherwise required would have to develop a reasonable control plan and submit it for approval as a SIP or FIP revision.

4. Implementation and Administration

Comment: IEPA foresaw problems regarding the implementation and administration of the proposed regulations. Their comments addressed daily weighted averaging for coating operations, alternative emission limitations for coating operations, compliance procedures, limitations on production (or capacity) to reduce emissions below 100 tons per year, notices of violation, recordkeeping, and State authority.

Response: In response to these comments, the following revisions to the proposed rules have been made: (a) Afterburners have been added to the list of control devices in § 52.741(e)(2)(i)(B), (b) the weight of VOM per volume of coating solids on a daily basis need only be recorded (in § 52.741(e)(6)(iv)(B)(*1*)) when complying pursuant to § 52.741(e)(2)(i)(B), and (c) the word "initial" has been added to all references to the start-up of new sources. Further discussion of USEPA's review of these comments and the subsequent revisions to the proposed rules is provided in the USEPA's comment/response document contained in the docket.

5. Technical Support for Proposed Federal Rules

Comment: Several commentors felt that USEPA had not provided sufficient justification for many of the proposed measures, either in the **Federal Register** notice or the technical support document. One of them said that there was no evidence to support the contention that there would be any air quality benefit from many of the regulations. One commentor believed that USEPA was considering the CTG guidance and the Blue Book not as presumptive norms, but as absolute limits, without providing the necessary demonstration that they represent RACT. Several commentors stated that the Blue Book, the post-87 policy, and the ETPS were only guidance documents and questioned the importance given to them. As a result, the commentor suggested that USEPA has totally ignored questions of economic reasonableness, technical feasibility, or fairness.

Response: USEPA believes that sufficient justification was provided for the proposed measures. Two major sources were used to support the regulations. The first of these was Federal guidance material containing presumptive norms for RACT. For the most part, this guidance material consisted of CTGs and the Blue Book. The other major source was information provided to USEPA regarding State rulemaking in Illinois. All applicable CTGs and the Blue Book are present in the rulemaking docket. It should also be noted that the commentors have overlooked the significance of the Blue Book, as called for by the settlement agreement. As noted previously, the settlement agreement requires USEPA to propose and, if necessary, promulgate revised RACT rules in accordance with the Blue Book. Thus, the Blue Book is the court-sanctioned standard for these rule revisions.

USEPA maintains that it included in the docket all relevant supporting material, including the main guidance documents, which it considered directly in developing its proposal. These documents include the technical support for USEPA's RACT determinations. The State rulemaking records provided additional information and support for regulations which in some instances followed the same guidance used by USEPA, and in other instances deviated from these norms. USEPA examined these State proceedings and determined if such deviations were warranted.

Thus, the proposed Federal rules were based on USEPA guidance material and, where justified based on specific information applicable to Illinois, deviated from these norms. Examples of these deviations are the high-temperature aluminum coating limitation for General Motors Electro-Motive Division (GM-EMD) and the Pharmaceutical Manufacturing regulations. However, in many instances, USEPA did not believe the State's proposed variation from the national guidance was justified. The support for USEPA's position on State rule submittals is contained in various Technical Support Documents contained in section XII of the rulemaking docket. In these cases, USEPA did not feel the information provided by the State fully supported a departure from Federal guidance. It should be noted that the burden of proof is on the State to convince USEPA of the necessity of the rule departure from national RACT guidance. In the absence of this satisfactory evidence, USEPA has returned to its basic RACT guidance.

Several commentors fulfilled this burden of proof obligation and provided appropriate technical support for their case which USEPA considered and found to be valid. Therefore, the final regulations were changed to reflect these comments, and discussed below.

Comment: Two commentors felt that USEPA's action in proposing RACT rules is clearly inconsistent with its own policy, which provides for the consideration of technological and economic factors in RACT determinations. Other commentors stated that USEPA has the burden of demonstrating RACT, and that USEPA has not sustained this burden. The commentors believed that there was no evidence that USEPA analyzed these RACT factors or the pertinent IPCB information in developing its proposed rules and USEPA must grant deference to the States' RACT determinations. A third commenter thought USEPA had relied on the concepts generally

associated with best available control technology (BACT), not RACT, determinations. This commentor also stated that the CAA does not empower USEPA to reject a State's rules because they do not meet a presumptive guideline of RACT. Another commentor stated that it is not clear what criteria USEPA uses in determining what is "reasonable". Also, one commentor stated that the State of Illinois has attempted to submit approvable rules (such as the generic rule), but USEPA keeps redefining what constitutes RACT.

One commentor stated that a plan proposed by USEPA in place of a State plan must be in accordance with RACT. A FIP cannot go beyond RACT, it can only be as stringent as reasonably necessary to assure timely attainment and maintenance.

Response: USEPA has defined RACT as the lowest emission limitation that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility, 44 FR 53762 (September 1979).

Through the issueance of CTGs and related guidance such as that contained in the Blue Book, USEPA has identified pollution control levels representing or presumed to be RACT for various categories of sources. Because the Federal rules are consistent with this guidance, USEPA does not believe that these rules go beyond RACT. It should also be noted that these rules are not consistent with NSPS, which would be the case if USEPA were relying on BACT concepts.

USEPA determines RACT on a case-by-case basis taking into account many factors, including the costs of controls, the age and size of the facility, and the feasibility of controls at similar facilities. The determination of what technology constitutes RACT for a given source category can, and does, change over time, with the determination being made at a given time that the selected technology represents the most stringent technology that is technologically feasible and economically reasonable for the source category.

USEPA will approve alternative RACT determinations provided that a demonstration is made that: (1) The presumptive norm is not technologically feasible or not economically feasible for the source in question, and (2) that the proposed limit is the most stringent limit that is technologically and economically feasible. Because the individual source has a greater knowdedge of its own operations that USEPA, it simply makes more sense that it come forward with any information showing that what USEPA proposed as RACT for its facility is not technologically feasible or economically reasonable, rather than placing this initial burden on USEPA.

An important part of this analysis is an examination of the level of control in place at similar facilities (including, but not limited to the same CTG category). A detailed discussion of what USEPA considers to be an acceptable alternative RACT investigation is contained in appendix A of the November 9, 1988, notice of proposed rulemaking for Easco Aluminum Corporation (53 FR 45285).

USEPA's technical support document, and appendices, do demonstrate consideration of the facts presented in the IPCB hearing record. The principles stated above were used by USEPA in evaluating RACT for the Chicago ozone FIP. USEPA can only accept proposed State rules if they constitute RACT. The State must provide support for RACT determinations that differ from national guidance.

Finally, it should be noted that the ultimate emission reduction needed for attainment is so large that these rules are necessary, although not sufficient, to provide for attainment. As noted in the NPR, reductions beyond the level of control in the CTGs may even be necessary.

Comment: Two commentors felt that the TSD does not analyze the costs of compliance with the proposed rule to any particular industry, and thus, USEPA has not followed its own policy on source-by-source determinations of RACT. The commentors felt that it is necessary and appropriate for USEPA to determine the actual economic impact of the remaining proposals on Illinois industry.

Response: Determination of impacts on an individual facility basis was neither feasible within the court-ordered time frame nor practical given the large number of sources in the six-county area covered by the Federal rules. USEPA, therefore, found it necessary to rely upon general category data and to focus on the entire source category (rather than individual facilities) for the purposes of assessing the impact of the proposed rules. USEPA expected that where its general category assumptions were invalid for a specific facility, that facility would so notify USEPA during the comment period. In fact, several companies did submit site-specific information which USEPA reviewed. This material is discussed on a site-specific basis in section E of this notice. Also, the regulations allow a company to apply for a site-specific SIP or FIP revision if they do not believe that the general category assumptions are applicable to their situation.

Comment: One commentor believed, based on discussions with IEPA staff, that the FIP emissions inventory is incorrect because USEPA's contractor did not meet with IEPA to discuss the origins of the State inventory that was provided to USEPA. As a result, the commentor concluded that the environmental benefits of, and need for, the FIP had been greatly overstated.

Response: USEPA has attempted to use the State's emissions inventory data, to the extent that these data are consistent with national policy for post-1987 emissions inventories. IEPA originally provided USEPA, and its contractor, with a copy of its inventory of carbon monoxide, nitrogen oxide, and VOC emissions in May 1989. Numerous discussions were held between USEPA, and its contractor, and IEPA to resolve various questions and concerns related to this version of the State's inventory. USEPA relied on that inventory in its July 11, 1989, ANPR on the Chicago ozone FIP. In response to public comments on the ANPR by IEPA (and other parties), USEPA made certain changes to the inventory. On December 31, 1989, IEPA submitted an updated version of its emissions inventory. Any questions concerning the IEPA's submittal were discussed and resolved with IEPA. Where relevant, USEPA has attempted to rely on this latest version of the inventory in assessing the impacts of the Federal rules. Thus, contrary to commentor's claim, USEPA believes that it has used the best data available and, as such, has not overestimated the impact of the Federal rules.

Comment: Several commentors claimed that the high cost effectiveness values (cost per ton VOC reduced) cited by USEPA for many source categories, such as large appliance coating, could not be justified as RACT.

Response: Although the cost effectiveness for large appliance coating (and other surface coating categories) initially identified in the TSD for the NPR appeared to be unreasonably high, it must be remembered that this initial cost estimate conservatively assumed that compliance would be achieved primarily through the use of add-on controls. As noted above, USEPA has reevaluated its assessment of affected facilities and the compliance costs. This reevaluation, which has been incorporated in the TSD for this final rulemaking, indicates much lower costs and more reasonable cost effectiveness, based upon compliance primarily through other techniques.

Comment: One commentor believed that no serious effort has been made by USEPA to estimate the potential cost impact of the proposed generic rule, and that the cost to a single facility might actually be as high as $20 million. Another commentor felt that USEPA's reliance on cost data from the IPCB hearing record was inappropriate in view of the differences between the State and proposed Federal generic rules. In particular, one commentor objected to the use of the $5000 per ton figure to determine impacts for sources which are exempt from the State rule, but subject to the proposed Federal rule.

Resonse: The economic impacts reported in the TSD for the NPR were based on information from the State proceedings regarding the approximate cost for the average affected facility. The cost for a single facility could be more or less than any average value. Public comments were also received from many companies which considered the proposed generic rules to be unreasonable for their company. USEPA's review and response to these concerns are addressed in section E below.

As noted in the TSD, USEPA has exempted certain source categories from its generic rule on the basis of documentation from the IEPA and the IPCB. USEPA has attempted to exempt from its generic rule the same categories as the State, as well as a few other categories in response to the public comments.

Finally, in performing the economic assessment, USEPA has attempted to determine the basic economic impact of these rules. For some of the sources, which are subject only to the Federal generic rule, a higher cost was included to be more conservative in the analysis.

D. State Rules

Comment: Several commentors claimed that USEPA had not provided sufficient support for its action on the State rules. The commentors felt that USEPA had only made conclusory statements regarding the State rules without any justification.

Response: Documentation for USEPA's proposed rulemaking is contained, in summary fashion, in individual TSDs prepared by Region V and, in more detail, in the file. USEPA believes that its action on the State rules is supported by this material.

Comment: Several commentors believed that USEPA did not analyze or respond to the information in the State rulemaking record. The commentor noted that section 110(c)(1) requires USEPA to consider any State hearing record prior to promulgation of any Federal rules. One commentor claimed that the Illinois process worked, and that the Illinois system produced a set of RACT rules which controlled emissions while not burdening any particular industry with a requirement that was technically infeasible economically unreasonable.

Response: USEPA has considered the IPCB record. USEPA's TSDs (which are included in USEPA's record and in the appendices to USEPA's TSD for its proposed rulemaking) on individual State rules were prepared after careful and thorough review of all of the State rulemaking record that was submitted to it by IEPA. USEPA must independently evaluate any RACT determinations submitted to it for its approval to ensure that they are consistent with the requirements of the CAA and related USEPA policy.

Comment: One commentor noted that the State has adopted and submitted to USEPA numerous RACT rules which have yet to be acted on by USEPA. These delays are in violation of the CAA requirement that SIP submittals be acted upon within four months. It is improper and contrary to the CAA to hold these submittals "hostage" and then to promulgate a FIP to fill the void created by USEPA's failure to approve a SIP.

Response: USEPA notes that the requirement in section 110(a)(2) for the Administrator to approve or disapprove a plan (or portion thereof) within four months of the required submittal date applies solely to the initial plan submittal in response to the promulgation of a NAAQS or a revision of the NAAQS, as noted in section 110(a)(1). Revisions to an approved plan are not contemplated in section 110(a)(1) except in response to a NAAQS revision. Thus, the four months processing requirements is not relevant in this situation. Instead, USEPA is required to act generally on SIP revisions within a "reasonable time". This issue is considered in *United States* v. *General Motors Corp.*, 89-369, which is pending before the United States Supreme Court.

USEPA recognizes that the State has submitted several revised rules to USEPA for incorporation in the SIP. USEPA has attempted to deal with most of these SIP revision requests as part of this rulemaking. The few remaining revisions not included here, such as revisions to the SOCMI Leak rule and site-specific RACT determinations for Allsteel and Viskase, will be addressed in a future **Federal Register** notice. USEPA has delayed the effective date of these rules for Allsteel and Viskase to allow for further consideration of the pending submissions. If USEPA concludes that those submissions are adequate to justify revisions to the rules being promulgated today for those two sources, then it will endeavor to make those revisions as soon as possible.

With respect to prior rulemaking, USEPA reviewed the history of past rulemaking action in the NPR and will not repeat it here. This review demonstrated USEPA's efforts to process various SIP revisions on a timely basis, yet allowing the State enough time and flexibility to revise portions of its submittals which were not acceptable. As noted above, however, USEPA can no longer defer to the State and must move forward to federally promulgate the necessary revisions at this time pursuant to the court's order on this matter.

Comment: One commentor questioned the status of pending alternative compliance requests, and wondered whether the process of obtaining Federal approval would have to be repeated. Another commentor believed that requests for adjusted RACT standards pending before the IPCB had not been considered or addressed by USEPA in developing this proposal. These submittals would seem to correct the deficiency cited by USEPA that alternative plans be submitted for USEPA approval. USEPA should approve these submittals rather than proposing a FIP to replace the deficient rule.

Response: As discussed earlier, there are SIP submittals provided to USEPA which were not discussed in the NPR because USEPA had yet to complete its review. These State submittals need not be resubmitted. The submittals are currently undergoing analysis by USEPA and will be addressed in future rulemaking. USEPA maintains that site-specific revisions need to be submitted individually for USEPA approval and the State is responsible for continuing to submit site-specific revisions in the future.

Comment: One commentor felt that USEPA should apply its 5 percent equivalency rule (i.e., a demonstration that there is a 5 percent or less difference in allowable emissions under the rule consistent with RACT guidance and the rule proposed by the State for a given source category) to the State rules before considering their disapproval. Another commentor added that there is no indication in the docket that USEPA examined whether the 5 percent rule might be applicable, and, if so, might be applied to avoid the need for Federal promulgation.

Response: The basic purpose of the 5 percent rule is to provide a mechanism for allowing States flexibility in developing their regulations. Also, the procedure can only be employed to justify minor source exemptions or the selection of differing cutpoints for regulatory coverage within a CTG category. The deficiencies with the rules cited by the commentor did not involve just a change in the exemption level, so the procedure would not be applicable in these cases. Further, USEPA is not required to apply the 5 percent procedure for rules it promulgates as federal measures. The commentor did not provide any evidence that they or the State had performed any calculations which led to their conclusions. It should be added that when the State submits its SIP rules to replace the Federal RACT rules, it has the opportunity at that time to perform the 5 percent procedure and show that the exemption levels in the State rule cause no "substantive difference" between the State rule and the Federal rule.

Comment: Several commentors claimed that USEPA had preliminarily approved the substance of the State's proposed generic rule, and felt that no reason has been given for the Agency's change of position on this issue. Another commentor felt that USEPA should approve the well-documented State generic rule rather than adopting its own "poorly-documented" rule.

Response: The commentors provided no basis for their claim that USEPA had preliminarily approved the State's generic rule. Therefore, USEPA is unable to respond in full to that portion of the comment. Even if USEPA had suggested that the generic rule as originally submitted for review seemed to be approvable, the final rule formally submitted as a SIP rule was different from the earlier version.

The reasons for disapproving the State's generic rule are provided in the January 23, 1989, USEPA Region V TSD. This TSD is also located in Appendix I of the TSD for the proposed Federal rules. In addition, the deficiencies are listed in Exhibit B of the settlement agreement. Therefore, USEPA maintains that reasons for the disapproval of the generic rule are well documented.

Furthermore, USEPA's generic rule is well documented. To the extent possible, it is consistent with the Illinois generic rule. The differences between USEPA's and Illinois' generic rules are based upon the deficiencies with Illinois's rule cited in USEPA's January 23, 1988, Technical Support Document and Exhibit B of the settlement agreement. Therefore, USEPA's generic rule is simply Illinois' generic rule modified to conform with USEPA guidance.

Comment: One commentor objected to the manner in which the disapproval of the internal offset rule was conducted. USEPA has not identified what problems exist, if any, with the Illinois internal offset provisions with respect to satisfying the requirements for generic approval outlined in the Blue Book and the ETPS. USEPA should inform the State of the changes needed to qualify the internal offset rule as a generic rule, rather than declaring that all determinations made by the State pursuant to the rule must be submitted for SIP approval and cannot become effective until that approval is granted. The Illinois internal offset rule is a generic emission trading rule within the meaning of the ETPS. If USEPA believes it fails to meet the requirements of the ETPS, then it is obliged by its own policy to publish a **Federal Register** notice identifying the deficiencies in the rule and means for correcting them.

Response: USEPA does not believe that the State intended its internal offset provisions ("Aggregation of Emission Sources") to be a generic rule and, thus, never reviewed it as such. In any case the internal offset provisions would not be approvable as a generic bubble rule because, for example, it does not require the use of lowest of actual or SIP/RACT allowable emission baselines for all sources involved in the trade, and it does not require that the baseline be further reduced by 20 percent. In addition, the rule does not contain many of the procedural requirements (*e.g.*, notification and public comment) specified in the ETPS. Should Illinois wish to have its internal offset rule approved as a generic rule, then it must comply with all requirements of the ETPS and submit the rule for approval under that policy.

Comment: Two commentors felt that the internal offset provision, which allows daily weighted averaging of coatings in determining compliance, cannot be a RACT deficiency since it has been approved by USEPA. The commentors cited a recent court decision (i.e., *U.S. v. Allsteel,* No. 87, C4638 [ND IL 1989]) as support for their position. Another commentor believed that USEPA's bases for disapproving Illinois' Aggregation of Emission Sources (internal offset) rule [Section 215.207] (that compliance arrangements are embodied in State operating permits that have expiration dates and the need to submit offsets for USEPA approval) are unfounded, inconsistent with prior USEPA guidance, and not relevant. The commentor pointed out that if a permit expires without renewal, the authorization to use section 215.207 also terminates. If necessary, then USEPA should add a requirement such as:

> No person shall comply with 35 Ill. Adm. Code Part 215, Subpart F, by means of Section 215.207 without having a current operating permit pursuant to part 201 specifying the compliance procedures to be used to determine emissions for purposes of Section 215.207.

Response: USEPA acknowledges that on February 21, 1980 (45 FR 11472), it approved rule 205(N)(4), "Internal Offsets", as part of the Illinois SIP. (Note, the SIP approved rule, 205(N)(4), is significantly different than the internal offset provision, 215.207, in the current State rules.) On December 4, 1986, however, USEPA published its final ETPS. The ETPS established uniform criteria for "generic bubble" rules which allow States to approve certain types of individual source transactions without the need for case-by-case SIP revisions or associated Federal review prior to approval. As part of its national review in early 1988 of SIPs to determine conformance with the Agency's RACT guidance, USEPA determined that SIP rule 205(N)(4) does not meet the requirements of the ETPS. As such, USEPA informed the State that the internal offset rule was deficient as a generic bubble rule and that all internal offsets must be submitted as SIP revisions, until Illinois has an approved generic bubble rule, and must comply with USEPA's ETPS. Because Illinois has failed to respond adequately to this notification, USEPA is proceeding with federal promulgation pursuant to section 110(c)(1)(C) of the CAA.

Section 52.741(a)(7) states that:

> "Notwithstanding the provisions of any other paragraphs of this section, any exemptions, variances, or alternatives to the control requirements, emission limitations, or test methods in the Illinois SIP or FIP can only be allowed if approved by the Administrator as a SIP or FIP revision." This approach is consistent with the mandate of section 110 to provide for attainment and maintenance of the NAAQS, as well as USEPA's ETPS.

USEPA disagrees with the commentor as to the breadth of the decision in *U.S.* v. *Allsteel,* and that it in any way constrains the Agency in this rulemaking. To the extent that the Court based its decision on any ambiguity in USEPA's February 21, 1980, rulemaking on Illinois' internal offset provision, this rulemaking resolves such ambiguity and provides an approach which is consistent with the CAA and USEPA policy.

Finally, USEPA has reviewed the commentor's suggested rule modification, but believes that such a change is inappropriate in this rulemaking. Undertaking such a rule change in this final action without prior proposal raises difficult legal and procedural concerns. Furthermore, in view of the other problems noted above, USEPA believes that the State's internal offset rule is not approvable, even with such a change. Thus, USEPA will not modify the rule as suggested and will, instead, proceed with final rulemaking on the rule submitted by the State.

Comment: A commentor noted that USEPA had not taken action on Illinois' subpart N: Vegetable Oil Processing because of an erroneous negative declaration made by the State for this source category. The commentor said that its process could comply with a shorter (30-day) compliance averaging period than the 180-day period specified in subpart N, if that change would make the State's rule approvable by USEPA. The commentator stated that USEPA should promulgate subpart N in the FIP (amended to correct the averaging period), rather than include vegetable oil processing under the generic rule.

Response: On October 2, 1986, Illinois notified USEPA that it had carefully reviewed its emission inventory and found no vegetable oil processing sources with VOM emissions equal to or greater than 100 TPY located in Illinois' nonattainment areas. On July 10, 1987, USEPA approved Illinois' negative declaration for vegetable oil processing. Illinois' 1988 inventory, as submitted on December 31, 1989, however, indicates actual plantwide emissions (adjusted for rule effectiveness) and plantwide maximum theoretical emissions greater than 100 TPY for at least one such source. It, therefore, appears that the State's negative declaration is no longer correct. Nevertheless, in view of USEPA's decision to exempt vegetable oil processing from the Federal generic rule, the effect of the previous negative declaration is moot. Also, USEPA does not believe that promulgation of a Federal rule for vegetable oil processing is justified at this time. Consequently, such sources are exempt from the generic rule and are not currently subject to a federally approved SIP rule.

Comment: One commentor questioned the basis for changes made to the State's rule covering pharmaceutical manufacturing, stating that the rulemaking record did not provide this rationale.

Response: Page 8–1 of the draft TSD states that the principal deficiencies for the State pharmaceutical rules were the methodology for determining vapor pressure and the unenforceable portions of the rule. The draft TSD also states that; "There are additional differences between Illinois' adopted rule and the proposed Federal rule. These differences are generally based on the Illinois EPA's March 1989 proposed rule and the June 7, 1989, letter from USEPA Region V to IEPA addressing enforceability concerns. These items are contained in Appendix G.1." USEPA feels that the reasons for the changes in the pharmaceutical manufacturing regulation were adequately described in the TSD and appendix G prior to proposal.

Comment: Two commentors stated that if the Agency is going to rely on comparisons with another company in its determination of RACT, then it should use its authority under section 114 to gather such information and make all resultant information available in the record.

Response: In evaluating RACT for certain source categories, USEPA has in some instances obtained information on other companies within those categories. This information-gathering process included the use of the Agency's section 114 authority in one instance. The company providing the information has made a claim of confidentiality and, pursuant to USEPA regulations at 40 CFR part 2, subpart B, that information must, therefore, be treated for now as confidential pending a final determination by USEPA as to that claim.

E. Site-Specific Issues

1. Duo-Fast

Comment: Duo-Fast raised the following issues in its comments: (a) USEPA's proposed disapproval of the Illinois coating rule "power driven fastener coatings" is unsupported and contrary to the extensive State rulemaking record. If USEPA is to subject the "power driven fastener" industry to a more stringent regulation, it must have a complete basis in the record for determining that the proposed limitations constitute RACT. This would include an analysis that the limitations are economically and technically feasible for the sources in question. Reliance on general RACT guidance is not sufficient.

(b) USEPA has not demonstrated that the two other facilities which allegedly comply with more stringent miscellaneous metal parts or products (MMPP) rules are comparable to those at Duo-Fast.

(c) The minimum reduction in ozone precursor emissions which will result from the implementation of these rules cannot be justified in a RACT proceeding.

(d) USEPA should consider other environmental impacts of these proposed rules. It would be environmentally counter-productive to impose a more stringent VOC regulation on Duo-Fast, if the only reasonable way of achieving it is substitution of methylene chloride, a proposed air toxic in Illinois, for non-exempt solvents.

Response: USEPA believes that the disapproval of the State rule, and subsequent proposal of the Federal rule for MMPP (with the absence of special limits for power driven fastener coating), was appropriate and its rationale well documented (*e.g.*, see July 19, 1988, Region V TSD). In general, USEPA intends to rely on its GTGs to identify the control levels which it presumes to be RACT for various source categories. Because the CTGs have been prepared based on a careful and thorough evaluation of the capabilities and problems associated with the control approaches for a particular industry, USEPA believes that it may rely (and, in the past, has relied) solely on the CTGs to define RACT. Where a State finds the presumptive norm may not be applicable to an individual source, for economic or technological reasons, it may develop a site-specific RACT requirement. Such alternative RACT requirements would be acceptable if the State demonstrates first that the presumptive norm is not economically reasonable or technologically feasible and second that the alternative limit is the most stringent limit that is economically reasonable and technologically feasible.

For Duo-Fast, USEPA has relied on the CTG for MMPP as the general basis for disapproving Illinois' rule and for promulgating the applicable Federal limit. As further support for its actions, USEPA considered whether comparable companies were complying with the MMPP coating or equivalent limitations. USEPA policy states that "In determining RACT for an individual source or group of sources, the control agency, using the available guidance, should select the best available controls, deviating from those controls only where local conditions are such that they cannot be applied there and imposing even tougher controls where conditions allow." (see December 9, 1976 memorandum from Roger Strelow). USEPA believes that if control technology is available to a comparable facility and that no unique "local conditions" are identified which would prohibit this technology at the subject facility, then RACT for the two

companies is the same. The issue for Duo-Fast is whether these other companies are comparable and whether any "local conditions" would prohibit them from applying the same control technology present at the other facilities (assuming these facilities are meeting a more stringent limitation). Upon further review, USEPA has concluded that, for the purpose of defining RACT for Duo-Fast, these companies are comparable and that there are no unique local circumstances which would prohibit Duo-Fast from implementing the same technology being utilized at these facilities.

USEPA began by reviewing the State record in detail once again. USEPA especially examined the efforts made by Duo-Fast to attempt to comply with the miscellaneous metals parts and products coating limitations as described in the State record. USEPA's examination of the State record found that for the most part, it contained arguments by Duo-Fast which were conclusory statements not supported by any technical information provided by the company.

USEPA also examined the feasibility of both compliant coatings and adhesives, and add-on control for Duo-Fast. USEPA believes that compliant coatings are readily available based on the fact that neither of the comparable facilities studied were experiencing difficulty meeting the MMPP coating limitation for these types of coatings, and conversations with coating suppliers which indicated that compliant lubricity and withdrawal resistance coatings are available and in use for these purposes. On the other hand, contact with various coating suppliers indicates that compliant adhesives which meet Duo-Fast's specifications may not be readily available. In summary regarding compliant coatings and adhesives, USEPA rejects Duo-Fast's claim that compliant coatings which are used for lubricants and withdrawal resistance are not reasonably available. However, USEPA agrees that compliant adhesives suitable for use in the power driven fastener manufacturing industry are not available. Add-on controls (incineration) are used by the other two comparable facilities to comply with the applicable limitations for fastener adhesives. Therefore, add-on control is technologically feasible for the power driven fastener manufacturing process. Furthermore, it has not been demonstrated to USEPA that this technology is economically infeasible. Thus, USEPA maintains that it is economically reasonable for Duo-Fast to control emissions from their adhesive operations through the use of add-on control.

To summarize, USEPA believes that RACT for Duo-Fast is identified by the proposed MMPP emission limitation. USEPA believes that compliant coatings are available for the lubricant and withdrawal resistance functions and that add-on control is reasonable to control the adhesive operations.

Finally, with respect to the expected emission reduction and the concern over other environmental impact, USEPA wishes to note that RACT is based on technological and economic considerations, not environmental impacts. It should be noted, however, that the estimated emissions from Duo-Fast's conventional and multiwire machines alone are approximately 190 tons per year. USEPA does not believe that it is unreasonable to require more RACT-level control on a source of this magnitude. In addition, USEPA does not believe that the only reasonable way of achieving the limitation is through the substitution of methylene chloride for non-exempt solvents. Rather, USEPA believes either compliant coatings or add-on controls are reasonably available as discussed above. Furthermore, Duo-Fast has not demonstrated that compliance through the use of methylene chloride, which USEPA would accept, is technologically infeasible or economically unreasonable. Therefore, USEPA believes that this is a moot point.

2. Stepan Company

Comment: Stepan Company, which owns and operates a plant manufacturing soaps and detergents and certain other materials, raised the following issues regarding its volatile organic liquid (VOL) storage operations in its comments:

(a) USEPA has overestimated VOC emissions from Stepan's Will County plant near Millsdale. Actual annual VOC emissions are one-third of those calculated by USEPA. Stepan submitted control efficiencies and emission data (maximum theoretical tons per year based on permits) showing that emissions at 21 of 38 points in the October 1989 FIP inventory were wrong.

(b) USEPA should consider the economic and technical difficulties presented by the proposed generic rule for currently exempt sources such as Stepan's. If storage tanks are covered under the generic rule, Stepan might have to control over 200 sources, the majority of which have emissions below 0.1 TPY but in the aggregate exceed the 5 TPY exemption level. A requirement for storage tanks to meet 81 percent control would make the RACT rule more stringent than the storage tank NSPS, which includes volume and vapor pressure applicability cutoffs, and would make the Illinois rules the most stringent in the nation for storage tanks. It would be expensive, unsafe, and impractical to combine these emissions given their large spatial separation and small individual emissions and control them with a common control device.

Response: When compiling the October 1989 FIP emissions inventory, USEPA used the latest available data tape from IEPA. IEPA has revised their 1988 emissions inventory subsequent to submittal to USEPA and the revised IEPA data do include the control information presented by Stepan. These IEPA data are being used to revise the USEPA FIP inventory and result in a plantwide total of 182 tons (versus Stepan's estimate of 170 tons) in the annual emission estimate prior to application of rule effectiveness guidelines.

USEPA also acknowledges that the proposed generic rules, as written, would appear to require that: (1) Emissions from categories exempt from a number of specified regulations (including VOL storage) be counted toward the determination of whether a source qualifies as a major non-CTG source, and (2) these otherwise exempt categories be subject to the emission limitations contained in the generic rules. Although USEPA intended for emissions from these exempt categories to be included in the total emissions to determine if a source was a major non-CTG source, it did not intend that these categories be actually subject to the emission limitations of the generic rule. This is because if these sources are exempt from USEPA approved rules (primarily CTG rules), then they should also be exempt from the generic rules. Therefore, USEPA has changed the language in the final rule to clearly indicate that the emissions from these exempt categories should be counted in the determination of a 100 TPY non-CTG source, but that these exempt categories are not subject to the emission limitations in the generic rules. Consequently, the issues raised by the commentor regarding the infeasibility of controlling the storage tanks at Stepan are moot points.

3. General Motors Corporation, Electro-motive Division (GM–EMD)

Comment: GM–EMD raised the following issues in its comments: (a) GM–EMD objected to USEPA's proposed disapproval of Illinois rule 215.204(m), which sets limits of 4.3 lb/gal and 4.8 lb/gal for locomotive topcoat

and final repair coating operations, respectively. USEPA has not provided any reliable data to support its proposed emission limitations for GM–EMD's locomotive topcoat and final repair operations of 3.5 lb/gal. USEPA's reliance on the CTG for the MMPP category is improper because the CTGs were developed as general guidance, and did not specifically consider the unique problems and requirements involved in coating a fully assembled locomotive. GM–EMD felt that the burden should be on USEPA to show that its proposed limits represent RACT for locomotive coating operations, and not on GM–EMD to show that the proposed limits are not RACT.

(b) GM–EMD requested that USEPA use its authority under Section 114 of the CAA to obtain up-to-date, comprehensive data on the locomotive coating operations at General Electric (GE) in Erie, Pennsylvania, and provide those data to GM–EMD in time to allow for review and comment.

(c) The reason for USEPA's reversal of its initial decision to approve the Illinois topcoat limit of 4.3 lb/gal applicable to GM–EMD (i.e., a 1988 SIP Call to the State of Pennsylvania identifying the State's topcoat limit of 4.3 lb/gal for locomotives and heavy-duty trucks as a deficiency) is improper. This is because: (i) A SIP Call is "an act of limited consequence preliminary to other events anticipated by the Act * * *. The notice only informs and requests. It does not "order * * *" and * * * is not a final agency action * * *", (ii) the basis for the SIP Call is unclear, and (iii) the supposed intention of the State to revise its topcoat limit to 3.5 lb/gal for the GE locomotive plant cannot be taken as a demonstration that this limit is RACT for GM–EMD.

(d) As a result of extensive research and development to identify lower VOC content coatings since 1983, GM–EMD has reduced the VOC content of its coatings to meet the applicable State emission limitations. GM–EMD stated, however, that lower VOC coatings will create certain problems (i.e., unacceptable finish quality, excessive dry-to-tape times (for masking), unacceptably short "pot life", excessive film builds (leading to cracking), inability to produce an acceptable color match) and, thus, should not be required. These problems affect both production schedules and the quality of the finished product as delivered to the customer.

(e) The proposed 3.5 lb/gal limit would result in emission reductions of less than 3 TPY at current production levels (67 or fewer locomotives per year). Furthermore, the use of 3.5 lb/gal coatings could actually result in a net environmental detriment because a greater amount of solids would have to be applied.

(f) USEPA should apply its 5 percent equivalency rule to GM–EMD's situation. GM–EMD estimates that application of the Illinois topcoat and final repair rules would cause total emissions for the MMPP category to depart from those allowed under the CTG (3.5 lb/gal emission limit) by 0.77 percent, well under USEPA's guideline for judging which requirements "deviate imperceptibly from the recommended presumptive norm."

(g) GM–EMD manufactures a rubberized insulating tape using a fiberglass fabric substrate. USEPA's proposed rules would revise the definition of fabric coating to include such impregnation operations, making this operation potentially subject to a 2.9 lb/gal emission limit. GM–EMD believes that these operations should be regulated as non-CTG sources subject to § 52.741(x), with a limit of 6.0 lb/gal. A quotation for a carbon adsorption system indicates that the annualized cost of such control would be unreasonable.

(h) GM–EMD has eight separate coating lines that apply electrical insulating varnishes to various components of alternators and traction motors. These operations do not properly fit under the Magnet Wire or MMPP category. GM–EMD believes these operations should be regulated as non-CTG sources subject to 52.741(x), with a limit of 5.2 lb/gal. Quotes for add-on controls on these coating lines indicate that the annualized cost of such control would be unreasonable.

(i) The applicability of Illinois rule 215.204(m) was limited to the coating of assembled locomotives. USEPA's proposal appears to alter the scope of this rule to encompass all operations at the GM–EMD facility. As a result of this change, a number of non-locomotive non-CTG coating operations may now inadvertently be subject to a limit of 3.0 lb/gal.

Response: USEPA believes that the disapproval of the State rule, and subsequent proposal of the Federal rule for diesel-electric locomotive coating was appropriate and its rationale well documented. In general, USEPA intends to rely on its CTGs to identify the control levels which it presumes to be RACT for various source categories. Because the CTGs have been prepared based on a careful and thorough evaluation of the capabilities and problems associated with the control approaches for a particular industry, USEPA believes that it may rely (and, in the past, has relied) solely on the CTGs to define presumptive RACT. Where a State finds the presumptive norm may not be applicable to an individual source, for economic or technological reasons, it may develop a site-specific RACT requirement. Such alternative RACT requirements would be acceptable if the State demonstrates first that the presumptive norm is not economically reasonable or technologically feasible and second that the alternative limit is the most stringent limit that is economically reasonable and technologically feasible.

For GM–EMD, USEPA has relied on the CTG for MMPP (which specifically covers facilities that manufacture locomotives and, as such, are included within Major Group 37 of the Standard Industrial Classification Code) as the general basis for disapproving Illinois' rule and for promulgating the applicable Federal limit.[19] As further support for its actions, USEPA considered whether comparable companies were complying with the MMPP coating or equivalent limitations. USEPA policy states that "In determining RACT for an individual source or group of sources, the control agency, using the available guidance, should select the best available controls, deviating from those controls only when local conditions are such that they cannot be applied there and imposing even tougher controls where conditions allow." USEPA believes that if control technology is available to comparable facilities and that no unique "local conditions" are identified which would prohibit this technology at the subject facility, then RACT for these sources is the same. At issue for GM–EMD is whether the only other locomotive coating plant in the United States (i.e., GE) is comparable and whether any "local conditions" would prohibit GM–EMD from applying the same control technology present at GE (assuming this facility is meeting a mroe stringent limitation).

Upon further review, USEPA has concluded that, for the purpose of defining RACT for GM–EMD, the GE plant is comparable and that there are no unique local circumstances which

[19] In reviewing State plans and promulgating Federal plans, USEPA is not obligated to evaluate various alternative rules for equivalency using its 5 percent rule. The basic purpose of the 5 percent rule is to provide a mechanism for allowing States flexibility in developing their regulations. Furthermore, the commentors use of the 5 percent rule here is incorrect. The 5 percent rule can only be used to justify the selection of differing cutpoints for regulatory coverage within a CTG category. It cannot be used, as attempted by the commentor, to justify a relaxed emission limitation for an individual source.

would prohibit GM–EMD from implementing the same technology being utilized at the GE plant.

Note: GM–EMD has not demonstrated that the criteria its topcoat and final repair coatings must meet are unique or exceptional with respect to GE's operations.

This determination is based primarily on information supplied by two air pollution control offices (Region III and the State of Pennsylvania) and by GE. Both Region III and Pennsylvania agency personnel have affirmed GE's ability to perform its locomotive coating operations using coatings at or below the 3.5 lb/gal limit. As a result of this conclusion, the State of Pennsylvania has proposed to lower the VOC emission limit for locomotive and heavy-duty truck topcoats from 4.3 to 3.5 lb/gal (minus water). The information supplied by GE demonstrates that topcoat paints applied to final assembled locomotives and repair coats applied for the final repair of assembled locomotives are 3.5 lb/gal or less.

Note: The GE information was supplied pursuant to a section 114 letter from USEPA. GE has made a claim of confidentiality and, pursuant to USEPA regulations at 40 CFR part 2, subpart B, that information must, therefore, be treated as confidential for now (and, thus, cannot be provided to GM–EMD for review and comment) pending a final determination by USEPA as to that claim.

USEPA's proposed action also refers to the May 26, 1988, Pennsylvania SIP Call letter and June 14, 1988, follow-up letter, which noted that the State's regulation allowed the use of 4.3 lb/gal coatings for topcoating of heavy-duty trucks, whereas the applicable CTG specified a limit for this operation of 3.5 lb/gal. This deficiency was also applicable to locomotive topcoating operations. Although USEPA does not dispute the commentor's characterizations of a SIP Call, it should be noted that USEPA is not relying on this SIP Call to set RACT limits for GM–EMD, but instead refers to the SIP Call only as evidence that USEPA is consistently concluding that the CTG limit is RACT for locomotive coating operations, like GM–EMD's locomotive topcoating and final repair coating operations. Whether or not Pennsylvania changes its rules pursuant to this SIP Call, both Pennsylvania and GE's data support the conclusion that 3.5 lb/gal is RACT for GM–EMD.

With respect to the technical problems cited by the commentor, USEPA believes that the dry-to-tape time and pot life problems can be minimized through relatively minor scheduling adjustments, the short pot life problem can be counteracted with smaller batches of coating mixed in several pots in a staggered schedule, and a greater number of batches to coat each locomotive. The other problems could be due to a number of factors other than the VOC content of the coatings. As discussed in USEPA's April 7, 1989, Technical Support Document, the data submitted by GM–EMD does not support its claim that increased film thickness leads to film cracking. It should be noted that GE's ability to achieve satisfactory finish quality and durability using high solids topcoat and final repair coatings indicates that these problems can be overcome.

USEPA does not agree that compliance with the proposed limits will cause the application of greater film thicknesses, thereby resulting in a net environmental detriment. These Federal rules are primarily directed towards regulating the level of control technology and not production levels. Furthermore, it has not been demonstrated that the Federal rules will necessitate GM–EMD to apply coatings with greater film thicknesses.

With respect to the operations for rubberized insulating tape using a fiberglass fabric substrate and the eight separate coating lines that apply electrical insulating varnishes to various components of alternators and traction motors, insufficient information was provided by the commentor to support the adoption of their alternative emission limits. Consequently, the Federal rule as proposed will apply to these sources. GM–EMD may submit a request for a site-specific SIP revision for these sources complete with technological and economic data to support its claims that some alternative limits would be RACT for these sources.

Finally, the proposed Federal rule was intended to apply to locomotive coating operations, and not to all of the other coating operations that are carried out at GM–EMD. USEPA has retitled § 52.741(e)(1)(i)(M) to refer solely to the locomotive coating operations to clarify this point. It should be noted, however, that other metal (non-locomotive) coating operations will be subject to the MMPP coating limitations.

4. Allsteel, Inc.

Comment: Allsteel raised the following issues in its comments: (a) USEPA has no authority at this time to challenge the internal offset in the State operating permit (to require that offsets must be approved as a SIP revision) because USEPA approved the State internal offset rule in 1982.

(b) USEPA's proposal to allow offsets within coating lines is consistent with cross-line averaging which USEPA has cited as a deficiency. IEPA submitted the offset to USEPA for review as a SIP revision in November 1987, and this submittal has not been acted upon.

(c) Allsteel pointed out that the company had obtained an adjusted standard for its adhesive curing ovens from the State in PCB AS88–3, and this record was submitted to USEPA for approval as a SIP revision. USEPA should act on that submission.

(d) The new proposed definition of coating includes adhesives, yet adhesives have previously been regulated under the State's generic rule. Allsteel believes that this change may have been inadvertent, and requested an amendment to the definition to exclude operations specifically regulated as miscellaneous fabricated product manufacturing.

(e) The company has demonstrated to the State that alternative adhesives are not available and that other controls would exceed the requirements of RACT due to difficulty of installation, safety concerns, and very high costs. USEPA may not simply reject these showings and impose the generic rule limits on Allsteel without some showing that those limits are RACT in this case. The data in the FIP record do not support a conclusion that sources previously exempted because of excessive control costs should now be regulated.

Response: USEPA is still considering the need to establish site-specific emission limitations and standards, as alternative to the Federal Generic Rule, for Allsteel in response to their public comments. The highly technical, source-specific nature of these comments (*e.g.*, the feasibility of compliant adhesives for metal furniture manufacturing operations such as Allsteel has not yet been established) will take additional time for USEPA to review and respond to. The need to promulgate Federal regulations under the tight timeframe ordered by the Court has prevented USEPA from being able to consider fully the merits of the proposed, alternative site-specific limits. Although for environmental and equity reasons, USEPA believes that it is necessary to establish emission limitations and standards for all sources at this time, USEPA will continue to consider the need to adopt as Federal measures site-specific limits for Allsteel. As such, USEPA is deferring the effective date of these Federal rules for Allsteel until January 1, 1991, in order to allow additional time for its consideration of this matter. If determined to be appropriate, then USEPA will propose revised Federal limits at a later date.

In response to Allsteel's comments concerning the internal offset issue and the appropriate regulations for adhesives, USEPA offers the following responses. First, as discussed in more detail in section D above, internal offsets must be approved as a SIP revision, until such time as Illinois has an approved generic bubble rule, to ensure that cross-line averages satisfy USEPA's ETPS. Although USEPA did approve a prior version of the State's internal offset rule, USEPA subsequently identified this rule as a deficiency in its June 13, 1988, SIP Call follow-up letter to the State. Second, USEPA agrees that metal furniture adhesives are more appropriately considered as non-CTG coatings than as metal furniture coatings, based upon the regulatory history of this source category, and has modified the definition of metal furniture coating accordingly.

Finally, it should be noted that during its review of Allsteel's comments, USEPA discovered that the VOC emissions data cited by Allsteel differed from the data in USEPA's inventory. USEPA obtained the most current emissions data for Allsteel from IEPA and revised the FIP inventory accordingly. The revised plantwide VOC emission total for Allsteel is now approximately 204 tons per year. USEPA will rely on these revised emissions in its evaluation of the need for and, if appropriate, establishment of a site-specific Federal limitation for Allsteel.

5. Riverside Laboratories

Comment: Riverside raised the following issues in its comments:

(a) No support has been provided for the change in the definition of paper coating to include saturation operations. The process used by Riverside is unique and is not described in any of USEPA's CTGs or in the technical support documents. There is no technical basis in the record for the proposed change to include Riverside's saturation operation within the paper coating definition.

(b) It is not clear from the TSD and other data in the docket that USEPA is trying to regulate Riverside's saturation operations. Regulation Riverside as a papercoater is contrary to rulings by the IPCB and the State and Federal courts.

(c) Due to the technical differences between coating and saturation processes, the VOM control technologies that apply to paper coating are infeasible for this type of saturation operations. There are additional difficulties in controlling Riverside's emissions because they contain silicone.

(d) There is no basis for regulating Riverside under the paper coating limitation rather than the existing Illinois Generic Rule. The installation of the water-based technology and the corresponding decrease in the rate of VOM emissions from the plant supports a determination that Riverside should not be regulated under the 2.9 lbs./gal. limitation. Indeed, a greater emission reduction in VOM emissions from the plant may be realized over the next five years through the use of water-based production and the market conditions already occurring. Thus, Riverside should continue to be subject to the 3.5 lbs./gal. limitation of the Generic Rule for the next five years.

(e) USEPA has overestimated the VOC emissions from Riverside. Actual annual emissions are approximately one-quarter of the value listed in USEPA's emissions inventory.

(f) It is unfair and unreasonable to require a small business such as Riverside, which has just made a substantial investment in order to reduce its rate of emissions, to place add-on controls on production lines which may be shut down in the near future.

Response: The Agency considers the change in the definition of paper coating, to now explicitly include "saturation" operations, to be a clarification; that is, the change was made to clarify what was covered by the original definition, not to expand the coverage of the definition. Because it is a clarification, the Agency relied on conclusions that were in turn based on previous investigations or determinations.

The original document affecting paper coaters is the CTG. Although the CTG does not mention saturation operations as one of the methods used to apply coating to paper, this omission was not intentional. The relative infrequency of this type of coating application in the paper coating industry was the most likely reason for its not being mentioned. Saturation operations of paper coaters were identified after the CTG was written and during the development of the Pressure Sensitive Tapes and Labels (PST&L) NSPS.

The paper coating CTG explicitly covered, among others, pressure sensitive tapes and labels (PST&L). During the technical development phase of the PST&L NSPS, three types of application techniques were identified. One of the three was the use of a dip tank to saturate the web. Saturation operations were found to be of similar design to other types of coating processes, the only basic difference being the use of a dip tank to apply the coating. The PST&L NSPS recognized explicitly saturation processes as one of the application methods in use in the PST&L industry, a subcategory of paper coaters.

USEPA intends, by this definitional modification, to subject Riverside's facility to the paper coating rule. This modification is intended to correct a perceived ambiguity in the 1980 regulation. On January 5, 1989, the IPCB held that Riverside is not a paper coater under the 1980 regulation. USEPA believes that the IPCB's decision is in direct conflict with the facts regarding what constitutes paper coating and clearly demonstrates the need to clarify the paper coating definition. Today's rulemaking is, therefore, intended to ensure the proper interpretation of the "paper coating" definition.

USEPA disagrees that this modification is contrary to the IPCB and State and Federal court rulings. Those tribunals merely interpreted the 1980 definition. They did not conclude that an impregnator was incapable of complying with the paper coating emission limitation. Under the clarified definition, these tribunals would find that Riverside is subject to the rule. Moreover, the Federal courts have never reached the issue of whether Riverside is a paper coater. Those courts merely deferred to the State's interpretation of the 1980 regulation. Thus, today's rulemaking is not contrary to the previous rulings.

The Agency has carefully considered each of the four control options identified by the commentor. The Agency agrees that coating solution reformulation, catalytic incinerators, and carbon adsorbers are not at this time reasonably available control technology for Riverside's processes. (USEPA, however, encourages Riverside and other paper coaters to pursue reformulation as a pollution prevention technique.)

In contrast to the above three control techniques, thermal incinerators are a proven control technology notwithstanding Riverside's claims to the contrary. Thermal incinerators have been used on operations that emit silicone, in some instances in amounts much greater than might be expected at Riverside. While it is true that silicone will foul heat exchanger surfaces, this is more of an inconvenience than proof of technological infeasibility or even uncertainty.

Having determined that thermal incinerators are technically feasible, USEPA then evaluated the cost of using thermal incinerators. USEPA performed their own cost estimated based upon recuperative and regenerative thermal incinerators for facilities similar to Riverside which have installed such

controls. These cost estimates do not indicate that the controls are not economically feasible.

In conclusion, the Agency disagrees that there is no control technology that is technically feasible and Riverside has not presented sufficient information to justify a finding of economic infeasibility.

Installation of water-based technology does not necessarily support a determination that the proposed limit should be waived. All paper coating operations are subject to the same limit. Riverside may choose to meet that limit using water-based technology or add-on control techniques. Although their compliance practice may result in greater emission reductions than required by the rule, this should not dictate the applicable emission limit. The Agency has determined that paper coating regulations should cover saturation operations. Thus, Riverside's saturation operations are covered by the paper coating limitation.

The commentor's claim that the amount of VOC emissions is expected to decline by perhaps as much as 80 percent over the next five years is based on a projection that market-trends would lead to a phase-down in polyester's (solvent-based) share of the laminated products market over the next five years and an increase in melamine's (water-based) share of that market. This projection may or may not occur. In fact, market conditions could change such that Riverside does not discontinue their solvent-based process lines, as acknowledged by Riverside. In any event, this is not a factor in determining whether Riverside is a paper coater and whether control technologies are technically feasible.

With respect to the emissions inventory for Riverside, USEPA wishes to note that the October 1989 version of the FIP emissions inventory was based on the latest available data tape from IEPA. IEPA has since revised their 1988 emissions inventory. These IEPA data are being used to revise the USEPA FIP inventory and result in a plantwide total of 312 tons for Riverside in the annual emission estimate prior to application of rule effectiveness guidelines.

Finally, USEPA also is concerned about the economic impacts that controls may have on small businesses. In order to evaluate individual cases, the Agency must have sufficient data on each business seeking to be exempted based on "unreasonable" economic impacts. The commentor has not provided the Agency with such information to make this determination, but is free to do so in the future in connection with a site-specific SIP revision request. Furthermore, as stated in an earlier response, the possibility that production lines "may be shut down in the near future" is an insufficient basis to conclude it is unfair to require add-on controls at this time.

6. 3M

Comment: 3M raised two issues in its comments. First, the FIP inventory for 3M's Bedford Park plant is more than twice the actual emissions. Total emissions from coating lines at the plant during calendar years 1988 and 1989 were submitted. Second, 3M asked that certain perfluorocarbon compounds be treated as exempt from regulation under the CAA, as part of USEPA's rulemaking for the Chicago area.

Response: USEPA agrees that the information provided by 3M suggests that the estimate of plantwide emissions for the Bedford Park plant in USEPA's inventory is overstated. While a more typical summer daily emission rate appears to be on the order of 50,000–60,000 pounds (rather than about 112,000 pounds, as contained in the current USEPA and IEPA inventory), USEPA cannot revise its inventory yet for the following reasons: (a) USEPA's inventory is process source-specific and 3M has only provided plantwide emissions, not process source-specific, and (b) the basis for 3M's data is unclear (*e.g.*, how was percent "EVAP" determined, how was the daily average lb/gal calculated, what is the daily operating rate). Because this rulemaking does not depend on the exact magnitude of 3M's emissions, USEPA does not believe that it is necessary to resolve these issues at this time. As USEPA and the States move forward with their planning efforts, per the Settlement Agreement and the Memorandum of Agreement, the establishment of an accurate, representative emissions inventory is critical. USEPA will continue to work with Illinois and 3M to establish an accurate emission inventory for 3M, and will require emission reductions with reference to that level.

With respect to 3M's request concerning exempt compounds, USEPA's Office of Air Quality Planning and Standards has received and is currently reviewing 3M's petition. The petition presents sufficient information to warrant USEPA's further consideration. USEPA is not prepared now, however, to determine whether to grant the petition. USEPA's decision whether the compounds at issue should be exempted from the definition of VOM, for purposes of SIP regulations and other CAA requirements, depends on several factors. USEPA must decide not only whether the compounds are reactive at all, but also whether their rate of reactivity is sufficiently slow, and the degree of reactivity sufficiently small, to warrant exemption from regulation for purposes of attaining the ozone NAAQS. This will entail the exercise of scientific and policy judgment.

USEPA fully intends to make these judgments, and act on 3M's petition, within the next year. Because the petition merits further consideration and may ultimately be granted, USEPA is extending, to one year from the date USEPA acts on 3M's petition, the date by which 3M's Bedford Park facility must comply with today's rules, to the extent the rules apply by virtue of emissions of those compounds.[20] USEPA has modified the definition of volatile organic material and volatile organic compound to reflect this extension of the effective date of the Federal regulations for these compounds. To the extent the rules would apply even excluding consideration of emissions of those compounds, the compliance date for 3M's Beford Park facility would remain July 1, 1991.

In this way, 3M's Bedford Park facility will be able to put off compliance, to the extent emissions of those compounds make it subject to the rules, until USEPA determines whether the Bedford Park facility will even need to comply with respect to those compounds. Should USEPA not act on 3M's petition within one year, it will adjust the compliance date for the Bedford Park facility further to account for that delay.

8. Abbott Laboratories

Comment: Abbott raised several concerns at the public hearing and in its initial written comments on the proposed Federal rule for pharmaceutical manufacturing. Abbott subsequently submitted a joint IEPA-Abbott proposal being introduced into the State rulemaking process and urged USEPA to modify the Federal rules consistent with the joint IEPA-Abbott proposal.

Note: IEPA also submitted a copy of the joint IEPA-Abbott proposal and expressed its desire that the final Federal rule reflect this proposal.

A number of concerns raised by Abbott at the public hearing and in its initial written comments are now moot in light of Abbott's supplemental comments,

[20] In the interim, these perfluorocarbon classes will be treated as water for the purposes of calculating the "less water" part of the coating or ink composition.

and, thus, need not be addressed here. The remaining significant issues raised by Abbott are as follows:

(a) Abbott objected to the proposed exemption levels for the air suspension coater/dryer and tunnel dryers and requested that these levels be revised. Abbott claimed that USEPA failed to justify its proposed levels for these sources.

(b) Pharmaceutical manufacturing should be listed in the generic rules as one of the exempt sources for these non-CTG categories.

(c) Abbott "questioned" USEPA's emissions inventory, but did not cite any specific concerns.

(d) Abbott expressed confusion in distinguishing between references to the letter "(l)" and the number "(1)" in the pharmaceutical manufacturing rule.

Response: USEPA has carefully evaluated the joint IEPA-Abbott proposal, which is based on the proposed Federal pharmaceutical manufacturing rule, and has concluded that it is approvable. The joint proposal is substantially similar to the proposed Federal rule. USEPA believes that the changes, as described below, are either responsive to the commentor's concerns or serve to clarify (and not to modify the intent of) the proposed rule. Consequently, USEPA believes that making these changes in the promulgated rule is appropriate (*i.e.*, reproposal is unnecessary).

The revisions being made to the proposed Federal rule for pharmaceutical manufacturing include relabeling this rule as paragraph (m) (rather than paragraph (l)), adding several definitions in paragraph (a) relevant to the pharmaceutical manufacturing rule, modifying the exemption levels for tunnel dryers and the air suspension coater/dryer, and modifying some of the recordkeeping requirements, including the addition of a provision addressing how compliance with the tons-per-year and pounds-per-day applicability criteria will be determined. USEPA acknowledges that the technical support for the proposed exemption levels was incomplete and has determined that the revised levels are appropriate based on the statement of reasons provided Abbott. The inclusion of provisions dealing with the calculation of annual emissions for the purposes of determining applicability is an important clarification, given that the test methods identified in the proposed rule only provide an estimate of short-term emissions. In addition, the list of exempt source categories in the generic rule for other emission sources at § 52.741(x) has been clarified to refer to "pharmaceutical manufacturing" and to cover a number of the other generic rules at § 52.741 (u), (v), (w), and (x).

Finally, with respect to the emissions inventory for Abbott, USEPA wishes to note that the October 1989 version of the FIP emissions inventory was based on the latest available data tape from IEPA. IEPA has since revised their 1988 emissions inventory. These IEPA data are being used to revise the USEPA FIP inventory and result in a plantwide total of 306 tons for Abbott in the annual emission estimate prior to application of rule effectiveness guidelines.

8. Allied Tube and Conduit

Comment: Allied noted that it has an existing State operating permit which allows for the use of cross-line averaging and asked USEPA to either adopt a site-specific FIP limitation for Allied, or recognize and grandfather Allied's existing operating permit, as part of the SIP.

Response: As noted above, a site-specific SIP or FIP revision is required for any daily-weighted average that includes coatings subject to different emission limits and coatings applied on different lines (*i.e.*, cross-line averaging) to ensure that the requirements of the ETPS are satisfied. Allied's comments and supporting information were reviewed and were not found to support an alternative RACT emission limitation. This information does not demonstrate that Allied's proposed limits are the most stringent limits that are technologically and economically feasible. In addition, this information does not contain an analysis indicating that Allied's operating permit includes measures requiring compliance with the provisions of the ETPS.

There is no basis for grandfathering a permit limit, based upon a daily-weighted average that is required to comply with the requirements in the ETPS, and that had not previously been submitted as a SIP revision. Allied must either present and support an alternative RACT limit through the State, based upon considerations of economic and technological feasibility, or it must propose a bubble that satisfies USEPA's ETPS. An alternative RACT limitation or bubble must be approved as part of the implementation plan.

Finally, it should be noted that Allied's State operating permit is based upon compliance with Illinois Rule 215.207, which allows compliance by the use of internal offsets. This rule is no longer part of the implementation plan with the promulgation of these Federal rules (*i.e.*, the Federal coating rule supercedes the State coating rule, which included Rule 215.207, in the implementation plan). Thus, sources may no longer comply through the use of internal offsets, absent approval of a site-specific SIP revision allowing such compliance.

9. Dietzgen

Comment: Dietzgen noted that it had an approved alternative emission limitation under the existing SIP rule. Under a 1988 Consent Decree, the company installed a carbon absorption system on two transparentizing lines. Dietzgen asked USEPA to either clarify that the alternative emission limitation demonstration provided by Dietzgen pursuant to the Consent Order would be acceptable under the proposed rules, grandfather the alternative emission limitation demonstration, or establish in the final FIP a site-specific exemption for the two transparentizing lines.

Response: It appears, based on the limited information regarding Dietzgen provided by the commentor, that the alternative emission limitation calulated by procedures contained in the Consent Order will be essentially equivalent to that calculated under § 52.741 (e)(2). Although there are several minor differences, none of these are expected to have a significant impact on the actual alternative limitation. Because of differences in the compliance methods (measuring capture efficiency), however, the demonstration of compliance by alternative emission limitations as contained in Dietzgen's Consent Order is not acceptable under the new Federal rules. Dietzgen, along with all other subject facilities, must provide USEPA with a demonstration of compliance by July 1, 1991. Therefore, although the previous alternative limitation demonstration provided by Dietzgen pursuant to the Consent Order would not be acceptable under the Federal rules, Dietzgen has until July 1, 1991, to submit and obtain USEPA approval of an adequate demonstration. In addition, USEPA does not feel it is appropriate to grandfather Dietzgen's alternative emission limitation from the new alternative emission limitation rules because all other facilities in the same situation will have to submit new demonstrations and there is no reason to establish a site-specific exemption for the two transparentizing line because the carbon adsorber which controls emissions from these lines appears to be adequate to comply with Federal rules.

10. Viskase Corporation

Comment: Viskase raised the following issues in its comments:

(a) The proposed generic rule in the FIP would apply an 81 percent control requirement to emissions at Viskase's

Bedford Park facility. There is no information in the record that considers the technical feasibility or economic reasonableness of such controls.

(b) Viskase referred to a pending SIP revision before the IPCB which concludes that add-on controls for carbon disulfide emissions from the company's viscose casing manufacturing process are not RACT. RACT, as determined by the IPCB, consists of reductions of carbon disulfide emissions by 33 percent from the 1988 permitted emissions level of 1476 TPY, and a seasonal reduction of 45 percent during the peak ozone season months. These reductions would be achieved through a combination of process changes, controls on minor emission sources, and production scheduling and emission source shutdowns.

(c) A recent BACT analysis performed for Viskase's only domestic competitor, also located in Illinois, demonstrated that best control technology for this company's new casing line would not consist of add-on controls. This conclusion was based on a finding that the technology was unproven and too expensive on a cost per ton of control basis to represent BACT. Because RACT is on the lowest rung of the control ladder, no control as BACT means no control as RACT. In another control technology evaluation for a related viscose process (NSPS for new rayon manufacturing plants), USEPA found that thermal incineration control would be "exorbitantly costly" for controlling carbon disulfide emissions. On the basis of this finding, USEPA decided not to proceed with the development of a rayon NSPS.

(d) Thermal incineration, the only VOC control technology that is potentially feasible for controlling carbon disulfide emissions at Viskase, is not economically reasonable. Viskase stated that the costs for incineration are of such magnitude that they could not be borne by the Bedford Park facility and, rather than incur such excessive capital and operating costs, Viskase would close the plant and move production to other plants located outside the United States.

(e) Many of the reasons cited by USEPA for exempting certain source categories from the Federal generic rule are also applicable to the viscose cellulose casing process.

(f) Calculation of the cost effectiveness of emission controls at full production grossly underestimates the actual cost effectiveness for a typical production year.

(g) Viskase believes that USEPA should either act to approve the RACT determination now pending, which would constitute an alternative plan that has been approved by USEPA as a SIP or FIP revision, or delete the viscose cellulose casing process from the scope of the Federal generic rule.

Response: USEPA is still considering the need to establish site-specific emission limitations and standards, as alternative to the Federal Generic Rule, for Viskase in response to their public comments. The highly technical, source-specific nature of these comments (*e.g.*, there is only one other company which manufactures cellulose food casings besides Viskase in the United States) will take additional time for USEPA to review and respond to. The need to promulgate Federal regulations under the tight timeframe ordered by the Court has prevented USEPA from being able to consider fully the merits of the proposed, alternative site-specific limits. Although for environmental and equity reasons, USEPA believes that it is necessary to establish emission limitations and standards for all sources at this time, USEPA will continue to consider the need to adopt as Federal measures site-specific limits for Viskase. As such, USEPA is deferring the effective date of these Federal rules for Viskase until January 1, 1991, in order to allow additional time for its consideration of this matter. Among other factors, USEPA will consider whether Viskase has demonstrated, consistent with USEPA's "Analytical Methods Manual", its claim that add-on controls are not affordable. If determined to be appropriate, then USEPA will propose revised Federal limits at a later date.

11. Outboard Marine Corporation

Comment: Outboard Marine Corporation (OMC) stated that USEPA has improperly deleted the exemption for OMC, which was previously proposed for approval, without providing any justification.

Response: USEPA's rationale was provided in the NPR and the docket (see Blue Book and the Region V's Response to Comments document). In brief, the State's proposed exemption level of 35 tons per year is not consistent with the exemption level in USEPA's RACT guidance for coating operations (*i.e.*, 10 tons per year based on maximum theoretical emissions before add-on controls, 15 pounds per day based on actual emissions before add-on controls, or 3 pounds per hour based on actual emissions before add-on controls) and the State has not provided a 5 percent analysis to demonstrate that there is no significant difference between its exemption level and the exemption level in USEPA's RACT guidance.[21] The commentor provided no information to support its objection, but is free to do so in the future in connection with a site-specific SIP revision request. Consequently, USEPA will be taking final action to disapprove the State's coating rule for marine propulsion equipment.

III. Action on State Rules

Illinois has submitted several revisions to its ozone SIP in USEPA in recent years. The revisions have been prompted either by Federal guidance and notices (to correct deficiencies in existing federally approved rules or to provide rules for certain source categories for which no federally approved rule exists), or by industry petitions to the State for alternative emission limitations. A summary of these submittals and USEPA's final rulemaking actions is provided below. A more detailed explanation of the State rules and more detailed justification for USEPA's action on them are contained in the Technical Support Documents and in the information contained in the file for this rulemaking.

A. Final Disapproval

1. High Gloss Catalyzed Coatings (Subpart F, Section 215.204(c))

On March 28, 1988, Illinois submitted a revised surface coating rule which relaxes the existing federally approved SIP emission limitations from 2.9 to 3.5 pounds per gallon for "specialty high gloss catalyzed coatings". The rule currently applies to Classic Finishing Company in Chicago. The State has not demonstrated that the revised limit is consistent with RACT. No public comments were received on USEPA's proposed action on this rule. Consequently, USEPA is disapproving the revised rule in final.

2. Marine Propulsion Equipment (Subpart F, Section 215.206(b))

On June 25, 1987, Illinois submitted a revised surface coating rule which

[21] As noted in the NPR, OMC previously provided a demonstration which purports that it is infeasible for it to comply with the emission limitations for MMPP. Because USEPA previously proposed to approve the State rule based on this demonstration, USEPA believes that there is merit to OMC's claim that compliance with the applicable MMPP limitation in this case may not be reasonable and encourages the State to consider a site-specific emission limitation and standard for the OMC Waukegan facility. The State should submit adequate technical and economic data to support the claim that any alternative limitation is RACT for OMC, and that such alternative RACT limit will not adversely effect the State's efforts to demonstrate attainment of the ozone NAAQS in the Chicago area.

deleted the exemption for the exterior of airplanes and marine propulsion equipment in the definition of "miscellaneous metal parts and products". The revised rule also provides an exemption for the Outboard Marine Corporation's (OMC) Waukegan facility so long as its VOC emissions from miscellaneous metal coating operations do not exceed 35 tons per year. As noted above, USEPA disapproved the revised rule because the State's exemption level is not consistent with USEPA's RACT guidance and the State did not provide a 5 percent analysis to support its alternative exemption level. One commentor objected to USEPA's proposed action on this rule, but did not provide any information that would justify approving the existing State rule. Therefore, USEPA is disapproving the State rule in final.

3. Power Driven Fastener Coating (Subpart F, Section 215.204(j)(4))

On March 28, 1988, Illinois submitted a revised surface coating rule which treats exempt solvents the same as water (*i.e.*, emission limits have been changed from pounds VOC per gallon of coating less water, to pounds VOC per gallon less water and exempt solvents) and relaxes the emission limitations for "power driven fastener coatings" from the emission limitations in the otherwise applicable miscellaneous metal parts and products rule. The rule currently applies only to Duo-Fast Corporation in Franklin Park. Although the treatment of exempt solvents is acceptable, the State has not demonstrated that the revised limits are consistent with RACT. One set of public comments was received from Duo-Fast on USEPA's proposed action on this rule. Based on its review of these comments (see "Duo-Fast" in section II.), USEPA maintains that the existing State rule is not consistent with RACT and, therefore, cannot be approved. Consequently, USEPA is disapproving the State rule in final.

4. Generic Rule (Subparts AA, I, PP, QQ, RR)

On July 21, 1988, Illinois submitted a "generic" rule which establishes control requirements for major sources not currently subject to CTG regulations. The State rule is not acceptable because the method of determining what constitutes a major non-CTG source is not consistent with USEPA RACT guidance. For example, the State rule applies only to sources which emit 100 tons or more per year of VOC if no air pollution control equipment were used. According to the RACT guidance, the emissions levels must be based on the maximum theoretical emissions (design capacity or maximum production), not actual emissions, before add-on controls. Several public comments were received on USEPA's proposed action on this rule. Based on its review of these comments (see section II), USEPA still believes that the existing State rule is not consistent with RACT and, therefore, cannot be approved. Consequently, USEPA is disapproving the State rule in final.

5. Synthesized and non-CTG Pharmaceutical Manufacturing (Subpart A, Section 215.102 and Subpart T)

On May 26, 1988, Illinois submitted a rule which establishes control requirements for synthesized and non-CTG pharmaceutical manufacturing. The rule currently applies only to Abbott Laboratories in North Chicago and Abbott Park. The rule is not acceptable because the method for determining the vapor pressure of mixtures is both sufficiently ambiguous so as to be unenforceable and allows an interpretation that would include the contribution of water vapor (which is contrary to USEPA's RACT guidance). In addition, there are other unenforceable provisions within subpart T. One set of public comments was received from Abbott on USEPA's proposed action on this rule. Based on its review of these comments (see "Abbott" in section II.), USEPA still believes that the existing State rule is not consistent with RACT and, therefore, cannot be approved. Consequently, USEPA is disapproving the State rule in final.

6. Printing and Publishing (Subpart H, Section 215.245)

On March 3, 1988, Illinois submitted a revised rule for printing and publishing (graphic arts) for the nonattainment counties. The revised rule lowers the exemption level for rotogravure and flexographic printing presses to 100 tons per year when averaged over the preceding 3 calendar years and requires packaging rotogravure printing presses (wishing to comply by installing add-on control equipment) to have a combined capture and control system reduction of at least 65 percent. For the reasons discussed previously, 3-year averaging is not consistent with the RACT requirements. In addition, applicability must be based on maximum theoretical, not actual, emissions (in the absence of add-on control equipment). One set of public comments was received on USEPA's proposed action on this rule. Based on its review of these comments (see section II), USEPA still believes that the existing State rule is not consistent with RACT and, therefore, cannot be approved. Consequently, USEPA is disapproving the State rule in final.

7. Internal Offset Rule (Subpart F, Section 215.207)

On March 28, 1988, Illinois submitted a revised internal offset rule which attempts to correct the deficiencies cited by USEPA in its July 11, 1985, proposed disapproval of the rule. In the revised rule, allowable emissions are now determined on a solids basis and the formula for determining actual and allowable emissions has been corrected. The revised rule still suffers from two problems: (1) The methods or procedures used to determine emissions are contained only in operating permits which are not federally enforceable and have an expiration date (*i.e.*, it cannot be assured that the methods or procedures will continue to be used after the operating permit expires), and (2) the rule does not explicitly ensure that the emission plans for internal offsets must meet the principles of USEPA's ETPS and must be submitted to USEPA for approval as a SIP revision. Several sets of public comments were received on USEPA's proposed action on this rule. Based on its review of these comments (see section II), USEPA still believes that the existing State rule cannot be approved for the reasons noted above. Consequently, USEPA is disapproving the State rule in final.

8. Clarification of 3-Year Averaging (Subpart A, Section 215.107)

On August 21, 1987, Illinois submitted a revision to the applicability section of its rules which clarified the 3-year averaging criterion used in the rules for graphic arts (subparts H and P) and bulk gasoline plants (subpart Y). Because 3-year averaging is not consistent with the RACT requirements, this revision, as well as the relevant portions of the rules for graphic arts and bulk gasoline plants, is not acceptable. No public comments were received on USEPA's proposed action on this rule. Consequently, USEPA is disapproving the revised rule. (As noted below, USEPA is promulgating revisions to correct this deficiency in the graphic arts and bulk gasoline plant rules.)

9. Diesel-Electric Locomotive Coating (Subpart F, Section 215.204(m))

On July 29, 1988, Illinois submitted a revised surface coating rule which relaxes the emission limitations for "existing diesel-electric locomotive coating lines in Cook County" from the emission limitations in the otherwise

applicable miscellaneous metal parts and products rule. The rule currently applies to GM–EMD in Cook County. USEPA proposed to disapprove the State rule because the State had not demonstrated that the revised limits are consistent with RACT. Several public comments were received on USEPA's proposed action on this rule (see "GM–EMD" in section II). Based on its review of these comments, USEPA still believes that the existing State rule is not consistent with RACT and, therefore, cannot be approved. Consequently, USEPA is disapproving the State rule in final.

B. Final Approval

1. Definitions (Part 211, Subpart B, Section 211.122)

On January 8, 1988, Illinois submitted definitions for gas service, liquid service, volatile organic liquid, and volatile organic material. The definitions for gas service, liquid service, and volatile organic liquid are consistent with USEPA's RACT guidance. The revised definition of volatile organic material eliminates the reference to any vapor pressure cutoff and identifies seven additional exempt compounds with negligible photochemical reactivity and is generally consistent with the model definition in USEPA's RACT guidance. No public comments were received on USEPA's proposed action on this rule. Thus, USEPA is approving these definitions. Although USEPA is approving the State definitions, USEPA is also promulgating a comprehensive set of definitions in the General Provisions section of the Federal rule, which includes these same terms. As noted in section II, the applicable definitions in the implementation plan will then consist of the federally approved definition portions of the State rule (§§ 201.102, 211.122, and 215.104) and the Federal General Provisions sections. The Federal definitions will supersede, for the purposes of the Federal rules, the definitions for terms included in §§ 201.102, 211.122, or 215.104 where the same term is defined. Thus, the Federal definitions for these terms, which is substantially similar to the revised State definition, is the federally enforceable definition for this term for the purposes of the Federal rules.

2. SOCMI Air Oxidation (Subpart V)

On December 22, 1987, Illinois submitted a rule which establishes control requirements, and testing and monitoring provisions, for SOCMI air oxidation processes. The new rule is consistent with the December 1984 CTG document entitled "Control of Volatile Organic Compound Emissions from Air Oxidation Processes in Synthetic Organic Chemical Manufacturing Industry". No public comments were received on USEPA's proposed action on this rule. Consequently, USEPA is approving the revised rule in final.

3. SOCMI Leaks (Part 211, Subpart B, Section 211.122, Part 215, Subpart A, Section 215.104, and Part 215, Subpart Q)

On May 2, 1988, Illinois submitted a revised rule for leaks from Synthetic Organic Chemical and Polymer Manufacturing Equipment, including definitions for component, in-vacuum service, open-ended valve, and repaired. Except for certain monitoring provisions, the revised rule is consistent with USEPA's RACT guidance and is, therefore, approvable. Because certain monitoring exemptions in section 215.432 are not appropriate and an alternative monitoring program in section 215.436 is authorized without USEPA approval, USEPA cannot approve these portions of the rule. No public comments were received on USEPA's proposed action on this rule. Consequently, USEPA is approving in final the revised SOCMI leak rule, except for §§ 215.432 and 215.436 which USEPA is disapproving in final.[22] USEPA is promulgating a Federal rule covering monitoring for SOCMI leaks.

4. Polystyrene Plants (Subpart A, Section 215.104 and Subpart BB)

On October 2, 1987, Illinois submitted a rule which establishes control requirements, and testing and monitoring provisions, for polystyrene plants. The rule also included definitions for continuous process, material recovery section, polystyrene plant, polystyrene resin, styrene devolatizer unit, and styrene recovery unit. The new rule is consistent with the November 1983 CTG document entitled "Control of Volatile Organic Compound Emissions from Manufacture of High-Density Polyethylene, Polypropylene, and Polystyrene Resins" and the January 9, 1986, memorandum entitled "Clarification of CTG RACT Recommendation for High-Density Polyethylene, Polypropylene, and Polystyrene". No public comments were received on USEPA's proposed action on this rule. Consequently, USEPA is approving the revised rule in final.

[22] On September 25, 1989, Illinois submitted a revision to its SOCMI leak rule. This revision will be addressed by USEPA in a future **Federal Register** notice.

5. Heatset Web Offset (Subpart P, Section 215.408)

On September 28, 1987, Illinois submitted emission limitations and compliance schedules for heatset web offset lithographic printing. The applicability criteria, emission limits, and compliance schedule are consistent with the August 1981 draft CTG document entitled "Control of Volatile Organic Compound Emissions from Full-Web Process-Color Heatset Web Offset Lithographic Printing" and other USEPA guidance on RACT for major non-CTG sources in nonattainment areas. No public comments were received on USEPA's proposed action on this rule. Although USEPA is approving the State rule for heatset web offset printing, USEPA is also promulgating a comprehensive Federal rule for graphic arts. The Federal rule will include a heatset web offset regulation substantially similar to the State rule. The Federal rule will represent the applicable federally enforceable rule. This is appropriate because the heatset web offset provisions are inextricably linked to other graphic arts provisions that USEPA is promulgating.

6. Alternative Emission Limitations (Subpart F, Section 215.205)

On January 8, 1988, and March 28, 1988, Illinois submitted a revised rule concerning alternative emission limitations for coating operations. The revision establishes an overall control efficiency requirement of 81 percent, except for can coating operations (where the control requirement remains at 75 percent). This revision is supported by the April 1981 study entitled "Determination of Capture and Destruction Efficiencies of Selected Volatile Organic Compound Control Devices in the State of Illinois" and generally satisfies the concerns cited by USEPA in its prior conditional approval of Illinois' RACT I regulations (45 FR 11494). No public comments were received on USEPA's proposed action on this rule. Although USEPA is approving the revised State rule, USEPA is also promulgating a comprehensive Federal rule for coating operations. The Federal rules will include a provision for alternative emission limitations similar to the State rule. The Federal rule will represent the applicable federally enforceable rule. This is appropriate because the alternative emission limitation provisions are inextricably linked to other coating operation provisions that USEPA is promulgating.

7. External Floating Roofs (Subpart H, Sections 215.240, 241, 249 and Subpart B, Section 215.124)

On August 21, 1987, Illinois submitted a revised rule which modified the exemption for stationary crude oil storage tanks equipped with an external floating roof regarding the requirement to use secondary seals. The revised rule limits the exemption to tanks used to store crude oil with a pour point of 50 °F or higher as determined by ASTM Standard D97–66. This revision is consistent with the December 1978 CTG document entitled "Control of Volatile Organic Emissions for Petroleum Liquid Storage in External Floating Roof Tanks". No public comments were received on USEPA's proposed action on this rule. Consequently, USEPA is approving the revised rule in final.

8. Gasoline Tank Trucks and Vapor Collection Systems (Part 211, Subpart B, Section 211.122 and Part 215. Subpart Y, Sections 215.582–215.584)

On August 21, 1987, Illinois submitted revised rules for bulk gasoline plants, bulk gasoline terminals, and gasoline dispensing stations; a new rule for gasoline delivery vessels; and a definition for vapor collection system. These rules establish requirements for leak prevention from gasoline tank trucks and vapor collection systems. These regulations satisfy USEPA guidance for leak testing and repair of gasoline tank trucks and vapor collection systems. The State has also adopted USEPA-approved test methods for use with these rules. The revised rule for bulk gasoline plants, bulk gasoline terminals, and gasoline dispensing facilities establishes operating and repair requirements for vapor collection systems consistent with the December 1978 CTG document entitled "Control of Volatile Organic Compound Leaks from Gasoline Tank Trucks and Vapor Collection Systems". No public comments were received on USEPA's proposed action on this rule. Consequently, USEPA is approving the revised rule in final.

9. Petroleum Dry Cleaning (Subpart Z, Sections 215.607–613)

On June 25, 1987, Illinois submitted a rule which establishes control requirements, testing and monitoring provisions, and compliance dates for large petroleum dry cleaners. The new rule is consistent with the September 1982 CTG document entitled "Control of Volatile Organic Compound Emissions from Large Petroleum Dry Cleaners" and relevant USEPA guidance on test methods and expeditiousness. No public comments were received on USEPA's proposed action on this rule. Consequently, USEPA is approving the revised rule in final.

10. Miscellaneous

Compliance Dates, Geographical Areas, and Compliance Plans: On July 11, 1985 (50 FR 28224), USEPA proposed to approve a portion of the State's RACT rules, including several sections related to compliance dates, geographical areas covered by the rules, and compliance plans (i.e., subpart B, sections 215.125 and 215.126; subpart R, section 215.453, subpart S, sections 215.465 and 215.466; and subpart Z, sections 215.604, 215.606, 215.612, and 215.613). USEPA is approving these sections in final at this time. Because the compliance dates have long passed, the geographical areas are consistent with the remainder of the State's RACT rules and the Federal rules, and the requirement to submit compliance plans to the State has been in place for several years, USEPA believes that its final approval of these portions of the State rule will not impose any significant impact.

11. Miscellaneous

Definitions: On July 11, 1985 (50 FR 28224), USEPA proposed to approve 28 definitions related to the State's RACT II rules, including rules for petroleum refining fugitive emissions, rubber tire manufacturing, and perchloroethylene dry cleaning. In the notice of final rulemaking on these three rules (52 FR 45333, November 27, 1987), USEPA inadvertently omitted the definitions from the codification of the revised plan. USEPA is approving 13 of these definitions in final at this time. The approved definitions are bead-dipping; dry cleaning facility; external floating roof; green tire spraying; green tires; heavy liquid; liquid mounted seal; pneumatic rubber tire manufacturing; refinery unit, process unit, or unit; tread end cementing; undertread cementing; valves not externally regulated; and vapor mounted primary seal. Further action on 11 of the definitions (air dried coating, clear coating, extreme performance coating, flexographic printing, heavy off-highway vehicle products, low solvent coating, packaging rotogravure printing, publication rotogravure printing, roll printing, rotogravure printing, and transfer efficiency) is unnecessary at this time. All of these terms relate to either the surface coating or the printing and publishing rules. Because USEPA's promulgation of comprehensive Federal rules for surface coating and printing and publishing includes these definitions, the State's definitions are not relevant. (Note, the remaining definitions—component, gas service, liquid service, and volatile organic material—have been superseded by later State submittals, as noted above.)

IV. Federal Rules

A. Overview of Rules

USEPA is promulgating Federal rules under section 110(c) to correct all of the deficiencies described in Exhibit B of the settlement agreement. These Federal rules modify the following stationary source category rules to bring them into conformance with RACT requirements as interpreted by USEPA guidance:

Solvent Metal Cleaning;
Coating Operations, including automobile or light duty truck, can, paper, coil, fabric, vinyl, metal furniture, large appliance, magnet wire, MMPP, diesel-electric locomotive (i.e., GM–EMD), heavy off-highway vehicle products, and wood furniture;
Printing and Publishing Operations, including flexographic and rotogravure printing, and heatset web offset lithographic printing;
SOCMI Leaks;
Petroleum Refinery Leaks;
Pharmaceutical Manufacturing;
Bulk Gasoline Plants; and
Major Non-CTG Sources (Generic Rules), including paint and ink manufacturing, miscellaneous fabricated product manufacturing, miscellaneous formulation manufacturing, miscellaneous organic chemical manufacturing, and other emission sources.

In addition to the Federal rules promulgated for these stationary source categories, USEPA is promulgating revised General Provisions. This section includes new or revised definitions, revised test methods and procedures, a seasonal exemption only for gas-fired afterburners, a requirement that any alternative emission limitation or variance must be submitted to and approved by USEPA, and more specific procedures for determining the vapor pressure of organics.

The approach followed by USEPA today consists of new Federal rules which replace part or all of the individual State rules that have been federally approved. These new Federal rules would just correct the RACT deficiencies identified previously. The resultant plan for Illinois consists of some federally approved (State) rules and some federally promulgated (Federal) rules. USEPA believes that this approach provides the best model for the State to secure eventually a total federally approved SIP by highlighting the changes Illinois must make to its rules.

It should be noted that under section 110(d) of the CAA and USEPA's

Continuity Policy the existing federally-approved SIP regulations for any source will continue to apply, and be fully enforceable, until the date on which the source is required to comply with the new regulations. Further, the existing SIP will continue in force if there is any delay or lapse in the applicability of the new regulations. However, if (but only if) the existing and new regulations conflict, so that a source cannot comply with the existing SIP while moving toward compliance with the new regulations, the source may apply for a site-specific exemption from the existing SIP from the State. All such exemptions granted by the State must be submitted to and approved by USEPA before such exemption from the SIP is in effect.

A summary of each rule being promulgate today is provided below.

1. Solvent Metal Cleaning

The Federal rule eliminates the exemption for solvent metal cleaning operations that emit less than 6.8 kg/day (15 lbs/day) and 1.4 kg/hr (3 lbs/hour). As noted previously, such an exemption is inconsistent with USEPA's RACT guidance. Because elimination of this exemption will subject some new sources to the solvent metal cleaning rule, new compliance schedules will be added which require these newly subject facilities to be in compliance by July 1, 1991. A section on test methods has also been added which specifies the most current USEPA-approved test methods.

2. Coating Operations

The Federal rule establishes a complete rule for the following coating operations: paper coating, fabric coating, can coating, coil coating, miscellaneous metal parts and products coating, automobile or light-duty truck assembly-line coating, vinyl coating, magnet wire coating, metal furniture coating, wood furniture coating, large appliance coating, existing diesel-electric locomotive coating (i.e., GM–EMD), and heavy off-highway vehicle products coating. The rule applies to coating operations (except wood furniture coating) with actual emissions more than 15 pounds per day before add-on control. (Wood furniture coating operations with maximum theoretical emissions greater than 100 TPY, in the absence of add-on control equipment, are subject to the rule.) The rule provides a restricted exemption (which the State rule does) for equipment used for both printing and paper coating. (The equipment must be subject to either the paper coating or graphics rule, but not both.) According to the Federal rule, emission limitations are expressed in units of VOC per gallon of coating (minus water and exempt solvents) and reflect either instantaneous or daily-weighted averages. In addition, the rule requires that alternative emission limitations (for sources wishing to comply using add-on controls) be expressed as pounds of VOC per gallon of solids. Sources wishing to comply using internal offsets or cross-line averaging are required to satisfy the requirements of the ETPS, including the submittal of a site-specific plan revision to USEPA. Improved recordkeeping and reporting requirements are also included in the Federal rule.

3. Printing and Publishing (Graphic Arts)

The Federal rule requires printing and publishing operations to use instantaneous or daily averaging in calculating emissions, along with the most current test methods. Exemption levels are based on single calendar year maximum theoretical emissions, not a 3-year average of actual emissions, as in the current State rule. Improved recordkeeping and reporting requirements are included in the Federal rule.

4. SOCMI Leaks

The Federal rule requires synthetic organic chemical and polymer manufacturers to monitor additional equipment components with low accessibility for VOC leaks on an annual basis. The rule also requires that any alternative leak detection program undergo prior USEPA approval as a plan revision, so USEPA can ensure that the alternative program is indeed equivalent in effect to the otherwise applicable program.

5. Petroleum Refinery Leaks

The Federal rule requires petroleum refineries to monitor "inaccessible" valves (*i.e.*, valves with difficult accessibility) annually and to monitor certain components more frequently than is required under the State rule. The rule also requires that any alternative leak detection program undergo prior USEPA approval as a plan revision, so USEPA can ensure that the alternative program is indeed equivalent in effect to the otherwise applicable program. In addition, the rule establishes dates for the submittal of a revised monitoring program plan and of the first monitoring report.

6. Pharmaceutical Manufacturing

The Federal rule for pharmaceutical manufacturing specifies applicability provisions, testing and monitoring, control equipment, and recordkeeping requirements for both synthetic and non-CTG pharmaceutical manufacturing operations. The rule generally applies to sources emitting either: (a) More than both 6.8 kg/day (15 lbs/day) and 2,268 kg/yr (2.5 TPY), or (b) more than 45.4 kg/day (100 lbs/day). Control equipment other than surface condensers must achieve reductions of at least 81 percent.

7. Bulk Gasoline Plants

The Federal rule changes the gasoline throughput exemption for bulk gasoline plants from 350,000 gallons per year and 1,000,000 gallons per year averaged over the preceding 3 calendar years to 4,000 gallons per day on a 30-day rolling average.

8. Major Non-CTG (Generic) Rules

USEPA's interpretation of the stationary source RACT requirements calls for the control of all major facilities (*i.e.*, greater than 100 TPY). All major sources covered by a CTG are discussed above. To cover all major non-CTG sources, USEPA has developed five generic non-CTG rules based on the State's rules. These five rules would regulate VOC emissions from paint and ink manufacturing processes, miscellaneous fabricated product manufacturing processes, miscellaneous formulation manufacturing processes, miscellaneous organic chemical manufacturing processes, and other major non-CTG emission sources. (Note: USEPA's pharmaceutical manufacturing rules include non-CTG pharmaceutical manufacturing operations and USEPA's coating rules include non-CTG source category (*i.e.*, wood furniture coating).)

The Federal rule for paint and ink manufacturing operations would apply to plants that have maximum theoretical emissions of 100 TPY or more of VOC emissions from non-CTG sources, or that produce more than 7,570,820 liters (2,000,000 gallons) per year of paints and inks which contain less than 10 percent by weight of water, and ink formulations not containing as the primary solvents water, Magie oil, or glycol. In addition, storage tanks containing volatile organic liquids with a vapor pressure greater than 10 kilopascals (kPa) would have to be equipped with pressure/vacuum conservation vents, and tanks larger than 946 liters (250 gallons) would have to be submerged filled or bottom filled.

The rules for miscellaneous formulation manufacturing processes, miscellaneous fabricated product manufacturing processes, and miscellaneous organic chemical manufacturing processes apply to such processes that are not regulated under any of the other specific source categories. Facilities with total

maximum theoretical emissions of 100 TPY or more from both non-CTG sources and unregulated CTG sources would be regulated, with an exemption for smaller individual sources. A provision for determining compliance based on current USEPA methods has also been added.

The rule for "other emission sources" is similar to the rules for the three miscellaneous categories. The rule is intended as a catch-all for any other major non-CTG source which may not be subject to the four generic rules discussed above. Consistent with the State's rule, the Federal rule exempts sewage treatment plants, vegetable oil processing facilities, coke ovens (including by-product recovery plants), fuel combustion sources, bakeries, barge loading facilities, jet engine test cells, pharmaceutical manufacturing, production of polystyrene foam insulation board (including storage and extrusion of scrap where blowing agent is added to the polystyrene resin at the plant), production of polystyrene foam insulation board (not including storage and extrusion of scrap where blowing agent is added to the polystyrene resin at the plant), and iron and steel production.[23]

Finally, USEPA is also promulgating specific recordkeeping and reporting requirements which would apply to the three miscellaneous category rules, and the other emision source rule.

9. General Provisions

The General Provisions section in the Federal rule contains requirements and clarifications which affect the other sections of the VOC rule. The main elements of this section are: Definitions, Test Methods, Determination of Vapor Pressure, Compliance Dates, and Alternative Compliance Determinations. A comprehensive list of definitions is contained, including definitions which correct the relevant deficiencies in the State rule and which clarify the Federal rule.

Note: definitions not included in the Federal rule, but which are contained in the existing federally approved State rule remain as part of the implementation plan.

Test methods and procedures are specified for coatings, inks, and fountain solutions; automobile or light-duty truck coating operations (including a transfer efficiency test protocol); capture system efficiency test protocols; control device efficiency testing and monitoring; overall efficiency; VOC gas phase source test methods; VOC leak detection methods; bulk gasoline delivery system test protocols; and solvent metal cleaning VOC emissions. Specific procedures for determining vapor pressure have also been added to the Federal rule. Compliance with the promulgated rules is required by July 1, 1991, unless otherwise indicated in the individual source category rules. Any exemptions, variance, or alternatives to the control requirements or test methods are federally effective only if submitted to and approved by USEPA as a plan revision.

In addition, the General Provision section contains a seasonal exemption for afterburners. In the Federal rule, an exemption is provided only for natural gas-fired afterburners during the period of November 1 through April 1.

C. Summary of Changes to Proposed Rules

Based on the public comments and upon further consideration, USEPA has determined that certain changes to the proposed rules are appropriate, as discussed above. A summary of the significant changes is provided below:

(a) General Provisions

**Revised:* References to ASTM methods to reflect current version:

(1) Abbreviations and Conversion Factors

**Deleted* BTU and RACT (see Definitions)

(2) Applicability

(3) Definitions

**The applicability of the Federal definitions will be limited to the Federal rules.*

**Revised:* Actual emissions, afterburners, air dried coatings, allowable emissions, as applied, automobile or light-duty truck assembly (manufacturing) plant, binders, bulk gasoline plant, can, coating applicator, coating line, coating plant, condensate, control device emission source, enclose, exterior base coating (coat), exterior end coating (coat), federally enforceable, final repair coat, fixed roof tank, gasoline, heavy liquid, interior body spray coating (coat), magnet wire coating, maximum theoretical emissions (potential emissions/potential to emit), metal furniture coating, overvarnish, petroleum refinery, plant, prime coat, printing line, publication rotogravure printing line, roll coater, roll printer, sealer, source, specified air contaminant, submerged loading pipe (submerged fill pipe), topcoat, vapor recovery system, vinyl coating, volatile organic compound, and volatile organic material.

**Added:* Accelacota, air suspension coater/dryer, airless spray, air-assisted airless spray, brush or wipe coating, capture, capture device, capture efficiency, control device efficiency, electrostatic bell or disc spray, electrostatic spray, gas/gas method, heated airless spray, hood, hood capture efficiency, liquid/gas method, lithographic printing line, magnet wire, multiple packaging coatings, organic compound, overall control, pharmaceutical coating operation, printing, refrigerated condensor, roller coating, and tablet coating operation.

**Deleted:* Actual heat input, agency, ambient air, British thermal unit, building, structure, facility, or installation, emission rate, electrostatic application, electrostatic coating, emissions unit, can-seam spray, complete combustion, excess air, flow coating, furniture coating application line, graphic arts coating facility, graphic arts coating line, gross heating value, heavy off-highway vehicle, interior base coating, liquid-mounted primary seal, petrolem liquid, photochemically reactive material, pressure tanks, reasonably available control technology, refinery, vapormounted primary seal, varnishes, and volatile petroleum liquid.

(4) Testing Methods and Procedures

**(ii) Has been retitled "Automobile or Light-Duty Truck Test Protocol"*

**Specific procedures for determining capture efficiency have been included in (iii) based on the final guidance document.*

**The provision for alternative, equivalent test methods in (i)(B)(4) has been clarified and a comparable provision has been added in (vi) for VOM Gas Phase Source Test Methods.*

**Reference to "fixed-bed carbon adsorption system" in (vi)(A) has been*

[23] USEPA is still considering the need to establish site-specific emission limitations and standards, as alternative to the Federal Generic Rule, for two plants (Allsteel in Kane County and Viskase in Cook County) in response to the public comments received from these companies. The highly technical, source-specific nature of these comments (*e.g.*, there is only one other company which manufactures cellulose food casings besides Viskase in the United States and the feasibility of complaint adhesives for metal furniture manufacturing operations such as Allsteel has not been established) will take additional time for USEPA to review and respond to. As noted above, the need to promulgate Federal regulations under the tight timeframe ordered by the Court has prevented USEPA from being able to consider fully the merits of these two proposed, alternative site-specific limits. Although for environmental and equity reasons, USEPA believes that it is necessary to establish emission limitations and standards for all sources at this time, USEPA will continue to consider the need to adopt as Federal measures site-specific limits for these two sources. USEPA has delayed the effective date of these rules until January 1, 1991, for these two sources to allow the Agency time to fully analyze the proposed alternative limits. If determined to be appropriate, then USEPA will propose revised Federal limits at a later date.

changed to simply "carbon adsorption system".

*(iv)(B)(*2*) has been modified to allow the VOM concentration of exhaust to be monitored, as alternative to the temperature rise across the catalytic afterburner bed.

*Deleted (ix), not necessary for the Federal rules

*Clarification on use of liquid/liquid test protocol in (v)(A) has been added

(5) Compliance Dates

*The compliance date for these Federal rules has been revised from April 1, 1991, (and in certain cases, the date of promulgation), to July 1, 1991

(6) Afterburners

(7) Exemptions, Variances and Alternative Means of Control

*Retitled to cover "Compliance Determinations" also

(8) Vapor Pressure of Volatile Organic Liquids

(9) Vapor Pressure of Organic Material or Solvent

(10) Vapor Pressure of Volatile Organic Material

(b)–(c) [Reserved]

(d) Solvent Cleaning

(1) Solvent Cleaning in General

(2) Compliance Schedule

*The compliance date has been revised from April 1, 1991, to July 1, 1991.

(3) Test Methods

(e) Coating Operations

(1) Emission Limitations for Manufacturing Plants

*(i)(M) has been retitled "Existing Diesel-Electric Locomotive Coating Lines in Cook County"

*More definitive compliance provisions for automobile or light-duty truck coating operations have been noted in (i)(A)(*3*)

*The term "C_i" has been corrected to be "L_i" in the denominator in the equation in (ii)(C)(*2*)

(2) Alternative Emission Limitations

*Afterburners have been added to the list of control devices in (i)(B)

(3) Exemptions from Emission Limitations

(4) Exemption from General Rule on Use of Organic Material

(5) Compliance Schedule

*The compliance date has been revised from April 1, 1991, to July 1, 1991.

(6) Recordkeeping and Reporting

*All references to April 1, 1991, have been revised to July 1, 1991.

*All references to the "start-up of a new coating line" have been revised to the "initial start-up of a new coating line"

*The requirement to collect and record the weight of VOM per volume of coating solids as applied each day on each coating line has been changed to only apply to sources complying pursuant to (2)(i)(B)

*More explicit recordkeeping requirements have been added in (ii)(A) and (ii)(B) and the reporting provisions of (ii)(C)(*1*) have been modified for sources subject to (i)(A)(*3*). A recertification provision has been added for sources subject to (i)(A)(*3*).

(f)–(g) [Reserved]

(h) Printing and Publishing

(1) Flexographic and Rotogravure Printing

*Definition of "V_{VOMi}" in (ii) has been corrected

(2) Applicability

(3) Compliance Schedule

*The compliance date has been revised from April 1, 1991, to July 1, 1991. Also, the requirement for immediate compliance in (v) has been deleted.

*(ii), (iii), (iv) have been modified to include reference to (1)(i), (1)(ii), and (1)(iii), respectively

(4) Recordkeeping and Reporting

*The requirement in (iv)(B)(*1*) has been deleted

*All references to the "start-up of a new printing line" have been revised to the "initial start-up of a new printing line"

(5) Heatset Web Offset Lithographic Printing

*All references to the "start-up of a new printing line" have been revised to the "initial start-up of a new printing line"

*All references to April 1, 1991, have been revised to July 1, 1991. Also, the requirement for immediate compliance in (iv)(D) has been deleted.

*(iv)(B) and (iv)(C) have been modified to include reference to (ii)(A) and (ii)(B), respectively.

(i) Leaks From Synthetic Organic Chemical and Polymer Manufacturing Equipment

(1) Inspection Program for Leaks

(2) Alternative Program for Leaks

(j) Petroleum Refining and Related Industries: Asphalt Materials

(1) Monitoring Program for Leaks

(2) Alternative Program for Leaks

(3) Compliance Schedule for Leaks

*Revised dates from June 1, 1990, to September 1, 1990, and from July 1, 1990, to October 1, 1990

(k)–(l) [Reserved]

(m) Pharmaceutical Manufacturing

*Revised to "(m) PHARMACEUTICAL MANUFACTURING

(1) Applicability

*Revised exemption levels for air suspension coater/dryer and tunnel dryer

*Added requirements in (vi) that sources be controlled at all times and in (vii) that controls be operated at all times

*Added method in (viii) for calculating daily and annual emissions for applicability purposes

(2) Control of Reactors, Distillation Units, Crystallizers, Centrifuges, and Vacuum Dryers

*Clarified enclosure restriction

(3) Control of Air Dryers, Production Equipment, Exhaust Systems, and Filters

*Clarified enclosure restriction

*Deleted (iii), in view of addition in (1)(vi)

(4) Material Storage and Transfer

*Deleted provision in (ii) concerning alternative control devices

*Deleted provision in (iii), in view of addition in (1)(vii)

(5) In-Process Tanks

(6) Leaks

(7) Other Emission Sources

*Revised "capsule coating operation" to "tablet coating operation"

*Deleted (iii), in view of addition in (1)(vi)

(8) Testing

*Revised reference to test methods from (m)(8)(iii), which has been deleted, to (a)(vi)(A)

(9) Monitoring and Recordkeeping for Air Pollution Control Equipment

*Revised wording in (i)(A)(2), (ii)(A)(1), and (ii)(A)(2)

*Revised recordkeeping requirements for leaks and in-process tanks

*Added provision in (ii)(D) concerning the calculation of daily and annual emissions for applicability purposes

(n)–(p) [Reserved]

(q) Gasoline Distribution

(1) Bulk Gasoline Plants

*All references to "throughput" have been revised to "gasoline throughput"

(r) [Reserved]

(s) Paint and Ink Manufacturing

(1) Applicability

(2) Exemption for Waterbase Material and Heatset-Offset Ink

(3) Permit Conditions

(4) Open-top Mills, Tanks, Vats, or Vessels

(5) Grinding Mills

(6) Storage Tanks

(7) Leaks

(8) Clean Up

(9) Compliance Schedule

*The compliance date has been revised from April 1, 1991, to July 1, 1991, for all affected facilities.

(10) Recordkeeping and Reporting
(t) [Reserved]

(u) Miscellaneous Fabricated Product Manufacturing Processes

(1) Applicability
*Revised "regulated by" in first sentence in (i) to "included within any of the source categories specified in"
*References to other rules have been clarified
(2) Permit Conditions
(3) Control Requirements
(4) Compliance Schedule
*The compliance date has been revised from April 1, 1991, to July 1, 1991, for all affected facilities.
(5) Testing

(v) Miscellaneous Formulation Manufacturing Processes

(1) Applicability
*Revised "regulated by" in first sentence in (i) to "included within any of the source categories specified in"
*References to other rules have been clarified
(2) Permit Conditions
(3) Control Requirements
(4) Compliance Schedule
*The compliance date has been revised from April 1, 1991, to July 1, 1991, for all affected facilities.
(5) Testing

(w) Miscellaneous Organic Chemical Manufacturing Processes

(1) Applicability
*Revised "regulated by" in first sentence in (i) to "included within any of the source categories specified in"
*References to other rules have been clarified
(2) Permit Conditions
(3) Control Requirements
(4) Compliance Schedule
*The compliance date has been revised from April 1, 1991, to July 1, 1991, for all affected facilities.
(5) Testing

(x) Other Emission Sources

(1) Applicability
*Revised "regulated by" in first sentence in (i) to 'included within any of the source categories specified in"
*References to other rules have been clarified
*Added sewage treatment plants and vegetable oil processing plants to the list of exempt facilities
*Replaced "non-synthetic pharmaceutical manufacturing" with "pharmaceutical manufacturing" in list of exempt facilities
*Clarified coverage of the list of exempt source categories
(2) Permit Conditions
(3) Control Requirements
(4) Compliance Schedule
*The compliance date has been revised from April 1, 1991, to July 1, 1991, for all affected facilities.
(5) Testing

(y) Recordkeeping and Reporting for Non-CTG Sources

(1) Exempt Emission Source
(2) Subject Emission Sources
(z) [Reserved]

USEPA believes that these changes are supported by the information in the rulemaking docket, which has been open for public review and comment, and are responsive to the public comments. Consequently, USEPA believes that it can make these changes in this final rulemaking action without having to repropose.

V. Summary of Rules

Today's notice takes final action on Illinois rules which have been submitted by the State, and promulgates Federal rules to amend all deficiencies not corrected by Illinois. Table 1 provides a summary of the Federal rules being promulgated, the State rules being approved, and the State rules which have been approved and are not changing. It should be noted that the format of Table 1 is modeled after the Illinois RACT rules (*i.e.*, see the June 1989 version of Title 35: Environmental Protection, Subtitle B: Air Pollution, Chapter I: Pollution Control Board of the Illinois Administrative Code [IAC]). The State rules are identified by their IAC designation (*i.e.*, the 215 series). When approved as part of the SIP, some of these rules were identified by an earlier IPCB number (*i.e.*, the 205 series). A comparison between the "205" and "215" versions indicates only minor differences. Consequently, USEPA is recodifying the existing SIP rules to reflect the version and number in the IAC. The following designations are used in Table 1:

FED—Federal Rule
SIP—Federally approved State rule

TABLE 1.—SUMMARY OF VOC RULES FOR ILLINOIS

State No.	Rule	Federal No.
	Subpart A: General Provisions	52.741(a).
[1] 215.103	Abbreviations and Conversion Factors (FED)	
[1] 215.107	Applicability (FED)	
	Definitions (FED)	
215.104	Definitions (SIP)-partial	
201.102	Definitions (SIP)-partial	
211.122	Definitions (SIP)-partial	
[1] 215.102	Testing Methods and Procedures (FED)	
	Compliance Dates (FED)	
[1] 215.106	Afterburners (FED)	
	Exemptions, Variances and Alternative Means of Control (FED)	
	Vapor Pressure of Volatile Organic Liquids (FED)	
	Vapor Pressure of Organic Material or Solvent (FED)	
	Vapor Pressure of Volatile Organic Material (FED)	
	Subpart B: Organic Emissions from Storage and Loading Operations	
215.121	Storage Containers (SIP)	
215.122	Loading Operations (SIP)	
215.123	Petroleum Liquid Storage Tanks (SIP)	
215.124	External Floating Roofs (SIP)	
215.125	Compliance Dates and Geographical Areas (SIP)	
215.126	Compliance Plan (SIP)	
	Subpart C: Organic Emissions from Miscellaneous Equipment	
215.141	Separation Operations (SIP)	
215.142	Pumps and Compressors (SIP)	
215.143	Vapor Blowdown (SIP)	
215.144	Safety Relief Valves (SIP)	
[1] 215.181	Solvent Cleaning in General (FED)	52.741(d)(1).

TABLE 1.—SUMMARY OF VOC RULES FOR ILLINOIS—Continued

State No.	Rule	Federal No.
215.182	Cold Cleaning (SIP)	
215.183	Open Top Vapor Degreasing (SIP)	
215.184	Conveyorized Degreasing (SIP)	
[1] 215.185	Compliance Schedule (FED)	52.741(d)(2).
	Test Methods (FED)	52.741(d)(3).
	Subpart F: Coating Operations	52.741(e).
[1] 215.204	Emission Limitations for Manufacturing Plants (FED)	
[1] 215.205	Alternative Emission Limitations (FED)	
[1] 215.206	Exemptions from Emission Limitations (FED)	
[1] 215.209	Exemption from General Rule on Use of Organic Material (FED)	
[1] 215.211	Compliance Schedule (FED)	
	Recordkeeping and Reporting (FED)	
	Subpart H: Special Limitations for Sources in Major Urbanized Areas Which are Nonattainment for Ozone	
215.240	Applicability (SIP)	
215.241	External Floating Roofs (SIP)	
215.249	Compliance Dates (SIP)	
	Subpart K: Use of Organic Material	
215.301	Use of Organic Material (SIP)	
215.302	Alternative Standard (SIP)	
215.303	Fuel Combustion Emission Sources (SIP)	
215.304	Operations with Compliance Program (SIP)	
	Subpart P: Printing and Publishing	52.741(h).
[1] 215.401	Flexographic and Rotogravure Printing (FED)	
[1] 215.403	Applicability (FED)	
[1] 215.405	Compliance Schedule (FED)	
[1] 215.404	Recordkeeping and Reporting (FED)	
[1] 215.408	Heatset-Web-Offset Lithographic Printing (FED)	
	Subpart Q: Leaks from Synthetic Organic Chemical and Polymer Manufacturing Equipment	
215.420	Applicability (SIP)	
215.421	General Requirements (SIP)	
215.422	Inspection Program Plan for Leaks (SIP)	
215.423	Inspection Program for Leaks (SIP)	
215.424	Repairing Leaks (SIP)	
215.425	Recordkeeping for Leaks (SIP)	
215.426	Reporting for Leaks (SIP)	
215.427	Alternative Program for Leaks (SIP)	
215.428	Compliance Dates (SIP)	
215.429	Compliance Plan (SIP)	
215.430	General Requirements (SIP)	
215.431	Inspection Program Plan for Leaks (SIP)	
[1] 215.432	Inspection Program for Leaks (SIP)	52.741(i)(1).
215.433	Repairing Leaks (SIP)	
215.434	Recordkeeping for Leaks (SIP)	
215.435	Reporting for Leaks (SIP)	
[1] 215.436	Alternative Program for Leaks (FED)	52.741(i)(2).
215.437	Open-Ended Valves (SIP)	
215.438	Compliance Date (SIP)	
	Subpart R: Petroleum Refining and Related Industries; Asphalt Materials	
215.441	Petroleum Refinery Waste Gas Disposal (SIP)	
215.442	Vacuum Producing Systems (SIP)	
215.443	Wastewater (Oil/Water) Separator (SIP)	
215.444	Process Unit Turnarounds (SIP)	
215.445	Leaks: General Requirements (SIP)	
215.446	Monitoring Program Plan for Leaks (SIP)	
[1] 215.447	Monitoring Program for Leaks (FED)	52.741(j)(1).
215.448	Recordkeeping for Leaks (SIP)	
215.449	Reporting for Leaks (SIP)	
[1] 215.450	Alternative Program for Leaks (FED)	52.741(j)(2).
215.451	Sealing Device Requirements (SIP)	
[1] 215.452	Compliance Schedule for Leaks (FED)	52.741(j)(3).
215.453	Compliance Dates and Geographical Areas (SIP)	
	Subpart S: Rubber and Miscellaneous Plastic Products	
215.461	Manufacture of Pneumatic Rubber Tires (SIP)	
215.462	Green Tire Spraying Operations (SIP)	
215.463	Alternative Emission Reduction Systems (SIP)	
215.464	Testing and Monitoring (SIP)	
215.465	Compliance Dates and Geographical Areas (SIP)	
215.466	Compliance Plan (SIP)	
	Subpart T: Pharmaceutical Manufacturing	52.741(m).
[1] 215.480	Applicability (FED)	
[1] 215.481	Control of Reactors, Distillation Units, Crystallizers, Centrifuges and Vacuum Dryers (FED)	
[1] 215.482	Control of Air Dryers, Production Equipment Exhaust Systems and Filters (FED)	
[1] 215.483	Material Storage and Transfer (FED)	
[1] 215.484	In-Process Tanks (FED)	
[1] 215.485	Leaks (FED)	

TABLE 1.—SUMMARY OF VOC RULES FOR ILLINOIS—Continued

State No.	Rule	Federal No.
[1] 215.486	Other Emission Sources (FED)	
[1] 215.487	Testing (FED)	
[1] 215.488	Monitoring and Recordkeeping for Air Pollution Control Equipment (FED)	
	Subpart V: Air Oxidation Processes	
215.520	Applicability (SIP)	
215.521	Definitions (SIP)	
215.525	Emission Limitations for Air Oxidation Processes (SIP)	
215.526	Testing and Monitoring (SIP)	
215.527	Compliance Date (SIP)	
	Subpart W: Agriculture	
215.541	Pesticide Exception (SIP)	
	Subpart X: Construction	
215.561	Architectural Coatings (SIP)	
215.562	Paving Operations (SIP)	
215.563	Cutback Asphalt (SIP)	
	Subpart Y: Gasoline Distribution	
[1] 215.581	Bulk Gasoline Plants (FED)	52.741(q)(1).
215.582	Bulk Gasoline Terminals (SIP)	
215.583	Gasoline Dispensing Facilities (SIP)	
215.584	Gasoline Delivery Vessels (SIP)	
	Subpart Z: Dry Cleaners	
215.601	Perchloroethylene Dry Cleaners (SIP)	
215.602	Exemptions (SIP)	
215.603	Testing and Monitoring (SIP)	
215.604	Compliance Dates and Geographic Areas (SIP)	
215.605	Compliance Plan (SIP)	
215.606	Exception to Compliance Plan (SIP)	
215.607	Standards for Petroleum Solvent Dry Cleaners (SIP)	
215.608	Operating Practices for Petroleum Solvent Dry Cleaners (SIP)	
215.609	Program for Inspection and Repair and Leaks (SIP)	
215.610	Testing and Monitoring (SIP)	
215.611	Exemption for Petroleum Solvent Dry Cleaners (SIP)	
215.612	Compliance Dates and Geographical Areas (SIP)	
215.613	Compliance Plan (SIP)	
	Subpart AA: Paint and Ink Manufacturing	52.741(s).
[1] 215.620	Applicability (FED)	
[1] 215.621	Exemption for Waterbase Material and Heatset-Offset Ink (FED)	
[1] 215.623	Permit Conditions (FED)	
[1] 215.624	Open-top Mills, Tanks, Vats, or Vessels (FED)	
[1] 215.625	Grinding Mills (FED)	
[1] 215.626	Storage Tanks (FED)	
[1] 215.628	Leaks (FED)	
[1] 215.630	Clean Up (FED)	
[1] 215.636	Compliance Schedule (FED)	
	Recordkeeping and Reporting (FED)	
	Subpart BB: Polystyrene Plants	
215.875	Applicability of Subpart BB (SIP)	
215.877	Emissions Limitations at Polystyrene Plants (SIP)	
215.879	Compliance Date (SIP)	
215.881	Compliance Plan (SIP)	
215.883	Special Requirements for Compliance Plan (SIP)	
215.886	Testing and Monitoring (SIP)	
	Subpart PP: Miscellaneous Fabricated Product Manufacturing Processes	52.741(u).
[1] 215.920	Applicability (FED)	
[1] 215.923	Permit Conditions (FED)	
[1] 215.926	Control Requirements (FED)	
[1] 215.927	Compliance Schedule (FED)	
[1] 215.928	Testing (FED)	
	Subpart QQ: Miscellaneous Formulation Manufacturing Processes	52.741(v).
[1] 215.940	Applicability (FED)	
[1] 215.943	Permit Conditions (FED)	
[1] 215.946	Control Requirements (FED)	
[1] 215.947	Compliance Schedule (FED)	
[1] 215.948	Testing (FED)	
	Subpart RR: Miscellaneous Organic Chemical Manufacturing Processes	52.741(w).
[1] 215.960	Applicability (FED)	
[1] 215.963	Permit Conditions (FED)	
[1] 215.966	Control Requirements (FED)	
[1] 215.967	Compliance Schedule (FED)	
[1] 215.968	Testing (FED)	
	Other Emission Sources	52.741(x).
	Applicability (FED)	
	Permit Conditions (FED)	
	Control Requirements (FED)	

TABLE 1.—SUMMARY OF VOC RULES FOR ILLINOIS—Continued

State No.	Rule	Federal No.
	Compliance Schedule (FED) Testing (FED) Recordkeeping and Reporting for Generic Rules Exempt Emission Sources (FED) Subject Emission Sources (FED)	52.741(y).

[1] Presented for information purposes only. Federal number is applicable for this rule.

VI. Impacts

The Federal rules are expected to provide an additional reduction in VOC emissions of about 7,600 tons per year (TPY) and to result in an additional cost of $24 million beyond the existing State rules. The emission reductions and costs were calculated assuming general compliance with all existing State rules, including State rules which have not been federally approved. Because these State rules have been in effect and enforceable at the State level for several years, the emission reductions and costs associated with these rules should have already occurred and should not be double-counted in estimating the impact of the Federal rules. Thus, USEPA believes that the reductions and costs are on the order of 7,600 TPY and $24 million, respectively.

VI. Regulatory Analysis

A. Administrative Designation and Regulatory Analysis

The Administrator has determined that this action does not constitute a major regulation, as defined in section 1(b) of Executive Order 12291. Specifically, costs under the rule will total less than $100 million annually. Accordingly, a Regulatory Impact Analysis (RIA) containing a detailed assessment of the FIP RACT rules for Illinois is not required. Nevertheless, a preliminary evaluation of the potential emission reductions and the costs associated with the Federal rules has been prepared. A copy of this preliminary evaluation has been included in the docket for this rulemaking. The regulation also was submitted to the Office of Management and Budget (OMB) for review as required by Executive Order 12291. Any written comments from OMB, and USEPA responses to those comments, have been placed in the public docket for this rulemaking.

B. Impact on Small Entities

Under the Regulatory Flexibility Act (RFA), 5 U.S.C. 600 *et seq.*, USEPA must prepare a regulatory flexibility analysis assessing the impact of any proposed or final rule on small entities. According to section 605(b) of the RFA, this requirement may be waived if the Administrator certifies that the regulations will not have a significant impact on a substantial number of small entities. Small entities include small businesses, small not-for-profit enterprises, and governmental entities with jurisdictions over populations of less than 50,000. USEPA's study on the impact on small entities, which has been included in the docket for this rulemaking action, indicates that for certain source categories, for which sufficient data were available to estimate the economic impact, the rules would not impose a significant impact. For one source category, there would not be a substantial number of small entities which would incur a significant impact. For the remaining source categories, the economic impact was considered to be insignificant, or there were no small entities affected. No public comments were received on USEPA's study. Consequently, the Administrator finds that the Federal rules will not have a significant economic impact on a substantial number of small entities.

C. Reporting and Recordkeeping Requirements

The information collection provisions relating to the final rules have been submitted to OMB under the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.* A copy of the Information Collect on Request document prepared by USEPA may be obtained from the Information Policy Branch; USEPA, 401 M Street, SW., [PM–223], Washington, DC 20460, or by calling (202) 382–2706. Public comments on USEPA's proposed information collection requirements are addressed in section II. It should be noted that no public comments were received on USEPA's analysis of the impact of these requirements (i.e., the SF–83 Supporting Statement).

Under section 307(b)(1) of the Clean Air Act (CAA), judicial review of the Administrator's action in approving and promulgating this implementation plan under section 110 is available only by filing a petition for review in the United States District Court of Appeals for the Seventh Circuit within 60 days of today's publication of this notice. Under section 307(b)(2) of the CAA, the requirements of today's notice may not be challenged later in civil or criminal proceedings brought by USEPA to enforce these requirements.

List of Subjects in 40 CFR Part 52

Air pollution control, Carbon monoxide, Environmental Protection, Hydrocarbons, Incorporation by reference, Intergovernmental relations, Nitrogen dioxide, Ozone.

Dated: June 8, 1990.

William K. Reilly,

Administrator.

PART 52—APPROVAL AND PROMULGATION OF IMPLEMENTATION PLANS

Subpart O—Illinois

Title 40 of the Code of Federal Regulations, chapter I, part 52, subpart O is being amended as follows:

1. The authority citation for part 52 continues to read as follows:

Authority: 42 U.S.C. 7401–7642.

2. 40 CFR part 52 is amended by adding a new § 52.741, subpart O to read as follows:

§ 52.741 Control strategy: Ozone control measures for Cook, DuPage, Kane, Lake, McHenry and Will Counties.

(a) *General Provisions*—(1) *Abbreviations and conversion factors.* (i) The following abbreviations are used in § 52.741:

ASTM	American Society for Testing and Materials.
bbl	barrels (42 gallons).
°C	degrees Celsius or centigrade.
cm	centimeters.
cu in.	cubic inches.
°F	degrees Fahrenheit.
FIP	Federal implementation plan.
ft	feet.
ft^2	square feet.
g	grams.
gpm	gallons per minute.
g/mole	grams per mole.
gal	gallons.
hr	hours.
in	inches.

K	degrees Kelvin.
kcal	kilocalories.
kg	kilograms.
kg/hr	kilograms per hour.
kPa	kilopascals; one thousand newtons per square meter.
l	liters.
l/sec	liters per second.
lbs	pounds.
lbs/hr	pounds per hour.
lbs/gal	pounds per gallon.
LEL	lower explosive limit.
m	meters.
m^2	square meters.
m^3	cubmic meters.
mg	milligrams.
Mg	Megagrams, metric tons or tonnes.
ml	milliliters.
min	minutes.
MJ	megajoules.
mm Hg	millimeters of mercury.
ppm	parts per million.
ppmv	parts per million by volume.
psi	pounds per square inch.
psia	pounds per square inch absolute.
psig	pounds per square inch gauge.
scf	standard cubic feet.
scm	standard cubic meters.
sec	seconds.
SIP	State implementation plan.
sq cm	square centimeters.
sq in	square inches.
USEPA	United States Environmental Protection Agency.
VOC	volatile organic compounds.
VOL	volatile organic liquids.
VOM	volatile organic materials.

(ii) The following conversion factors are used in § 52.741.

English	Metric
1 gal	3.785 l.
1,000 gal	3.785 l or 3.785 m^3.
1 psia	6.897 kPa (51.71 mm Hg).
2.205 lbs	1 kg.
1 bbl	159.0 l.
1 cu in	16.39 ml.
1 lb/gal	119,800 mg/l.
1 ton	0.907 Mg.

(2) *Applicability.* The provisions of § 52.741 shall apply to all sources located in Cook, DuPage, Kane, Lake, McHenry or Will County.

(3) *Definitions.* The following terms are defined for the purpose of § 52.741.

Note: The Federal definitions supersede the State definitions for these terms, which were previously approved by USEPA as part of the SIP. The federally approved definitions for all other terms remain in effect and applicable to these Federal rules.

Accelacota means a pharmaceutical coating operation which consists of a horizontally rotating perforated drum in which tablets are placed, a coating is applied by spraying, and the coating is dried by the flow of air across the drum through the perforations.

Accumulator means the reservoir of a condensing unit receiving the condensate from a surface condenser.

Actual emissions means the actual quantity of VOM emissions from an emission source during a particular time period.

Adhesive means any substance or mixture of substances intended to serve as a joining compound.

Administrator means the Administrator of the USEPA or that person's designee.

Afterburner means a control device in which materials in gaseous effluent are combusted.

Air contaminant means any solid, liquid, or gaseous matter, any odor, or any form of energy, that is capable of being released into the atmosphere from an emission source.

Air dried coatings means any coatings that dry by use of air or forced air at temperatures up to 363.15 K (194 °F).

Air pollution means the presence in the atmosphere of one or more air contaminants in sufficient quantities and of such characteristics and duration as to be injurious to human, plant, or animal life, to health, or to property, or to unreasonably interfere with the enjoyment of life or property.

Air pollution control equipment means any equipment or facility of a type intended to eliminate, prevent, reduce or control the emission of specified air contaminants to the atmosphere.

Air suspension coater/dryer means a pharmaceutical coating operation which consists of vertical chambers in which tablets or particles are placed, and a coating is applied and then dried while the tablets or particles are kept in a fluidized state by the passage of air upward through the chambers.

Air-assisted airless spray means a spray coating method which combines compressed air with hydraulic pressure to atomize the coating material into finer droplets than is achieved with pure airless spray. Lower hydraulic pressure is used than with airless spray.

Airless spray means a spray coating method in which the coating is atomized by forcing it through a small opening at high pressure. The coating liquid is not mixed with air before exiting from the nozzle.

Allowable emissions means the quantity of VOM emissions during a particular time period from a stationary source calculated using the maximum rated capacity of the source (unless restricted by federally enforceable limitations on operating rate, hours of operation, or both) and the most stringent of:

(A) The applicable standards in 40 CFR parts 60 and 61:

(B) The applicable implementation plan; or

(C) A federally enforceable permit.

Ambient air quality standards means those standards designed to protect the public health and welfare codified in 40 CFR part 50 and promulgated from time to time by the USEPA pursuant to authority contained in Section 108 of the Clean Air Act, 42 U.S.C. 7401 *et seq.*, as amended from time to time.

Application means a device used in a coating line to apply coating.

As applied means the exact formulation of a coating during application on or impregnation into a substrate.

Asphalt means the dark-brown to black cementitious material (solid, semisolid, or liquid in consistency) of which the main constituents are bitumens which occur naturally or as a residue of petroleum refining.

Automobile means a motor vehicle capable of carrying no more than 12 passengers.

Automobile or light-duty truck assembly plant means a facility where parts are assembled or finished for eventual inclusion into a finished automobile or light-duty truck ready for sale to vehicle dealers, but not including customizers, body shops, and other repainters.

Automobile or light-duty truck refinishing means the repainting of used automobiles and light-duty trucks.

Baked coatings means any coating which is cured or dried in an oven where the oven air temperature exceeds 90°C (194°F).

Binders means organic materials and resins which do not contain VOM's.

Bituminous coatings means black or brownish coating materials which are soluble in carbon disulfide, which consist mainly of hydrocarbons, and which are obtained from natural deposits or as residues from the distillation of crude oils or of low grades of coal.

Brush or wipe coatings means a manual method of applying a coating using a brush, cloth, or similar object.

Bulk gasoline plant means a gasoline storage and distribution facility with an average throughput of 76,000 l (20,000 gal) or less on a 30-day rolling average that distributes gasoline to gasoline dispensing facilities.

Can means any metal container, with or without a top, cover, spout or handles, into which solid or liquid materials are packaged.

Can coating means any coating applied on a single walled container

that is manufactured from metal sheets thinner than 29 gauge (0.0141 in.).

Can coating facility means a facility that includes one or more can coating line(s).

Can coating line means a coating line in which any protective, decorative, or functional coating is applied onto the surface of cans or can components.

Capture means the containment or recovery of emissions from a process for direction into a duct which may be exhausted through a stack of sent to a control device. The overall abatement of emissions from a process with an add-on control device is a function both of the capture efficiency and of the control device.

Capture device means a hood, enclosed room floor sweep or other means of collecting solvent or other pollutants into a duct. The pollutant can then be directed to a pollution control device such as an afterburner or carbon adsorber. Sometimes the term is used loosely to include the control device.

Capture efficiency means the fraction of all VOM generated by a process that are directed to an abatement or recovery device.

Capture system means all equipment (including, but not limited to, hoods, ducts, fans, ovens, dryers, etc.) used to contain, collect and transport an air pollutant to a control device.

Clean Air Act means the Clean Air Act of 1963, as amended, including the Clean Air Act Amendments of 1977, (42 U.S.C. 7401 *et seq.*).

Clear coating means coatings that lack color and opacity or are transparent using the undercoat as a reflectant base or undertone color.

Clear topcoat means the final coating which contains binders, but not opaque pigments, and is specifically formulated to form a transparent or translucent solid protective film.

Closed vent system means a system that is not open to the atmosphere and is composed of piping, connections, and, if necessary, flow inducing devices that transport gas or vapor from an emission source to a control device.

Coating means a material applied onto or impregnated into a substrate for protective, decorative, or functional purposes. Such materials include, but are not limited to, paints, varnishes, sealers, adhesives, thinners, diluents, and inks.

Coating applicator means equipment used to apply a coating.

Coating line means an operation consisting of a series of one or more coating applicators and any associated flash-off areas, drying areas, and ovens wherein a surface coating is applied, dried, or cured. (It is not necessary for an operation to have an oven, or flash-off area, or drying area to be included in this definition.)

Coating plant means any plant that contains one or more coating line(s).

Coil means any flat metal sheet or strip that is rolled or wound in concentric rings.

Coil coating means any coating applied on any flat metal sheet or strip that comes in rolls or coils.

Coil coating facility means a facility that includes one or more coil coating line(s).

Coil coating line means a coating line in which any protective, decorative or functional coating is applied onto the surface of flat metal sheets, strips, rolls, or coils for industrial or commercial use.

Cold cleaning means the process of cleaning and removing soils from surfaces by spraying, brushing, flushing, or immersion while maintaining the organic solvent below its boiling point. Wipe cleaning is not included in this definition.

Component means, with respect to synthetic organic chemical and polymer manufacturing equipment, and petroleum refining and related industries, any piece of equipment which has the potential to leak VOM including, but not limited to, pump seals, compressor seals, seal oil degassing vents, pipeline valves, pressure relief devices, process drains, and open ended pipes. This definition excludes valves which are not externally regulated, flanges, and equipment in heavy liquid service. For purposes of paragraph (i) of this section, this definition also excludes bleed ports of gear pumps in polymer service.

Concrete curing compounds means any coating applied to freshly poured concrete to retard the evaporation of water.

Condensate means volatile organic liquid separated from its associated gases, which condenses due to changes in the temperature or pressure and remains liquid at standard conditions.

Continuous process means, with respect to polystyrene resin, a method of manufacture in which the styrene raw material is delivered on a continuous basis to the reactor in which the styrene is polymerized to polytstyrene.

Control device means equipment (such as an afterburner or adsorber) used to remove or prevent the emission of air pollutants from a contaminated exhaust stream.

Control device efficiency means the ratio of pollution prevented by a control device and the pollution introduced to the control device, expressed as a percentage.

Conveyorized degreasing means the continuous process of cleaning and removing soils from surfaces utilizing either cold or vaporized solvents.

Crude oil means a naturally occurring mixture which consists of hydrocarbons and sulfur, nitrogen, or oxygen derivatives of hydrocarbons and which is a liquid at standard conditions.

Crude oil gathering means the transportation of crude oil or condensate after custody transfer between a production facility and a reception point.

Custody transfer means the transfer of produced petroleum and/or condensate after processing and/or treating in the producing operations, from storage tanks or automatic transfer facilities to pipelines or any other forms of transportation.

Daily-weighted average VOM content means the average VOM content of two or more coatings as applied on a coating line during any day, taking into account the fraction of total coating volume that each coating represents, as calculated with the following equation:

$$VOM_w = \left[\sum_{i=1}^{n} V_i C_i\right] / V_T$$

where:

VOM_w = The average VOM content of two or more coatings as applied each day on a coating line in units of kg VOM/l (lbs VOM/gal) of coating (minus water and any compounds which are specifically exempted from the definition of VOM),

n = The number of different coatings as applied each day on a coating line,

V_i = The volume of each coating (minus water and any compounds which are specifically exempted from the definition of VOM) as applied each day on a coating line in units of 1 (gal),

C_i = The VOM content of each coating as applied each day on a coating line in units of kg VOM/l (lbs VOM/gal) of coating (minus water and any compounds which are specifically exempted from the definition of VOM), and

V_T = The total volume of all coatings (minus water and any compounds which are specifically exempted from the definition of VOM) as applied each day on a coating line in units of 1 (gal).

Day means the consecutive 24 hours beginning at 12:00 a.m. (midnight) local time.

Degreaser means any equipment or system used in solvent cleaning.

Delivery vessel means any tank truck or trailer equipped with a storage tank that is used for the transport of gasoline to a stationary storage tank at a gasoline

dispensing facility, bulk gasoline plant, or bulk gasoline terminal.

Dip coating means a method of applying coatings in which the part is submerged in a tank filled with the coating.

Electrostatic bell or disc spray means an electrostatic spray coating method in which a rapidly-spinning bell- or disc-shaped applicator is used to create a fine mist and apply the coating with high transfer efficiency.

Electrostatic spray means a spray coating method in which opposite electrical charges are applied to the substrate and the coating. The coating is attracted to the object due to the electrostatic potential between them.

Emission source and source mean any facility from which VOM is emitted or capable of being emitted into the atmosphere.

Enamel means a coating that cures by chemical cross-linking of its base resin. Enamels can be distinguished from lacquers because enamels are not readily resoluble in their original solvent.

Enclose means to cover any VOL surface that is exposed to the atmosphere.

End sealing compound coat means a compound applied to can ends which functions as a gasket when the end is assembled onto the can.

Excessive release means a discharge of more than 295 g (0.65 lbs) of mercaptans and/or hydrogen sulfide into the atmosphere in any 5-minute period.

Exterior base coat means a coating applied to the exterior of a can body, or flat sheet to provide protection to the metal or to provide background for any lithographic or printing operation.

Exterior end coat means a coating applied to the exterior end of a can to provide protection to the metal.

External-floating roof means a cover over an open top storage tank consisting of a double deck or pontoon single deck which rests upon and is supported by the volatile organic liquid being contained and is equipped with a closure seal or seals to close the space between the roof edge and tank shell.

Extreme environmental conditions means exposure to any or all of the following: ambient weather conditions; temperatures consistently above 95 °C (203 °F); detergents; abrasive and scouring agents; solvents; or corrosive atmospheres.

Extreme performance coating means any coating which during intended use is exposed to extreme environmental conditions.

Fabric coating means any coating applied on textile fabric. Fabric coating includes the application of coatings by impregnation.

Fabric coating facility means a facility that includes one or more fabric coating lines.

Fabric coating line means a coating line in which any protective, decorative, or functional coating or reinforcing material is applied on or impregnated into a textile fabric.

Federally enforceable means all limitations and conditions which are enforceable by the Administrator including those requirements developed pursuant to 40 CFR parts 60 and 61; requirements within any applicable implementation plan; and any permit requirements established pursuant to 40 CFR 52.21 or under regulations approved pursuant to 40 CFR part 51 subpart I and 40 CFR 51.166.

Final repair coat means the repainting of any topcoat which is damaged during vehicle assembly.

Firebox means the chamber or compartment of a boiler or furnace in which materials are burned, but not the combustion chamber or afterburner of an incinerator.

Fixed-roof tank means a cylindrical shell with a permanently affixed roof.

Flexographic printing means the application of words, designs, and pictures to a substrate by means of a roll printing technique in which the pattern to be applied is raised above the printing roll and the image carrier is made of elastomeric materials.

Flexographic printing line means a printing line in which each roll printer uses a roll with raised areas for applying an image such as words, designs, or pictures to a substrate. The image carrier on the roll is made of rubber or other elastomeric material.

Floating roof means a roof on a stationary tank, reservoir, or other container which moves vertically upon change in volume of the stored material.

Fountain solution means the solution which is applied to the image plate to maintain hydrophilic properties of the non-image areas.

Fuel combustion emission source means any furnace, boiler, or similar equipment used for the primary purpose of producing heat or power by indirect heat transfer.

Fuel gas system means a system for collection of refinery fuel gas including, but not limited to, piping for collecting tail gas from various process units, mixing drums and controls, and distribution piping.

Gas/gas method means either of two methods for determining capture which rely only on gas phase measurements. The first method requires construction of a temporary total enclosure (TTE) to ensure that all would-be fugitive emissions are measured. The second method uses the building or room which houses the facility as an enclosure. The second method requires that all other VOM sources within the room be shut down while the test is performed, but all fans and blowers within the room must be operated according to normal procedures.

Gas service means that the component contains process fluid that is in the gaseous state at operating conditions.

Gasoline means any petroleum distillate or petroleum distillate/alcohol blend having a Reid vapor pressure of 27.6 kPa or greater which is used as a fuel for internal combustion engines.

Gasoline dispensing facility means any site where gasoline is transferred from a stationary storage tank to a motor vehicle gasoline tank used to provide fuel to the engine of that motor vehicle.

Gross vehicle weight means the manufacturer's gross weight rating for the individual vehicle.

Gross vehicle weight rating means the value specified by the manufacturer as the maximum design loaded weight of a single vehicle.

Heated airless spray means an airless spray coating method in which the coating is heated just prior to application.

Heatset means a class of web-offset lithography which requires a heated dryer to solidify the printing inks.

Heatset-web-offset lithographic printing line means a lithographic printing line in which a blanket cylinder is used to transfer ink from a plate cylinder to a substrate continuously fed from a roll or an extension process and an oven is used to solidify the printing inks.

Heavy liquid means liquid with a true vapor pressure of less than 0.3 kPa (0.04 psi) at 294.3 K (70 °F) established in a standard reference text or as determined by ASTM method D2879–86 (incorporated by reference as specified in 40 CFR 52.742); or which has 0.1 Reid Vapor Pressure as determined by ASTM method D323–82 (incorporated by reference as specified in 40 CFR 52.742); or which when distilled requires a temperature of 421.95 K (300 °F) or greater to recover 10 percent of the liquid as determined by ASTM method D86–82 (incorporated by reference as specified in 40 CFR 52.742).

Heavy off-highway vehicle products means, for the purpose of paragraph (e) of this section, heavy construction, mining, farming, or material handling equipment; heavy industrial engines;

diesel-electric locomotives and associated power generation equipment; and the components of such equipment or engines.

Heavy off-highway vehicle products coating facility means a facility that includes one or more heavy off-highway vehicle products coating line(s).

Heavy off-highway vehicle products coating line means a coating line in which any protective, decorative, or functional coating is applied onto the surface of heavy off-highway vehicle products.

High temperature aluminum coating means a coating that is certified to withstand a temperature of 537.8 °C (1000 °F) for 24 hours.

Hood means a partial enclosure or canopy for capturing and exhausting, by means of a draft, the organic vapors or other fumes rising from a coating process or other source.

Hood capture efficiency means the emissions from a process which are captured by the hood and directed into a control device, expressed as a percentage of all emissions.

Hot well means the reservoir of a condensing unit receiving the condensate from a barometric condenser.

Hour means a block period of 60 minutes (*e.g.*, 1 a.m. to 2 a.m.).

In vacuum service means, for the purpose of paragraph (i) of this section, equipment which is operating at an internal pressure that is at least 5 kPa (0.73 psia) below ambient pressure.

In-process tank means a container used for mixing, blending, heating, reacting, holding, crystallizing, evaporating or cleaning operations in the manufacture of pharmaceuticals.

Incinerator means a combustion apparatus in which refuse is burned.

Indirect heat transfer means transfer of heat in such a way that the source of heat does not come into direct contact with process materials.

Ink means a coating used in printing, impressing, or transferring an image onto a substrate.

Interior body spray coat means a coating applied by spray to the interior of a can body.

Internal-floating roof means a cover or roof in a fixed-roof tank which rests upon and is supported by the volatile organic liquid being contained and is equipped with a closure seal or seals to close the space between the roof edge and tank shell.

Lacquers means any clear wood finishes formulated with nitrocellulose or synthetic resins to dry by evaporation without chemical reaction, including clear lacquer sanding sealers.

Large appliance means any residential and commercial washers, dryers, ranges, refrigerators, freezers, water heaters, dish washers, trash compactors, air conditioners, and other similar products.

Large appliance coating means any coating applied to the component metal parts (including, but not limited to, doors, cases, lids, panels, and interior support parts) of residential and commercial washers, dryers, ranges, refrigerators, freezers, water heaters, dish washers, trash compactors, air conditioners, and other similar products.

Large appliance coating facility means a facility that includes one or more large appliance coating line(s).

Large appliance coating line means a coating line in which any protective, decorative, or functional coating is applied onto the surface of large appliances.

Light liquid means VOM in the liquid state which is not defined as heavy liquid.

Light-duty truck means any motor vehicle rated at 3,850 kg gross vehicle weight or less, designed mainly to transport property.

Liquid/gas method means either of two methods for determining capture which require both gas phase and liquid phase measurements and analysis. The first method requires construction of a TTE. The second method uses the building or room which houses the facility as an enclosure. The second method requires that all other VOM sources within the room be shut down while the test is performed, but all fans and blowers within the room must be operated according to normal procedures.

Liquid service means that the equipment or component contains process fluid that is in a liquid state at operating conditions.

Lithographic printing line means a printing line, except that the substrate is not necessarily fed from an unwinding roll, in which each roll printer uses a roll where both the image and non-image areas are essentially in the same plane (planographic).

Magnet wire means aluminum or copper wire formed into an electromagnetic coil.

Magnet wire coating means any coating or electrically insulating varnish or enamel applied to magnet wire.

Magnet wire coating facility means a facility that includes one or more magnet wire coating line(s).

Magnet wire coating line means a coating line in which any protective, decorative, or functional coating is applied onto the surface of a magnet wire.

Malfunction means any sudden and unavoidable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner. Failures that are caused entirely or in part by poor maintenance, careless operation, or any other preventable upset condition or preventable equipment breakdown shall not be considered malfunctions.

Manufacturing process means a method whereby a process emission source or series of process emission sources is used to convert raw materials, feed stocks, subassemblies, or other components into a product, either for sale or for use as a component in a subsequent manufacturing process.

Maximum theoretical emissions means the quantity of volatile organic material emissions that theoretically could be emitted by a stationary source before add-on controls based on the design capacity or maximum production capacity of the source and 8760 hours per year. The design capacity or maximum production capacity includes use of coating(s) or ink(s) with the highest volatile organic material content actually used in practice by the source.

Metal furniture means a furniture piece including, but not limited to, tables, chairs, waste baskets, beds, desks, lockers, benches, shelving, file cabinets, lamps, and room dividers.

Metal furniture coating means any non-adhesive coating applied to any furniture piece made of metal or any metal part which is or will be assembled with other metal, wood, fabric, plastic or glass parts to form a furniture piece including, but not limited to, tables, chairs, waste baskets, beds, desks, lockers, benches, shelving, file cabinets, lamps, and room dividers. This definition shall not apply to any coating line coating miscellaneous metal parts or products.

Metal furniture coating facility means a facility that includes one or more metal furniture coating line(s).

Metal furniture coating line means a coating line in which any protective, decorative, or functional coating is applied onto the surface of metal furniture.

Metallic shoe-type seal means a primary or secondary seal constructed of metal sheets (shoes) which are joined together to form a ring, springs, or levers which attach the shoes to the floating roof and hold the shoes against the tank wall, and a coated fabric which is suspended from the shoes to the floating roof.

Miscellaneous fabricated product manufacturing process means:

(A) A manufacturing process involving one or more of the following applications, including any drying and curing of formulations, and capable of emitting VOM:

(1) Adhesives to fabricate or assemble components or products.
(2) Asphalt solutions to paper or fiberboard.
(3) Asphalt to paper or felt.
(4) Coatings or dye to leather.
(5) Coatings to plastic.
(6) Coatings to rubber or glass.
(7) Disinfectant material to manufactured items.
(8) Plastic foam scrap or "fluff" from the manufacture of foam containers and packaging material to form resin pallets.
(9) Resin solutions to fiber substances.
(10) Viscose solutions for food casings.

(B) The storage and handling of formulations associated with the process described above, and the use and handling of organic liquids and other substances for clean-up operations associated with the process described in this definition.

Miscellaneous formulation manufacturing process means:

(A) A manufacturing process which compounds one or more of the following and is capable of emitting VOM:

(1) Adhesives.
(2) Asphalt solutions.
(3) Caulks, sealants, or waterproofing agents.
(4) Coatings, other than paint and ink.
(5) Concrete curing compounds.
(6) Dyes.
(7) Friction materials and compounds.
(8) Resin solutions.
(9) Rubber solutions.
(10) Viscose solutions.

(B) The storage and handling of formulations associated with the process described above, and the use and handling of organic liquids and other substances for clean-up operations associated with the process described in this definition.

Miscellaneous metal parts or products means any metal part or metal product, even if attached to or combined with a nonmental part or product, except cans, coils, metal furniture, large appliances, magnet wire, automobiles, ships, and airplane bodies.

Miscellaneous metal parts and products coating means any coating applied to any metal part or metal product, even if attached to or combined with a nonmetal part or product, except cans, coils, metal furniture, large appliances, and magnet wire. Prime coat, prime surfacer coat, topcoat, and final repair coat for automobiles and light-duty trucks are not miscellaneous metal parts and products coatings. However, underbody anti-chip (*e.g.*, underbody plastisol) automobile, and light-duty truck coatings are miscellaneous metal parts and products coatings. Also, automobile or light-duty truck refinishing coatings, coatings applied to the exterior of marine vessels, coatings applied to the exterior of airplanes, and the customized topcoating of automobiles and trucks if production is less than 35 vehicles per day are not miscellaneous metal parts and products coatings.

Miscellaneous metal parts or products coating facility means a facility that includes one or more miscellaneous metal parts or products coating lines.

Miscellaneous metal parts or products coating line means a coating line in which any protective, decorative, or functional coating is applied onto the surface of miscellaneous metal parts or products.

Miscellaneous organic chemical manufacturing process means:

(A) A manufacturing process which produces by chemical reaction, one or more of the following organic compounds or mixtures of organic compounds and which is capable of emitting VOM:

(1) Chemicals listed in appendix A of this section.
(2) Chlorinated and sulfonated compounds.
(3) Cosmetic, detergent, soap, or surfactant intermediaries or specialties and products.
(4) Disinfectants.
(5) Food additives.
(6) Oil and petroleum product additives.
(7) Plasticizers.
(8) Resins or polymers.
(9) Rubber additives.
(10) Sweeteners.
(11) Varnishes

(B) The storage and handling of formulations associated with the process described above and the use and handling of organic liquids and other substances for clean-up operations associated with the process described in this definition.

Monitor means to measure and record.

Multiple package coating means a coating made from more than one different ingredient which must be mixed prior to using and has a limited pot life due to the chemical reaction which occurs upon mixing.

Offset means, with respect to printing and publishing operations, use of a blanket cylinder to transfer ink from the plate cylinder to the surface to be printed.

Opaque stains means all stains that are not semi-transparent stains.

Open top vapor depressing means the batch process of cleaning and removing soils from surfaces by condensing hot solvent vapor on the colder metal parts.

Open-ended valve means any valve, except pressure relief devices, having one side of the valve in contact with process fluid and one side open to the atmosphere, either directly or through open piping.

Organic compound means any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate.

Organic material means any chemical compound of carbon including diluents and thinners which are liquids at standard conditions and which are used as dissolvers, viscosity reducers, or cleaning agents, but excluding methane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbonic acid, metallic carbide, metallic carbonates, and ammonium carbonate.

Organic vapor means the gaseous phase of an organic material or a mixture of organic materials present in the atmosphere.

Oven means a chamber within which heat is used for one or more of the following purposes: Dry, bake, cure, or polymerize a coating or ink.

Overall control means the product of the capture efficiency and the control device efficiency.

Overvarnish means a transparent coating applied directly over ink or coating.

Owner or operator means any person who owns, operates, leases, controls, or supervises an emission source or air pollution control equipment.

Packaging rotogravure printing means rotogravure printing upon paper, paper board, metal foil, plastic film, and other substrates, which are, in subsequent operations, formed into packaging products or labels for articles to be sold.

Packaging rotogravure printing line means a rotogravure printing line in which surface coatings are applied to paper, paperboard, foil, film, or other substrates which are to be used to produce containers, packaging products, or labels for articles.

Paint manufacturing plant means a plant that mixes, blends, or compounds enamels, lacquers, sealers, shellacs, stains, varnishes, or pigmented surface coatings.

Paper coating means any coating applied on paper, plastic film, or metallic foil to make certain products, including (but not limited to) adhesive tapes and labels, book covers, post cards, office copier paper, drafting paper, or pressure sensitive tapes. Paper coating includes the application of coatings by impregnation and/or saturation.

Paper coating facility means a facility that includes one or more paper coating lines.

Paper coating line means a coating line in which any protective, decorative, or functional coating is applied on, saturated into, or impregnated into paper, plastic film, or metallic foil to make certain products, including (but not limited to) adhesive tapes and labels, book covers, post cards, office copier paper, drafting paper, and pressure sensitive tapes.

Parts per million (volume) means a volume/volume ratio which expresses the volumetric concentration of gaseous air contaminant in a million unit volume of gas.

Person means any individual, corporation, partnership, association, State, municipality, political subdivision of a State; any agency, department, or instrumentality of the United States; and any officer, agent, or employee thereof.

Petroleum means the crude oil removed from the earth and the oils derived from tar sands, shale, and coal.

Petroleum refinery means any facility engaged in producing gasoline, kerosene, distillate fuel oils, residual fuel oils, lubricants, or other products through distillation of petroleum, or through redistillation, cracking, or reforming of unfinished petroleum derivatives.

Pharmaceutical means any compound or mixture, other than food, used in the prevention, diagnosis, alleviation, treatment, or cure of disease in man and animal.

Pharmaceutical coating operation means a device in which a coating is applied to a pharmaceutical, including air drying or curing of the coating.

Pigmented coatings means opaque coatings containing binders and colored pigments which are formulated to conceal the wood surface either as an undercoat or topcoat.

Plant means all of the pollutant-emitting activities which belong to the same industrial grouping, are located on one or more contiguous or adjacent properties, and are under the control of the same person (or persons under common control), except the activities of any marine vessel. Pollutant-emitting activities shall be considered as part of the same industrial grouping if they belong to the same "Major Group" (*i.e.*, which have the same two-digit code) as described in the "Standard Industrial Classification Manual, 1987" (incorporated by reference as specified in 40 CFR 52.742).

Plasticizers means a substance added to a polymer composition to soften and add flexibility to the product.

Prime coat means the first of two or more coatings applied to a surface.

Prime surfacer coat means a coating used to touch up areas on the surface of automobile or light-duty truck bodies not adequately covered by the prime coat before application of the top coat. The prime surfacer coat is applied between the prime coat and topcoat. An anti-chip coating applied to main body parts (*e.g.*, rocker panels, bottom of doors and fenders, and leading edge of roof) is a prime surfacer coat.

Primers means any coatings formulated and applied to substrates to provide a firm bond between the substrate and subsequent coats.

Printing means the application of words, designs, and pictures to a substrate using ink.

Printing line means an operation consisting of a series of one or more roll printers and any associated roll coaters, drying areas, and ovens wherein one or more coatings are applied, dried, and/or cured.

Process means any stationary emission source other than a fuel combustion emission source or an incinerator.

Production equipment exhaust system means a system for collecting and directing into the atmosphere emissions of volatile organic material from reactors, centrifuges, and other process emission sources.

Publication rotogravure printing line means a rotogravure printing line in which coatings are applied to paper which is subsequently formed into books, magazines, catalogues, brochures, directories, newspaper supplements, or other types of printed material.

Reactor means a vat, vessel, or other device in which chemical reactions take place.

Refiner means any person who owns, leases operates, controls, or supervises a refinery.

Refinery unit, process unit or unit means a set of components which are a part of a basic process operation such as distillation, hydrotreating, cracking, or reforming of hydrocarbons.

Refrigerated condenser means a surface condenser in which the coolant supplied to the condenser has been cooled by a mechanical device, other than by a cooling tower or evaporative spray cooling, such as refrigeration unit or steam chiller unit.

Repair coatings means coatings used to correct imperfections or damage to furniture surface.

Repaired means, for the purpose of paragraph (i) of this section, that equipment component has been adjusted, or otherwise altered, to eliminate a leak.

Roll coater means an apparatus in which a uniform layer of coating is applied by means of one or more rolls across the entire width of a moving substrate.

Roll printer means an apparatus used in the application of words, designs, or pictures to a substrate, usually by means of one or more rolls each with only partial coverage.

Roll printing means the application of words, designs, and pictures to a substrate usually by means of a series of hard rubber or metal rolls each with only partial coverage.

Roller coating means a method of applying a coating to a sheet or strip in which the coating is transferred by a roller or series of rollers.

Rotogravure printing means the application of words, designs, and pictures to a substrate by means of a roll printing technique in which the pattern to be applied is recessed relative to the non-image area.

Rotogravure printing line means a printing line in which each roll printer uses a roll with recessed areas for applying an image to a substrate.

Safety relief valve means a valve which is normally closed and which is designed to open in order to relieve excessive pressures within a vessel or pipe.

Sanding sealers means any coatings formulated for and applied to bare wood for sanding and to seal the wood for subsequent application of varnish. To be considered a sanding sealer a coating must be clearly labelled as such.

Sealer means a coating containing binders which seals wood prior to the application of the subsequent coatings.

Semi-transparent stains means stains containing dyes or semi-transparent pigments which are formulated to enhance wood grain and change the color of the surface but not to conceal the surface, including, but not limited to, sap stain, toner, non-grain raising stains, pad stain, or spatter stain.

Set of safety relief valves means one or more safety relief valves designed to open in order to relieve excessive pressures in the same vessel or pipe.

Sheet basecoat means a coating applied to metal when the metal is in sheet form to serve as either the exterior or interior of a can for either two-piece or three-piece cans.

Side-seam spray coat means a coating applied to the seam of a three-piece can.

Single coat means one coating application applied to a metal surface.

Solvent means a liquid substance that is used to dissolve or dilute another substance.

Solvent cleaning means the process of cleaning soils from surfaces by cold cleaning, open top vapor degreasing, or conveyorized degreasing.

Specified air contaminant means any air contaminant as to which this Section contains emission standards or other specific limitations.

Splash loading means a method of loading a tank, railroad tank car, tank truck, or trailer by use of other than a submerged loading pipe.

Standard conditions means a temperature of 70 °F and a pressure of 14.7 psia.

Standard cubic foot (scf) means the volume of one cubic foot of gas at standard conditions.

Standard Industrial Classification Manual means the Standard Industrial Classification Manual (1987), Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402 (incorporated by reference as specified in 40 CFR 52.742).

Start-up means the setting in operation of an emission source for any purpose.

Stationary emission source and *Stationary source* mean an emission source which is not self-propelled.

Storage tank or storage vessel means any stationary tank, reservoir or container used for the storage of VOL's.

Submerged loading pipe means any discharge pipe or nozzle which meets either of the following conditions:

(A) Where the tank is filled from the top, the end of the discharge pipe or nozzle must be totally submerged when the liquid level is 15 cm (6 in.) above the bottom of the tank.

(B) Where the tank is filled from the side, the discharge pipe or nozzle must be totally submerged when the liquid level is 46 cm (18 in.) above the bottom of the tank.

Substrate means the surface onto which a coating is applied or into which a coating is impregnated.

Surface condenser means a device which removes a substance from a gas stream by reducing the temperature of the stream, without direct contact between the coolant and the stream.

Tablet coating operation means a pharmaceutical coating operation in which tablets are coated.

Thirty-day rolling average means any value arithmetically averaged over any consecutive thirty-days.

Three-piece can means a can which is made from a rectangular sheet and two circular ends.

Topcoat means a coating applied in a multiple coat operation other than prime coat, final repair coat, or prime surfacer coat.

Topcoat operation means all topcoat spray booths, flash-off areas, and bake ovens at a facility which are used to apply, dry, or cure the final coatings (except final off-line repair) on components of automobile or light-duty truck bodies.

Transfer efficiency means the ratio of the amount of coating solids deposited onto a part or product to the total amount of coating solids used.

True vapor pressure means the equilibrium partial pressure exerted by a volatile organic liquid as determined in accordance with methods described in American Petroleum Institute Bulletin 2517, "Evaporation Loss From Floating Roof Tanks," second edition, February 1980 (incorporated by reference as specified in 40 CFR 52.742).

Two-piece can means a can which is drawn from a shallow cup and requires only one end to be attached.

Undercoaters means any coatings formulated for and applied to substrates to provide a smooth surface for subsequent coats.

Unregulated safety relief valve means a safety relief valve which cannot be actuated by a means other than high pressure in the pipe or vessel which it protects.

Vacuum producing system means any reciprocating, rotary, or centrifugal blower or compressor or any jet ejector or device that creates suction from a pressure below atmospheric and discharges against a greater pressure.

Valves not externally regulated means valves that have no external controls, such as in-line check valves.

Vapor balance system means any combination of pipes or hoses which creates a closed system between the vapor spaces of an unloading tank and a receiving tank such that vapors displaced from the receiving tank are transferred to the tank being unloaded.

Vapor collection system means all piping, seals, hoses, connections, pressure-vacuum vents, and other possible sources between the gasoline delivery vessel and the vapor processing unit and/or the storage tanks and vapor holder.

Vapor control system means any system that limits or prevents release to the atmosphere of organic meterial in the vapors displaced from a tank during the transfer of gasoline.

Vapor recovery system means a vapor gathering system capable of collecting all VOM vapors and gases discharged from the storage tank and a vapor disposal system capable of processing such VOM vapors and gases so as to prevent their emission to the atmosphere.

Vehicle means a device by which any person or property may be propelled, moved, or drawn upon a highway, excepting a device moved exclusively by human power or used exclusively upon stationary rails or tracks.

Vinyl coating means any topcoat or printing ink applied to vinyl coated fabric or vinyl sheets. Vinyl coating does not include plastisols.

Vinyl coating facility means a facility that includes one or more vinyl coating line(s).

Vinyl coating line means a coating line in which any protective, decorative or functional coating is applied onto vinyl coated fabric or vinyl sheets.

Volatile organic liquid means any substance which is liquid at storage conditions and which contains volatile organic compounds.

Volatile organic material (VOM) or volatile organic compound (VOC) means any organic compound which participates in atmospheric photochemical reactions. This includes any organic compound other than the following compounds: methane, ethane, methyl chloroform (1,1,1,-trichloroethane), CFC–113 (trichlorotrifluoroethane), methylene chloride (dichloromethane), CFC–11 (trichlorofluoromethane), CFC–12 (dichlorodifluoromethane), CFC–22 (chlorodifluoromethane), FC–23 (trifluoromethane), CFC–114 (dichlorotetrafluoroethane), CFC–115 (chloropentafluoroethane), HCFC–123 (dichlorotrifluoroethane), HFC–134a (tetrafluoroethane), HCFC–141b (dichlorofluoroethane) and HCFC–142b (chlorodifluoroethane). These compounds have been determined to have negligible photochemical reactivity. In addition, for the 3M Bedford Park facility in Cook County, the following compounds shall not be considered as volatile organic material or volatile organic compounds (and are, therefore, to be treated as water for the purpose of caculating the "less water" part of the coating or ink composition) for a period of time not to exceed one year after the date USEPA acts on 3M's petition, pending as of the date of promulgation of this rule, which seeks to have these compounds classified as exempt compounds: cyclic, branched, or linear, completely fluorinated alkanes, cyclic, branched, or linear, completely fluorinated ethers with no unsaturations, cyclic, branched, or linear, completely fluorinated teriary amines with no unsaturations, and sulfur containing perfluorocarbons with no unsaturations and with sulfur bonds only to carbon

and fluorine. For purposes of determining compliance with emission limits, VOC will be measured by the approved test methods. Where such a method also inadvertently measures compounds with negligible photochemical reactivity, an owner or operator may exclude these negligibly reactive compounds when determining compliance with an emissions standard.

Wash coat means a coating containing binders which seals wood surfaces, prevents undesired staining, and controls penetration.

Web means a substrate which is printed in continuous roll-fed presses.

Wood furniture means room furnishings including cabinets (kitchen, bath, and vanity), tables, chairs, beds, sofas, shutters, art objects, wood paneling, wood flooring, and any other coated furnishings made of wood, wood composition, or fabricated wood materials.

Wood furniture coating facility means a facility that includes one or more wood furniture coating line(s).

Wood furniture coating line means a coating line in which any protective, decorative, or functional coating is applied onto wood furniture.

Woodworking means the shaping, sawing, grinding, smoothing, polishing, and making into products of any form or shape of wood.

(4) *Testing methods and procedures*—(i) Coatings, inks and fountain solutions. The following test methods and procedures shall be used to determine compliance of as applied coatings, inks, and fountain solutions with the limitations set forth in § 52.741.

(A) *Sampling.* Samples collected for analyses shall be one-liter taken into a one-liter container at a location and time such that the sample will be representative of the coating as applied (i.e., the sample shall include any dilution solvent or other VOM added during the manufacturing process). The container must be tightly sealed immediately after the sample is taken. Any solvent or other VOM added after the sample is taken must be measured and accounted for in the calculations in paragraph (a)(4)(i)(C) of this section. For multiple package coatings, separate samples of each component shall be obtained. A mixed sample shall not be obtained as it will cure in the container. Sampling procedures shall follow the guidelines presented in:

(*1*) ASTM D3925–81 (Reapproved 1985) Standard Practice for Sampling Liquid Paints and Related Pigment Coating. This practice is incorporated by reference as specified in 40 CFR 52.742.

(*2*) ASTM E300–86 Standard Practice for Sampling Industrial Chemicals. This practice is incorporated by reference as specified in 40 CFR 52.742.

(B) *Analyses.* The applicable analytical methods specified below shall be used to determine the composition of coatings, inks, or fountain solutions as applied.

(*1*) Method 24 of 40 CFR part 60, appendix A, shall be used to determine the VOM content and density of coatings. If it is demonstrated to the satisfaction of the Administrator that plant coating formulation data are equivalent to Method 24 results, formulation data may be used. In the event of any inconsistency between a Method 24 test and a facility's formulation data, the Method 24 test will govern.

(*2*) Method 24A of 40 CFR part 60, appendix A, shall be used to determine the VOM content and density of rotogravure printing inks and related coatings. If it is demonstrated to the satisfaction of the Administrator that the plant coating formulation data are equivalent to Method 24A results, formulation data may be used. In the event of any inconsistency between a Method 24A test and a facility's formulation data, the Method 24A test will govern.

(*3*) The following ASTM methods are the analytical procedures for determining VOC:

(*i*) ASTM D1475–85: Standard Test Method for Density of Paint, Varnish, Lacquer and Related Products. This test method is incorporated by reference as specified in 40 CFR 52.742.

(*ii*) ASTM D2369–87: Standard Test Method for Volatile Content of Coatings. This test method is incorporated by reference as specified in 40 CFR 52.742.

(*iii*) ASTM D3792–86: Standard Test Method for Water Content of Water-reducible Paints by Direct Injection into a Gas Chromatograph. This test method is incorporated by reference as specified in 40 CFR 52.742.

(*iv*) ASTM D4017–81 (Reapproved 1987): Standard Test Method for Water in Paints and Paint Materials by the Karl Fischer Method. This test method is incorporated by reference as specified in 40 CFR 52.742.

(*v*) ASTM D4457–85: Standard Test Method for Determination of Dichloromethane and 1,1,1-Trichloroethane in Paints and Coatings by Direct Injection into a Gas Chromatograph. (The procedure delineated above can be used to develop protocols for any compounds specifically exempted from the definition of VOM.) This test method is incorporated by reference as specified in 40 CFR 52.742.

(*vi*) ASTM D2697–86: Standard Test Method for Volume Non-Volatile Matter in Clear or Pigmented Coatings. This test method is incorporated by reference as specified in 40 CFR 52.742.

(*vii*) ASTM D3980–87: Standard Practice for Interlaboratory Testing of Paint and Related Materials. This practice is incorporated by reference as specified in 40 CFR 52.742.

(*viii*) ASTM E180–85: Standard Practice for Determining the Precision of ASTM Methods for Analysis of and Testing of Industrial Chemicals. This practice is incorporated by reference as specified in 40 CFR 52.742.

(*ix*) ASTM D2372–85: Standard Method of Separation of Vehicle from Solvent-reducible Paints. This method is incorporated by reference as specified in 40 CFR 52.742.

(*4*) Use of an adaptation to any of the analytical methods specified in paragraphs (a)(4)(i)(B)(*1*), (*2*) and (*3*) may be approved by the Administrator on a case-by-case basis. An owner or operator must submit sufficient documentation for the Administrator to find that the analytical methods specified in paragraphs (a)(4)(i)(B)(*1*), (*2*) and (*3*) will yield inaccurate results and that the proposed adaptation is appropriate.

(C) *Calculations.* Calculations for determining the VOM content, water content and the content of any compounds which are specifically exempted from the definition of VOM of coatings, inks and fountain solutions as applied shall follow the guidance provided in the following documents.

(1) "A Guide for Surface Coating Calculation" EPA–340/1–86–016 (which is available from the National Technical Information Services, 5285 Port Royal Road, Springfield, Virginia, 22161)

(2) "Procedures for Certifying Quantity of Volatile Organic Compounds Emitted by Paint, Ink and Other Coatings" (revised June 1986) EPA–450/3–84–019 (which is available from the National Technical Information Services, 5285 Port Royal Road, Springfield, Virginia, 22161)

(3) "A Guide for Graphic Arts Calculations" August 1988 EPA–340/1–88–003 (which is available from the National Technical Information Services, 5285 Port Royal Road, Springfield, Virginia, 22161)

(ii) *Automobile or light-duty truck test protocol.* The protocol for testing, including determining the transfer efficiency, of coating applicators at topcoat coating operations at an automobile assembly facility shall follow the procedure in: "Protocol for Determining the Daily Volatile Organic Compound Emission Rate of Automobile and Light-Duty Truck Topcoat Operations" December 1988 EPA–450/3–88–018 (which is available for purchase from the National Technical Information Services, 5285 Port Royal Road, Springfield, Virginia, 22161)

(iii) *Capture system efficiency test protocols*—(A) *Applicability.* The requirements of paragraphs (a)(4)(iii)(B) of this section shall apply to all VOM emitting processes employing capture equipment (*e.g.*, hoods, ducts), except those cases noted below.

(*1*) If a source installs a permanent total enclosure (PTE) that meets USEPA specifications, and which directs all VOM to a control device, then the source is exempted from the requirements described in paragraph (B). The USEPA specifications to determine whether a strucutre is considered a PTE are given in Procedure T of appendix B of this section. In this instance, the capture efficiency is assumed to be 100 percent and the source is still required to measure control efficiency using appropriate test methods as specified in (a)(4)(iv) of this section.

(*2*) If a source uses a control device designed to collect and recover VOM (*e.g.*, carbon adsorber), an explicit measurement of capture efficiency is not necessary provided that the conditions given below are met. The overall control of the system can be determined by directly comparing the input liquid VOM to the recovered liquid VOM. The general procedure for use in this situation is given in 40 CFR 60.433, with the following additional restrictions:

(*i*) The source must be able to equate solvent usage with solvent recovery on a 24-hour (daily) basis, rather than a 30-day weighted average, within 72 hours following the 24-hour period. In addition, one of the following two criteria must be met:

(*ii*) The solvent recovery system (i.e., capture and control system) must be dedicated to a single process line (*e.g.*, one process line venting to a carbon adsorber system), or

(*iii*) If the solvent recovery system controls multiple process lines, then the source must be able to demonstrate that the overall control (*i.e.*, the total recovered solvent VOM divided by the sum of liquid VOM input to all process lines venting to the control system) meets or exceeds the most stringent standard applicable for any process line venting to the control system.

(B) *Specific requirements.* The capture efficiency of a process line shall be measured using one of the four protocols given below. Any error margin associated with a test protocol may not be incorporated into the results of a capture efficiency test. If these techniques are not suitable for a particular process, then the source must present an alternative capture efficiency protocol and obtain approval for it by the Administrator as a SIP or FIP revisions.

(*1*) Gas/gas method using temporary total enclosure (TTE). The USEPA specifications to determine whether a temporary enclosure is considered a TTE are given in Procedure T of appendix B of this section. The capture efficiency equation to be used for this protocol is:

$CE = Gw/(GW + Fw)$

where:

CE = capture efficiency, decimal fraction.
Gw = mass of VOM captured and delivered to control device using a TTE.
Fw = mass of fugitive VOM that escapes from a TTE.

Procedure G.2 contained in appendix B of this section is used to obtain Gw. Procedure F.1 in appendix B of this section is used to obtain Fw.

(*2*) *Liquid/gas method using TTE.* The USEPA specifications to determine whether a temporary enclosure is considered a TTE are given in Procedure T of appendix B of this section. The capture efficiency equation to be used for this protocol is:

$CE = (L - F)/L$

where:

CE = capture efficiency, decimal fraction.
L = mass of liquid VOM input to process.
Fw = mass of fugitive VOM that escapes from a TTE.

Procedure L contained in appendix B of this section is used to obtain L. Procedure F.1 in appendix B of this section is used to obtain Fw.

(*3*) Gas/gas method using the building or room (building or room enclosure) in which the affected source is located as the enclosure and in which "F" and "G" are measured while operating only the affected facility. All fans and blowers in the building or room must be operated as they would under normal production. The capture efficiency equation to be used for this protocol is:

$CE = G/(G + F_B)$

where:

CE = capture efficiency, decimal fraction.
G = mass of VOM captured and delivered to control device.
F_B = mass of fugitive VOM that escapes from building enclosure.

Procedure G.2 contained in appendix B of this section is used to obtain G. Procedure F.2 in appendix B of this section is used to obtain F_B.

(*4*) Liquid/gas method using the building or room (building or room enclosure) in which the affected source is located as the enclosure and in which "F" and "L" are measured while operating only the affected facility. All fans and blowers in the building or room must be operated as they would under normal production. The capture efficiency equation to be used for this protocol is:

$CE = (L - F_B)/L$

where:

CE = capture efficiency, decimal fraction.
L = mass of liquid VOM input to process.
F_B = mass of fugitive VOM that escapes from building enclosure.

Procedure L contained in appendix B of this section is used to obtain L. Procedure F.2 in appendix B of this section is used to obtain F_B.

(C) *Recordkeeping and reporting.* (*1*) All affected facilities must maintain a copy of the capture efficiency protocol submitted to USEPA on file. All results of the appropriate test methods and capture efficiency protocols must be reported to USEPA within sixty (60) days of the test date. A copy of the results must be kept on file with the source for a period of three (3) years.

(*2*) If any changes are made to capture or control equipment, then the source is required to notify USEPA of these changes and a new test may be required by USEPA.

(*3*) The source must notify the Administrator 30 days prior to performing any capture efficiency or control test. At that time, the source must notify the Administrator which capture efficiency protocol and control device test methods will be used.

(*4*) Sources utilizing a PTE must demonstrate that this enclosure meets the requirement given in Procedure T (in appendix B of this section) for a PTE during any testing of their control device.

(*5*) Sources utilizing a TTE must demonstrate that their TTE meets the requirements given in Procedure T (in appendix B of this section) for a TTE during testing of their control device. The source must also provide documentation that the quality assurance criteria for a TTE have been achieved.

(iv) *Control device efficiency testing and monitoring.* (A) The control device efficiency shall be determined by simultaneously measuring the inlet and outlet gas phase VOM concentrations and gas volumetric flow rates in accordance with the gas phase test methods specified in paragraph (a)(4)(vi) of this section.

(B) Any owner or operator that uses an afterburner or carbon adsorber to comply with any paragraph of § 52.741 shall use USEPA approved continuous monitoring equipment which is installed, calibrated, maintained, and operated according to vendor specifications at all times the afterburner or carbon adsorber is in use. The continuous monitoring

equipment must monitor the following parameters:

(1) Combustion chamber temperature of each afterburner.

(2) Temperature rise across each catalytic afterburner bed or VOM concentration of exhaust.

(3) The VOM concentration of each carbon adsorption bed exhaust.

(v) *Overall efficiency.* (A) The overall efficiency of the emission control system shall be determined as the product of the capture system efficiency and the control device efficiency or by the liquid/liquid test protocol as specified in 40 CFR 60.433 (and revised by paragraph (a)(4)(iii)(A)(2) of this section for each solvent recovery system. In those cases in which the overall efficiency is being determined for an entire line, the capture efficiency used to calculate the product of the capture and control efficiency is the total capture efficiency over the entire line.

(B) For coating lines which are both chosen by the owner or operator to comply with paragraphs (e)(2)(ii), (e)(2)(iii), (e)(2)(iv), (e)(2)(v), or (e)(2)(vi) of this section by the alternative in paragraph (e)(2)(i)(B) of this section and meet the criteria allowing them to comply with paragraph (e)(2) of this section instead of paragraph (e)(1) of this section, the overall efficiency of the capture system and control device, as determined by the test methods and procedures specified in paragraphs (a)(4) (iii), (iv) and (v)(A) of this section, shall be no less than the equivalent overall efficiency which shall be calculated by the following equation:

$$E = ([VOM_a - VOM_s]/VOM_a) \times 100$$

Where:

E = Equivalent overall efficiency of the capture system and control device as a percentage,

VOM_a = Actual VOM content of a coating, or the daily-weighted average VOM content of two or more coatings (if more than one coating is used), as applied to the subject coating line as determined by the applicable test methods and procedures specified in paragraph (a)(4)(i) of this section in units of kg VOM/1 (lb VOM/gal) of coating solids as applied,

VOM_s = The VOM emission limit specified in paragraph (e)(2) (i) or (ii) of this section in units of kg VOM/1 (lb VOM/gal) of coating solids as applied.

(vi) *Volatile organic material gas phase source test methods.* The methods in 40 CFR part 60, appendix A, delineated below shall be used to determine control device efficiencies.

(A) 40 CFR part 60, appendix A, Method 18, 25 or 25A, as appropriate to the conditions at the site, shall be used to determine VOM concentration. Method selection shall be based on consideration of the diversity of organic species present and their total concentration and on consideration of the potential presence of interfering gases. Except as indicated in paragraphs (a)(4)(vi)(A)(1) and (2) of this section, the test shall consist of three separate runs, each lasting a minimum of 60 min, unless the Administrator determines that process variables dictate shorter sampling times.

(1) When the method is to be used to determine the efficiency of a carbon adsoption system with a common exhaust stack for all the individual adsorber vessels, the test shall consist of three separate runs, each coinciding with one or more complete sequences through the adsorption cycles of all the individual adsorber vessels.

(2) When the method is to be used to determine the efficiency of a carbon adsorption system with individual exhaust stacks for each adsorber vessel, each adsorber vessel shall be tested individually. The test for each adsorber vessel shall consist of three separate runs. Each run shall coincide with one or more complete adsorption cycles.

(B) 40 CFR part 60, appendix A, Method 1 or 1A shall be used for sample and velocity traverses.

(C) 40 CFR part 60, appendix A, Method 2, 2A, 2C or 2D shall be used for velocity and volumetric flow rates.

(D) 40 CFR part 60, appendix A, Method 3 shall be used for gas analysis.

(E) 40 CFR part 60, appendix A, Method 4 shall be used for stack gas moisture.

(F) 40 CFR part 60, appendix A, Methods 2, 2A, 2C, 2D, 3 and 4 shall be performed, as applicable, at least twice during each test run.

(G) Use of an adaptation to any of the test methods specified in paragraphs (a)(4)(vi) (A), (B), (C), (D), (E), and (F) of this section may be approved by the Administrator on a case-by-case basis. An owner or operator must submit sufficient documentation for the Administrator to find that the test methods specified in paragraphs (a)(4)(vi) (A), (B), (C), (D), (E), and (F) of this section will yield inaccurate results and that the proposed adaptation is appropriate.

(vii) *Leak detection methods for volatile organic material.* Owners or operators required by the various subparts of this regulation to carry out a leak detection monitoring program shall comply with the following requirements:

(A) *Leak detection monitoring.* (1) Monitoring shall comply with 40 CFR part 60, appendix A. Method 21.

(2) The detection instrument shall meet the performance criteria of Method 21.

(3) The instrument shall be calibrated before use on each day of its use by the methods specified in Method 21.

(4) Calibration gases shall be:

(i) Zero air (less than 10 ppm of hydrocarbon in air); and

(ii) A mixture of methane or n-hexane and air at a concentration of approximately, but no less than, 10,000 ppm methane or n-hexane.

(5) The instrument probe shall be traversed around all potential leak interfaces as close to the interface as possible as described in Method 21.

(B) When equipment is tested for compliance with no detectable emissions as required, the test shall comply with the following requirements:

(1) The requirements of paragraphs (a)(4) (vii)(A)(1) through (vii)(A)(5) of this section shall apply.

(2) The background level shall be determined as set forth in Method 21.

(C) Leak detection tests shall be performed consistent with:

(1) "APTI Course SI 417 controlling Volatile Organic Compound Emissions from Leaking Process Equipment" EPA 450/2-82-015 (which is available for purchase from the National Technical Information Services, 5285 Port Royal Road, Springfield, Virginia, 22161)

(2) "Portable Instrument User's Manual for Monitoring VOC Sources" EPA-340/1-86-015 (which is available for purchase from the National Technical Information Services, 5285 Port Royal Road, Springfield, Virginia, 22161)

(3) "Protocols for Generating Unit-Specific Emission Estimates for Equipment Leaks of VOC and VHAP" EPA-450/3-88-010 (which is available for purchase from the National Technical Information Services, 5285 Port Royal Road, Springfield, Virginia, 22161)

(4) "Petroleum Refinery Enforcement Manual" EPA-340/1-80-008 (which is available for purchase from the National Technical Information Services, 5285 Port Royal Road, Springfield, Virginia, 22161)

(viii) *Bulk gasoline delivery system test protocol.* (A) The method for determining the emissions of gasoline from a vapor recovery system are delineated in 40 CFR part 60, subpart XX, § 60.503.

(B) Other tests shall be performed consistent with:

(1) "Inspection Manual for Control of Volatile Organic Emissions from Gasoline Marketing Operations: Appendix D" EPA-340/1-80-012 (which

is available for purchase from the National Technical Information Services, 5285 Port Royal Road, Springfield, Virginia, 22161)

(2) "Control of Hydrocarbons from Tank Truck Gasoline Loading Terminals: Appendix A" EPA–450/2–77–026 (which is available for purchase from the National Technical Information Services, 5285 Port Royal Road, Springfield, Virginia, 22161)

(5) *Compliance dates.* Compliance with the requirements of all rules is required by July 1, 1991, unless otherwise indicated by compliance dates contained in specific rules. This paragraph shall not operate to provide additional time for compliance under section 113(d) of the Act, 42 U.S.C. 7413(d), for sources subject to compliance upon promulgation.

(6) *Afterburners.* The operation of any natural gas fired afterburner and capture system used to comply with § 52.741 is not required during the period of November 1 of any year to April 1 of the following year provided that the operation of such devices is not required for purposes of occupational safety or health, or for the control of toxic substances, odor nuisances, or other regulated pollutants.

(7) *Exemptions, variances, and alternative means of control or compliance determinations.* Notwithstanding the provisions of any other paragraphs of this section, any exemptions, variances or alternatives to the control requirements, emission limitations, or test methods in the Illinois SIP or FIP can only be allowed if approved by the Administrator as a SIP or FIP revision.

(8) *Vapor pressure of volatile organic liquids.* (i) If the VOL consists of only a single compound, the vapor pressure shall be determined by ASTM Method D2879–86 (incorporated by reference as specified in 40 CFR 52.742) or the vapor pressure may be obtained from a published source such as: Boublik, T., V. Fried and E. Hala, "The Vapor Pressure of Pure Substances," Elsevier Scientific Publishing Co., New York (1973); Perry's Chemical Engineer's Handbook, McGraw-Hill Book Company (1984); CRC Handbook of Chemistry and Physics, Chemical Rubber Publishing Company (1986–87); and Lange's Handbook of Chemistry, John A. Dean, editor, McGraw-Hill Book Company (1985).

(ii) If the VOL is a mixture, the vapor pressure shall be determined by ASTM Method D2879–86 (incorporated by reference as specified in 40 CFR 52.742) or by the following equation:

$$P_{vol} = \sum_{i=1} P_i X_i$$

where:

P_{vol} = Total vapor pressure of the mixture,
n = Number of components in the mixture,
i = Subscript denoting an individual component,
P_i = Vapor pressure of a component determined in accordance with paragraph (a) of this section
X_i = Mole fraction of the component in the total mixture.

(9) *Vapor pressure of organic material or solvent.* (i) If the organic material or solvent consists of only a single compound, the vapor pressure shall be determined by ASTM Method D2879–86 (incorporated by reference as specified in 40 CFR 52.742) or the vapor pressure may be obtained from a published source such as: Boublik, T., V. Fried and E. Hala, "The Vapor Pressure of Pure Substances," Elsevier Scientific Publishing Co., New York (1973); Perry's Chemical Engineer's Handbook, McGraw-Hill Book Company (1984); CRC Handbook of Chemistry and Physics, Chemical Rubber Publishing Company (1986–87); and Lange's Handbook of Chemistry, John A. Dean, editor, McGraw-Hill Book Company (1985).

(ii) If the organic material or solvent is in a mixture made up of both organic material compounds and compounds which are not organic material, the vapor pressure shall be determined by the following equation:

$$P_{om} = \frac{\sum_{i=1}^{n} P_i X_i}{\sum_{i=1}^{n} X_i}$$

where:

P_{om} = Total vapor pressure of the portion of the mixture which is composed of organic material,
n = Number of organic material components in the mixture,
i = Subscript denoting an individual component,
P_i = Vapor pressure of an organic material component determined in accordance with paragraph (a) of this section,
X_i = Mole fraction of the organic material component of the total mixture.

(iii) If the organic material or solvent is in a mixture made up of only organic material compounds, the vapor pressure shall be determined by ASTM Method D2879–86 (incorporated by reference as specified in 40 CFR 52.742) or by the above equation.

(10) *Vapor pressure of volatile organic material.* (i) If the VOM consists of only a single compound, the vapor pressure shall be determined by ASTM Method D2879–86 (incorporated by reference as specified in 40 CFR 52.742) or the vapor pressure may be obtained from a published source such as: Boublik, T., V. Fried and E. Hala, "The Vapor Pressure of Pure Substances," Elsevier Scientific Publishing Co., New York (1973); Perry's Chemical Engineer's Handbook, McGraw-Hill Book Company (1984); CRC Handbook of Chemistry and Physics, Chemical Rubber Publishing Company (1986–87); and Lange's Handbook of Chemistry, John A. Dean, editor, McGraw-Hill Book Company (1985).

(ii) If the VOM is in a mixture made up of both VOM compounds and compounds which are not VOM, the vapor pressure shall be determined by the following equation:

$$P_{vom} = \frac{\sum_{i=1}^{n} P_i X_i}{\sum_{i=1}^{n} X_i}$$

where:

P_{vom} = Total vapor pressure of the portion of the mixture which is composed of VOM,
n = Number of VOM components in the mixture,
i = Subscript denoting an individual component,
P_i = Vapor pressure of a VOM component determined in accordance with paragraph (a) of this section,
X_i = Mole fraction of the VOM component of the total mixture.

(iii) If the VOM is in a mixture made up of only VOM compounds, the vapor pressure shall be determined by ASTM Method D2879–86 (incorporated by reference as specified in 40 CFR 52.742) or by the above equation.

(b)—(c) [Reserved]

(d) *Solvent cleaning*—(1) *Solvent cleaning in general.* The requirements of subpart E (sections 215.182–215.184) of 35 Ill. Adm. Code 215 (incorporated by reference as specified in 40 CFR 52.742) shall apply to all cold cleaning, open top vapor degreasing, and conveyorized degreasing operations.

Note: for Federal purposes, paragraph (d)(1) supersedes subpart E (section 215.181) of 35 Ill. Adm. Code 215.)

(2) *Compliance schedule.* Every owner or operator of an emission source which was previously exempt from the requirements of subpart E (sections 215.182–215.184) of 35 Ill. Adm. Code 215 (incorporated by reference as specified in 40 CFR 52.742) because it satisfied the criteria in either (d)(a)(i) or (d)(2)(ii) of this section, shall comply with the requirements of subpart E (sections 215.182–215.184) of 35 Ill. Adm. Code 215

(incorporated by reference as specified in 40 CFR 52.742) on and after July 1, 1991. A source which did not satisfy the criteria in either (d)(a)(i) or (d)(2)(ii) of this section, shall comply with the requirements of subpart E (sections 215.182–215.184) of 35 Ill. Adm. Code 215 (incorporated by reference as specified in 40 CFR 52.742) upon promulgation.

(i) If emissions of VOM exceed neither 6.8 kg (15 lbs) in any one day, nor 1.4 kg (3 lbs) in any one hour, or

(ii) If the source is used exclusively for chemical or physical analysis or for determination of product quality and commercial acceptance, provided that the operation of the source is not an integral part of the production process, the emissions of VOM from the source do not exceed 363 kg (800 lbs) in any calendar month, and the exemption had been approved in writing by the Illinois Environmental Protection Agency.

(3) *Test methods.* The following test methods shall be used to demonstrate compliance with subpart E (sections 215.182–215.184) of 35 Ill. Adm. Code 215 (incorporated by reference as specified in 40 CFR 52.742):

(i) Vapor pressures shall be determined by using the procedure specified in paragraph (a)(9) of this section.

(ii) Exhaust ventilation rates shall be determined by using the procedures specified in paragraph (a)(4)(vi)(C) of this section.

(iii) The performance of control devices shall be determined by using the procedures specified in paragraph (a)(4)(vi) of this section.

(e) *Coating operations*—(1) *Emission limitations for manufacturing plants.* (i) Except as provided in paragraph (e)(3) of this section, no owner or operator of a coating line shall apply at any time any coating in which the VOM content exceeds the following emission limitations for the specified coating. The following emission limitations are expressed in units of VOM per volume of coating (minus water and any compounds which are specifically exempted from the definition of VOM) as applied at each coating applicator, except where noted. Compounds which are specifically exempted from the definition of VOM should be treated as water for the purpose of calculating the "less water" part of the coating composition. Compliance with this paragraph must be demonstrated through the applicable coating analysis test methods and procedures specified in paragraph (a)(4)(i) of this section and the recordkeeping and reporting requirements specified in paragraph (e)(6)(ii) of this section. As an alternative to compliance with this paragraph, the owner or operator of a coating line may meet the requirements of paragraph (e)(1)(ii) or paragraph (e)(2) of this section. The equation presented in paragraph (e)(1)(iii) of this section shall be used to calculate emission limitations for determining compliance by add-on controls, credits for transfer efficiency, emissions trades and cross-line averaging.

	kg/l	lb/gal
(A) Automobile or Light-Duty Truck Coating		
(1) Prime coat	0.14	(1.2)
(2) Prime surfacer coat	0.34	(2.8)

NOTE: The prime surfacer coat limitation is based upon a transfer efficiency of 30 percent. Transfer efficiency credits can only be allowed if approved by the Administrator as a SIP or FIP revision.

(3) Topcoat	1.81	(15.1)

NOTE: The topcoat limitation is in units of kg (lbs) of VOM per 1 (gal) of coating solids deposited. Compliance with the limitation shall be based on the daily-weighted average VOM content from the entire topcoat operation (all topcoat spray booths, flash-off areas and bake ovens). Compliance shall be demonstrated in accordance with the topcoat protocol for automobiles and light-duty trucks referenced in paragraph (a)(4)(ii) of this section. Paragraph (e)(1)(ii) of this section does not apply to the topcoat limitation.) At least 180 days prior to the initial compliance date, the owner or operator of a coating line subject to the topcoat limitation shall submit to the Administrator a detailed proposal specifying the method of demonstrating compliance with the protocol. The proposal shall include, at a minimum, a comprehensive plan (including a rationale) for determining the transfer efficiency at each booth through the use of in-plant, or pilot testing; the selection of coatings to be tested (for the purpose of determining transfer efficiency) including the rationale for coating groupings; and the method for determining the analytic VOM content of as applied coatings and the formulation solvent content of as applied coatings. Upon approval of the protocol by the Administrator, the source may proceed with the compliance demonstration.

(4) Final repair coat	0.58	(4.8)
(B) Can Coating		
(1) Sheet basecoat and overvarnish	0.34	(2.8)
(2) Exterior basecoat and overvarnish	0.34	(2.8)
(3) Interior body spray coat	0.51	(4.2)
(4) Exterior end coat	0.51	(4.2)
(5) Side seam spray coat	0.66	(5.5)
(6) End sealing compound coat	0.44	(3.7)
(C) Paper Coating	0.35	(2.9)

NOTE: The paper coating limitation shall not apply to any owner or operator of any paper coating line on which printing is performed if the paper coating line complies with the emissions limitations in paragraph (h)(1) of this section: Printing and Publishing.

(D) Coil Coating	0.31	(2.6)
(E) Fabric Coating	0.35	(2.9)
(F) Vinyl Coating	0.45	(3.8)
(G) Metal Furniture Coating	0.36	(3.0)
(H) Large Appliance Coating	0.34	(2.8)

NOTE: The limitation shall not apply to the use of quick-drying lacquers for repair of scratches and nicks that occur during assembly, provided that the volume of coating does not exceed 0.95 l (1 quart) in any one rolling eight-hour period.

(I) Magnet Wire Coating	0.20	(1.7)
(J) Miscellaneous Metal Parts and Products Coating		
(1) Clear coating	0.52	(4.3)
(2) Air-dried coating	0.42	(3.5)
(3) Extreme performance coating	0.42	(3.5)
(4) All other coatings	0.36	(3.0)

	kg/l	lb/gal
(K) Heavy Off-Highway Vehicle Products Coating		
(1) Extreme performance prime coat	0.42	(3.5)
(2) Extreme performance top-coat (air dried)	0.42	(3.5)
(3) Final repair coat (air dried)	0.42	(3.5)
(4) All other coatings are subject to the emission limitations for miscellaneous metal parts and products coatings in paragraph (e)(1)(i)(J) of this section.		
(L) Wood Furniture Coating		
(1) Clear topcoat	0.67	(5.6)
(2) Opaque stain	0.56	(4.7)
(3) Pigmented coat	0.60	(5.0)
(4) Repair coat	0.67	(5.6)
(5) Sealer	0.67	(5.6)
(6) Semi-transparent stain	0.79	(6.6)
(7) Wash coat	0.73	(6.1)

NOTE: An owner or operator of a wood furniture coating operation subject to this paragraph shall apply all coatings, with the exception of no more than 37.8 l (10 gal) of coating per day used for touch-up and repair operations, using one or more of the following application systems: airless spray application system, air-assisted airless spray application system, electrostatic spray application system, electrostatic bell or disc spray application system, heated airless spray application system, roller coating, brush or wipe coating application system, or dip coating application system.

(M) Existing Diesel-Electric Locomotive Coating Lines in Cook County		
(1) Extreme performance prime coat	0.42	(3.5)
(2) Extreme performance top-coat (air dried)	0.42	(3.5)
(3) Final repair coat (air dried)	0.42	(3.5)
(4) High-temperature aluminum coating	0.72	(6.0)
(5) All other coatings	0.36	(3.0)

(ii) *Daily-weighted average limitations.* No owner or operator of a coating line subject to the limitations of paragraph (e)(1)(i) of this section and complying by means of paragraph (e)(1)(ii) of this section shall operate the subject coating line unless the owner or operator has demonstrated compliance with paragraph (e)(1) (ii)(A), (ii)(B), (ii)(C), (ii)(D), (ii)(E) or (ii)(F) of this section (depending upon the source category) through the applicable coating analysis test methods and procedures specified in paragraph (a)(4)(i) of this section and the recordkeeping and reporting requirements specified in paragraph (e)(6)(iii) of this section.

(A) No owner or operator of a coating line subject to only one of the limitations from among paragraph (e)(1)(i)(A)*(1)*, (i)(A)*(2)*, (i)(A)*(4)*, (i)(C), (i)(D), (i)(E), (i)(F), (i)(G), (i)(H), or (i)(I) of this section shall apply coating on any such coating line, during any day, whose daily-weighted average VOM content exceeds the emission limitation to which the coatings are subject.

(B) No owner or operator of a miscellaneous metal parts and products coating line subject to the limitations of paragraph (e)(1)(i)(J) of this section shall apply coatings to miscellaneous metal parts or products on the subject coating line unless the requirements in paragraph (e)(1)(ii)(B) (*1*) or (*2*) of this section are met.

(*1*) For each coating line which applies multiple coatings, all of which are subject to the same numerical emission limitation within paragraph (e)(1)(i)(J) of this section, during the same day (*e.g.*, all coatings used on the line are subject to 0.42 kg/l [3.5 lbs/gal]), the daily-weighted average VOM content shall not exceed the coating VOM content limit corresponding to the category of coating used, or

(*2*) For each coating line which applies coatings from more than one of the four coating categories in paragraph (e)(1)(i)(J) of this section, during the same day, the owner or operator shall submit to and receive approval from the Administrator for a site-specific FIP revision. To receive approval, the requirements of USEPA's Emissions Trading Policy Statement (and related policy) must be satisfied.

(C) No owner or operator of a can coating facility subject to the limitations of pargraph (e)(1)(i)(B) of this section shall operate the subject coating facility using a coating with a VOM content in excess of the limitations specified in paragrpah (e)(1)(i)(B) of this section unless all of the following requirements are met:

(*1*) An alternative daily emission limitation shall be determined according to paragraph (e)(1)(ii)(C)(*2*) of this section. Actual daily emissions shall never exceed the alternative daily emission limitation and shall be calculated by use of the following equation.

$$E_a = \sum_{i=1}^{n} V_i C_i$$

where:

E_a = Actual VOM emissions for the day in units of kg/day (lbs/day),

i = Subscript denoting a specific coating applied,

n = Total number of coatings applied in the can coating operation,

V_i = Volume of each coating applied for the day in units of 1/day (gal/day) of coating (minus water and any compounds which are specifically exempted from the definition of VOM), and

C_i = The VOM content of each coating as applied in units of kg VOM/l (lbs VOM/gal) of coating (minus water and any compounds which are specifically exempted from the definition of VOM).

(*2*) The alternative daily emission limitaiton (A_d) shall be determined on a daily basis as follows:

$$A_d = \sum_{i=1}^{n} \frac{V_i L_i (D_i - C_i)}{(D_i - L_i)}$$

where:

A_d = The VOM emissions allowed for the day in units of kg/day (lbs/day),

i = Subscript denoting a specific coating applied,

n = Total number of surface coatings applied in the can coating operation,

C_i = The VOM content of each surface coating as applied in units of kg VOM/l (lbs VOM/gal) of coating (minus water and any compounds which are specifically exempted from the definition of VOM),

D_i = The density of VOM in each coating applied. For the purposes of calculating A_d, the density is 0.882 kg VOM/l VOM (7.36 lbs VOM/gal VOM),

V_i = Volume of each surface coating applied for the day in units of 1 (gal) of coating (minus water and any compounds which are specifically exempted from the definition of VOM),

L_i = The VOM emission limitation for each surface coating applied as specified in paragraph (e)(1)(i)(B) of this section in units of kg VOM/l (lbs VOM/gal) of coating (minus water and any compounds which are specifically exempted from the definition of VOM).

(D) No owner or operator of a heavy off-highway vehicle products coating line subject to the limitations of paragraph (e)(1)(i)(K) of this section shall apply coatings to heavy off-highway vehicle products on the subject coating line unless the requirements of paragraph (e)(1)(ii)(D) (*1*) or (*2*) of this section are met.

(*1*) For each coating line which applies multiple coatings, all of which are subject to the same numerical emission limitation within paragraph (e)(1)(i)(K) of this section, during the same day (*e.g.*, all coatings used on the line are subject to 0.42 kg/l [3.5 lbs/gal]), the daily-weighted average VOM content shall not exceed the coating VOM content limit corresponding to the category of coating used, or

(*2*) For each coating line which applies coatings subject to more than one numerical emission limitation in paragraph (e)(1)(i)(K) of this section, during the same day, the owner or operator shall submit to and receive approval from the Administrator for a site-specific FIP revision. To receive approval, the requirements of USEPA's Emissions Trading Policy Statement (and related policy) must be satisfied.

(E) No owner or operator of a wood furniture coating line subject to the limitations of paragraph (e)(1)(i)(L) of this section shall apply coatings to wood furniture on the subject coating line unless the requirements of paragraph (e)(1)(ii)(E) (*1*) or (*2*) of this section, in addition to the requirements specified in the note to paragraph (e)(1)(i)(L) of this section, are met.

(*1*) For each coating line which applies multiple coatings, all of which are subject to the same numerical emission limitation within paragraph (e)(1)(i)(L) of this section, during the same day (e.g., all coatings used on the line are subject to 0.67 kg/l [5.6 lbs/gal]), the daily-weighted average VOM content shall not exceed the coating VOM content limit corresponding to the category of coating used, or

(*2*) For each coating line which applies coatings subject to more than one numerical emission limitation in paragraph (e)(1)(i)(L) of this section, during the same day, the owner or operator shall submit to and receive approval from the Administrator for a site-specific FIP revision. To receive approval, the requirements of USEPA's Emissions Trading Policy Statement (and related policy) must be satisfied.

(F) No owner or operator of an existing diesel-electric locomotive coating line in Cook County, subject to the limitations of paragraph (e)(1)(i)(M) of this section shall apply coatings to diesel-electric locomotives on the subject coating line unless the requirements of paragraph (e)(1)(ii)(F) (*1*) or (*2*) of this section are met.

(*1*) For each coating line which applies multiple coatings, all of which are subject to the same numerical emission limitation within paragraph (e)(1)(i)(M) of this section, during the same day (e.g., all coatings used on the line are subject to 0.42 kg/l [3.5 lbs/gal]), the daily-weighted average VOM content shall not exceed the coating VOM content limit corresponding to the category of coating used, or

(*2*) For each coating line which applies coatings subject to more than one numerical emission limitation in paragraph (e)(1)(i)(M) of this section, during the same day, the owner or operator shall submit to and receive approval from the Administrator for a site-specific FIP revision. To receive approval, the requirements of USEPA's Emissions Trading Policy Statement (and related policy) must be satisfied.

(iii) Limitations in terms of kg (lbs) of VOM emissions per 1 (gal) of solids as applied at each coating applicator shall be determined by the following equation:

$$S = \frac{C}{1-(C/D)}$$

where:

S = The limitation on VOM emissions in terms of kg VOM/l (lbs VOM/gal) of solids,

C = The limitation on VOM emissions in terms of kg/l (lbs/gal) of coating (minus water and any compounds which are specifically excluded from the definition of VOM) specified in paragraph (e)(1)(i) of this section,

D = The density of VOM in the coating. For the purposes of calculating S, the density is 0.882 kg VOM/l VOM (7.36 lbs VOM/gal VOM).

(2) *Alternative emission limitations.* Any owner or operator of a coating line subject to paragraph (e)(1) of this section may comply with this paragraph, rather than with paragraph (e)(1) of this section, if a capture system and control device are operated at all times and the owner or operator demonstrates compliance with paragraphs (e)(2) (ii), (iii), (iv), (v), (vi) or (vii) of this section (depending upon the source category) through the applicable coating analysis and capture system and control device efficiency test methods and procedures specified in paragraph (a)(4) of this section and the recordkeeping and reporting requirements specified in paragraph (e)(6)(iv) of this section; and the control device is equipped with the applicable monitoring equipment specified in paragraph (a)(4)(iv) of this section and the monitoring equipment is installed, calibrated, operated and maintained according to vendor specifications at all times the control device is in use. The use of a capture system and control device, which does not demonstrate compliance with paragraph (e)(2) (ii), (iii), (iv), (v), (vi), or (vii), may only be used as an alternative to compliance with paragraph (e)(1) of this section if approved as a FIP revision.

(i) *Alternative add-on control methodologies.* (A) The coating line is equipped with a capture system and control device that provides 81 percent reduction in the overall emissions of VOM from the coating line and the control device has a 90 percent efficiency, or

(B) The system used to control VOM from the coating line is demonstrated to have an overall efficiency sufficient to limit VOM emissions to no more than what is allowed under paragraph (e)(1) of this section. Use of any control system other than an afterburner, carbon absorption, condensation, or absorption scrubber system can only be allowed if approved by the Administrator as a SIP or FIP revision. Transfer efficiency credits can only be allowed if approved by the Administrator as a SIP or FIP revision. Baseline transfer efficiencies and transfer efficiency test methods must be approved by the Administrator.

Such overall efficiency is to be determined as follows:

(*1*) Obtain the emission limitation from the appropriate paragraph in (e)(1) of this section,

(*2*) Calculate "S" according to the equation in paragraph (e)(1)(iii) of this section,

(*3*) Calculate the overall efficiency required according to paragraph (a)(4)(v) of this section. For the purposes of calculating this value, according to the equation in (a)(4)(v)(B) of this section VOM_i is equal to the value of "S" as determined above in (i)(B)(*2*).

(ii) No owner or operator of a coating line subject to only one of the emission limitations from among paragraph (e)(1)(i)(A)(*1*), (e)(1)(i)(A)(*2*), (e)(1)(i)(A)(*4*), (e)(1)(i)(C), (e)(1)(i)(D), (e)(1)(i)(E), (e)(1)(i)(F), (e)(1)(i)(G),

(e)(1)(i)(H), or (e)(1)(i)(I) of this section and equipped with a capture system and control device shall operate the subject coating line unless the requirements in paragraph (e)(2)(i) (A) or (B) of this section are met. No owner or operator of a coating line subject to paragraph (e)(1)(i)(A)(*3*) of this section and equipped with a capture system and control device shall operate the coating line unless the owner or operator demonstrates compliance with the topcoat limitation in accordance with the topcoat protocol for automobile or light-duty trucks referenced in paragraph (a)(4)(ii) of this section.

(iii) No owner or operator of a miscellaneous metal parts and products coating line which applies one or more coatings during the same day, all of which are subject to the same numerical emission limitation within paragraph (e)(1)(i)(J) of this section (e.g., all coatings used on the line are subject to 0.42 kg/l [3.5 lbs/gal]), and which is equipped with a capture system and control device shall operate the subject coating line unless the requirements in paragraph (e)(2)(i) (A) or (B) of this section are met.

(iv) No owner or operator of a heavy off-highway vehicle products coating line which applies one or more coatings during the same day, all of which are subject to the same numerical emission limitation within paragraph (e)(1)(i)(K) of this section (e.g., all coatings used on the line are subject to 0.42 kg/l [3.5 lbs/gal]), and which is equipped with a capture system and control device shall operate the subject coating line unless the requirements in paragraph (e)(2)(i) (A) or (B) of this section are met.

(v) No owner or operator of an existing diesel-electric locomotive coating line in Cook County which applies one or more coatings during the same day, all of which are subject to the same numerical emission limitation within paragraph (e)(1)(i)(M) of this section (e.g., all coatings used on the line are subject to 0.42 kg/l [3.5 lbs/gals]), and which is equipped with a capture system and control device shall operate the subject coating line unless the requirements in paragraph (e)(2)(i) (A) or (B) of this section are met.

(vi) No owner or operator of a wood furniture coating line which applies one or more coatings during the same day, all of which are subject to the same numerical emission limitation within paragraph (e)(1)(i)(L) (*e.g.*, all coatings used on the line are subject to 0.67 kg/l [5.6 lbs/gal]), and which is equipped with a capture system and control device shall operate the subject coating line unless the requirements in paragraph (e)(2)(i) (A) or (B) of this section are met. If compliance is achieved by meeting the requirements in paragraph (e)(2)(i)(B) of this section, then the provisions in the note to paragraph (e)(1)(i)(L) of this section must also be met.

(vii) No owner or operator of a can coating facility and equipped with a capture system and control device shall operate the subject coating facility unless the requirements in paragraph (e)(2)(vii) (A) or (B) of this section are met.

(A) An alternative daily emission limitation shall be determined according to paragraph (e)(1)(ii)(C)(*2*) of this section. Actual daily emissions shall never exceed the alternative daily emission limitation and shall be calculated by use of the following equation:

$$E_d = \sum_{i=1}^{n} V_i C_i (1 - F_j)$$

where:

E_d = Actual VOM emissions for the day in units of kg/day (lbs/day),

i = Subscript denoting the specific coating applied,

n = Total number of surface coatings as applied in the can coating operation,

V_i = Volume of each coating as applied for the day in units of 1/day (gal/day) of coating (minus water and any compounds which are specifically exempted from the definition of VOM),

C_i = The VOM content of each coating as applied in units of kg VOM/l (lbs VOM/gal) of coating (minus water and any compounds which are specifically exempted from the definition of VOM), and

F_i = Fraction, by weight, of VOM emissions from the surface coating, reduced or prevented from being emitted to the ambient air. This is the overall efficiency of the capture system and control device.

(B) The coating line is equipped with a capture system and control device that provide 75 percent reduction in the overall emissions of VOM from the coating line and the control device has a 90 percent efficiency.

(3) *Exemptions from emission limitations*—(i) *Exemptions for all source categories except wood furniture coating.* The limitations of paragraph (e) of this section shall not apply to coating lines within a facility, that otherwise would be subject to the same subparagraph of paragraph (e)(1)(i) of this section (because they belong to the same source category, e.g. can coating), provided that combined actual emissions of VOM from all lines at the facility subject to that subparagraph never exceed 6.8 kg/day (15 lbs/day) before the application of capture systems and control devices. (For example, can coating lines within a plant would not be subject to the limitations of subparagraph (e)(1)(i)(B) of this section if the combined actual emissions of VOM from the can coating lines never exceed 6.8 kg/day (15 lbs/day) before the application of capture systems and control devices.) Volatile organic material emissions from heavy off-highway vehicle products coating lines must be combined with VOM emissions from miscellaneous metal parts and products coating lines to determine applicability. Any owner or operator of a coating facility shall comply with the applicable coating analysis test methods and procedures specified in paragraph (a)(4)(i) of this section and the recordkeeping and reporting requirements specified in paragraph (e)(6)(i) of this section if total VOM emissions from the subject coating lines are always less than or equal to 6.8 kg/day (15 lbs/day) before the application of capture systems and control devices and, therefore, are not subject to the limitations of paragraph (e)(1) of this section. Once a category of coating lines at a facility is subject to the limitations in paragraph (e)(1) of this section, the coating lines are always subject to the limitations in paragraph (e)(1) of this section.

(ii) *Applicability for wood furniture coating.* (A) The limitations of paragraph (e) of this section shall apply to a plant's wood furniture coating lines if the plant contains process emission sources, not regulated by paragraphs (d), (e) (excluding paragraph (e)(1)(i)(L)), (h) (excluding paragraph (h)(5)), (i), (j), or (q)(1), or subparts B, Q (excluding sections 215.432 and 215.436), R (excluding sections 215.447, 215.450, and 215.452), S, V, X, Y (sections 215.582–215.584), or Z of 35 Ill. Adm. Code 215 (incorporated by reference as specified in 40 CFR 52.742), which as a group both:

(*1*) Have maximum theoretical emissions of 91 Mg (100 tons) or more per calendar year of VOM if no air pollution control equipment were used, and

(*2*) Are not limited to less than 91 Mg (100 tons) of VOM per calendar year if no air pollution control equipment were used, through production or capacity limitations contained in a federally enforceable construction permit or SIP or FIP version.

(B) If a plant ceases to fulfill the criteria of paragraph (e)(3)(ii)(A) of this

section, the limitations of paragraph (e)(1)(i)(L) of this section shall continue to apply to any wood furniture coating line which was ever subject to the limitations of paragraph (e)(1)(i)(L) of this section.

(C) For the purposes of paragraph (e)(3)(ii) of this section, an emission source shall be considered regulated by a subpart (of the Illinois rules), section, or paragraph if it is subject to the limitations of that subpart (of the Illinois rules), section, or paragraph. An emission source is not considered regulated by a subpart (of the Illinois rules), section, or paragraph if its emissions are below the applicability cutoff level or if the source is covered by an exemption.

(D) Any owner or operator of a wood furniture coating line to which the limitations of paragraph (e) of this section are not applicable due to the criteria in paragraph (e)(3)(ii) of this section shall, upon request by the Administrator, submit records to the Administrator within 30 calendar days from the date of the request that document that the coating line is exempt from the limitations of paragraph (e) of this section.

(4) *Exemption from general rule on use of organic material.* No owner or operator of a coating line subject to the limitations of paragraph (e)(1) of this section is required to meet the limitations of subpart K (section 215.301 or 215.302) of 35 Ill. Adm. Code 215 (incorporated by reference as specified in 40 CFR 52.742), after the date by which the coating line is required to meet paragraph (e)(1) of this section.

(5) *Compliance schedule.* Every owner or operator of a coating line (of a type included within paragraph (e)(1)(i) of this section) shall comply with the requirements of paragraph (e)(1), (e)(2) or (e)(3) of this section and paragraph (e)(6) of this section in accordance with the appropriate compliance shedule as specified in paragraph (e)(5) (i), (ii), (iii) or (iv) of this section.

(i) No owner or operator of a coating line which is exempt from the limitations of paragraph (e)(1) of this section because of the criteria in paragraph (e)(3)(i) of this section shall operate said coating line on or after July 1, 1991, unless the owner or operator has complied with, and continues to comply with, paragraph (e)(6)(i) of this section. Wood furniture coating lines are not subject to paragraph (e)(6)(i) of this section.

(ii) No owner or operator of a coating line complying by means of paragraph (e)(1)(i) of this section shall operate said coating line on or after July 1, 1991, unless the owner or operator has complied with, and continues to comply with, paragraphs (e)(1)(i) and (e)(6)(ii) of this section.

(iii) No owner or operator of a coating line complying by means of paragraph (e)(1)(ii) of this section shall operate said coating line on or after July 1, 1991, unless the owner or operator has complied with, and continues to comply with, paragraphs (e)(1)(ii) and (e)(6)(iii) of this section.

(iv) No owner or operator of a coating line complying by means of paragraph (e)(2) of this section shall operate said coating line on or after July 1, 1991, unless the owner or operator has complied with, and continues to comply with, paragraphs (e)(2) and (e)(6)(iv) of this section.

(6) *Recordkeeping and reporting.* The VOM content of each coating and the efficiency of each capture system and control device shall be determined by the applicable test methods and procedures specified in paragraph (a)(4) of this section to establish the records required under paragraph (e)(6) of this section.

(i) Any owner or operator of a coating line which is exempted from the limitations of paragraph (e)(1) of this section because of paragraph (e)(3)(i) of this section shall comply with the following:

(A) By July 1, 1991, the owner or operator of a facility referenced in paragraph (e)(6)(i) of this section shall certify to the Administrator that the facility is exempt under the provisions of paragraph (e)(3)(i) of this section. Such certification shall include:

(*1*) A declaration that the facility is exempt from the limitations of paragraph (e)(1) of this section because of paragraph (e)(3)(i) of this section; and

(*2*) Calculations which demonstrate that the combined VOM emissions from all coating lines at the facility never exceed 6.8 kg (15 lbs) per day before the application of capture systems and control devices. The following equation shall be used to calculate total VOM emissions:

$$T_e = \sum_{j=1}^{m} \sum_{i=1}^{n} (A_i B_i)_j$$

where:

T_e = Total VOM emissions from coating lines at a facility each day before the application of capture systems and control devices in units of kg/day (lbs/day),

m = Number of coating lines at the facility,

j = Subscript denoting an individual coating line,

n = Number of different coatings as applied each day on each coating line at the facility,

i = Subscript denoting an individual coating,

A_i = Weight of VOM per volume of each coating (minus water and any compounds which are specifically exempted from the definition of VOM) as applied each day on each coating line at the facility in units of kg VOM/l (lbs VOM/gal), and

B_i = Volume of each coating (minus water and any compounds which are specifically exempted from the definition of VOM) as applied each day on each coating line at the facility in units of l/day (gal/day). The instrument or method by which the owner or operator accurately measured or calculated the volume of each coating as applied on each coating line each day shall be described in the certification to the Administrator.

(B) On and after July 1, 1991, the owner or operator of a facility referenced in paragraph (e)(6)(i) of this section shall collect and record all of the following information each day for each coating line and maintain the information at the facility for a period of three years:

(*1*) The name and identification number of each coating as applied on each coating line.

(*2*) The weight of VOM per volume and the volume of each coating (minus water and any compounds which are specifically exempted from the definition of VOM) as applied each day on each coating line.

(C) On and after July 1, 1991, the owner or operator of a facility exempted from the limitations of paragraph (e)(1) of this section because of paragraph (e)(3)(i) of this section shall notify the Administrator of any record showing that total VOM emissions from the coating facility exceed 6.8 kg (15 lbs) in any day before the application of capture systems and control devices shall be reported by sending a copy of such record to the Administrator within 30 days after the exceedance occurs.

(ii) Any owner or operator of a coating line subject to the limitations of paragraph (e)(1) of this section and complying by means of paragraph (e)(1)(i) of this section shall comply with the following:

(A) By July 1, 1991, or upon initial start-up of a new coating line, or upon changing the method of compliance from an existing subject coating line from paragraph (e)(1)(ii) or paragraph (e)(2) to paragraph (e)(1)(i) of this section; the owner or operator of a subject coating line shall certify to the Administrator that the coating line will be in compliance with paragraph (e)(1)(i) of this section on and after July 1, 1991, or

on and after the initial start-up date. Such certification shall include:

(*1*) The name and identification number of each coating as applied on each coating line.

(*2*) The weight of VOM per volume of each coating (minus water and any compounds which are specifically exempted from the definition of VOM) as applied each day on each coating line.

(*3*) For coating lines subject to paragraph (e)(1)(i)(A)(*3*) of this section, certification shall include:

(*i*) The name and identification number of each coating line which will comply by means of paragraph (e)(1)(i)(A)(*3*) of this section,

(*ii*) The name and identification number of each coating as applied on each coating line,

(*iii*) The weight of VOM per volume of each coating as applied on each coating line,

(*iv*) The instrument or method by which the owner or operator will accurately measure or calculate the volume of each coating as applied each day on each coating line,

(*v*) The method by which the owner or operator will create and maintain records each day as required in paragraph (e)(6)(ii)(B) of this section for coating lines subject to paragraph (e)(1)(i)(A)(*3*) of this section,

(*vi*) An example format in which the records required in paragraph (e)(6)(ii)(B) of this section for coating lines subject to paragraph (e)(1)(i)(A)(*3*) of this section.

(B) On and after July 1, 1991, or on and after the initial start-up date, the owner or operator of a coating line subject to the limitations of paragraph (e)(1) of this section and complying by means of paragraph (e)(1)(i) of this section shall collect and record all of the following information each day for each coating line and maintain the information at the facility for a period of three years:

(*1*) The name and identification number of each coating as applied on each coating line.

(*2*) The weight of VOM per volume of each coating (minus water and any compounds which are specifically exempted from the definition of VOM) as applied each day on each coating line.

(*3*) For coating lines subject to paragraph (e)(1)(i)(A)(*3*) of this section, the owner or operator shall maintain all records necessary to calculate the daily-weighted average VOM content from the coating line in accordance with the proposal submitted, and approved by the Administrator, pursuant to paragraph (e)(1)(A)(*3*) of this section.

(C) On and after July 1, 1991, the owner or operator of a subject coating line shall notify the Administrator in the following instances:

(*1*) Any record showing violation of paragraph (e)(1)(i) of this section shall be reported by sending a copy of such record to the Administrator within 30 days following the occurrence of the violation, except that any record showing a violation of paragraph (e)(1)(i)(A)(*3*) of this section shall be reported by sending a copy of such record to the Administrator within 15 days from the end of the month in which the violation occurred.

(*2*) At least 30 calendar days before changing the method of compliance with paragraph (e)(1) of this section from paragraph (e)(1)(i) to paragraph (e)(1)(ii) or paragraph (e)(2) of this section, the owner or operator shall comply with all requirements of paragraph (e)(6) (iii)(A) or (iv)(A) of this section, respectively. Upon changing the method of compliance with paragraph (e)(1) of this section from paragraph (e)(1)(i) to paragraph (e)(1)(ii) or paragraph (e)(2) of this section, the owner or operator shall comply with all requirements of paragraph (e)(6) (iii) or (iv) of this section, respectively.

(*3*) For coating lines subject to paragraph (e)(1)(i)(A)(*3*) of this section, the owner or operator shall notify the Administrator of any change to the topcoating operation at least 30 days before the change is effected. The Administrator shall determine whether or not recertification testing is required. If the Administrator determines that recertification testing is required, then the owner or operator shall submit a proposal to the Administrator to test within 30 days and retest within 30 days of the Administrator's approval of the proposal.

(iii) Any owner or operator of a coating line subject to the limitations of paragraph (e)(1) of this section and complying by means of paragraph (e)(1)(ii) of this section shall comply with the following:

(A) By July 1, 1991, or upon initial start-up of a new coating line, or upon changing the method of compliance for an existing subject coating line from paragraph (e)(1)(i) or paragraph (e)(2) to paragraph (e)(1)(ii) of this section; the owner or operator of the subject coating line shall certify to the Administrator that the coating line will be in compliance with paragraph (e)(1)(ii) of this section on and after July 1, 1991, or on and after the initial start-up date. Such certification shall include:

(*1*) The name and identification number of each coating line which will comply by means of paragraph (e)(1)(ii) of this section.

(*2*) The name and identification number of each coating as applied on each coating line.

(*3*) The weight of VOM per volume and the volume of each coating (minus water and any compounds which are specifically exempted from the definition of VOM) as applied each day on each coating line.

(*4*) The instrument or method by which the owner or operator will accurately measure or calculate the volume of each coating as applied each day on each coating line.

(*5*) The method by which the owner or operator will create and maintain records each day as required in paragraph (e)(6)(iii)(B) of this section.

(*6*) An example of the format in which the records required in paragraph (e)(6)(iii)(B) of this section will be kept.

(B) On and after July 1, 1991, or on and after the initial start-up date, the owner or operator of a coating line subject to the limitations of paragraph (e)(1) of this section and complying by means of paragraph (e)(1)(ii) of this section, shall collect and record all of the following information each day for each coating line and maintain the information at the facility for a period of three years:

(*1*) The name and identification number of each coating as applied on each coating line.

(*2*) The weight of VOM per volume and the volume of each coating (minus water and any compounds which are specifically exempted from the definition of VOM) as applied each day on each coating line.

(*3*) The daily-weighted average VOM content of all coatings as applied on each coating line as defined in paragraph (a)(3) of this section.

(C) On and after July 1, 1991, the owner or operator of a subject coating line shall notify the Administrator in the following instances:

(*1*) Any record showing violation of paragraph (e)(1)(ii) of this section shall be reported by sending a copy of such record to the Administrator within 30 days following the occurrence of the violation.

(*2*) At least 30 calendar days before changing the method of compliance with paragraph (e) from paragraph (e)(1)(ii) to paragraph (e)(1)(i) or paragraph (e)(2) of this section, the owner or operator shall comply with all requirements of paragraph (e)(6)(ii)(A) or (iv)(A), respectively. Upon changing the method of compliance with paragraph (e) from paragraph (e)(1)(ii) to paragraph (e)(1)(i) or paragraph (e)(2) of this section, the owner or operator shall comply with all

requirements of paragraph (e)(6)(ii) or (iv), respectively.

(iv) Any operator or owner of a coating line subject to the limitations of paragraph (e)(2) of this section and complying by means of paragraph (e)(2)(ii), (iii), (iv), (v), (vi) or (vii) of this section shall comply with the following:

(A) By July 1, 1991, or upon initial start-up of a new coating line, or upon changing the method of compliance for an existing coating line from paragraph (e)(1) (i) or (ii) to paragraph (e)(2) of this section; the owner or operator of the subject coating line shall perform all tests and submit to the Administrator the results of all tests and calculations necessary to demonstrate that the subject coating line will be in compliance with paragraph (e)(2) of this section on and after July 1, 1991, or on and after the initial start-up date.

(B) On and after July 1, 1991, or on and after the initial start-up date, the owner or operator of a coating line subject to the limitations of paragraph (e)(2) of this section and complying by means of paragraph (e)(2) (ii), (iii), (iv), (v), (vi) or (vii) of this section shall collect and record all of the following information each day for each coating line and maintain the information at the facility for a period of three years:

(*1*) The weight of VOM per volume of coating solids as applied each day on each coating line, if complying pursuant to paragraph (e)(2)(i)(B) of this section.

(*2*) Control device monitoring data.

(*3*) A log operating time for the capture system, control device, monitoring equipment and the associated coating line.

(*4*) A maintenance log for the capture system, control device and monitoring equipment detailing all routine and non-routine maintenance performed including dates and duration of any outages.

(C) On and after July 1, 1991, the owner or operator of a subject coating line shall notify the Administrator in the following instances:

(*1*) Any record showing violation of paragraph (e)(2) of this section shall be reported by sending a copy of such record to the Administrator within 30 days following the occurrence of the violation.

(*2*) At least 30 calendar days before changing the method of compliance with paragraph (e) from paragraph (e)(2) to paragraph (e)(1)(i) or paragraph (e)(1)(ii) of this section, the owner or operator shall comply with all requirements of paragraph (e)(6)(ii)(A) or (iii)(A) of this section, respectively. Upon changing the method of compliance with paragraph (e) from paragraph (e)(2) to paragraph (e)(1)(i) or paragraph (e)(1)(ii) of this section, the owner or operator shall comply with all requirements of paragraph (e)(6)(ii) or (iii) of this section, respectively.

(f)—(g) [Reserved]

(h) *Printing and publishing*—(1) *Flexographic and rotogravure printing.* (i) No owner or operator of a subject flexographic, packaging rotogravure or publication rotogravure printing line shall apply at any time on any coating or ink unless the VOM content does not exceed the limitation specified in either paragraph (h)(1)(i)(A) or (B) of this section. Compliance with this paragraph must be demonstrated through the applicable coating or ink analysis test methods and procedures specified in paragraph (a)(4)(i) of this section and the recordkeeping and reporting requirements specified in paragraph (h)(4)(ii) of this section. As an alternative to compliance with paragraph (h)(1)(i) of this section, a subject printing line may meet the requirements of paragraph (h)(1)(ii) or (iii) of this section.

(A) Forty percent VOM by volume of the coating and ink (minus water and any compounds which are specifically exempted from the definition of VOM), or

(B) Twenty-five percent VOM by volume of the volatile content in the coating and ink.

(ii) No owner or operator of a subject flexographic, packaging rotogravure or publication rotogravure printing line shall apply coatings or inks on the subject printing line unless the weighted average, by volume, VOM content of all coatings and inks as applied each day on the subject printing line does not exceed the limitation specified in either paragraph (h)(1)(i)(A) (as determined by paragraph (h)(1)(ii)(A) or (h)(1)(i)(B) (as determined by paragraph (h)(1)(ii)(B) of this section. Compliance with this paragraph must be demonstrated through the applicable coating or ink analysis test methods and procedures specified in paragraph (a)(4)(i) of this section and the recordkeeping and reporting requirements specified in paragraph (h)(4)(iii) of this section.

(A) The following equation shall be used to determine if the weighted average VOM content of all coatings and inks as applied each day on the subject printing line exceeds the limitation specified in paragraph (h)(1)(i)(A) of this section.

$$VOM_{(j)(A)} = \frac{\sum_{i=1}^{n} C_i L_i (V_{si} + V_{VOMi})}{\sum_{i=1}^{n} L_i (V_{si} + V_{VOMi})}$$

where:

$VOM_{(j)(A)}$ = The weighted average VOM content in units of percent VOM by volume of all coatings and inks (minus water and any compounds which are specifically exempted from the definition of VOM) used each day,

i = Subscript denoting a specific coating or ink as applied,

n = The number of different coatings and/or inks as applied each day on a printing line,

C_i = The VOM content in units of percent VOM by volume of each coating or ink as applied (minus water and any compounds which are specifically exempted from the defintion of VOM),

L_i = The liquid volume of each coating or ink as applied in units of 1 (gal),

V_{si} = The volume fraction of solids in each coating or ink as applied, and

V_{VOMi} = The volume fraction of VOM in each coating or ink as applied.

(B) The following equation shall be used to determine if the weighted average VOM content of all coatings and inks as applied each day on the subject printing line exceeds the limitation specified in paragraph (h)(1)(i)(B) of this section.

$$VOM_{(j)(B)} = \frac{\sum_{i=1}^{n} C_i L_i V_{VMi}}{\sum_{i=1}^{n} L_i V_{VMi}}$$

where:

$VOM_{(j)(B)}$ = The weighted average VOM content in units of percent VOM by volume of the volatile content of all coatings and inks used each day,

i = Subscript denoting a specific coating or ink as applied,

n = The number of different coatings and/or inks as applied each day on each printing line,

C_i = The VOM content in units of percent VOM by volume of the volatile matter in each coating or ink as applied,

L_i = The liquid volume of each coating or ink as applied in units of 1 (gal), and

V_{VMi} = The volume fraction of volatile matter in each coating or ink as applied.

(iii) No owner or operator of a subject flexographic, packaging rotogravure or publication rotogravure printing line equipped with a capture system and control device shall operate the subject printing line unless the owner or operator meets the requirements in paragraph (h)(1)(iii) (A), (B) or (C) and paragraphs (h)(1)(iii) (D), (E) and (F) of this section.

(A) A carbon adsorption system is used which reduces the captured VOM emissions by at least 90 percent by weight, or

(B) An incineration system is used which reduces the captured VOM emissions by at least 90 percent by weight, or

(C) An alternative VOM emission reduction system is demonstrated to have at least a 90 percent control device efficiency and the alternative emission reduction system is approved by the Administrator as a SIP or FIP revisions, and

(D) The printing line is equipped with a capture system and control device that provides an overall reduction in VOM emissions of at least:

(*1*) 75 percent where a publication rotogravure printing line is employed, or

(*2*) 65 percent where a packaging rotogravure printing line is employed, or

(*3*) 60 percent where a flexographic printing line is employed, and

(E) The control device is equipped with the applicable monitoring equipment specified in paragraph (a)(4)(iv)(B) of this section and the monitoring equipment is installed, calibrated, operated and maintained according to vendor specifications at all times the control device is in use, and

(F) The capture system and control device are operated at all times when the subject printing line is in operation. The owner or operator shall demonstrate compliance with this paragraph by using the applicable capture system and control device test methods and procedures specified in paragraphs (a)(4) (iii) through (vi) of this section and by complying with the recordkeeping and reporting requirements specified in paragraph (h)(4)(iv) of this section.

(2) *Applicability.* (i) The limitations of paragraph (h)(1) of this section apply to all flexographic and rotogravure printing lines at a subject facility. All facilities with flexographic and/or rotogravure printing lines are subject facilities unless:

(A) Total maximum theoretical emissions of VOM from all flexographic and rotogravure printing line(s) at the facility never exceed 90.7 Mg (100 tons) per calendar year before the application of capture systems and control devices, or

(B) A federally enforceable construction permit or SIP or FIP revision for all flexographic and rotogravure printing line(s) at a facility requires the owner or operator to limit production or capacity of these printing line(s) to reduce total VOM emissions from all flexographic and rotogravure printing line(s) to 90.7 Mg (100 tons) or less per calendar year before the application of capture systems and control devices.

(ii) Upon achieving compliance with paragraph (h) of this section, the emission source is not required to meet subpart K (sections 215.301 or 215.302) of 35 Ill. Adm. Code 215 (incorporated by reference as specified in 40 CFR 52.742). Emission sources exempt from paragraph (h) of this section are subject to subpart K (sections 215.301 or 215.302). Rotogravure or flexographic equipment used for both roll printing and paper coating are subject to paragraph (h) of this section.

(iii) Once subject to the limitations of paragraph (h)(1) of this section, a flexographic or rotogravure printing line is always subject to the limitations of paragraph (h)(1) of this section.

(iv) Any owner or operator of any flexographic or rotogravure printing line that is exempt from the limitations of paragraph (h)(1) of this section because of the criteria in paragraph (h)(2) of this section is subject to the recordkeeping and reporting requirements specified in paragraph (h)(4)(i) of this section.

(3) *Compliance schedule.* Every owner or operator of a flexographic and/or rotogravure printing line shall comply with the applicable requirements of paragraph (h)(1) of this section and paragraph (h)(4) of this section in accordance with the applicable compliance schedule specified in paragraph (h)(3) (i), (ii), (iii) or (iv) of this section.

(i) No owner or operator of a flexographic or rotogravure printing line which is exempt from the limitations of paragraph (h)(1) of this section because the criteria in paragraph (h)(2) of this section shall operate said printing line on or after July 1, 1991, unless the owner or operator has complied with, and continues to comply with, paragraph (h)(4)(i) of this section.

(ii) No owner or operator of a flexographic or rotogravure printing line complying by means of paragraph (h)(1)(i) of this section shall operate said printing line on or after July 1, 1991, unless the owner or operator has complied with, and continues to comply with, paragraphs (h)(1)(i) and (h)(4)(ii) of this section.

(iii) No owner or operator of a flexographic or rotogravure printing line complying by means of paragraph (h)(1)(ii) of this section shall operate said printing line on or after July 1, 1991, unless the owner or operator has complied with, and continues to comply with, paragraphs (h)(1)(ii) and (h)(4)(iii) of this section.

(iv) No owner or operator of a flexographic or rotogravure printing line complying by means of paragraph (h)(1)(iii) of this section shall operate said printing line on or after July 1, 1991, unless the owner or operator has complied with, and continues to comply with, paragraphs (h)(1)(iii) and (h)(4)((iv) of this section.

(4) *Recordkeeping and reporting.* The VOM content of each coating and ink and the efficiency of each capture system and control device shall be determined by the applicable test methods and procedures specified in paragraph (a)(4) of this section to establish the records required under paragraph (h)(4) of this section.

(i) Any owner or operator of a printing line which is exempted from the limitations of paragraph (h)(1) of this seciton because of the criteria in paragraph (h)(2) of this section shall comply with the following:

(A) By July 1, 1991, the owner or operator of a facility to which paragraph (h)(4)(i) of this section is applicable shall certify to the Administrator that the facility is exempt under the provisions of paragraph (h)(2) of this section. Such certification shall include:

(*1*) A declaration that the facility is exempt from the limitations of the criteria in paragraph (h)(1) of this section because of paragraph (h)(2) of this section, and

(*2*) Calculations which demonstrate that total maximum theoretical emissions of VOM from all flexographic and rotogravure printing lines at the facility never exceed 90.7 Mg (100 tons) per calendar year before the application of capture systems and control devices. Total maximum theoretical emissions of VOM for a flexograhpic or rotogravure printing facility is the sum of maximum theoretical emissions of VOM from each flexographic and rotogravure printing line at the facility. The following equation shall be used to calculate total maximum theoretical emissions of VOM per calendar year before the application of capture systems and control devices for each flexographic and rotogravure printing line at the facility:

$E_p = A \times B$

where:

E_p = Total maximum theoretical emissions of VOM from one flexographic or rotogravure printing line in units of kg/year (lbs/year),

A = Weight of VOM per volume of solids of the coating or ink with the highest VOM content as applied each year on the printing line in units of kg VOM/1 (lbs VOM/gal) of coating or ink solids, and

B = Total volume of solids for all coatings and inks that can potentially be applied each year on the printing line in units of 1/year (gal/year). The instrument and/or method by which the owner or operator accurately measured or calculated the volume of each coating and ink as applied and the amount that can

potentially be applied each year on the printing line shall be described in the certification to the Administrator.

(B) On and after July 1, 1991, the owner or operator of a facility referenced in paragraph (h)(4)(i) of this section shall collect and record all of the following information each year for each printing line and maintain the information at the facility for a period of three years:

(*1*) The name and identification number of each coating and ink as applied on each printing line.

(*2*) The VOM content and the volume of each coating and ink as applied each year on each printing line.

(C) On and after July 1, 1991, the owner or operator of a facility exempted from the limitations of paragraph (h)(1) of this section because of the criteria in paragraph (h)(2) of this section shall notify the Administrator of any record showing that total maximum theoretical emissions of VOM from all printing lines exceed 90.7 Mg (100 tons) in any calendar year before the application of capture systems and control devices, shall be reported by sending a copy of such record to the Administrator within 30 days after the exceedance occurs.

(ii) Any owner or operator of a printing line subject to the limitations of paragraph (h)(1) of this section and complying by means of paragraph (h)(1)(i) of this section shall comply with the following:

(A) By July 1, 1991, or upon initial start-up of a new printing line, or upon changing the method of compliance from an existing subject printing line from paragraph (h)(1) (ii) or (iii) of this section to paragraph (h)(1)(i) of this section the owner or operator of a subject printing line shall certify to the Administrator that the printing line will be in compliance with paragraph (h)(1)(i) of this section on and after July 1, 1991, or on and after the initial start-up date. Such certification shall include:

(*1*) The name and identification number of each coating and ink as applied on each printing line.

(*2*) The VOM content of each coating and ink as applied each day on each printing line.

(B) On and after July 1, 1991, or on and after the initial start-up date, the owner or operator of a printing line subject to the limitations of paragraph (h)(1) of this section and complying by means of paragraph (h)(1)(i) of this section shall collect and record all of the following information each day for each coating line and maintain the information at the facility for a period of three years:

(*1*) The name and identification number of each coating and ink as applied on each printing line.

(*2*) The VOM content of each coating and ink as applied each day on each printing line.

(C) On and after July 1, 1991, the owner or operator of a subject printing line shall notify the Administrator in the following instances:

(*1*) Any record showing violation of paragraph (h)(1)(i) of this section shall be reported by sending a copy of such record to the Administrator within 30 days following the occurrence of the violation.

(*2*) At least 30 calendar days before changing the method of compliance with paragraph (h)(1) of this section from paragraph (h)(1)(i) of this section to paragraph (h)(1) (ii) or (iii) of this section, the owner or operator shall comply with all requirements of paragraph (h)(4) (iii)(A) or (iv)(A) of this section respectively. Upon changing the method of compliance with paragraph (h)(1) from paragraph (h)(1)(i) to paragraph (h)(1) (ii) or (iii) of this section the owner or operator shall comply with all requirements of paragraph (h)(4) (iii) or (iv) of this section, respectively.

(iii) Any owner or operator of a printing line subject to the limitations of paragraph (h)(1) of this section and complying by means of paragraph (h)(1)(ii) of this section shall comply with the following:

(A) By July 1, 1991, or upon initial start-up of a new printing line, or upon changing the method of compliance for an existing subject printing line from paragraph (h)(1) (i) or (iii) of this section to paragraph (h)(1)(ii) of this section, the owner or operator of the subject printing line shall certify to the Administrator that the printing line will be in compliance with paragraph (h)(1)(ii) of this section on and after July 1, 1991, or on and after the initial start-up date. Such certification shall include:

(*1*) The name and identification number of each printing line which will comply by means of paragraph (h)(1)(ii) of this section.

(*2*) The name and identification number of each coating and ink available for use on each printing line.

(*3*) The VOM content of each coating and ink as applied each day on each printing line.

(*4*) The instrument or method by which the owner or operator will accurately measure or calculate the volume of each coating and ink as applied each day on each printing line.

(*5*) The method by which the owner or operator will create and maintain records each day as required in paragraph (h)(4)(iii)(B) of this section.

(*6*) An example of the format in which the records required in paragraph (h)(4)(iii)(B) of this section will be kept.

(B) On and after July 1, 1991, or on and after the initial start-up date, the owner or operator of a printing line subject to the limitations of paragraph (h)(1) of this section and complying by means of paragraph (h)(1)(ii) of this section shall collect and record all of the following information each day for each printing line and maintain the information at the facility for a period of three years:

(*1*) The name and identification number of each coating and ink as applied on each printing line.

(*2*) The VOM content and the volume of each coating and ink as applied each day on each printing line.

(*3*) The daily-weighted average VOM content of all coatings and inks as applied on each printing line.

(C) On and after July 1, 1991, the owner or operator of a subject printing line shall notify the Administrator in the following instances:

(*1*) Any record showing violation of paragraph (h)(1)(ii) of this section shall be reported by sending a copy of such record to the Administrator within 30 days following the occurrence of the violation.

(*2*) At least 30 calendar days before changing the method of compliance with paragraph (h)(1) of this section from paragraph (h)(1)(ii) to paragraph (h)(1)(i) or (iii) of this section, the owner or operator shall comply with all requirements of paragraph (h)(4)(ii)(A) or (iv)(A), respectively. Upon changing the method of compliance with paragraph (h)(1) from paragraph (h)(1)(ii) to paragraph (h)(1)(i) or (iii), the owner or operator shall comply with all requirements of paragraph (h)(4)(ii) or (iv) of this section, respectively.

(iv) Any owner or operator of a printing line subject to the limitations of paragraph (h)(1) of this section and complying by means of paragraph (h)(1)(iii) of this section shall comply with the following:

(A) By July 1, 1991, or upon initial start-up of a new printing line, or upon changing the method of compliance for an existing printing line from paragraph (h)(1)(i) or (ii) of this section to paragraph (h)(1)(iii) of this section, the owner or operator of the subject printing line shall perform all tests and submit to the Administrator the results of all tests and calculations necessary to demonstrate that the subject printing line will be in compliance with paragraph (h)(1)(iii) of this section on and after July 1, 1991, or on and after the initial start-up date.

(B) On and after July 1, 1991, or on and after the initial start-up date, the owner or operator of a printing line subject to the limitations of paragraph (h)(1) of this section and complying by means of paragraph (h)(1)(iii) of this section shall collect and record all of the following information each day for each printing line and maintain the information at the facility for a period of three years:

(*1*) Control device monitoring data.

(*2*) A log of operating time for the capture system, control device, monitoring equipment and the associated printing line.

(*3*) A maintenance log for the capture system, control device and monitoring equipment detailing all routine and non-routine maintenance performed including dates and duration of any outages.

(C) On and after July 1, 1991, the owner or operator of a subject printing line shall notify the Administration in the following instances:

(*1*) Any record showing violation of paragraph (h)(1)(iii) of this section shall be reported by sending a copy of such record to the Administrator within 30 days following the occurrence of the violation.

(*2*) At least 30 calendar days before changing the method of compliance with paragraph (h)(1) from paragraph (h)(1)(iii) to paragraph (h)(1) (i) or (ii), the owner or operator shall comply with all requirements of paragraph (h)(4) (ii)(A) or (iii)(A) of this section, respectively. Upon changing the method of compliance with paragraph (h)(1) from paragraph (h)(1)(iii) to paragraph (h)(1) (i) or (ii) of this section, the owner or operator shall comply with all requirements of paragraph (h)(4) (ii) or (iii) of this section, respectively.

(5) *Heatset-web-offset lithographic printing*—(i) *Applicability.* (A) The limitations of paragraph (h)(5)(ii) of this section apply to all heatset-web-offset lithographic printing lines at a subject facility. All facilities with heatset-web-offset lithographic printing lines are subject facilities unless:

(*1*) Total maximum theoretical emissions of VOM from all heatset-web-offset lithographic printing lines at the facility never exceed 90.7 Mg (100 tons) per calendar year in the absence of air pollution control equipment, or

(*2*) A federally enforceable construction permit or SIP or FIP revision for all heatset-web-offset lithographic printing line(s) at a facility requires the owner or operator to limit production or capacity of these printing line(s) to reduce total VOM emissions from all heatset-web-offset lithographic printing line(s) to 90.7 Mg (100 tons) per calendar year or less in the absence of air pollution control equipment, and

(B) Any owner or operator of any heatset-web-offset lithographic printing line that is exempt from the limitations in paragraph (h)(5)(ii) of this section because of the criteria in paragraph (h)(5)(i)(A) of this section shall be subject to the recordkeeping and reporting requirements in paragraph (h)(5)(iii)(A) of this section.

(ii) *Specific provisions.* No owner or operator of a subject heatset-web-offset printing line may cause or allow the operation of the subject heatset-web-offset printing line unless the owner or operator meets the requirements in paragraph (h)(5)(ii) (A) or (B) of this section and the requirements in paragraphs (h)(5)(ii) (C) and (D) of this section.

(A) An afterburner system is installed and operated that reduces 90 percent of the VOM emissions from the dryer exhaust, or

(B) The fountain solution contains no more than 8 percent, by weight, of VOM and a condensation recovery system is installed and operated that removes at least 75 percent of the non-isopropyl alcohol organic materials from the dryer exhaust, and

(C) The control device is equipped with the applicable monitoring equipment specified in paragraph (a)(4)(iv)(B) of this section and the monitoring equipment is installed, calibrated, operated and maintained according to vendor specifications at all times the control device is in use, and

(D) The control device is operated at all times when the subject printing line is in operation. The owner or operator shall demonstrate compliance with paragraph (h)(5) of this section by using the applicable test methods and procedures specified in paragraphs (a)(4) (i), (iv), and (vi) of this section and by complying with the recordkeeping and reporting requirements specified in paragraph (h)(5)(iii) of this section.

(iii) *Recordkeeping and reporting.* The VOM content of each fountain solution and ink and the efficiency of each control device shall be determined by the applicable test methods and procedures specified in paragraph (a)(4) of this section to establish the records required under paragraph (h)(5)(iii) of this section.

(A) Any owner or operator of a printing line which is exempted from the limitations of paragraph (h)(5)(ii) of this section because of the criteria in paragraph (h)(5)(i) of this section shall comply with the following:

(*1*) By July 1, 1991, the owner or operator of a facility to which paragraph (h)(5)(iii)(A) of this section is applicable shall certify to the Administrator that the facility is exempt under the provisions of paragraph (h)(5)(i) of this section. Such certification shall include:

(*i*) A declaration that the facility is exempt from the limitations of paragraph (h)(5)(ii) of this section because of the criteria in paragraph (h)(5)(i) of this section, and

(*ii*) Calculations which demonstrate that total maximum theoretical emissions of VOM from all heatset-web-offset lithographic printing lines at the facility never exceed 90.7 Mg (100 tons) per calendar year before the application of air pollution control equipment. Total maximum theoretical emissions of VOM for a heatset-web-offset lithographic printing facility is the sum of maximum theoretical emissions of VOM from each heatset-web-offset lithographic printing line at the facility. The following equation shall be used to calculate total maximum theoretical emissions of VOM per calendar year in the absence of air pollution control equipment for each heatset-web-offset lithographic printing line at the facility.

$$E_p = (A \times B) + \frac{(C \times D)}{100}$$

where

E_p = Total maximum theoretical emissions of VOM from one heatset-web-offset printing line in units of kg/year (lbs/year),

A = Weight of VOM per volume of solids of ink with the highest VOM content as applied each year on the printing line in units of kg VOM/l (lbs VOM/gal) of solids, and

B = Total volume of solids for all inks that can potentially be applied each year on the printing line in units of l/year (gal/year). The instrument or method by which the owner or operator accurately measured or calculated the volume of each ink as applied and the amount that can potentially be applied each year on the printing line shall be described in the certification to the Administrator.

C = The weight percent VOM of the fountain solution with the highest VOM content.

D = The total volume of fountain solution that can potentially be used each year on the printing line in units of l/year (gal/year). The instrument and/or method by which the owner or operator accurately measured or calculated the volume of each fountain solution used and the amount that can potentially be used each year on the printing line shall be described in the certification to the Administrator.

(*2*) On and after July 1, 1991, the owner or operator of a facility to which paragraph (h)(5)(iii)(A) of this section is applicable shall collect and record all of

the following information each year for each printing line and maintain the information at the facility for a period of three years:

(*i*) The name and identification of each fountain solution and ink as applied on each printing line.

(*ii*) The VOM content and the volume of each fountain solution and ink as applied each year on each printing line.

(*3*) On and after July 1, 1991, the owner or operator of a facility exempted from the limitations of paragraph (h)(5)(ii) of this section because of the criteria in paragraph (h)(5)(i) of this section shall notify the Administrator of any record showing that total maximum theoretical emissions of VOM from all printing lines exceed 90.7 Mg (100 tons) in any calendar year in the absence of air pollution control equipment shall be reported by sending a copy of such record to the Administrator within 30 days after the exceedance occurs.

(B) Any owner or operator of a printing line subject to the limitations of paragraph (h)(5)(ii) of this section and complying by means of paragraph (h)(5)(ii)(A) of this section shall comply with the following:

(*1*) By July 1, 1991, or upon initial start-up of a new printing line, or upon changing the method of compliance for an existing printing line from paragraph (h)(5) (ii)(B) to (ii)(A) of this section, the owner or operator of the subject printing line shall perform all tests and submit to the Administrator the results of all tests and calculations necessary to demonstrate that the subject printing line will be in compliance with paragraph (h)(5)(ii)(A) of this section on and after July 1, 1991, or on and after the initial start-up date.

(*2*) On and after July 1, 1991, or on and after the initial start-up date, the owner or operator of a printing line subject to the limitations of paragraph (h)(5)(ii) of this section and complying by means of paragraph (h)(5)(ii)(A) of this section shall collect and record the following information each day for each printing line and maintain the information at the facility for a period of three years:

(*i*) Control device monitoring data.

(*ii*) A log of operating time for the control device, monitoring equipment and the associated printing line.

(*iii*) A maintenance log for the control device and monitoring equipment detailing all routine and nonroutine maintenance performed including dates and duration of any outages.

(*3*) On and after July 1, 1991, the owner or operator of a subject printing line shall notify the Administrator in the following instances:

(*i*) Any record showing violation of paragraph (h)(5)(ii)(A) of this section shall be reported by sending a copy of such record to the Administrator within 30 days following the occurrence of the violation.

(*ii*) At least 30 calendar days before changing the method of compliance with paragraph (h)(5)(ii) of this section from paragraph (h)(5) (ii)(A) to (ii)(B), the owner or operator shall comply with all requirements of paragraph (h)(5)(iii)(C)(*1*) of this section. Upon changing the method of compliance with paragraph (h)(5)(ii) from paragraph (h)(5) (ii)(A) to (ii)(B) of this section the owner or operator shall comply with all requirements of paragraph (h)(5)(iii)(C) of this section.

(C) Any owner or operator of a printing line subject to the limitations of paragraph (h)(5)(ii) of this section and complying by means of paragraph (h)(5)(ii)(B) of this section shall comply with the following:

(*1*) By July 1, 1991, or upon initial start-up of a new printing line, or upon changing the method of compliance for an existing printing line from paragraph (h)(5) (ii)(A) to (ii)(B) of this section, the owner or operator of the subject printing line shall perform all tests and submit to the Administrator the results of all tests and calculations necessary to demonstrate that the subject printing line will be in compliance with paragraph (h)(5)(ii)(B) of this section on and after July 1, 1991, or on and after the initial start-up date.

(*2*) On and after July 1, 1991, or on and after the initial start-up date, the owner or operator of a printing line subject to the limitations of paragraph (h)(5)(ii) of this section and complying by means of paragraph (h)(5)(ii)(B) of this section shall collect and record the following information each day for each printing line and maintain the information at the facility for a period of three years:

(*i*) The VOM content of the fountain solution used each day on each printing line.

(*ii*) A log of operating time for the control device and the associated printing line.

(*iii*) A maintenance log for the control device detailing all routine and non-routine maintenance performed including dates and duration of any outages.

(*3*) On and after July 1, 1991, the owner or operator of a subject printing line shall notify the Administrator in the following instances:

(*i*) Any record showing violation of paragraph (h)(5)(ii)(B) of this section shall be reported by sending a copy of such record to the Administrator within 30 days following the occurrence of the violation.

(*ii*) At least 30 calendar days before changing the method of compliance with paragraph (h)(5)(ii) of this section from paragraph (h)(5)(ii)(B) to (h)(5)(ii)(A) of this section, the owner or operator shall comply with all requirements of paragraph (h)(5)(iii)(B)(*1*) of this section. Upon changing the method of compliance with paragraph (h)(5)(ii) of this section from paragraph (h)(5)(ii)(B) to (h)(5)(ii)(A) of this section, the owner or operator shall comply with all requirements of paragraph (h)(5)(iii)(B) of this section.

(iv) *Compliance schedule.* Every owner or operator of a heatset-web-offset lithographic printing line shall comply with the applicable requirements of paragraphs (h)(5) (ii) and (iii) of this section in accordance with the applicable compliance schedule specified in paragraph (h)(5)(iv) (A), (B) or (C) of this section.

(A) No owner or operator of a heatset-web-offset lithographic printing line which is exempt from the limitations of paragraph (h)(5)(ii) of this section because of the criteria in paragraph (h)(5)(i) of this section shall operate said printing line on or after July 1, 1991, unless the owner or operator has complied with, and continues to comply with, paragraphs (h)(5)(iii)(A) and (h)(5)(ii)(A) of this section.

(B) No owner or operator of a heatset-web-offset lithographic printing line complying by means of paragraph (h)(5)(ii)(A) of this section shall operate said printing line on or after July 1, 1991, unless the owner or operator has complied with, and continues to comply with, paragraphs (h)(5)(iii)(B) and (h)(5)(ii)(B) of this section.

(C) No owner or operator of a heatset-web-offset lithographic printing line complying by means of paragraph (h)(5)(ii)(B) of this section shall operate said printing line on or after July 1, 1991, unless the owner or operator has complied with, and continues to comply with, paragraph (h)(5)(iii)(C) of this section.

(i) *Leaks from synthetic organic chemical and polymer manufacturing equipment*—(1) *Inspection program for leaks.* The owner or operator of a synthetic organic chemical or polymer manufacturing plant subject to paragraph (i) and subpart Q (sections 215.430, 215.431, 215.433, 215.434, 215.435, and 215.437) of Ill. Adm. Code 215 (incorporated by reference as specified in 40 CFR 52.742) shall, for the purposes of detecting leaks, conduct a component inspection program using the test methods specified in Method 21, 40 CFR part 60, appendix A, consistent with the following provisions:

(i) Test annually those components operated near extreme temperature or pressure such that they would be unsafe to routinely monitor and those components which would require the elevation of monitoring personnel higher than two meters above permanent worker access structures or surfaces.

(ii) Test quarterly all other pressure relief valves in gas service, pumps in light liquid service, valves in light liquid service and in gas service, and compressors.

(iii) If less than or equal to 2 percent of the valves in light liquid service and in gas service tested pursuant to paragraph (i)(1)(ii) of this section are found not to leak for five consecutive quarters, no leak tests shall be required for three consecutive quarters. Thereafter, leak tests shall resume for the next quarter. If that test shows less than or equal to 2 percent of the valves in light liquid service and in gas service are leaking, then no tests are required for the next three quarters. If more than 2 percent are leaking, then tests are required for the next five quarters.

(iv) Observe visually all pump seals weekly.

(v) Test immediately any pump seal from which liquids are observed dripping.

(vi) Test any relief valve within 24 hours after it has vented to the atmosphere.

(vii) Routine instrument monitoring of valves which are not externally regulated, flanges, and equipment in heavy liquid service, is not required. However, any valve which is not externally regulated, flange or piece of equipment in heavy liquid service that is found to be leaking on the basis of sight, smell or sound shall be repaired as soon as practicable but no later than 30 days after the leak is found.

(viii) Test immediately after repair any component that was found leaking.

(ix) Within one hour of its detection, a weatherproof, readily visible tag, in bright colors such as red or yellow, bearing an identification number and the date on which the leak was detected must be affixed on the leaking component and remain in place until the leaking component is repaired.

(x) The following components are exempt from the monitoring requirements in paragraph (i)(1) of this section:

(A) Any component that is in vacuum service, and

(B) Any pressure relief valve that is connected to an operating flare header or vapor recovery device.

(2) *Alternative program for leaks.* The Administrator shall approve an alternative program of monitoring, recordkeeping, or reporting to that prescribed in paragraph (i) and subpart Q (sections 215.430, 215.431, 215.433, 215.434, 215.435, and 215.437) of Ill. Adm. Code 215 (incorporated by reference as specified in 40 CFR 52.742), upon a demonstration by the owner or operator of such plant that the alternative program will provide plant personnel and USEPA personnel with an equivalent ability to identify and repair leaking components. Any alternative program can only be allowed if approved by the Administrator as a SIP or FIP revision.

(j) *Petroleum refining and related industries: asphalt materials*—(1) *Monitoring program for leaks.* (i) The owner or operator of a petroleum refinery subject to subpart R (section 215.445) of Ill. Adm. Code 215 (incorporated by reference as specified in 40 CFR 52.742) shall, for the purpose of detecting leaks, conduct a component monitoring program consistent with the following provisions:

(A) Test once between March 1 and June 1 of each year, by methods referenced in paragraph (a)(4)(vii) of this section, all pump seals, pipeline valves in liquid service and process drains.

(B) Test once each quarter of each calendar year, by methods referenced in paragraph (a)(4)(vii) of this section, all pressure relief valves in gaseous service, pipeline valves in gaseous service and compressor seals.

(C) Inaccessible valves may be tested once each calendar year instead of once each quarter of each calendar year.

(D) Observe visually all pump seals weekly.

(E) Test immediately any pump seal from which liquids are observed dripping,

(F) Test any relief valve within 24 hours after it has vented to the atmosphere, and

(G) Test immediately after repair any component that was found leaking.

(ii) Storage tank valves and pressure relief devices connected to an operating flare header or vapor recovery device are exempt from the monitoring requirements in paragraph (j)(1)(i) of this section.

(iii) The Administrator may require more frequent monitoring than would otherwise be required by paragraph (j)(1)(i) of this section for components which are demonstrated to have a history of leaking.

(2) *Alternative program for leaks.* The Administrator may approve an alternative program of monitoring, recordkeeping or reporting to that prescribed in paragraph (j)(1) of this section and subpart R (sections 215.446, 215.448, and 215.449) of Ill. Adm. Code 215 (incorporated by reference as specified in 40 CFR 52.742), upon a demonstration by the owner or operator of a petroleum refinery that the alternative program will provide refinery and USEPA personnel with an equivalent ability to identify and repair leaking components. Any alternative program can only be allowed if approved by the Administrator as a SIP or FIP revision.

(3) *Compliance schedule for leaks.* The owner or operator of a petroleum refinery shall adhere to the increments of progress contained in the following schedule:

(i) Submit to the Administrator a monitoring program consistent with subpart R (section 215.446) of Ill. Adm. Code 215 (incorporated by reference as specified in 40 CFR 52.742) prior to September 1, 1990.

(ii) Submit to the Administrator the first monitoring report pursuant to subpart R (section 215.449) of Ill. Adm. Code 215 (incorporated by reference as specified in 40 CFR 52.742) prior to October 1, 1990.

(k)–(l) [Reserved]

(m) *Pharmaceutical manufacturing*—(1) *Applicability.* (i) The rules of paragraph (m) of this section, except for paragraphs (m)(4) through (m)(6) of this section, apply to all emission sources of VOM, including but not limited to reactors, distillation units, dryers, storage tanks for VOL, equipment for the transfer of VOL, filters, crystallizers, washers, laboratory hoods, pharmaceutical coating operations, mixing operations and centrifuges used in manufacturing, including packaging, of pharmaceuticals, and emitting more than 6.8 kg/day (15 lbs/day) and more than 2,268 kg/year (2.5 tons/year) of VOM. If an emission source emits less than 2,268 kg/year (2.5 tons/year) of VOM, the requirements of this paragraph still apply to the emission source if VOM emissions from the emission source exceed 45.4 kg/day (100 lbs/day).

(ii) Notwithstanding paragraph (m)(1)(i) of this section, the air suspension coater/dryer, fluid bed dryers, tunnel dryers, and Accelacotas located in Libertyville Township, Lake County, Illinois shall be exempt from the rules of paragraph (m) of this section, except for paragraphs (m)(4) through (m)(6) of this section, if emissions of VOM not vented to air pollution control equipment do not exceed the following levels:

(A) For the air suspension coater/dryer: 2,268 kg/year (2.5 tons/year);

(B) For each fluid bed dryer: 4,535 kg/year (5.0 tons/year);

(C) For each tunnel dryer: 6,803 kg/year (7.5 tons/year); and

(D) For each Accelacota: 6,803 kg/year (7.5 tons/year).

(iii) Paragraphs (m)(4) through (m)(6) of this section apply to a plant having one or more emission sources that:

(A) Are used to manufacture pharmaceuticals, and

(B) Emit more than 6.8 kg/day (15 lbs/day) of VOM and more than 2,268 kg/year (2.5 tons/year) of VOM, or, if less than 2,268 kg/year (2.5 tons/year), these paragraphs still apply if emissions from one or more sources exceed 45.4 kg/day (100 lbs/day).

(iv) No owner or operator shall violate any condition in a permit when the condition results in exclusion of an emission source from paragraph (m) of this section.

(v) Any pharmaceutical manufacturing source that becomes subject to the provisions of paragraph (m) of this section at any time shall remain subject to the provisions of paragraph (m) of this section at all times.

(vi) Emissions subject to paragraph (m) of this section shall be controlled at all times consistent with the requirements set forth in paragraph (m) of this section.

(vii) Control devices required pursuant to paragraph (m) of this section shall be operated at all times when the source it is controlling is operated.

(viii) Determinations of daily and annual emissions for purposes of paragraph (m)(1) of this section shall be made using both data on the hourly emission rate (or the emissions per unit of throughput) and appropriate daily and annual data from records of emission source operation (or material throughput or material consumption data). In the absence of representative test data pursuant to paragraph (m)(8) of this section for the hourly emission rate (or the emissions per unit of throughput), such items shall be calculated using engineering calculations, including the methods described in appendix B of "Control of Volatile Organic Emissions from Manufacturing of Synthesized Pharmaceutical Products" (EPA–450/2–78–029). (This subparagraph shall not affect the Administrator's authority to require emission tests to be performed pursuant to paragraph (m)(8) of this section.)

(2) *Control of reactors, distillation units, crystallizers, centrifuges and vacuum dryers.* (i) The owner or operator shall equip all reactors, distillation units, crystallizers, centrifuges and vacuum dryers that are used to manufacture pharmaceuticals with surface condensers or other air pollution control equipment listed in paragraph (m)(2)(i)(B) of this section.

(A) If a surface condenser is used, it shall be operated such that the condenser outlet gas temperature does not exceed:

(*1*) 248.2 K (−13 °F) when condensing VOM of vapor pressure greater than 40.0kPa (5.8 psi) at 294.3K (70 °F), or

(*2*) 258.2 K (5 °F) when condensing VOM of vapor pressure greater than 20.0 kPa (2.9 psi) at 294.3 K (70 °F), or

(*3*) 273.2 K (32 °F) when condensing VOM of vapor pressure greater than 10.0 kPa (1.5 psi) at 294.3 K (70 °F), or

(*4*) 283.2 K (50 °F) when condensing VOM of vapor pressure greater than7.0 kPa (1.0 psi) at 294.3 K (70 °F), or

(*5*) 298.2 K (77 °F) when condensing VOM of vapor pressure greater than 3.45 kPa (0.5 psi) at 294.3 K (70 °F).

(B) If a scrubber, carbon adsorption, thermal afterburner, catalytic afterburner, or other air pollution control equipment other than a surface condenser is used, such equipment shall provide a reduction in the emissions of VOM of 90 percent or more.

(ii) The owner or operator shall enclose all centrifuges used to manufacture pharmaceuticals and that have an exposed VOL surface, where the VOM in the VOL has a vapor pressure of 3.45 kPa (0.5 psi) or more at 294.3 K (70 °F), except as production, sampling, maintenance, or inspection procedures require operator access.

(3) *Control of air dryers, production equipment exhaust systems and filters.* (i) The owner or operator of an air dryer or production equipment exhaust system used to manufacture pharmaceuticals shall control the emissions of VOM from such emission sources by air pollution control equipment which reduces by 90 percent or more the VOM that would otherwise be emitted into the atmosphere.

(ii) The owner or operator shall enclose all rotary vacuum filters and other filters used to manufacture pharmaceuticals and that have an exposed VOL surface, where the VOM in the VOL has a vapor pressure of 3.45 kPa (0.5 psi) or more at 294 K (70 °F), except as production, sampling, maintenance, or inspection procedures require operator access.

(4) *Material storage and transfer.* The owner or operator of a pharmaceutical manufacturing plant shall:

(i) Provide a vapor balance system that is at least 90 percent effective in reducing VOM emissions from truck or railcar deliveries to storage tanks with capacities equal to or greater than 7.57 m^3 (2,000 gal) that store VOL with vapor pressures greater than 28.0 kPa (4.1 psi) at 294.3 K (70 °F), and

(ii) Install, operate, and maintain pressure/vacuum conservation vents set at 0.2 kPa (0.03 psi) or greater on all storage tanks that store VOL with vapor pressures greater than 10 kPa (1.5 psi) at 294.3 K (70 °F).

(5) *In-process tanks.* The owner or operator shall install covers on all in-process tanks used to manufacture pharmaceuticals and containing a VOL at any time. These covers must remain closed, except as production, sampling, maintenance or inspection procedures require operator access.

(6) *Leaks.* The owner or operator of a pharmaceutical manufacturing plant shall repair any component from which a leak of VOL can be observed. The repair shall be completed as soon as practicable but no later than 15 days after the leak is found. If the leaking component cannot be repaired until the process unit is shut down, the leaking component must then be repaired before the unit is restarted.

(7) *Other emission sources.* The owner or operator of a washer, laboratory hood, tablet coating operation, mixing operation or any other process emission source not subject to paragraphs (m)(2) through (m)(6) of this section, and used to manufacture pharmaceuticals shall control the emissions of VOM from such emission sources by:

(i) Air pollution control equipment which reduces by 81 percent or more the VOM that would otherwise be emitted to the atmosphere, or

(ii) A surface condenser which captures all the VOM which would otherwise be emitted to the atmosphere and which meets the requirements of paragraph (m)(2)(i) of this section.

(8) *Testing.* (i) Upon request by the Administrator, the owner or operator of any VOM emission source subject to paragraph (m) or exempt from paragraph (m) of this section by virtue of the provisions of paragraph (m)(1) of this section shall, at his own expense, demonstrate compliance to the Administrator by the methods or procedures listed in paragraph (a)(vi)(A) of this section.

(ii) A person planning to conduct a VOM emissions test to demonstrate compliance with paragraph (m) of this section shall notify the Administrator of that intent not less than 30 calendar days before the planned initiation of the test.

(9) *Monitoring and recordkeeping for air pollution control equipment*—(i) *Monitoring.* (A) At a minimum, continuous monitors for the following parameters shall be installed on air pollution control equipment used to

control sources subject to paragraph (m) of this section:

(*1*) Destruction device combustion temperature.

(*2*) Temperature rise across a catalytic afterburner bed.

(*3*) VOM concentration on a carbon adsorption unit to determine breakthrough.

(*4*) Outlet gas temperature of a refrigerated condenser.

(*5*) Temperature of a non-refrigerated condenser coolant supply system.

(B) Each monitor shall be equipped with a recording device.

(C) Each monitor shall be calibrated quarterly.

(D) Each monitor shall operate at all times while the associated control equipment is operating.

(ii) *Recordkeeping.* (A) The owner or operator of a pharmaceutical manufacturing facility shall maintain the following records:

(*1*) Parameters listed in paragraph (m)(9)(i)(A) of this section shall be recorded.

(*2*) For sources subject to paragraph (m)(2) of this section, the vapor pressure of VOM being controlled shall be recorded for every process.

(B) For any leak subject to paragraph (m)(6) of this section which cannot be readily repaired within one hour after detection, the following records shall be kept:

(*1*) The name of the leaking equipment,

(*2*) The date and time the leak is detected,

(*3*) The action taken to repair the leak, and

(*4*) The data and time the leak is repaired.

(C) The following records shall be kept for emission sources subject to paragraph (m)(5) of this section which contain VOL:

(*1*) For maintenance and inspection:

(*i*) The date and time each cover is opened,

(*ii*) The length of time the cover remains open, and

(*iii*) The reason why the cover is opened.

(*2*) For production and sampling, detailed written procedures or manufacturing directions specifying the circumstances under which covers may be opened and the procedures for opening covers.

(D) For each emission source used in the manufacture of pharmaceuticals for which the owner or operator of a pharmaceutical manufacturing plant claims emission standards are not applicable, because the emissions are below the applicability cutoffs in paragraph (m)(1)(i) of this section or paragraph (m)(1)(ii) of this section the owner or operator shall:

(*1*) Maintain a demonstration including detailed engineering calculations of the maximum daily and annual emissions for each such emission source showing that the emissions are below the applicability cutoffs in paragraph (m)(1)(i) or paragraph (m)(1)(ii) of this section, as appropriate, for the current and prior calendar years;

(*2*) Maintain appropriate operating records for each such emission source to identify whether the applicability cutoffs in paragraph (m)(1)(i) or paragraph (m)(1)(ii) of this section, as appropriate, are ever exceeded; and

(*3*) Provide written notification to the Administrator within 30 days of a determination that such an emission source has exceeded the applicability cutoffs in paragraph (m)(1)(i) or paragraph (m)(1)(ii) of this section, as appropriate.

(E) Records required under paragraph (m)(9)(ii)(A) of this section shall be maintained by the owner or operator for a minimum of two years after the date on which they are made.

(F) Copies of the records shall be made available to the Administrator upon verbal or written request.

(n)—(p) [Reserved]

(q) *Gasoline distribution—(1) Bulk gasoline plants.* (i) Subject to paragraph (q)(1)(v) of this section, no person may cause or allow the transfer of gasoline from a delivery vessel into a stationary storage tank located at a bulk gasoline plant unless:

(A) The delivery vessel and the stationary storage tank are each equipped with a vapor collection system that meets the requirements of paragraph (q)(1)(iv)(D) of this section,

(B) Each vapor collection system is operating,

(C) The delivery vessel displays the appropriate sticker pursuant to the requirements of sections 215.584 (b) or (d) of 35 I11. Adm. Code 215 (incorporated by reference as specified in 40 CFR 52.742),

(D) The pressure relief valve(s) on the stationary storage tank and the delivery vessel are set to release at no less than 0.7 psi or the highest pressure allowed by state or local fire codes or the guidelines of the National Fire Prevention Association, and

(E) The stationary storage tank is equipped with a submerged loading pipe.

(ii) Subject to paragraph (q)(1)(vi) of this section, no person may cause or allow the transfer of gasoline from a stationary storage tank located at a bulk gasoline plant into a delivery vessel unless:

(A) The requirements set forth in paragraphs (q)(1)(i)(A) through (1)(i)(D) of this section are met, and

(B) Equipment is available at the bulk gasoline plant to provide for the submerged filling of the delivery vessel or the delivery vessel is equipped for bottom loading.

(iii) Subject to paragraph (q)(1)(v) of this section, each owner of a stationary storage tank located at a bulk gasoline plant shall:

(A) Equip each stationary storage tank with a vapor control system that meets the requirements of paragraph (q)(1)(i) or (1)(ii) of this section, whichever is applicable,

(B) Provide instructions to the operator of the bulk gasoline plant describing necessary maintenance operations and procedures for prompt notification of the owner in case of any malfunction of a vapor control system. or

(C) Repair, replace or modify any worn out or malfunctioning component or element of design.

(iv) Subject to paragraph (q)(1)(v) of this section, each operator of a bulk gasoline plant shall:

(A) Maintain and operate each vapor control system in accordance with the owner's instructions,

(B) Promptly notify the owner of any scheduled maintenance or malfunction requiring replacement or repair of a major component of a vapor control system, and

(C) Maintain gauges, meters or other specified testing devices in proper working order,

(D) Operate the bulk plant vapor collection system and gasoline loading equipment in a manner that prevents:

(*1*) Gauge pressure from exceeding 45.7 cm (18 in.) of water and vacuum from exceeding 15.2 cm (6 in.) of water, as measured as close as possible to the vapor hose connection, and

(*2*) A reading equal to or greater than 100 percent of the lower explosive limit (LEL measured as propane) when tested in accordance with the procedure described in "Control of Volatile Organic Compound Leaks from Gasoline Tank Trucks and Vapor Collection Systems", Appendix B, EPA 450/2–78–051 (which is available for purchase from the National Technical Information Services, 5285 Port Royal Road, Springfield, Virginia, 22161), and

(*3*) Avoidable leaks of liquid during loading or unloading operations.

(E) Provide a pressure tap or equivalent on the bulk plant vapor collection system in order to allow the determination of compliance with

paragraph (q)(1)(iv)(D)(*1*) of this section, and

(F) Within 15 business days after discovery of any leak by the owner, operator, or the Administrator, repair and retest a vapor collection system which exceeds the limits of paragraph (q)(1)(iv)(D)(*1*) or (*2*) of this section.

(v) The requirements of paragraphs (q)(1)(i), (1)(iii) and (1)(iv) of this section, shall not apply to:

(A) Any stationary storage tank with a capacity of less than 2,177 l (575 gal), or

(B) Any bulk gasoline plant whose daily gasoline throughtput is less than 15,140 l (4,000 gal/day) on a thirty-day rolling average.

(vi) The requirements of paragraph (q)(1)(ii) of this section shall only apply to bulk gasoline plants:

(A) Whose daily gasoline throughput is greater than or equal to 15,140 l (4,000 gal/day) on a thirty-day rolling average, and

(B) That either distribute gasoline to gasoline dispensing facilities subject to the requirements of section 215.583(a)(2) of 35 Ill. Adm. Code 215 (incorporated by reference as specified in 40 CFR 52.742) or that are in Cook, DuPage, Kane, Lake, McHenry or Will County.

(vii) Any bulk gasoline plant which is ever subject to paragraphs (q)(1) (i), (ii), (iii) or (iv) of this section shall always be subject to these paragraphs.

(2) [Reserved]

(r) [Reserved]

(s) *Paint and ink manufacturing*—(1) *Applicability.* (i) Paragraph (s) shall apply to all paint and ink manufacturing plants which:

(A) Include process emission sources not subject to subparts (B), (Q) (excluding sections 215.432 and 215.436), (R) (excluding sections 215.447, 215.450, and 215.452), (S), (V), (X), (Y) (sections 215.582, 215.583, and 215.584), or (Z) of 35 Ill. Adm. Code 215 (incorporated by reference as specified in 40 CFR 52.742), or to paragraphs (d), (e) (excluding paragraph (e)(1)(i)(L)), (h) (excluding paragraph (h)(5)), (i), (j), or (q)(1) of this section; and which as a group both:

(*1*) Have maximum theoretical emissions of 91 Mg (100 tons) or more per calendar year of VOM if no air pollution control equipment were used, and

(*2*) Are not limited to less than 91 Mg (100 tons) of VOM emissions per calendar year in the absence of air pollution control equipment, through production or capacity limitations contained in a federally enforceable construction permit or a SIP or FIP revision, or

(B) Produce more than 7,570,820 l (2,000,000 gal) per calendar year of paint or ink formulations, which contain less than 10 percent (by weight) water, and ink formulations not containing as the primary solvents water, Magie oil or glycol.

(ii) For the purposes of paragraph (s) of this section, uncontrolled VOM emissions are the emissions of VOM which would result if no air pollution control equipment were used.

(2) *Exemption for waterbase material and heatset-offset ink.* The requirements of paragraphs (s)(4) and (s)(5) of this section and paragraph (s)(7)(i) of this section shall not apply to equipment while it is being used to produce either:

(i) Paint or ink formulations which contain 10 percent or more (by weight) water, or

(ii) Inks containing Magie oil and glycol as the primary solvent.

(3) *Permit conditions.* No person shall violate any condition in a federally enforceable permit when the condition results in exclusion of the plant or an emission source from paragraph (s).

(4) *Open-top mills, tanks, vats or vessels.* No person shall operate an open-top mill, tank, vat or vessel with a volume of more than 45 l (12 gal) for the production of paint or ink unless:

(i) The mill, tank, vat or vessel is equipped with a cover which completely covers the mill, tank, vat or vessel opening except for an opening no larger than necessary to allow for safe clearance for a mixer shaft. Such cover shall extend at least 1.27 cm (0.5 in.) beyond the outer rim of the opening or be attached to the rim.

(ii) The cover remains closed except when production, sampling, maintenance or inspection procedures require access.

(iii) The cover is maintained in good condition such that, when in place, it maintains contact with the rim of the opening for at least 90 percent of the circumference of the rim.

(5) *Grinding mills.* (i) No person shall operate a grinding mill for the production of paint or ink which is not maintained in accordance with the manufacturer's specifications.

(ii) No person shall operate a grinding mill fabricated or modified after the effective date of paragraph (s) which is not equipped with fully enclosed screens.

(iii) The manufacturer's specifications shall be kept on file at the plant by the owner or operator of the grinding mill and be made available to any person upon verbal or written request during business hours.

(6) *Storage tanks.* (i) The owner or operator shall equip tanks storing VOL with a vapor pressure greater than 10 kPa (1.5 psi) at 20 °C (68 °F) with pressure/vacuum conservation vents set as a minimum at +/–0.2 kPa (0.029 psi). These controls shall be operated at all times. An alternative air pollution control system may be used if it results in a greater emission reduction than these controls. Any alternative control system can only be allowed if approved by the Administrator as a SIP or FIP revision.

(ii) Stationary VOL storage containers with a capacity greater than 946 l (250 gal) shall be equipped with a submerged-fill pipe or bottom fill. These controls shall be operated at all times. An alternative control system can only be allowed if approved by the Administrator as a SIP or FIP revision.

(7) *Leaks.* The owner or operator of a paint or ink manufacturing plant shall, for the purpose of detecting leaks, conduct an equipment monitoring program as set forth below:

(i) Each pump shall be checked by visual inspection each calendar week for indications of leaks, that is, liquids dripping from the pump seal. If there are indications of liquids dripping from the pump seal, the pump shall be repaired as soon as practicable, but no later than 15 calendar days after the leak is detected.

(ii) Any pump, valve, pressure relief valve, sampling connection, open-ended valve and flange or connector containing a fluid which is at least 10 percent VOM by weight which appears to be leaking on the basis of sight, smell or sound shall be repaired as soon as practicable, but no later than 15 calendar days after the leak is detected.

(iii) A weather proof, readily visible tag, in bright colors such as red or yellow, bearing an identification number and the date on which the leak was detected shall be attached to leaking equipment. The tag may be removed upon repair, that is, when the equipment is adjusted or otherwise altered to allow operation without leaking.

(iv) When a leak is detected, the owner or operator shall record the date of detection and repair and the record shall be retained at the plant for at least two years from the date of each detection or each repair attempt. The record shall be made available to any person upon verbal or written request during business hours.

(8) *Clean up.* (i) No person shall clean paint or ink manufacturing equipment with organic solvent unless the equipment being cleaned is completely covered or enclosed except for an opening no larger than necessary to allow safe clearance for proper operation of the cleaning equipment,

considering the method and materials being used.

(ii) No person shall store organic wash solvent in other than closed containers, unless closed containers are demonstrated to be a safety hazard, or dispose of organic wash solvent in a manner such that more than 20 percent by weight is allowed to evaporate into the atmosphere.

(9) *Compliance schedule.* Every owner or operator of an emission source subject to the control requirements of paragraph (s) of this section shall comply with the requirements of paragraph (s) of this section on and after July 1, 1991.

(10) *Recordkeeping and reporting.* (i) Upon request by the Administrator, the owner or operator of an emission source which claims to be exempt from the requirements of paragraph (s) of this section shall submit records to the Administrator within 30 calendar days from the date of the request which document that the emission source is in fact exempt from paragraph (s) of this section. These records shall include (but are not limited to) the percent water (by weight) in the paint or ink being produced and the quantity of Magie oil, glycol and other solvents in the ink being produced.

(ii) Every owner or operator of an emission source which is subject to the requirements of paragraph (s) of this section shall maintain all records necessary to demonstrate compliance with those requirements at the facility for three years.

(t) [Reserved]

(u) *Miscellaneous fabricated product manufacturing processes*—(1) *Applicability.*

(i) The requirements of paragraph (u) of this section shall apply to a plant's miscellaneous fabricated product manufacturing process emission sources which are not included within any of the source categories specified in subparts (B), (Q) (excluding sections 215.432 and 215.436), (R) (excluding sections 215.447, 215.450, and 215.452), (S), (V), (X), (Y) (sections 215.582, 215.583, and 215.584), or (Z) of 35 Ill. Adm. Code 215 (incorporated by reference as specified in 40 CFR 52.742), or specified in paragraph (d), (e), (h), (i), (j), or (q)(1) of this section; if the plant is subject to paragraph (u) of this section. A plant is subject to paragraph (u) of this section if it contains process emission sources, not regulated by subparts (B), (Q) (excluding sections 215.432 and 215.436), (R) (excluding sections 215.447, 215.450, and 215.452), (S), (V), (X), (Y) (sections 215.582, 215.583, 215.584), or (Z) of 35 Ill. Adm. Code 215 (incorporated by reference as specified in 40 CFR 52.742), or by paragraph (d), (e) (excluding paragraph (e)(1)(i)(L)), (h) (excluding paragraph (h)(5)), (i), (j), or (q)(1) of this section; which as a group both:

(A) Have maximum theoretical emissions of 91 Mg (100 tons) or more per calendar year of VOM if no air pollution control equipment were used, and

(B) Are not limited to less than 91 Mg (100 tons) of VOM emissions per calendar year in the absence of air pollution control equipment, through production or capacity limitations contained in a federally enforceable construction permit or a SIP or FIP revision.

(ii) If a plant ceases to fulfill the criteria of paragraph (u)(1)(i) of this section, the requirements of paragraph (u) of this section shall continue to apply to a miscellaneous fabricated products manufacturing process emission source which was ever subject to the control requirements of paragraph (u)(3) of this section.

(iii) No limits under paragraph (u) of this section shall apply to emission sources with emissions of VOM to the atmosphere less than or equal to 0.91 Mg (1.0 ton) per calendar year if the total emissions from such sources not complying with paragraph (u)(3) of this section does not exceed 4.5 Mg (5.0 tons) per calendar year.

(iv) For the purposes of paragraph (u) of this section, an emission source shall be considered regulated by a subpart (of the Illinois rules) or paragraph if it is subject to the limits of that subpart (of the Illinois rules) or paragraph. An emission source is not considered regulated by a subpart (of the Illinois rules) or paragraph if its emissions are below the applicability cutoff level or if the source is covered by an exemption.

(v) For the purposes of paragraph (u) of this section, uncontrolled VOM emissions are the emissions of VOM which would result if no air pollution control equipment were used.

(2) *Permit conditions.* No person shall violate any condition in a permit when the condition results in exclusion of the plant or an emission source from paragraph (u) of this section.

(3) *Control requirements.* Every owner or operator of an emission source subject to paragraph (u) of this section shall comply with the requirements of paragraph (u)(3) (i), (ii) or (iii) of this section:

(i) Emission capture and control techniques which achieve an overall reduction in uncontrolled VOM emissions of at least 81 percent, or

(ii) For coating lines, the daily-weighted average VOM content shall not exceed 0.42 kg VOM/1 (3.5 lbs VOM/gal) of coating as applied (minus water and any compounds which are specifically exempted from the definition of VOM) during any day. Owners and operators complying with this paragraph are not required to comply with § 215.301 of 35 Ill. Adm. Code 215 (incorporated by reference as specified in 40 CFR 52.742), or

(iii) An alternative control plan which has been approved by the Administrator as a SIP or FIP revision.

(4) *Compliance schedule.* Every owner or operator of an emission source subject to the control requirements of paragraph (u) of this section shall comply with the requirements of paragraph (u) of this section on and after July 1, 1991.

(5) *Testing.* Any owner or operator of a VOM emission source which is subject to paragraph (u) of this section shall demonstrate compliance with paragraph (u)(3) of this section by using the applicable test methods and procedures specified in paragraph (a)(4) of this section.

(v) *Miscellaneous formulation manufacturing processes*—(1) *Applicability.* (i) The requirements of paragraph (v) of this section shall apply to a plant's miscellaneous formulation manufacturing process emission sources, which are not included within any of the source categories specified in subpart (B), (Q) (excluding §§ 215.432 and 215.436), (R) (excluding §§ 215.447, 215.450, and 215.452),(S), (V), (X), (Y) (§§ 215.582, 215.583, and 215.584), or (Z) of 35 Ill. Adm. Code 215 (incorporated by reference as specified in 40 CFR 52.742), or specified in paragraph (d), (e), (h), (i), (j), or (q)(1) of this section; if the plant is subject to paragraph (v) of this section. A plant is subject to paragraph (v) of this section if it contains process emission sources, not regulated by subpart (B), (Q) (excluding §§ 215.432 and 215.436), (R) (excluding §§ 215.447, 215.450, and 215.452), (S), (V), (X), (Y) (§§ 215.582, 215.583, and 215.584), or (Z) of 35 Ill. Adm. Code 215 (incorporated by reference as specified in 40 CFR 52.742), or by paragraph (d), (e) (excluding paragraph (e)(1)(i)(L)), (h) (excluding paragraph (h)(5)), (i), (j), or (q)(1) of this section; which as a group both:

(A) Have maximum theoretical emissions of 91 Mg (100 tons) or more per calendar year of VOM if no air pollution control equipment were used, and

(B) Are not limited to less than 91 Mg (100 tons) of VOM emissions per calendar year in the absence of air pollution control equipment, through production or capacity limitations

contained in a federally enforceable construction permit or a SIP or FIP revision.

(ii) If a plant ceases to fulfill the criteria of paragraph (v)(1)(i) of this section, the requirements of paragraph (v) of this section shall continue to apply to a miscellaneous formulation manufacturing process emission source which was ever subject to the control requirements of paragraph (v)(3) of this section.

(iii) No limits under paragraph (v) of this section shall apply to emission sources with emissions of VOM to the atmosphere less than or equal to 2.3 Mg (2.5 tons) per calendar year if the total emissions from such sources not complying with paragraph (v)(3) of this section does not exceed 4.5 Mg (5.0 tons) per calendar year.

(iv) For the purposes of paragraph (v) of this section, an emission source shall be considered regulated by a subpart (of the Illinois rules) or paragraph if it is subject to the limits of that subpart (of the Illinois rules) or paragraph. An emission source is not considered regulated by a subpart (of the Illinois rules) or paragraph if its emissions are below the applicability cutoff level or if the source is covered by an exemption.

(v) For the purposes of paragraph (v) of this section uncontrolled VOM emissions are the emissions of VOM which would result if no air pollution control equipment were used.

(2) *Permit conditions.* No person shall violate any condition in a permit when the condition results in exclusion of the plant or an emission source from paragraph (v) of this section.

(3) *Control requirements.* Every owner or operator of an emission source subject to paragraph (v) of this section shall comply with the requirements of paragraph (v)(3) (i) or (ii) of this section.

(i) Emission capture and control techniques which achieve an overall reduction in uncontrolled VOM emissions of at least 81 percent, or

(ii) An alternative control plan which has been approved by the Administrator as a SIP or FIP revision.

(4) *Compliance schedule.* Every owner or operator of an emission source subject to the control requirements of paragraph (v) of this section shall comply with the requirements of paragraph (v) of this section on and after July 1, 1991.

(5) *Testing.* Any owner or operator of a VOM emission source which is subject to paragraph (v) of this section shall demonstrate compliance with paragraph (v)(3) of this section by using the applicable test methods and procedures specified in paragraph (a)(4) of this section.

(w) *Miscellaneous organic chemical manufacturing processes*—(1) *Applicability.* (i) The requirements of paragraph (w) of this section shall apply to a plant's miscellaneous organic chemical manufacturing process emission sources which are not included within any of the source categories specified in subparts (B), (Q) (excluding sections 215.432 and 215.436), (R) (excluding sections 215.447, 215.450, and 215.452), (S), (V), (X), (Y) (sections 215.582, 215.583, and 215.584), or (Z) of 35 Ill. Adm. Code 215 (incorporated by reference as specified in 40 CFR 52.742), or specified in paragraph (d), (e), (h), (i), (j), or (q)(1) of this section; if the plant is subject to paragraph (w) of this section. A plant is subject to paragraph (w) of this section if it contains process emission sources, not regulated by subparts (B), (Q) (excluding sections 215.432 and 215.436), (R) (excluding sections 215.447, 215.450, and 215.452), (S), (V), (X), (Y) (sections 215.582, 215.583, and 215.584), or (Z) of 35 Ill. Adm. Code 215 (incorporated by reference as specified in 40 CFR 52.742), or by paragraph (d), (e) (excluding paragraph (e)(1)(i)(L)), (h) (excluding paragraph (h)(5)), (i), (j), or (q)(1) of this section; which as a group both:

(A) Have maximum theoretical emissions of 91 Mg (100 tons) or more per calendar year of VOM if no air pollution control equipment were used, and

(B) Are not limited to less than 91 Mg (100 tons) of VOM emissions per calendar year in the absence of air pollution control equipment, through production or capacity limitations contained in a federally enforceable construction permit or a SIP or FIP revision.

(ii) If a plant ceases to fulfill the criteria of paragraph (w)(1)(i) of this section, the requirements of paragraph (w) of this section shall continue to apply to a miscellaneous organic chemical manufacturing process emission source which was ever subject to the control requirements of paragraph (w)(3) of this section.

(iii) No limits under paragraph (w) of this section shall apply to emission sources with emissions of VOM to the atmosphere less than or equal to 0.91 Mg (1.0 ton) per calendar year if the total emissions from such sources not complying with paragraph (w)(3) of this section does not exceed 4.5 Mg (5.0 tons) per calendar year.

(iv) For the purposes of paragraph (w) of this section, an emission source shall be considered regulated by a subpart (of the Illinois rules) or paragraph if it is subject to the limits of that subpart (of the Illinois rules) or paragraph. An emission source is not considered regulated by a subpart (of the Illinois rules) or paragraph if its emissions are below the applicability cutoff level or if the source is covered by an exemption.

(v) For the purposes of paragraph (w) of this section, uncontrolled VOM emissions are the emissions of VOM which would result if no air pollution control equipment were used.

(2) *Permit conditions.* No person shall violate any condition in a permit when the condition results in exclusions of the plant or an emission source from paragraph (w) of this section.

(3) *Control requirements.* Every owner or operator of an emission source subject to paragraph (w) of this section shall comply with the requirements of paragraph (w)(3)(i) or (ii) of this section.

(i) Emission capture and control techniques which achieve an overall reduction in uncontrolled VOM emissions of at least 81 percent, or

(ii) An alternative control plan which has been approved by the Administrator as a SIP or FIP revision.

(4) *Compliance schedule.* Every owner or operator of an emission source subject to the control requirements of paragraph (w) of this section shall comply with the requirements of paragraph (w) of this section on and after July 1, 1991.

(5) *Testing.* Any owner or operator of a VOM emission source which is subject to paragraph (w) shall demonstrate compliance with paragraph (w)(3) of this section by using the applicable test methods and procedures specified in paragraph (a)(4) of this section.

(x) *Other emission sources*—(1) *Applicability.* (i) The requirements of paragraph (x) of this section shall apply to a plant's VOM emission sources, which are not included within any of the source categories specified in subpart (B), (Q) (excluding sections 215.432 and 215.436), (R) (excluding sections 215.447, 215.450, and 215.452), (S), (V), (X), (Y) (sections 215.582, 215.583, and 215.584), or (Z) of 35 Ill. Adm. Code 215 (incorporated by reference as specified in 40 CFR 52.742), or specified in paragraph (d), (e), (h), (i), (j), (q)(1), (s), (u), (v) or (w) of this section; if the plant is subject to paragraph (x) of this section . A plant is subject to paragraph (x) of this section if it contains process emission sources, not regulated by subpart (B), (Q) (excluding sections 215.432 and 215.436), (R) (excluding sections 215.447, 215.450, and 215.452), (S), (V), (X), (Y) (sections 215.582, 215.583, and 215.584), or (Z) of 35 Ill. Adm. Code 215 (incorporated by reference as specified in 40 CFR 52.742), or by paragraph (d), (e) of this section

(excluding paragraph (e)(1)(i)(L)), (h) (excluding paragraph (h)(5)), (i), (j), or (q)(1) of this section; which as a group both:

(A) Have maximum theoretical emissions of 91 Mg (100 tons) or more per calendar year of VOM if no air pollution control equipment were used, and

(B) Are not limited to less than 91 Mg (100 tons) of VOM emissions per calendar year in the absence of air pollution control equipment, through production or capacity limitations contained in a federally enforceable construction permit or a SIP of FIP revision.

(ii) If a plant ceases to fulfill the criteria of paragraph (x)(1)(i) of this section, the requirements of paragraph (x) of this section shall continue to apply to an emission source which was ever subject to the control requirements of paragraph (x)(3) of this section.

(iii) No limits under paragraph (x) of this section shall apply to emission sources with emissions of VOM to the atmosphere less than or equal to 2.3 Mg (2.5 tons) per calendar year if the total emissions from such sources not complying with paragraph (x)(3) of this section does not exceed 4.5 Mg (5.0 tons) per calendar year.

(iv) For the purposes of paragraph (x) of this section, an emission source shall be considered regulated by a subpart (of the Illinois rules) or paragraph if it is subject to the limits of that subpart (of the Illinois rules) or paragraph. An emission source is not considered regulated by a subpart (of the Illinois rules) or paragraph of its emissions are below the applicability cutoff level or if the source is covered by an exemption.

(v) The control requirements in paragraphs (u), (v), (w), and (x) of this section shall not apply to sewage treatment plants, vegetable oil processing plants, coke ovens (including by-product recovery plants), fuel combustion sources, bakeries, barge loading facilities, jet engine test cells, pharmaceutical manufacturing, production of polystyrene foam insulation board (including storage and extrusion of scrap where blowing agent is added to the polystyrene resin at the plant), production of polystyrene foam packaging (*not* including storage and extrusion of scrap where blowing agent is added to the polystyrene resin at the plant), and iron and steel production.

(2) *Permit conditions.* No person shall violate any condition in a permit when the condition results in exclusion of the plant or an emission source from paragraph (x) of this section.

(3) *Control requirements.* Every owner or operator of an emission source subject to paragraph (x) of this section shall comply with the requirements of paragraph (x)(3) (i), (ii) or (iii) of this section.

(i) Emission capture and control equipment which achieve an overall reduction in uncontrolled VOM emissions of at least 81 percent, or

(ii) For coating lines, the daily-weighted average VOM content shall not exceed 0.42 kg VOM/l (3.5 lbs VOM/gal) of coating (minus water and any compounds which are specifically exempted from the definition of VOM) as applied during any day. Owners and operators complying with this paragraph are not required to comply with section 215.301 of 35 Ill. Adm. Code 215 (incorporated by reference as specified in 40 CFR 52.742), or

(iii) An alternative control plan which has been approved by the Administrator as a SIP or FIP revision.

(4) *Compliance schedule.* Every owner or operator of an emissions source which is subject to paragraph (x) of this section shall comply with the requirements of paragraph (x) of this section on and after July 1, 1991.

(5) *Testing.* Any owner or operator of a VOM emission source which is subject to paragraph (x) of this section shall demonstrate compliance with paragraph (x)(3) of this section by using the applicable test methods and procedures specified in paragraph (a)(4) of this section.

(y) *Recordkeeping and reporting for non-CTG sources*—(1) *Exempt emission sources.* Upon request by the Administrator, the owner or operator of an emission source which is exempt from the requirements of paragraphs (u), (v), (w), (x), or (e)(3)(ii) of this section shall submit records to the Administrator within 30 calendar days from the date of the request that document that the emission source is exempt from those requirements.

(2) *Subject emission sources.* (i) Any owner or operator of a VOM emission source which is subject to the requirements of paragraph (u), (v), (w) or (x) of this section and complying by the use of emission capture and control equipment shall comply with the following:

(A) By July 1, 1991, or upon initial start-up of a new emission source, the owner or operator of the subject VOM emission source shall perform all tests and submit to the Administrator the results of all tests and calculations necessary to demonstrate that the subject emission source will be in compliance on and after July 1, 1991, or on and after the initial start-up date.

(B) On and after July 1, 1991, or on and after the initial start-up date, the owner or operator of a subject VOM emission source shall collect and record all of the following information each day and maintain the information at the facility for a period of three years:

(*1*) Control device monitoring data.

(*2*) A log of operating time for the capture system, control device, monitoring equipment and the associated emission source.

(*3*) A maintenance log for the capture system, control device and monitoring equipment detailing all routine and non-routine maintenance performed including dates and duration of any outages.

(C) On and after July 1, 1991, the owner or operator of a subject VOM emission source shall notify the Administrator in the following instances:

(*1*) Any record showing a violation of the requirements of paragraphs (u), (v), (w), or (x) of this section shall be reported by sending a copy of such record to the Administrator within 30 days following the occurrence of the violation.

(*2*) At least 30 calendar days before changing the method of compliance with paragraphs (u) or (x) of this section from the use of capture systems and control devices to the use of complying coatings, the owner or operator shall comply with all requirements of paragraph (y)(2)(ii)(A) of this section. Upon changing the method of compliance with paragraphs (u) or (x) of this section from the use of capture systems and control devices to the use of complying coatings, the owner or operator shall comply with all requirements of paragraph (y)(2)(ii) of this section.

(ii) Any owner or operator of a coating line which is subject to the requirements of paragraphs (u) or (x) of this section and complying by means of the daily-weighted average VOM content limitation shall comply with the following:

(A) By July 1, 1991, or upon initial start-up of a coating line subject to paragraph (u) or (x) of this section; the owner or operator of the subject coating line shall certify to the Administrator that the coating line will be in compliance on and after July 1, 1991, or on and after the initial start-up date. Such certification shall include:

(*1*) The name and identification number of each coating line which will comply by means of the daily-weighted average VOM content limitation.

(*2*) The name and identification number of each coating as applied on each coating line.

(*3*) The weight of VOM per volume and the volume of each coating (minus

water and any compounds which are specifically exempted from the definition of VOM) as applied each day on each coating line.

(4) The instrument or method by which the owner or operator will accurately measure or calculate the volume of each coating as applied each day on each coating line.

(5) The method by which the owner or operator will create and maintain records each day as required in paragraph (y)(2)(ii)(B) of this section.

(6) An example of the format in which the records required in paragraph (y)(2)(ii)(B) of this section will be kept.

(B) On and after July 1, 1991, or on and after the initial start-up date, the owner or operator of a subject coating line shall collect and record all of the following information each day for each coating line and maintain the information at the facility for a period of three years:

(1) The name and identification number of each coating as applied on each coating line.

(2) The weight of VOM per volume and the volume of each coating (minus water and any compounds which are specifically exempted from the definition of VOM) as applied each day on each coating line.

(3) The daily-weighted average VOM content of all coatings as applied on each coating line as defined in paragraph (a)(3) of this section.

(C) On and after July 1, 1991, the owner or operator of a subject coating line shall notify the Administrator in the following instances:

(1) Any record showing violation of the requirements of paragraph (u) or (x) of this section shall be reported by sending a copy of such record to the Administrator within 30 days following the occurrence of the violation.

(2) At least 30 calendar days before changing the method of compliance with paragraph (u) or (x) of this section from the use of complying coatings to the use capture systems and control devices, the owner or operator shall comply with all requirements of paragraph (y)(2)(i)(A) of this section. Upon changing the method of compliance with paragraphs (u) or (x) of this section from the use of complying coatings to the use capture systems and control devices, the owner or operator shall comply with all requirements of paragraph (y)(2)(i) of this section.

(iii) Any owner or operator of a VOM emission source which is subject to the requirements of paragraphs (u), (v), (w) or (x) of this section and complying by means of an alternative control plan which has been approved by the Administrator as a SIP or FIP revision shall comply with the recordkeeping and reporting requirements specified in the alternative control plan.

(z) [Reserved]

Appendix A—List of Chemicals Defining Synthetic Organic Chemical and Polymer Manufacturing

OCPDB No.[1]	Chemical
20	Acetal.
30	Acetaldehyde.
40	Acetaldol.
50	Acetamide.
65	Acetanilide.
70	Acetic acid.
80	Acetic anhydride.
90	Acetone.
100	Acetone cyanohydrin.
110	Acetonitrile.
120	Acetophenone.
125	Acetyl chloride.
130	Acetylene.
140	Acrolein.
150	Acrylamide.
160	Acrylic acid & esters.
170	Acrylonitrile.
180	Adipic acid.
185	Adiponitrile.
190	Alkyl naphthalenes.
200	Allyl alcohol.
210	Allyl chloride.
220	Aminobenzoic acid.
230	Aminoethylethanolamine.
235	p-aminophenol.
240	Amyl acetates.
250	Amyl alcohols.
260	Amyl amine.
270	Amyl chloride.
280	Amyl mercaptans.
290	Amyl phenol.
300	Aniline.
310	Aniline hydrochloride.
320	Anisidine.
330	Anisole.
340	Anthranilic acid.
350	Anthraquinone.
360	Benzaldehyde.
370	Benzamide.
380	Benzene.
390	Benzenedisulfonic acid.
400	Benzene-sulfonic acid.
410	Benzil.
420	Benzilic acid.
430	Benzoic acid.
440	Benzoin.
450	Benznonitrile.
460	Benzophenone.
480	Benzotrichloride.
490	Benzoyl chloride.
500	Benzyl chalcohol.
510	Benzyl amine.
520	Benzyl benzoate.
530	Benzyl chloride.
540	Benzyl dichloride.
550	Biphenyl.
560	Bisphenol A.
570	Bromobenzene.
580	Bromonaphtahlene.
590	Butadiene.
592	1-butene.
600	n-butyl acetate.
630	n-butyl acrylate.
640	n-butyl alcohol.
650	s-butyl alcohol.
660	t-butyl alcohol.
670	n-butylamine.
680	s-butylamine.
690	t-butylamine.
700	p-pert-butyl benzoic acid.
750	n-butyraldehyde.
760	Butyric acid.
770	Butyric anhydride.
780	Butyronitrile.
785	Caprolactam.
790	Carbon disulfide.
800	Carbon tetrabromide.
810	Carbon tetrachloride.
820	Cellulose acetate.
840	Chloroacetic acid.
850	m-chloroaniline.
860	o-chloroaniline.
870	p-chloroaniline.
880	Chlorobenzaldehyde.
890	Chlorobenzene.
900	Chlorobenzoic acid.
905	Chlorobenzotrichloride.
910	Chlorobenzoyl chloride.
920	Chlorodifluoroethane.
921	Chlorodifluoromethane.
930	Chloroform
940	Chloronaphthalene.
950	o-chloronitrobenzene.
951	p-chloronitrobenzene.
960	Chlorophenols.
964	Chloroprene.
965	Chlorosulfonic acid.
970	m-chlorotoluene.
980	o-chlorotoluene.
990	p-chlorotoluene.
992	Chlorotrifluoromethane.
1000	m-cresol.
1010	o-cresol.
1020	p-cresol.
1021	Mixed cresols.
1030	Cresylic acid.
1040	Crontonaldehyde.
1050	Crontonic acid.
1060	Cumene.
1070	Cumene hydroperoxide.
1080	Cyanoacetic acid.
1090	Cyanogen chloride.
1100	Cyanuric acid.
1110	Cyanuric chloride.
1120	Cychohexane.
1130	Cyclohexanol.
1140	Cyclohexanone.
1150	Cyclohexene.
1160	Cyclohexylamine.
1170	Cyclooctadiene.
1180	Decanol.
1190	Diacetone alcohol.
1200	Diaminobenzoic acid.
1210	Dichloroaniline.
1215	m-dichlorobenzene.
1216	o-dichlorobenzene.
1220	p-dichlorobenzene.
1221	Dichlorodifluoromethane.
1240	Dichloroethyl ether 1,2-dichloroethane.
1250	Dichlorohydrin
1270	Dichloropropene.
1280	Dicyclohexylamine.
1290	Diethylamine.
1300	Diethylene glycol.
1304	Diethylene glycol diethyl ether.
1305	Diethylene glycol dimethyl ether.
1310	Diethylene glycolmonobutyl ether.
1320	Diethylene glycolmonobutyl ether acetate.
1330	Diethylene glycolmonoethyl ether.
1340	Diethylene glycolmonoethyl ether acetate.
1360	Diethylene glycolmonomethyl ether.
1420	Diethyl sulfate.
1430	Difluoroethane.
1440	Diisobutylene.
1442	Diisodecyl phthalate.
1444	Diisooctyl phthalate.
1450	Diketene.
1460	Dimethylamine.
1470	N,N-dimethylaniline.
1480	N,N-dimethylether.
1490	N,N-dimethylformamide.
1495	Dimethylhydrazine.

OCPDB No.[1]	Chemical
1500	Dimethyl sulfate.
1510	Dimethyl sulfide.
1520	Dimethylsulfoxide.
1530	Dimethylterephthalate.
1540	3,5-dinitrobenzoic acid.
1545	Dinitrophenol.
1560	Dioxane.
1570	Dioxolane.
1580	Diphenylamine.
1590	Diphenyl oxide.
1600	Diphenyl thiourea.
1610	Dipropylene glycol.
1620	Dodecene.
1630	Dodecylaniline.
1640	Dodecylphenol.
1650	Epichlorohydrin.
1660	Ethanol.
1661	Ethanolamines.
1670	Ethyl acetate.
1680	Ethyl acetoacetate.
1690	Ethyl acrylate.
1700	Ethylamine.
1710	Ethylbenzene.
1720	Ethyl bromide.
1730	Ethylcellulose.
1740	Ethyl chloride.
1750	Ethyl chloroacetate.
1760	Ethylcyanoacetate.
1770	Ethylene.
1780	Ethylene carbonate.
1790	Ethylene chlorodhydrin.
1800	Ethylenediamine.
1810	Ethylene dibromide.
1830	Ethylene glycol.
1840	Ethylene glycol diacetate.
1870	Ethylene glycol dimethyl ether.
1890	Ethylene glycol monobutyl ether.
1900	Ethylene glycol monobutyl ether acetate.
1910	Ethylene glycol monoethyl ether.
1920	Ethylene glycol monoethyl ether acetate.
1930	Ethylene glycol monoethyl ether.
1940	Ethylene glycol monomethyl ether acetate.
1960	Ethylene glycol monophenyl ether.
1970	Ethylene glycol monopropyl ether.
1980	Ethylene oxide.
1990	Ethyl ether.
2000	2-ethylhexanol.
2010	Ethyl orthoformate.
2020	Ethyl oxalate.
2030	Ethyl sodium oxalacetate.
2040	Formaldehyde.
2050	Formamide.
2060	Formic acid.
2070	Fumaric acid.
2073	Furfural.
2090	Glycerol (Synthetic).
2091	Glycerol dichlorohydrin.
2100	Glycerol triether.
2110	Glycine.
2120	Glyoxal.
2145	Hexachlorobenzene.
2150	Hexachloroethane.
2160	Hexadecyl alcohol.
2165	Hexamethylenediamine.
2170	Hexamethylene glycol.
2180	Hexamethylentetramine.
2190	Hydrogen cyanide.
2200	Hydroquinone.
2210	p-hydroxy-benzoic acid.
2240	Isoamylene.
2250	Isobutanol.
2260	Isobutyl acetate.
2261	Isobutylene.
2270	Isobutyraldehyde.
2280	Isobutyric acid.
2300	Isodecanol.
2320	Isooctyl alcohol.
2321	Isopentane.
2330	Isophorone.
2340	Isophthalic acid.
2350	Isoprene.
2360	Isopropanol.
2370	Isopropyl acetate.
2380	Isopropylamine.
2390	Isopropyl chloride.
2400	Isopropylphenol.
2410	Ketene.
2414	Linear alkylsulfonate.
2417	Linear alkylbenzene.
2420	Maleic acid.
2430	Maleic anhydride.
2440	Malic acid.
2450	Mesityl oxide.
2455	Metanilic acid.
2460	Methacrylic acid.
2490	Methallyl chloride.
2500	Methanol.
2510	Methyl acetate.
2520	Methyl acetoacetate.
2530	Methylamine.
2540	n-methylaniline.
2545	Methyl bromide.
2550	Methyl butynol.
2560	Methyl chloride.
2570	Methyl cyclohexane.
2590	Methyl cyclohexanone.
2620	Methylene chloride.
2630	Methylene dianiline.
2635	Methylene diphenyl diisocyanate.
2640	Methyl ethyl ketone.
2644	Methyl formate.
2650	Methyl isobutyl carbinol.
2660	Methyl isobutyl ketone.
2665	Methyl methacrylate.
2670	Methyl pentynol.
2690	a-methyl styrene.
2700	Morpholine.
2710	a-napthalene sulfonic acid.
2720	B-napthalene sulfonic acid.
2730	a-naphthol.
2740	B-naphthol.
2750	Neopentanoic acid.
2756	o-nitroaniline.
2757	p-nitroaniline.
2760	o-nitroanisole.
2762	p-nitroanisole.
2770	Nitrobenzene.
2780	Nitrobenzoic acid (o, m & p).
2790	Nitroethane.
2791	Nitromethane.
2792	Nitrophenol.
2795	Nitropropane.
2800	Nitrotoluene.
2810	Nonene.
2820	Nonyl phenol.
2830	Octyl phenol.
2840	Paraldehyde.
2850	Pentaerythritol.
2851	n-pentane.
2855	l-pentene.
2860	Perchloroethylene.
2882	Perchloromethylmercaptan.
2890	o-phenetidine.
2900	p-phenetidine.
2910	Phenol.
2920	Phenolsulfonic acids.
2930	Phenyl anthranilic acid.
2940	Phenylenediamine.
2960	Phthalic anhydride.
2970	Phthalimide.
2973	b-picoline.
2976	Piperazine.
3000	Polybutenes.
3010	Polyethylene glycol.
3025	Polypropylene glycol.
3063	Propionaldehyde.
3066	Propionic acid.
3070	n-propyl alcohol.
3075	Propylamine.
3080	Propyl chloride.
3090	Propylene.
3100	Propylene chlorohydrin.
3110	Propylene dichloride.
3111	Propylene glycol.
3120	Propylene oxide.
3130	Pyridine.
3140	Quinone.
3150	Resorcinol.
3160	Resorcylic acid.
3170	Salicylic acid.
3180	Sodium acetate.
3181	Sodium benzoate.
3190	Sodium carboxymethylcellulose.
3191	Sodium chloroacetate.
3200	Sodium formate.
3210	Sodium phenate.
3220	Sorbic acid.
3230	Styrene.
3240	Succinic acid.
3250	Succinitrile.
3251	Sulfanilic acid.
3260	Sulfolane.
3270	Tannic acid.
3280	Terephthalic acid.
3290 & 3291	Tetrachloroethanes.
3300	Tetrachlorophthalic anhydride.
3310	Tetraethyllead.
3320	Tetrahydronaphthalene.
3330	Tetrahydrophthalic anhydride.
3335	Tetramethyllead.
3340	Tetramethylenediamine.
3341	Tetramethylethylenediamine.
3349	Toluene.
3350	Toluene-2,4-diamine.
3354	Toluene-2,4-diisocyanate.
3355	Toluene diisocyanates (mixture).
3360	Toluene sulfonamide.
3370	Toluene sulfonic acids.
3380	Toluene sulfonylchloride.
3381	Toluidines.
3393	Trichlorobenzenes.
3395	1,1,1-trichloroethane.
3400	1,1,2-trichloroethane.
3410	Trichloroethylene.
3411	Trichlorofluoromethane.
3420	1,2,3-trichloropropane.
3430	1,1,2-trichloro-1,2,2-trifluoroethane.
3450	Triethylamine.
3460	Triethylene glycol.
3470	Triethylene glycoldimethyl ether.
3480	Triisobutylene.
3490	Trimethylamine.
3510	Vinyl acetate.
3520	Vinyl chloride.
3530	Vinylidene chloride.
3540	Vinyl toluene.
3541	Xylene (mixed).
3560	o-xylene.
3570	p-xylene.
3580	Xylenol.
3590	Xylidine, 1,3-butylene glycol, Dinitrotoluene, Methyltertbutyl ether, Phosgene, Polyethylene, Polypropylene, Polystyrene, Urea.

[1] The OCPDB Numbers are reference indices assigned to the various chemicals in the Organic Chemical Producers Data Base developed by the USEPA.

Appendix B—VOM Measurement Techniques for Capture Efficiency

Procedure G.1—Captured VOC Emissions

1. Introduction

1.1 *Applicability.* This procedure is applicable for determining the volatile organic compounds (VOC) content of captured gas streams. It is intended to be used as a segment in the development of liquid/gas or gas/gas protocols for

determining VOC capture efficiency (CE) for surface coating and printing operations. The procedure may not be acceptable in certain site-specific situations, *e.g.*, when: (1) Direct fired heaters or other circumstances affect the quantity of VOC at the control device inlet; and (2) particulate organic aerosols are formed in the process and are present in the captured emissions.

1.2 *Principle.* The amount of VOC captured (G) is calculated as the sum of the products of the VOC content (C_{Gj}), the flow rate (Q_{Gj}), and the sample time (T_C) from each captured emissions point.

1.3 *Estimated measurement uncertainty.* The measurement uncertainties are estimated for each captured or fugitive emissions point as follows: $Q_{Gj} = \pm 5.5$ percent and $C_{Gj} = \pm 5.0$ percent. Based on these numbers, the probable uncertainty for G is estimated at about ± 7.4 percent.

1.4 *Sampling requirements.* A capture efficiency test shall consist of at least three sampling runs. The sampling time for each run should be at least 8 hours, unless otherwise approved.

1.5 *Notes.* Because this procedure is often applied in highly explosive areas, caution and care should be exercised in choosing appropriate equipment and installing and using the equipment. Mention of trade names or company products does not constitute endorsement. All gas concentrations (percent, ppm) are by volume, unless otherwise noted.

2. Apparatus and Reagents

2.1 *Gas VOC concentration.* A schematic of the measurement system is shown in Figure 1. The main components are described below:

2.1.1 *Sample probe.* Stainless steel, or equivalent. The probe shall be heated to prevent VOC condensation.

2.1.2 *Calibration valve assembly.* Three-way valve assembly at the outlet of sample probe to direct the zero and calibration gases to the analyzer. Other methods, such as quick-connect lines, to route calibration gases to the outlet of the sample probe are acceptable.

2.1.3 *Sample line.* Stainless steel or Teflon tubing to transport the sample gas to the analyzer. The sample line must be heated to prevent condensation.

2.1.4 *Sample pump.* A lead-free pump, to pull the sample gas through the system at a flow rate sufficient to minimize the response time of the measurement system. The components of the pump that contact the gas stream shall be constructed of stainless steel or Teflon. The sample pump must be heated to prevent condensation.

2.1.5 *Sample flow rate control.* A sample flow rate control valve and rotameter, or equivalent, to maintain a constant sampling rate within 10 percent. The flow rate control valve and rotameter must be heated to prevent condensation. A control valve may also be located on the sample pump bypass loop to assist in controlling the sample pressure and flow rate.

2.1.6 *Sample gas manifold.* Capable of diverting a portion of the sample gas stream to the flame ionization analyzer (FIA), and the remainder to the bypass discharge vent. The manifold components shall be constructed of stainless steel or Teflon. If captured or fugitive emissions are to be measured at multiple locations, the measurement system shall be designed to use separate sampling probes, lines, and pumps for each measurement location and a common sample gas manifold and FIA. The sample gas manifold and connecting lines to the FIA must be heated to prevent condensation.

2.1.7 *Organic concentration analyzer.* An FIA with a span value of 1.5 times the expected concentration as propane; however, other span values may be used if it can be demonstrated that they would provide more accurate measurements.

The system shall be capable of meeting or exceeding the following specifications:

2.1.7.1 *Zero drift.* Less than ± 3.0 percent of the span value.

2.1.7.2 *Calibration drift.* Less than ± 3.0 percent of the span value.

2.1.7.3 *Calibration error.* Less than ± 5.0 percent of the calibration gas value.

2.1.7.4 *Response time.* Less than 30 seconds.

2.1.8 *Integrator/data acquisition system.* An analog or digital device or computerized data acquisition system used to integrate the FIA response or compute the average response and record measurement data. The minimum data sampling frequency for computing average or integrated values is one measurement value every 5 seconds. The device shall be capable of recording average values at least once per minute.

2.1.9 *Calibration and other gases.* Gases used for calibration, fuel, and combustion air (if required) are contained in compressed gas cylinders. All calibration gases shall be traceable to NIST standards and shall be certified by the manufacturer to ± 1 percent of the tag value. Additionally, the manufacturer of the cylinder should provide a recommended shelf life for each calibration gas cylinder over which the concentration does not change more than ± 2 percent from the certified value. For calibration gas values not generally available, alternative methods for preparing calibration gas mixtures, such as dilution systems, may be used with prior approval.

2.1.9.1 *Fuel.* A 40 percent H_2/60 percent He or 40 percent H_2/60 percent N_2 gas mixture is recommended to avoid an oxygen synergism effect that reportedly occurs when oxygen concentration varies significantly from a mean value.

2.1.9.2 *Carrier gas.* High purity air with less than 1 ppm of organic material (as propane or carbon equivalent) or less than 0.1 percent of the span value, whichever is greater.

2.1.9.3 *FIA Linearity calibration gases.* Low-, mid-, and high-range gas mixture standards with nominal propane concentrations of 20–30, 45–55, and 70–80 percent of the span value in air, respectively. Other calibration values and other span values may be used if it can be shown that more accurate measurements would be achieved.

2.1.10 *Particulate filter.* An in-stack or an out-of-stack glass fiber filter is recommended if exhaust gas particulate loading is significant. An out-of-stack filter must be heated to prevent any condensation unless it can be demonstrated that no condensation occurs.

2.2 *Captured emissions volumetric flow rate.*

2.2.1 *Method 2 or 2A apparatus.* For determining volumetric flow rate.

2.2.2 *Method 3 apparatus and reagents.* For determining molecular weight of the gas stream. An estimate of the molecular weight of the gas stream may be used if it can be justified.

2.2.3 *Method 4 apparatus and reagents.* For determining moisture content, if necessary.

3. Determinations of Volumetric Flow Rate of Captured Emissions

3.1 Locate all points where emissions are captured from the affected facility. Using Method 1, determine the sampling points. Be sure to check each site for cyclonic or swirling flow.

3.2 Measure the velocity at each sampling site at least once every hour during each sampling run using Method 2 or 2A.

4. Determinations of VOC Content of Captured Emissions

4.1 *Analysis duration.* Measure the VOC responses at each captured emissions point during the entire test run or, if applicable, while the process is operating. If there are multiple captured emission locations, design a sampling system to allow a single FIA to be used to determine the VOC responses at all sampling locations.

4.2 *Gas VOC concentration.*

4.2.1 Assemble the sample train as shown in Figure 1. Calibrate the FIA according to the procedure in section 5.1.

4.2.2 Conduct a system check according to the procedure in section 5.3.

4.2.3 Install the sample probe so that the probe is centrally located in the stack, pipe, or duct, and is sealed tightly at the stack port connection.

4.2.4 Inject zero gas at the calibration valve assembly. Allow the measurement system response to reach zero. Measure the system response time as the time required for the system to reach the effluent concentration after the calibration valve has been returned to the effluent sampling position.

4.2.5 Conduct a system check before and a system check after each sampling run according to the procedures in sections 5.2 and 5.3. If the drift check following a run indicates unacceptable performance, the run is not valid. The tester may elect to perform system drift checks during the run not to exceed one drift check per hour.

4.2.6 Verify that the sample lines, filter, and pump temperatures are 120 ± 5°C.

4.2.7 Begin sampling at the start of the test period and continue to sample during the entire run. Record the starting and ending times and any required process information as appropriate. If multiple captured emission locations are sampled using a single FIA, sample at each location for the same amount of time (*e.g.*, 2 minutes) and continue to switch from one location to another for the entire test run. Be sure that total sampling time at each location is the same at the end of the test run. Collect at least 4 separate measurements from each sample point during

each hour of testing. Disregard the measurements at each sampling location until two times the response time of the measurement system has elapsed. Continue sampling for at least 1 minute and record the concentration measurements.

4.3 *Background concentration.*

4.3.1 Locate all NDO's of the TTE. A sampling point shall be centrally located outside of the TTE at 4 equivalent diameters from each NDO, if possible. If there are more than 6 NDO's, choose 6 sampling points evenly spaced among the NDO's.

4.3.2 Assemble the sample train as shown in Figure 2. Calibrate the FIA and conduct a system check according to the procedures in sections 5.1 and 5.3.

Note: This sample train shall be a separate sampling train from the one to measure the captured emissions.

4.3.3 Position the probe at the sampling location.

4.3.4 Determine the response time, conduct the system check and sample according to the procedures described in sections 4.2.4 to 4.2.7.

4.4 *Alternative procedure.* The direct interface sampling and analysis procedure described in section 7.2 of Method 18 may be used to determine the gas VOC concentration. The system must be designed to collect and analyze at least one sample every 10 minutes.

5. Calibration and Quality Assurance

5.1 *FIA calibration and linearity check.* Make necessary adjustments to the air and fuel supplies for the FIA and ignite the burner. Allow the FIA to warm up for the period recommended by the manufacturer. Inject a calibration gas into the measurement system and adjust the back-pressure regulator to the value required to achieve the flow rates specified by the manufacturer. Inject the zero- and the high-range calibration gases and adjust the analyzer calibration to provide the proper responses. Inject the low- and mid-range gases and record the responses of the measurement system. The calibration and linearity of the system are acceptable if the responses for all four gases are within 5 percent of the respective gas values. If the performance of the system is not acceptable, repair or adjust the system and repeat the linearity check. Conduct a calibration and linearity check after assembling the analysis system and after a major change is made to the system.

5.2 *Systems drift checks.* Select the calibration gas that most closely approximates the concentration of the captured emissions for conducting the drift checks. Introduce the zero and calibration gas at the calibration valve assembly and verify that the appropriate gas flow rate and pressure are present at the FIA. Record the measurement system responses to the zero and calibration gases. The performance of the system is acceptable if the difference between the drift check measurement and the value obtained in section 5.1 is less than 3 percent of the span value. Conduct the system drift checks at the end of each run.

5.3 *System check.* Inject the high range calibration gas at the inlet of the sampling probe and record the response. The performance of the system is acceptable if the measurement system response is within 5 percent of the value obtained in section 5.1, for the high range calibration gas. Conduct a system check before and after each test run.

5.4 *Analysis audit.* Immediately before each test analyze an audit cylinder as described in section 5.2. The analysis audit must agree with the audit cylinder concentration within 10 percent.

6. Nomenclature

A_i = area of NDO i, ft².
A_N = total area of all NDO's in the enclosure, ft².
C_{Bi} = corrected average VOC concentration of background emissions at point i, ppm propane.
C_B = average background concentration, ppm propane.
C_{Gj} = corrected average VOC concentration of captured emissions at point j, ppm propane.
C_{DH} = average measured concentration for the drift check calibration gas, ppm propane.
C_{DO} = average system drift check concentration for zero concentration gas, ppm propane.
C_H = actual concentration of the drift check calibration gas, ppm propane.
C_i = uncorrected average background VOC concentration measured at point i, ppm propane.
C_j = uncorrected average VOC concentration measured at point j, ppm propane.
G = total VOC content of captured emissions, kg.
$K_1 = 1.830 \times 10^{-6}$ kg/(m³-ppm).
n = number of measurement points.
Q_{Gj} = average effluent volumetric flow rate corrected to standard conditions at captured emissions point j, m³/min.
T_C = total duration of captured emissions sampling run, min.

7. Calculations

7.1 *Total VOC captured emissions.*

$$G = \frac{\sum_{j=1}^{n} (C_{Gj} - C_B) Q_{Gj} T_C K_1}{}$$

7.2 *VOC concentration of the captured emissions at point j.*

$$C_{Gj} = (C_j - C_{DO}) \frac{C_H}{C_{DH} - C_{DO}} \quad \text{Eq. 2}$$

7.3. *Background VOC concentration at point i.*

$$C_{Bi} = (C_i - C_{DO}) \frac{C_H}{C_{DH} - C_{DO}} \quad \text{Eq. 3}$$

7.4 *Average background concentration.*

$$C_B = \frac{\sum_{i=1}^{n} C_{Bi} A_i}{n A_N} \quad \text{Eq. 4}$$

Note: If the concentration at each point is with in 20 percent of the average concentration of all points, the terms "A_i" and "A_N" may be deleted from Equation 4.

Procedure G.2—Captured VOC Emissions (Dilution Technique)

1. Introduction

1.1 *Applicability.* This procedure is applicable for determining the volatile organic compounds (VOC) content of captured gas streams. It is intended to be used as a segment in the development of a gas/gas protocol in which fugitive emissions are measured for determining VOC capture efficiency (CE) for surface coating and printing operations. A dilution system is used to reduce the VOC concentration of the captured emission to about the same concentration as the fugitive emission. The procedure may not be acceptable in certain site-specific situations, *e.g.*, when: (1) Direct fired heaters or other circumstances affect the quantity of VOC at the control device inlet; and (2) particulate organic aerosols are formed in the process and are present in the captured emissions.

1.2 *Principle.* The amount of VOC captured (G) is calculated as the sum of the products of the VOC content (C_{Gi}), the flow rate (Q_{Gi}), and the sampling time (T_C) from each captured emissions point.

1.3 *Estimated measurement uncertainty.* The measurement uncertainties are estimated for each captured or fugitive emissions point as follows: $O_{Gi} = \pm 5.5$ percent and $C_{Gi} = \pm 5$ percent. Based on these numbers, the probable uncertainty for G is estimated at about ± 7.4 percent.

1.4 *Sampling requirements.* A capture efficiency test shall consist of at least three sampling runs. The sampling time for each run should be at least 8 hours, unless otherwise approved.

1.5 *Notes.* Because this procedure is often applied in highly explosive areas, caution and care should be exercised in choosing appropriate equipment and installing and using the equipment. Mention of trade names or company products does not constitute endorsement. All gas concentrations (percent, ppm) are by volume, unless otherwise noted.

2. Apparatus and Reagents

2.1 *Gas VOC concentration.* A schematic of the measurement system is shown in Figure 1. The main components are described below:

2.1.1 *Dilution system.* A Kipp in-stack dilution probe and controller or similar device may be used. The dilution rate may be changed by substituting different critical orifices or adjustments of the aspirator supply pressure. The dilution system shall be heated to prevent VOC condensation.

Note: An out-of-stack dilution device may be used.

2.1.2 *Calibration valve assembly.* Three-way valve assembly at the outlet of sample probe to direct the zero and calibration gases to the analyzer. Other methods, such as quick-connect lines, to route calibration gases to the outlet of the sample probe are acceptable.

2.1.3 *Sample line.* Stainless steel or Teflon tubing to transport the sample gas to the analyzer. The sample line must be heated to prevent condensation.

2.1.4 *Sample pump.* A leak-free pump, to pull the sample gas through the system at a flow rate sufficient to minimize the response time of the measurement system. The components of the pump that contract the gas stream shall be constructed of stainless steel or Teflon. The sample pump must be heated to prevent condensation.

2.1.5 *Sample flow rate control.* A sample flow rate control valve and rotameter, or equivalent, to maintain a constant sampling rate within 10 percent. The flow control valve and rotameter must be heated to prevent condensation. A control valve may also be located on the sample pump bypass loop to assist in controlling the sample pressure and flow rate.

2.1.6 *Sample gas manifold.* Capable of diverting a portion of the sample gas stream to the flame ionization analyzer (FIA), and the remainder to the bypass discharge vent. The manifold components shall be constructed of stainless steel or Teflon. If captured or fugitive emissions are to be measured at multiple locations, the measurement system shall be designed to use separate sampling probes, lines, and pumps for each measurement location and a common sample gas manifold and FIA. The sample gas manifold and connecting lines to the FIA must be heated to prevent condensation.

2.1.7 *Organic concentration analyzer.* An FIA with a span value of 1.5 times the expected concentration as propane; however, other span values may be used if it can be demonstrated that they would provide more accurate measurements.

The system shall be capable of meeting or exceeding the following specifications:

2.1.7.1 *Zero drift.* Less than ± 3.0 percent of the span value.

2.1.7.2 *Calibration drift.* Less than ± 3.0 percent of the span value.

2.1.7.3 *Calibration error.* Less than ± 5.0 percent of the calibration gas value.

2.1.7.4 *Response time.* Less than 30 seconds.

2.1.7.8 *Integrator/data acquisition system.* An analog or digital device or computerized data acquisition system used to integrate the FIA response or compute the average response and record measurement data. The minimum data sampling frequency for computing average or integrated values is one measurement value every 5 seconds. The device shall be capable of recording average values at least once per minute.

2.1.9 *Calibration and other gases.* Gases used for calibration, fuel, and combustion air (if required) are contained in compressed gas cylinders. All calibration gases shall be traceable to NIST standards and shall be certified by the manufacturer to ± 1 percent of the tag value. Additionally, the manufacturer of the cylinder should provide a recommended shelf life for each calibration gas cylinder over which the concentration does not change more than ± 2 percent from the certified value. For calibration gas values not generally available, alternative methods for preparing calibration gas mixtures, such as dilution system, may be used with prior approval.

2.1.9.1 *Fuel.* A 40 percent H_2/60 percent He or 40 percent H_2/60 percent N_2 gas mixture is recommended to avoid an oxygen synergism effect that reportedly occurs when oxygen concentration varies signficantly from a mean value.

2.1.9.2. *Carrier gas and dilution air supply.* High purity air with less than 1 ppm of organic material (as propane or carbon equivalent) or less than 0.1 percent of the span value, whichever is greater.

2.1.9.3 *FIA linearity calibration gases.* Low-, mid-, and high-range gas mixture standards with nominal propane concentrations of 20–30, 45–55, and 70–80 percent of the span value in air, respectively. Other calibration values and other span values may be used if it can be shown that more accurate measurements would be achieved.

2.1.9.4 *Dilution check gas.* Gas mixture standard containing propane in air, approximately half the span value after dilution.

2.1.10 *Particulate filter.* An in-stack or an out-of-stack glass fiber filter is recommended if exhaust gas particulate loading is significant. An out-of-stack filter must be heated to prevent any condensation unless it can be demonstrated that no condensation occurs.

2.2 *Captured emissions volumetric flow rate.*

2.2.1 *Method 2 or 2A apparatus.* For determining volumetric flow rate.

2.2.2 *Method 3 apparatus and reagents.* For determining molecular weight of the gas stream. An estimate of the molecular weight of the gas stream may be used if it can be justified.

2.2.3 *Method 4 apparatus and reagents.* For determining moisture content, if necessary.

3. Determination of Volumetric Flow Rate of Captured Emissions

3.1 Locate all points where emissions are captured from the affected facility. Using Method 1, determine the sampling points. Be sure to check each site for cyclonic or swirling flow.

3.2 Measure the velocity at each sampling site at least once every hour during each sampling run using Method 2 or 2A.

4. Determination of VOC Content of Captured Emissions

4.1 *Analysis duration.* Measure the VOC responses at each captured emissions point during the entire test run or, if applicable, while the process is operating. If there are multiple captured emissions locations, design a sampling system to allow a single FIA to be used to determine the VOC responses at all sampling locations.

4.2 *Gas VOC concentration.*

4.2.1 Assemble the sample train as shown in Figure 1. Calibrate the FIA according to the procedure in section 5.1.

4.2.2 Set the dilution ratio and determine the dilution factor according to the procedure in section 5.3.

4.2.3 Conduct a system check according to the procedure in section 5.4.

4.2.4 Install the sample probe so that the probe is centrally located in the stack, pipe, or duct, and is sealed tightly at the stack port connection.

4.2.5 Inject zero gas at the calibration valve assembly. Measure the system response time as the time required for the system to reach the effluent concentration after the calibration valve has been returned to the effluent sampling position.

4.2.6 Conduct a system check before and a system drift check after each sampling run according to the procedures in sections 5.2 and 5.4. If the drift check following a run indicates unacceptable performance, the run is not valid. The tester may elect to perform system drift checks during the run not to exceed one drift check per hour.

4.2.7 Verify that the sample lines, filter, and pump temperatures are 120 ± 5°C.

4.2.8 Begin sampling at the start of the test period and continue to sample during the entire run. Record the starting and ending times and any required process information as appropriate. If multiple captured emission locations are sampled using a single FIA, sample at each location for the same amount of time (*e.g.*, 2 minutes) and continue to switch from one location to another for the entire test run. Be sure that total sampling

time at each location is the same at the end of the test run. Collect at least 4 separate measurements from each sample point during each hour of testing. Disregard the measurements at each sampling location until two times the response time of the measurement system has elapsed. Continue sampling for at least 1 minute and record the concentration measurements.

4.3 *Background concentration.*

4.3.1 Locate all NDO's of the TTE. A sampling point shall be centrally located outside of the TTE at 4 equivalent diameters from each NDO, if possible. If there are more than 6 NDO's, choose 6 sampling points evenly spaced among the NDO's.

4.3.2 Assemble the sample train as shown in Figure 2. Calibrate the FIA and conduct a system check according to the procedures in sections 5.1 and 5.4.

4.3.3 Position the probe at the sampling location.

4.3.4 Determine the response time, conduct the system check and sample according to the procedures described in sections 4.2.4 to 4.2.8.

4.4 *Alternative procedure.* The direct interface sampling and analysis procedure described in section 7.2 of Method 18 may be used to determine the gas VOC concentration. The system must be designed to collect and analyze at least one sample every 10 minutes.

5. Calibration and Quality Assurance

5.1 *FIA Calibration and linearity check.* Make necessary adjustments to the air and fuel supplies for the FIA and ignite the burner. Allow the FIA to warm up for the period recommended by the manufacturer. Inject a calibration gas into the measurement system after the dilution system and adjust the back-pressure regulator to the value required to achieve the flow rates specified by the manufacturer. Inject the zero- and the high-range calibration gases and adjust the analyzer calibration to provide the proper responses. Inject the low- and mid-range gases and record the responses of the measurement system. The calibration and linearity of the system are acceptable if the responses for all four gases are within 5 percent of the respective gas values. If the performance of the system is not acceptable, repair or adjust the system and repeat the linearity check. Conduct a calibration and linearity check after assembling the analysis system and after a major change is made to the system.

5.2 *Systems drift checks.* Select the calibration gas that most closely approximates the concentration of the diluted captured emissions for conducting the drift checks. Introduce the zero and calibration gas at the calibration valve assembly and verify that the appropriate gas flow rate and pressure are present at the FIA. Record the measurement system responses to the zero and calibration gases. The performance of the system is acceptable if the difference between the drift check measurement and the value obtained in section 5.1 is less than 3 percent of the span value. Conduct the system drift check at the end of each run.

5.3 *Determination of dilution factor.* Inject the dilution check gas into the measurement system before the dilution system and record the response. Calculate the dilution factor using Equation 3.

5.4 *System check.* Inject the high range calibration gas at the inlet to the sampling probe while the dilution air is turned off. Record the response. The performance of the system is acceptable if the measurement system response is within 5 percent of the value obtained in section 5.1 for the high range calibration gas. Conduct a system check before and after each test run.

5.5 *Analysis audit.* Immediately before each test analyze an audit cylinder as described in section 5.2. The analysis audit must agree with the audit cylinder concentration within 10 percent.

6. Nomenclature

A_i + = area of NDO i, ft_2.

A_N = total area of all NDO's in the enclosure, ft^2.

C_A = actual concentration of the dilution check gas, ppm propane.

C_{Bi} = corrected average VOC concentration of background emissions at point i, ppm propane.

C_B = average background concentration, ppm propane.

C_{DH} = average measured concentration for the drift check calibration gas, ppm propane.

C_{DO} = average system drift check concentration for zero concentration gas, ppm propane.

C_H = actual concentration of the drift check calibration, gas, ppm propane.

C_i = uncorrected average background VOC concentration measured at point 1, ppm propane.

C_j = uncorrected average VOC concentration measured at point j, ppm propane.

C_M = measured concentration of the dilution check gas, ppm propane.

D_F = dilution factor.

G = total VOC content of captured emissions, kg.

$K_1 = 1.830 \times 10^{-9}$ kg/(m^3-ppm).

n = number of measurement points.

Q_{Gj} = average effluent volumetric flow rate corrected to standard conditions at captured emissions point j, m^3/min.

T_C = total duration of capture efficiency sampling run, min.

7. Calculations

7.1 *Total VOC captured emissions.*

$$G = \sum_{j=1}^{n} C_{Gj}\, Q_{Gj}\, T_C\, K_1 \qquad \text{Eq. 1}$$

7.2 *VOC concentration of the captured emissions to point j.*

$$C_{Gj} = DF(C_j - C_{Do}) \frac{C_H}{C_{DH} - C_{DO}} \qquad \text{Eq. 2}$$

7.3 *Dilution factor.*

$$DF = \frac{C_A}{C_M} \qquad \text{Eq. 3}$$

7.4 *Background VOC concentration at point i.*

$$C_{Bi} = (C_i - C_{DO}) \frac{C_H}{C_{DH} - C_{DO}} \qquad \text{Eq. 4}$$

7.5 *Average background concentration.*

$$C_B = \frac{\sum_{i=1}^{n} C_{Bi}\, A_i}{n\, A_N} \qquad \text{Eq. 5}$$

Note: If the concentration at each point is within 20 percent of the average concentration of all points, the terms "A_i" and "A_N" may be deleted from Equation 4.

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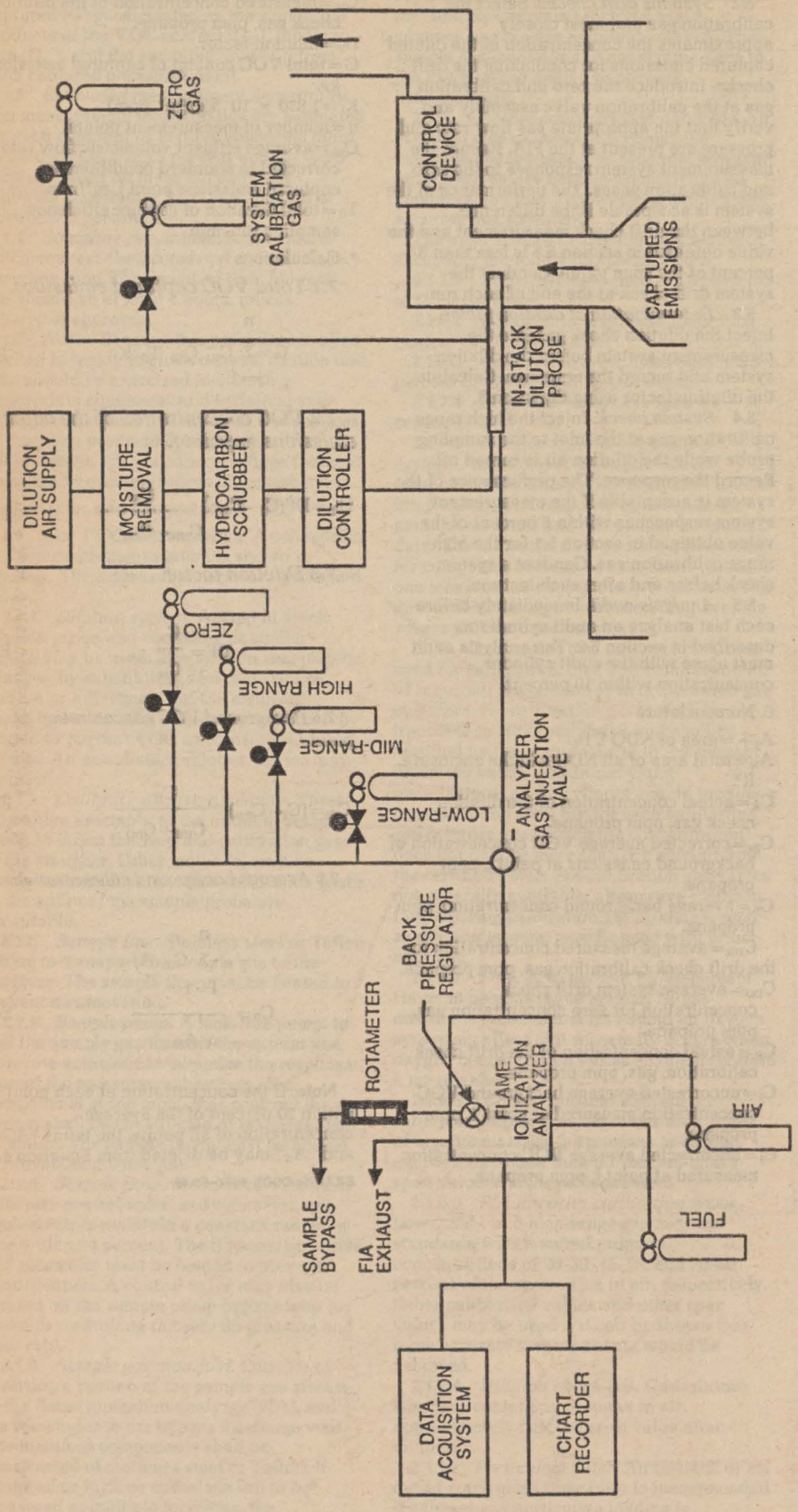


Figure 1. Captured emissions measurement system.

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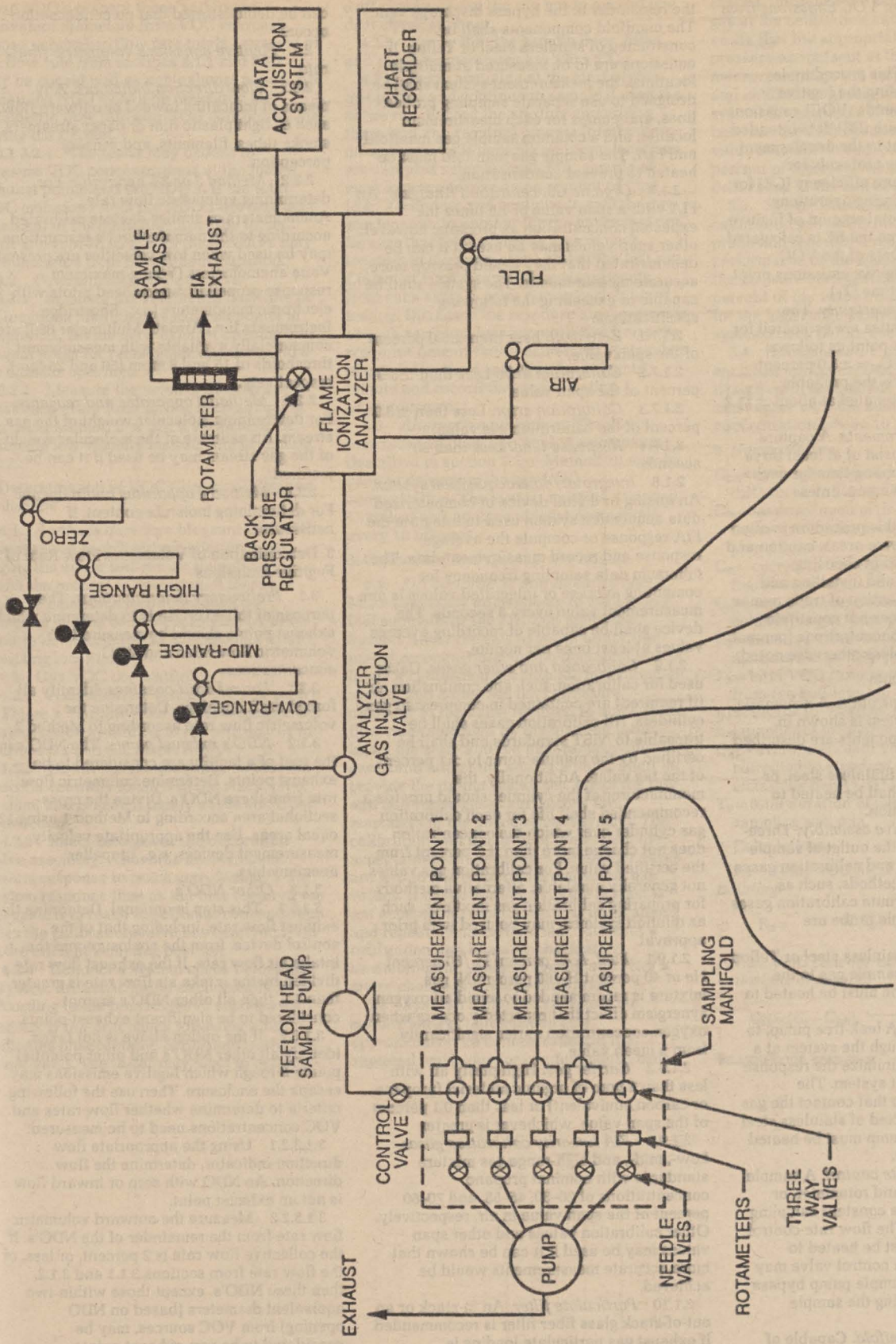


Figure 2. Background measurement system.

VOC 2/90

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Procedure F.2—Fugitive VOC Emissions from Building Enclosures

1. Introduction

1.1 *Applicability.* This procedure is applicable for determining the fugitive volatile organic compounds (VOC) emissions from a building enclosure (BE). It is intended to be used as a segment in the development of liquid/gas or gas/gas protocols for determining VOC capture efficiency (CE) for surface coating and printing operations.

1.2 *Principle.* The total amount of fugitive VOC emissions (F_B) from the BE is calculated as the sum of the products of the VOC content (C_{Fj}) of each fugitive emissions point, its flow rate (Q_{Fj}), and time (T_F).

1.3 *Measurement uncertainty.* The measurement uncertainties are estimated for each fugitive emissions point as follows: $Q_{Fj} = \pm 5.0$ percent and $C_{Fj} = \pm 5.0$ percent. Based on these numbers, the probable uncertainty for F_B is estimated at about ± 11.2 percent.

1.4 *Sampling requirements.* A capture efficiency test shall consist of at least three sampling runs. The sampling time for each run should be at least 8 hours, unless otherwise approved.

1.5 *Notes.* Because this procedure is often applied in highly explosive areas, caution and care should be exercised in choosing appropriate equipment and installing and using the equipment. Mention of trade names or company products does not constitute endorsement. All gas concentrations (percent, ppm) are by volume, unless otherwise noted.

2. Apparatus and Reagents

2.1 *Gas VOC concentration.* A schematic of the measurement system is shown in Figure 1. The main components are described below:

2.1.1 *Sample probe.* Stainless steel, or equivalent. The probe shall be heated to prevent VOC condensation.

2.1.2 *Calibration valve assembly.* Three-way valve assembly at the outlet of sample probe to direct the zero and calibration gases to the analyzer. Other methods, such as quick-connect lines, to route calibration gases to the outlet of the sample probe are acceptable.

2.1.3 *Sample line.* Stainless steel or Teflon tubing to transport the sample gas to the analyzer. The sample line must be heated to prevent condensation.

2.1.4 *Sample pump.* A leak-free pump, to pull the sample gas through the system at a flow rate sufficient to minimize the response time of the measurement system. The components of the pump that contact the gas stream shall be constructed of stainless steel or Teflon. The sample pump must be heated to prevent condensation.

2.1.5 *Sample flow rate control.* A sample flow rate control valve and rotameter, or equivalent, to maintain a constant sampling rate within 10 percent. The flow rate control valve and rotameter must be heated to prevent condensation. A control valve may also be located on the sample pump bypass loop to assist in controlling the sample pressure and flow rate.

2.1.6 *Sample gas manifold.* Capable of diverting a portion of the sample gas stream to the flame ionization analyzer (FIA), and the remainder to the bypass discharge vent. The manifold components shall be constructed of stainless steel or Teflon. If emissions are to be measured at multiple locations, the measurement system shall be designed to use separate sampling probes, lines, and pumps for each measurement location and a common sample gas manifold and FIA. The sample gas manifold must be heated to prevent condensation.

2.1.7 *Organic Concentration Analyzer.* An FIA with a span value of 1.5 times the expected concentration as propane; however, other span values may be used if it can be demonstrated that they would provide more accurate measurements. The system shall be capable or exceeding the following specifications:

2.1.7.1 *Zero drift.* Less than ± 3.0 percent of the span value.

2.1.7.2 *Calibration drift.* Less than ± 3.0 percent of the span value.

2.1.7.3 *Calibration error.* Less than ± 5.0 percent of the calibration gas value.

2.1.7.4 *Response time.* Less than 30 seconds.

2.1.8 *Integrator/data acquisition system.* An analog or digital device or computerized data acquisition system used to integrate the FIA response or compute the average response and record measurement data. The minimum data sampling frequency for computing average or integrated values is one measurement value every 5 seconds. The device shall be capable of recording average values at least once per minute.

2.1.9 *Calibration and other gases.* Gases used for calibration, fuel, and combustion air (if required) are contained in compressed gas cylinders. All calibration gases shall be traceable to NIST standards and shall be certified by the manufacturer to ± 1 percent of the tag value. Additionally, the manufacturer of the cylinder should provide a recommended shelf life for each calibration gas cylinder over which the concentration does not change more than ± 2 percent from the certified value. For calibration gas values not generally available, alternative methods for preparing calibration gas mixtures, such as dilution systems, may be used with prior approval.

2.1.9.1 *Fuel.* A 40 percent H_2/60 percent He or 40 percent H_2/60 percent N_2 gas mixture is recommended to avoid an oxygen synergism effect that reportedly occurs when oxygen concentration varies significantly from a mean value.

2.1.9.2 *Carrier gas.* High purity air with less than 1 ppm of organic material (propane or carbon equivalent) or less than 0.1 percent of the span value, whichever is greater.

2.1.9.3 *FIA linearity calibration gases.* Low-, mid-, and high-range gas mixture standards with nominal propane concentrations of 20–30, 45–55, and 70–80 percent of the span value in air, respectively. Other calibration values and other span values may be used if it can be shown that more accurate measurements would be achieved.

2.1.10 *Particulate filter.* An in-stack or an out-of-stack glass fiber filter is recommended if exhaust gas particulate loading is significant. An out-of-stack filter must be heated to prevent any condensation unless it can be demonstrated that no condensation occurs.

2.2 *Fugitive emissions volumetric flow rate.*

2.2.1 *Flow direction indicators.* Any means of indicating inward or outward flow, such as light plastic film or paper streamers, smoke tubes, filaments, and sensory perception.

2.2.2 *Method 2 or 2A apparatus.* For determining volumetric flow rate. Anemometers or similar devices calibrated according to the manufacturer's instructions may be used when low velocities are present. Vane anemometers (Young-maximum response propeller), specialized pitots with electronic manometers (*e.g.*, Shortridge Instruments Inc., Airdata Multimeter 860) are commercially available with measurement thresholds of 15 and 8 mpm (50 and 25 fpm), respectively.

2.2.3 *Method 3 apparatus and reagents.* For determining molecular weight of the gas stream. An estimate of the molecular weight of the gas stream may be used if it can be justified.

2.2.4 *Method 4 apparatus and reagents.* For determining moisture content, if necessary.

3. Determination of Volumetric Flow Rate of Fugitive Emissions

3.1 *Preliminary determinations.* The purpose of this exercise is to determine which exhaust points should be measured for volumetric flow rates and VOC concentrations.

3.1.1 *Forced draft openings.* Identify all forced draft openings. Determine the volumetric flow rate according to Method 2.

3.1.2 *NDO's exhaust points.* The NDO's in the roof of a facility are considered to be exhaust points. Determine volumetric flow rate from these NDO's. Divide the cross-sectional area according to Method 1 using 12 equal areas. Use the appropriate velocity measurement devices, *e.g.*, propeller anemometers.

3.1.3 *Other NDO's.*

3.1.3.1 This step is optional. Determine the exhaust flow rate, including that of the control device, from the enclosure and the intake air flow rate. If the exhaust flow rate divided by the intake air flow rate is greater than 1.1, then all other NDO's are not considered to be significant exhaust points.

3.1.3.2 If the option above is not taken, identify all other NDO's and other potential points through which fugitive emissions may escape the enclosure. Then use the following criteria to determine whether flow rates and VOC concentrations need to be measured:

3.1.3.2.1 Using the appropriate flow direction indicator, determine the flow direction. An NDO with zero or inward flow is not an exhaust point.

3.1.3.2.2 Measure the outward volumetric flow rate from the remainder of the NDO's. If the collective flow rate is 2 percent, or less, of the flow rate from sections 3.1.1 and 3.1.2, then these NDO's, except those within two equivalent diameters (based on NDO opening) from VOC sources, may be considered to be non-exhaust points.

3.1.3.2.3 If the percentage calculated in section 3.1.3.2.2 is greater than 2 percent,

those NDO's (except those within two equivalent diameters from VOC sources) whose volumetric flow rate totals 2 percent of the flow rate from sections 3.1.1 and 3.1.2 may be considered as non-exhaust points. All remaining NDO's shall be measured for volumetric flow rate and VOC concentrations during the CE test.

3.1.3.2.4 The tester may choose to measure VOC concentrations at the forced exhaust points and the NDO's. If the total VOC emissions from the NDO's are less than 2 percent of the emissions from the forced draft and roof NDO's, then these NDO's may be eliminated from further consideration.

3.2 *Determination of flow rates.*

3.2.1 Measure the volumetric flow rate at all locations identified as exhaust points in section 3.1. Divide each exhaust opening into 9 equal areas for rectangular openings and 8 for circular openings.

3.2.2 Measure the velocity at each site at least once every hour during each sampling run using Method 2 or 2A, if applicable, or using the low velocity instruments in section 2.2.2.

4. Determination of VOC Content of Fugitive Emissions

4.1 *Analysis duration.* Measure the VOC responses at each fugitive emission point during the entire test run or, if applicable, while the process is operating. If there are multiple emissions locations, design a sampling system to allow a single FIA to be used to determine the VOC responses at all sampling locations.

4.2 Gas VOC concentration.

4.2.1 Assemble the sample train as shown in Figure 1. Calibrate the FIA and conduct a system check according to the procedures in sections 5.1 and 5.3, respectively.

4.2.2 Install the sample probe so that the probe is centrally located in the stack, pipe, or duct, and is sealed tightly at the stack port connection.

4.2.3 Inject zero gas at the calibration valve assembly. Allow the measurement system response to reach zero. Measure the system response time as the time required for the system to reach the effluent concentration after the calibration valve has been returned to the effluent sampling position.

4.2.4 Conduct a system check before and a system drift check after each sampling run according to the procedures in sections 5.2 and 5.3. If the drift check following a run indicates unacceptable performance, the run is not valid. The tester may elect to perform drift checks during the run not to exceed one drift check per hour.

4.2.5 Verify that the sample lines, filter, and pump temperatures are 120±5°C.

4.2.6 Begin sampling at the start of the test period and continue to sample during the entire run. Record the starting and ending times and any required process information as appropriate. If multiple emission locations are sampled using a single FIA, sample at each location for the same amount of time (*e.g.*, 2 minutes) and continue to switch from one location to another for the entire test run. Be sure that total sampling time at each location is the same at the end of the test run. Collect at least 4 separate measurements from each sample point during each hour of testing. Disregard the response measurements at each sampling location until two times the response time of the measurement system has elapsed. Continue sampling for at least 1 minute and record the concentration measurements.

4.3 *Alternative procedure.* The direct interface sampling and analysis procedure described in section 7.2 of Method 18 may be used to determine the gas VOC concentration. The system must be designed to collect and analyze at least one sample every 10 minutes.

5. Calibration and Quality Assurance

5.1 *FIA calibration and linearity check.* Make necessary adjustments to the air and fuel supplies for the FIA and ignite the burner. Allow the FIA to warm up for the period recommended by the manufacturer. Inject a calibration gas into the measurement system and adjust the back-pressure regulator to the value required to achieve the flow rates specified by the manufacturer. Inject the zero- and the high-range calibration gases and adjust the analyzer calibration to provide the proper responses. Inject the low- and mid-range gases and record the responses of the measurement system. The calibration and linearity of the system are acceptable if the responses for all four gases are within 5 percent of the respective gas values. If the performance of the system is not acceptable, repair or adjust the system and repeat the linearity check. Conduct a calibration and linearity check after assembling the analysis system and after a major change is made to the system.

5.2 *Systems drift checks.* Select the calibration gas that most closely approximates the concentration of the captured emissions for conducting the drift checks. Introduce the zero and calibration gas at the calibration valve assembly and verify that the appropriate gas flow rate and pressure are present at the FIA. Record the measurement system responses to the zero and calibration gases. The performance of the system is acceptable if the difference between the drift check measurement and the value obtained in section 5.1 is less than 3 percent of the span value. Conduct a system drift check at the end of each run.

5.3 *System check.* Inject the high range calibration gas at the inlet of the sampling probe and record the response. The performance of the system is acceptable if the measurement system response is within 5 percent of the value obtained in section 5.1 for the high range calibration gas. Conduct a system check before each test run.

5.4 *Analysis audit.* Immediately before each test analyze an audit cylinder as described in section 5.2. The analysis audit must agree with the audit cylinder concentration within 10 percent.

6. Nomenclature

C_{DH} = average measured concentration for the drift check calibration gas, ppm propane.
C_{DO} = average system drift check concentration for zero concentration gas, ppm propane.
C_{Fj} = corrected average VOC concentration of fugitive emissions at point j, ppm propane.
C_H = actual concentration of the drift check calibration gas, ppm propane.
C_j = uncorrected average VOC concentration measured at point j, ppm propane.
F_B = total VOC content of fugitive emissions from the building, kg.
$K_1 = 1.830 \times 10^{-6}$ kg/(m³-ppm).
n = number of measurement points.
Q_{Fj} = average effluent volumetric flow rate corrected to standard conditions at fugitive emissions point j, m³/min.
T_F = total duration of capture efficiency sampling run, min.

7. Calculations

7.1 *Total VOC fugitive emissions from the building.*

$$F_B = \sum_{j=1}^{n} C_{Fj}\, Q_{Fj}\, T_F\, K_1 \qquad \text{Eq. 1}$$

7.2 *VOC concentration of the fugitive emissions at point j.*

$$C_{Fj} = (C_j - C_{DO}) \frac{C_H}{C_{DH} - C_{DO}} \qquad \text{Eq. 2}$$

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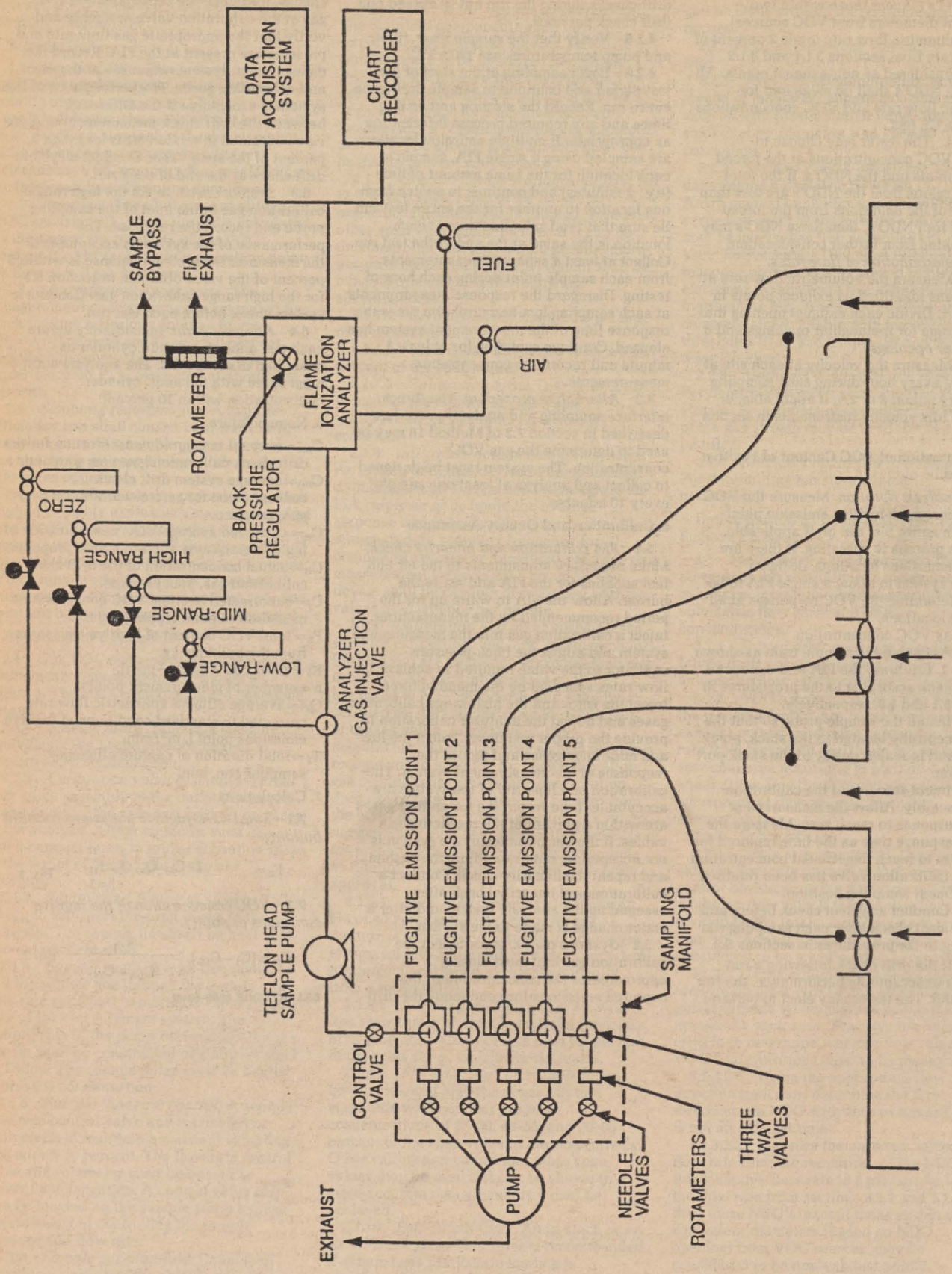


Figure 1. Fugilive emissions measurement system.

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Procedure F.1—Fugitive VOC Emissions From Temporary Enclosures

1. Introduction

1.1 *Applicability.* This procedure is applicable for determining the fugitive volatile organic compounds (VOC) emissions from a temporary total enclosure (TTE). It is intended to be used as a segment in the development of liquid/gas or gas/gas protocols for determining VOC capture efficiency (CE) for surface coating and printing operations.

1.2 *Principle.* The amount of fugitive VOC emissions (F) from the TTE is calculated as the sum of the products of the VOC content (C_{Fj}), the flow rate (Q_{Fj}), and the sampling time (T_F) from each fugitive emissions point.

1.3 *Estimated measurement uncertainty.* The measurement uncertainties are estimated for each fugitive emission point as follows: $Q = \pm 5.5$ percent and $C_{Fj} = \pm 5.0$ percent. Based on these numbers, the probable uncertainty for F is estimated at about ± 7.4 percent.

1.4 *Sampling requirements.* A capture efficiency test shall consist of at least three sampling runs. The sampling time for each run should be at least 8 hours, unless otherwise approved.

1.5 *Notes.* Because this procedure is often applied in highly explosive areas, caution and care should be exercised in choosing appropriate equipment and installing and using the equipment. Mention of trade names or company products does not constitute endorsement. All gas concentrations (percent, ppm) are by volume, unless otherwise noted.

2. Apparatus and Reagents

2.1 *Gas VOC concentration.* A schematic of the measurement system is shown in Figure 1. The main components are described below:

2.1.1 *Sample probe.* Stainless steel, or equivalent. The probe shall be heated to prevent VOC condensation.

2.1.2 *Calibration valve assembly.* Three-way valve assembly at the outlet of sample probe to direct the zero and calibration gases to the analyzer. Other methods, such as quick-connect lines, to route calibration gases to the outlet of the sample probe are acceptable.

2.1.3 *Sample line.* Stainless steel or Teflon tubing to transport the sample gas to the analyzer. The sample line must be heated to prevent condensation.

2.1.4 *Sample pump.* A leak-free pump, to pull the sample gas through the system at a flow rate sufficient to minimize the response time of the measurement system. The components of the pump that contact the gas stream shall be constructed of stainless steel or Teflon. The sample pump must be heated to prevent condensation.

2.1.5 *Sample flow rate control.* A sample flow rate control valve and rotameter, or equivalent, to maintain a constant sampling rate within 10 percent. The flow control valve and rotameter must be heated to prevent condensation. A control valve may also be located on the sample pump bypass loop to assist in controlling the sample pressure and flow rate.

2.1.6 *Sample gas manifold.* Capable of diverting a portion of the sample gas stream to the flame ionization analyzer (FIA), and the remainder to the bypass discharge vent. The manifold components shall be constructed of stainless steel or Teflon. If emissions are to be measured at multiple locations, the measurement system shall be designed to use separate sampling probes, lines, and pumps for each measurement location and a common sample gas manifold and FIA. The sample gas manifold and connecting lines to the FIA must be heated to prevent condensation.

2.1.7 *Organic concentration analzyer.* An FIA with a span value of 1.5 times the expected concentration as propane; however, other span values may be used if it can be demonstrated that they would provide more accurate measurements. The system shall be capable of meeting or exceeding the following specifications:

2.1.7.1 *Zero drift.* Less than ± 3.0 percent of the span value.

2.1.7.2 *Calibration drift.* Less than ± 3.0 percent of the span value.

2.1.7.3 *Calibration error.* Less than ± 5.0 percent of the calibration gas value.

2.1.7.4 *Response time.* Less than 30 seconds.

2.1.8 *Integrator/data acquisition system.* An analog or digital device or computerized data acquisition system used to integrate the FIA response or compute the average response and record measurement data. The minimum data sampling frequency for computing average or integrated values is one measurement value every 5 seconds. The device shall be capable of recording average values at least once per minute.

2.1.9 *Calibration and other gases.* Gases used for calibration, fuel, and combustion air (if required) are contained in compressed gas cylinders. All calibration gases shall be traceable to NIST standards and shall be certified by the manufacturer to ± 1 percent of the tag value. Additionally, the manufacturer of the cylinder should provide a recommended shelf life for each calibration gas cylinder over which the concentration does not change more than ± 2 percent from the certified value. For calibration gas values not generally available, alternative methods for preparing calibration gas mixtures, such as dilution systems, may be used with prior approval.

2.1.9.1 *Fuel.* A 40 percent H_2/60 percent He or 40 percent H_2/60 percent N_2 gas mixture is recommended to avoid an oxygen synergism effect that reportedly occurs when oxygen concentration varies significantly from a mean value.

2.1.9.2 *Carrier gas.* High purity air with less than 1 ppm of organic material (as propane or carbon equivalent) or less than 0.1 percent of the span value, whichever is greater.

2.1.9.3 *FIA linearity calibration gases.* Low-, mid-, and high-range gas mixture standards with nominal propane concentrations of 20–30, 45–55, and 70–80 percent of the span value in air, respectively. Other calibration values and other span values may be used if it can be shown that more accurate measurements would be achieved.

2.1.10 *Particulate filter.* An in-stack or an out-of-stack glass fiber filter is recommended if exhaust gas particulate loading is significant. An out-of-stack filter must be heated to prevent any condensation unless it can be demonstrated that no condensation occurs.

2.2 *Fugitive emissions volumetric flow rate.*

2.2.1 *Method 2 or 2A apparatus.* For determining volumetric flow rate.

2.2.2 *Method 3 apparatus and reagents.* For determining molecular weight of the gas stream. An estimate of the molecular weight of the gas stream may be used if it can be justified.

2.2.3 *Method 4 apparatus and reagents.* For determining moisture content, if necessary.

2.3 *Temporary total enclosure.* The criteria for designing a TTE are discussed in Procedure T.

3. Determination of Volumetric Flow Rate of Fugitive Emissions

3.1 Locate all points where emissions are exhausted from the TTE. Using Method 1, determine the sampling points. Be sure to check each site for cyclonic or swirling flow.

3.2 Measure the velocity at each sampling site at least once every hour during each sampling run using Method 2 or 2A.

4. Determination of VOC Content of Fugitive Emissions

4.1 *Analysis duration.* Measure the VOC responses at each fugitive emission point during the entire test run or, if applicable, while the process is operating. If there are multiple emission locations, design a sampling system to allow a single FIA to be used to determine the VOC responses at all sampling locations.

4.2 *Gas VOC concentration.*

4.2.1 Assemble the sample train as shown in Figure 1. Calibrate the FIA and conduct a system check according to the procedures in sections 5.1 and 5.3, respectively.

4.2.2 Install the sample probe so that the probe is centrally located in the stack, pipe, or duct, and is sealed tightly at the stack port connection.

4.2.3 Inject zero gas at the calibration valve assembly. Allow the measurement system response to reach zero. Measure the system response time as the time required for the system to reach the effluent concentration after the calibration valve has been returned to the effluent sampling position.

4.2.4 Conduct a system check before and a system drift check after each sampling run according to the procedures in sections 5.2 and 5.3. If the drift check following a run indicates unacceptable performance, the run is not valid. The tester may elect to perform system drift checks during the run not to exceed one drift check per hour.

4.2.5 Verify that the sample lines, filter, and pump temperatures are 120 ± 5 °C.

4.2.6 Begin sampling at the start of the test period and continue to sample during the entire run. Record the starting and ending times and any required process information as appropriate. If multiple emission locations are sampled using a single FIA, sample at each location for the same amount of time (*e.g.*, 2 minutes) and continue to switch from one location to another for the entire test run.

Be sure that total sampling time at each location is the same at the end of the test run. Collect at least 4 separate measurements from each sample point during each hour of testing. Disregard the response measurements at each sampling location until two times the response time of the measurement system has elapsed. Continue sampling for at least 1 minute and record the concentration measurements.

4.3 *Background concentration.*

4.3.1 *Determination of VOC background concentration.*

4.3.1.1 Locate all NDO's of the TTE. A sampling point shall be centrally located outside of the TTE at 4 equivalent diameters from each NDO, if possible. If there are more than 6 NDO's, choose 6 sampling points evenly spaced among the NDO's.

4.3.1.2 Assemble the sample train as shown in Figure 2. Calibrate the FIA and conduct a system check according to the procedures in sections 5.1 and 5.3.

4.3.1.3 Position the probe at the sampling location.

4.3.1.4 Determine the response time, conduct the system check and sample according to the procedures described in sections 4.2.3 to 4.2.6.

4.4 *Alternative procedure.* The direct interface sampling and analysis procedure described in section 7.2 of Method 18 may be used to determine the gas VOC concentration. The system must be designed to collect and analyze at least one sample every 10 minutes.

5. Calibration and Quality Assurance

5.1 *FIA calibration and linearity check.* Make necessary adjustments to the air and fuel supplies for the FIA and ignite the burner. Allow the FIA to warm up for the period recommended by the manufacturer. Inject a calibration gas into the measurement system and adjust the back-pressure regulator to the value required to achieve the flow rates specified by the manufacturer. Inject the zero- and the high-range calibration gases and adjust the analyzer calibration to provide the proper responses. Inject the low- and mid-range gases and record the responses of the measurement system. The calibration and linearity of the system are acceptable if the responses for all four gases are within 5 percent of the respective gas values. If the performance of the system is not acceptable, repair or adjust the system and repeat the linearity check. Conduct a calibration and linearity check after assembling the analysis system and after a major change is made to the system.

5.2 *Systems drift checks.* Select the calibration gas concentration that most closely approximates that of the fugitive gas emissions to conduct the drift checks. Introduce the zero and calibration gas at the calibration valve assembly and verify that the appropriate gas flow rate and pressure are present at the FIA. Record the measurement system responses to the zero and calibration gases. The performance of the system is acceptable if the difference between the drift check measurement and the value obtained in section 5.1 is less than 3 percent of the span value. Conduct a system drift check at the end of each run.

5.3 *System check.* Inject the high range calibration gas at the inlet of the sampling probe and record the response. The performance of the system is acceptable if the measurement system response is within 5 percent of the value obtained in section 5.1 for the high range calibration gas. Conduct a system check before each test run.

5.4 *Analysis audit.* Immediately before each test analyze an audit cylinder as described in section 5.2. The analysis audit must agree with the audit cylinder concentration within 10 percent.

6. Nomenclature

A_i = area of NDO i, ft².

A_N = total area of all NDO's in the enclosure, ft².

C_{Bi} = corrected average VOC concentration of background emissions at point i, ppm propane.

C_B = average background concentration, ppm propane.

C_{DH} = average measured concentration for the drift check calibration gas, ppm propane.

C_{DO} = average system drift check concentration for zero concentration gas, ppm propane.

C_{Fj} = corrected average VOC concentration of fugitive emissions at point j, ppm propane.

C_H = actual concentration of the drift check calibration gas, ppm propane.

C_i = uncorrected average background VOC concentration at point i, ppm propane.

C_j = uncorrected average VOC concentration measured at point j, ppm propane.

F = total VOC content of fugitive emissions, kg.

$K_1 = 1.830 \times 10^{-6}$ kg/(m³−ppm).

n = number of measurement points.

Q_{Fj} = average effluent volumetric flow rate corrected to standard conditions at fugitive emissions point j, m³/min.

T_F = total duration of fugitive emissions sampling run, min.

7. Calculations

7.1 *Total VOC fugitive emissions.*

$$F = \sum_{j=1}^{n} (C_{Fj} - C_B)\, Q_{Fj}\, T_F\, K_1 \qquad \text{Eq. 1}$$

7.2 *VOC concentration of the fugitive emissions at point j.*

$$C_{Fj} = (C_j - C_{DO}) \frac{C_H}{C_{DH} - C_{DO}} \qquad \text{Eq. 2}$$

7.3 *Background VOC concentration at point i.*

$$C_{Bi} = (C_i - C_{DO}) \frac{C_H}{C_{DH} - C_{DO}} \qquad \text{Eq. 3}$$

7.4 *Average background concentration.*

$$C_B = \frac{\sum_{i=1}^{n} C_{Bi}\, A_i}{n\, A_N} \qquad \text{Eq. 4}$$

Note: If the concentration at each point is within 20 percent of the average concentration of all points, the terms "A_i" and "A_N" may be deleted from Equation 4.

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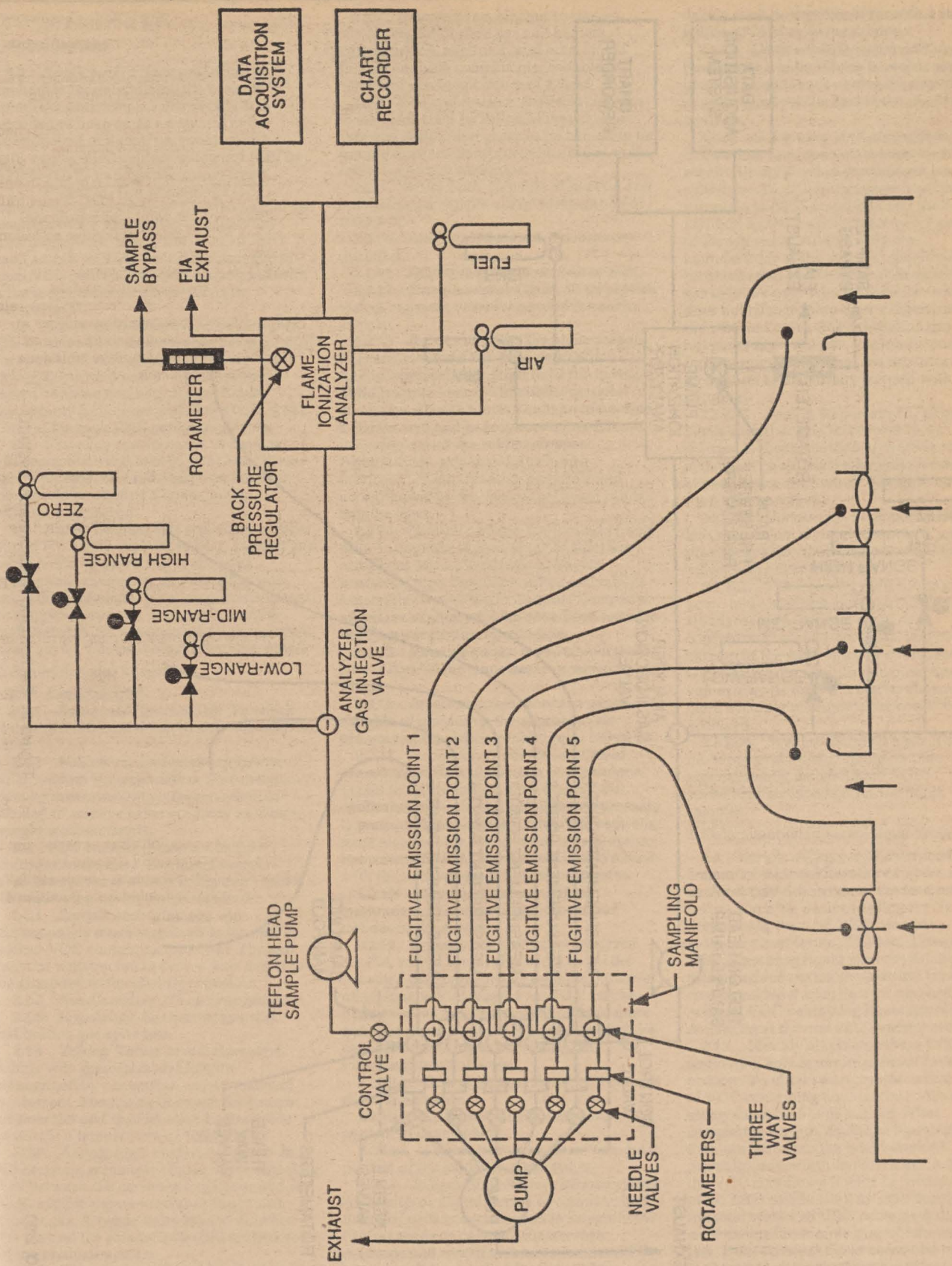


Figure 1. Fugitive emissions measurement system.

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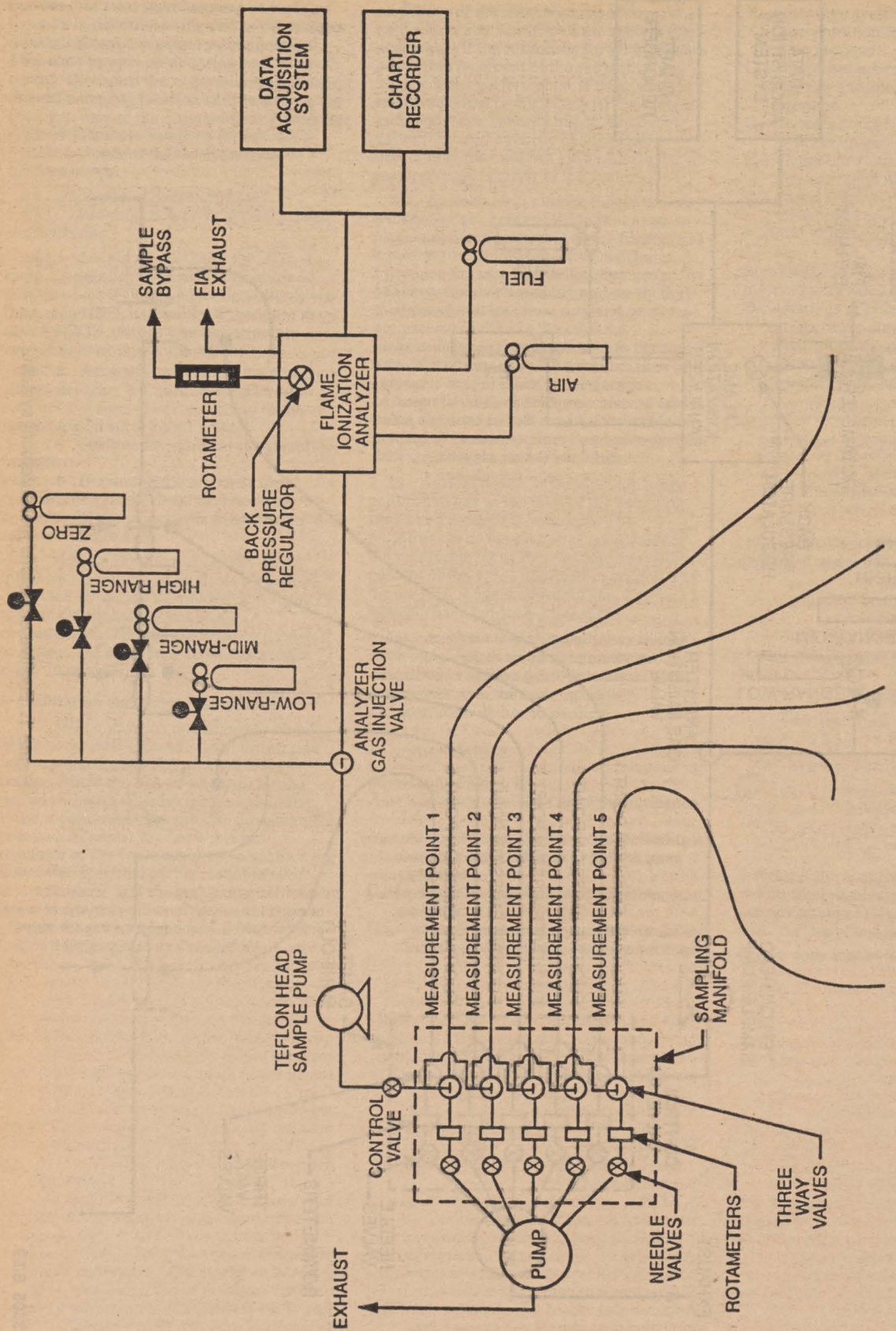


Figure 2. Background measurement system.

VOC 2/90

Procedure L—VOC Input

1. Introduction

1.1 *Applicability.* This procedure is applicable for determining the input of volatile organic compounds (VOC). It is intended to be used as a segment in the development of liquid/gas protocols for determining VOC capture efficiency (CE) for surface coating and printing operations.

1.2 *Principle.* The amount of VOC introduced to the process (L) is the sum of the products of the weight (W) of each VOC containing liquid (ink, paint, solvent, *etc.*) used and its VOC content (V). A sample of each VOC containing liquid is analyzed with a flame ionization analyzer (FIA) to determine V.

1.3 *Estimated measurement uncertainty.* The measurement uncertainties are estimated for each VOC containing liquid as follows: W = ±2.0 percent and V = ±12.0 percent. Based on these numbers, the probable uncertainty for L is estimated at about ±12.2 percent for each VOC containing liquid.

1.4 *Sampling requirements.* A capture efficiency test shall consist of at least three sampling runs. The sampling time for each run should be at least 8 hours, unless otherwise approved.

1.5 *Notes.* Because this procedure is often applied in highly explosive areas, caution and care should be exercised in choosing appropriate equipment and installing and using the equipment. Mention of trade names or company products does not constitute endorsement. All gas concentrations (percent, ppm) are by volume, unless otherwise noted.

2. Apparatus and Reagents

2.1 *Liquid weight.*

2.1.1 *Balances/digital scales.* To weigh drums of VOC containing liquids to within 0.2 lb.

2.1.2 *Volume measurement apparatus (alternative).* Volume meters, flow meters, density measurement equipment, etc., as needed to achieve same accuracy as direct weight measurements.

2.2 *VOC content (flame ionization analyzer technique).* The liquid sample analysis system is shown in Figures 1 and 2. The following equipment is required:

2.2.1 *Sample collection can.* An appropriately sized metal can to be used to collect VOC containing materials. The can must be constructed in such a way that it can be grounded to the coating container.

2.2.2 *Needle valves.* To control gas flow.

2.2.3 *Regulators.* For carrier gas and calibration gas cylinders.

2.2.4 *Tubing.* Teflon or stainless steel tubing with diameters and lengths determined by connection requirements of equipment. The tubing between the sample oven outlet and the FIA shall be heated to maintain a temperature of 120±5 °C.

2.2.5 *Atmospheric vent.* A tee and 0- to 0.5-liter/min rotameter placed in the sampling line between the carrier gas cylinder and the VOC sample vessel to release the excess carrier gas. A toggle valve placed between the tee and the rotameter facilitates leak tests of the analysis system.

2.2.6 *Thermometer.* Capable of measuring the temperature of the hot water bath to within 1 °C.

2.2.7 *Sample oven.* Heated enclosure, containing calibration gas coil heaters, critical orifice, aspirator, and other liquid sample analysis components, capable of maintaining a temperature of 120±5 °C.

2.2.8 *Gas coil heaters.* Sufficient lengths of stainless steel or Teflon tubing to allow zero and calibration gases to be heated to the sample oven temperature before entering the critical orifice or aspirator.

2.2.9 *Water bath.* Capable of heating and maintaining a sample vessel temperature of 100±5 °C.

2.2.10 *Analytical balance.* To measure ±0.001 g.

2.2.11 *Disposable syringes.* 2-cc or 5-cc.

2.2.12 *Sample vessel.* Glass, 40-ml septum vial. A separate vessel is needed for each sample.

2.2.13 *Rubber stopper.* Two-hole stopper to accommodate 3.2-mm (⅛-in.) Teflon tubing, appropriately sized to fit the opening of the sample vessel. The rubber stopper should be wrapped in Teflon tape to provide a tighter seal and to prevent any reaction of the sample with the rubber stopper. Alternatively, any leak-free closure fabricated of non-reactive materials and accommodating the necessary tubing fittings may be used.

2.2.14 *Critical orifices.* Calibrated critical orifices capable of providing constant flow rates from 50 to 250 ml/min at known pressure drops. Sapphire orifice assemblies (available from O'Keefe Controls Company) and glass capillary tubing have been found to be adequate for this application.

2.2.15 *Vacuum gauge.* 0 -to 760-mm (0- to 30-in.) Hg U-Tube manometer or vacuum gauge.

2.2.16 *Pressure gauge.* Bourdon gauge capable of measuring the maximum air pressure at the aspirator inlet (e.g., 100 psig).

2.2.17 *Aspirator.* A device capable of generating sufficient vacuum at the sample vessel to create critical flow through the calibrated orifice when sufficient air pressure is present at the aspirator inlet. The aspirator must also provide sufficient sample pressure to operate the FIA. The sample is also mixed with the dilution gas within the aspirator.

2.2.18 *Soap bubble meter.* Of an appropriate size to calibrate the critical orifices in the system.

2.2.19 *Organic concentration analyzer.* An FIA with a span value of 1.5 times the expected concentration as propane; however other span values may be used if it can be demonstrated that they would provide more accurate measurements. The system shall be capable of meeting or exceeding the following specifications:

2.2.19.1 *Zero drift.* Less than ±3.0 percent of the span value.

2.2.19.2 *Calibration drift.* Less than ±3.0 percent of span value.

2.2.19.3 *Calibration error.* Less than ±5.0 percent of the calibration gas value.

2.2.20 *Integrator/data acquisition system.* An analog or digital device or computerized data acquisition system used to integrate the FIA response or compute the average response and record measurement data. The minimum data sampling frequency for computing average or integrated values is one measurement value every 5 seconds. The device shall be capable of recording average values at least once per minute.

2.2.21 *Chart recorder (optional).* A chart recorder or similar device is recommended to provide a continuous analog display of the measurement results during the liquid sample analysis.

2.2.22 *Calibration and other gases.* For calibration, fuel, and combustion air (if required) contained in compressed gas cylinders. All calibration gases shall be traceable to NIST standards and shall be certified by the manufacturer to ±1 percent of the tag value. Additionally, the manufacturer of the cylinder should provide a recommended shelf life for each calibration gas cylinder over which the concentration does not change more than ±2 percent from the certified value. For calibration gas values not generally available, alternative methods for preparing calibration gas mixtures, such as dilution systems, may be used with prior approval.

2.2.22.1 *Fuel.* A 40 percent H_2/60 percent He or 40 percent H_2/60 percent N_2 gas mixture is recommended to avoid an oxygen synergism effect that reportedly occurs when oxygen concentration varies significantly from a mean value.

2.2.22.2 *Carrier gas.* High purity air with less than 1 ppm of organic material (as propane) or less than 0.1 percent of the span value, whichever is greater.

2.2.22.3 *FIA linearity calibration gases.* Low-, mid-, and high-range gas mixture standards with nominal propane concentrations of 20–30, 45–55, and 70–80 percent of the span value in air, respectively. Other calibration values and other span values may be used if it can be shown that more accurate measurements would be achieved.

2.2.22.4 *System calibration gas.* Gas mixture standard containing propane in air, approximately the undiluted VOC concentration expected for the liquid samples.

3. Determination of Liquid Input Weight

3.1 *Weight difference.* Determine the amount of material introduced to the process as the weight difference of the feed material before and after each sampling run. In determining the total VOC containing liquid usage, account for: (a) The initial (beginning) VOC containing liquid mixture; (b) any solvent added during the test run; (c) any coating added during the test run; and (d) any residual VOC containing liquid mixture remaining at the end of the sample run.

3.1.1 Identify all points where VOC containing liquids are introduced to the process. To obtain an accurate measurement of VOC containing liquids, start with an empty fountain (if applicable). After completing the run, drain the liquid in the fountain back into the liquid drum (if possible), and weigh the drum again. Weigh the VOC containing liquids to ±0.5 percent of the total weight (full) or ±0.1 percent of the total weight of VOC containing liquid used during the sample run, whichever is less. If the residual liquid cannot be returned to the drum, drain the fountain into a preweighted empty drum to determine the final weight of the liquid.

3.1.2 If it is not possible to measure a single representative mixture, than weigh the various components separately (*e.g.*, if solvent is added during the sampling run, weigh the solvent before it is added to the mixture). If a fress drum of VOC containing liquid is needed during the run, then weigh both the empty drum and fresh drum.

3.2 *Volume measurement (alternative).* If direct weight measurements are not feasible, the tester may use volume meters and flow rate meters (and density measurements) to determine the weight of liquids used if it can be demonstrated that the technique produces results equivalent to the direct weight measurements. If a single representative mixture cannot be measured, measure the components separately.

4. Determination of VOC Content in Input Liquids

4.1 *Collection of liquid samples.*

4.1.1 Collect a 100-ml or larger sample of the VOC containing liquid mixture at each application location at the beginning and end of each test run. A separate sample should be taken of each VOC containing liquid added to the application mixture during the test run. If a fresh drum is needed during the sampling run, then obtain a sample from the fresh drum.

4.1.2 When collecting the sample, ground the sample container to the coating drum. Fill the sample container as close to the rim as possible to minimize the amount of headspace.

4.1.3 After the sample is collected, seal the container so the sample cannot leak out or evaporate.

4.1.4 Label the container to identify clearly the contents.

4.2 *Liquid sample VOC content.*

4.2.1 Assemble the liquid VOC content analysis system as shown in Figure 1.

4.2.2 Permanently identify all of the critical orifices that may be used. Calibrate each critical orifice under the expected operating conditions (i.e., sample vacuum and temperature) against a volume meter as described in section 5.3.

4.2.3 Label and tare the sample vessels (including the stoppers and caps) and the syringes.

4.2.4 Install an empty sample vessel and perform a leak test of the system. Close the carrier gas valve and atmospheric vent and evacuate the sample vessel to 250 mm (10 in.) Hg absolute or less using the aspirator. Close the toggle valve at the inlet to the aspirator and observe the vacuum for at least one minute. If there is any change in the sample pressure, release the vacuum, adjust or repair the apparatus as necessary and repeat the leak test.

4.2.5 Perform the analyzer calibration and linearity checks according to the procedure in section 5.1. Record the responses to each of the calibration gases and the back-pressure setting of the FIA.

4.2.6 Establish the appropriate dilution ratio by adjusting the aspirator air supply or substituting critical orifices. Operate the aspirator at a vacuum of at least 25 mm (1 in.) Hg greater than the vacuum necessary to achieve critical flow. Select the dilution ratio so that the maximum response of the FIA to the sample does not exceed the high-range calibration gas.

4.2.7 Perform system calibration checks at two levels by introducing compressed gases at the inlet to the sample vessel while the aspirator and dilution devices are operating. Perform these checks using the carrier gas (zero concentration) and the system calibration gas. If the response to the carrier gas exceeds ±0.5 percent of span, clean or repair the apparatus and repeat the check. Adjust the dilution ratio as necessary to achieve the correct response to the upscale check, but do not adjust the analyzer calibration. Record the identification of the orifice, aspirator air supply pressure, FIA back-pressure, and the responses of the FIA to the carrier and system calibration gases.

4.2.8 After completing the above checks, inject the system calibration gas for approximately 10 minutes. Time the exact duration of the gas injection using a stopwatch. Determine the area under the FIA response curve and calculate the system response factor based on the sample gas flow rate, gas concentration, and the duration of the injection as compared to the integrated response using Equations 2 and 3.

4.2.9 Verify that the sample oven and sample line temperatures are 120±5 °C and that the water bath temperature is 100±5 °C.

4.2.10 Fill a tared syringe with approximately 1 g of the VOC containing liquid and weigh it. Transfer the liquid to a tared sample vessel. Plug the sample vessel to minimize sample loss. Weigh the sample vessel containing the liquid to determine the amount of sample actually received. Also, as a quality control check, weigh the empty syringe to determine the amount of material delivered. The two coating sample weights should agree within ±0.02 g. If not, repeat the procedure until an acceptable sample is obtained.

4.2.11 Connect the vessel to the analysis system. Adjust the aspirator supply pressure to the correct value. Open the valve on the carrier gas supply to the sample vessel and adjust it to provide a slight excess flow to the atmospheric vent. As soon as the initial response of the FIA begins to decrease, immerse the sample vessel in the water bath. (Applying heat to the sample vessel too soon may cause the FID response to exceed the calibrated range of the instrument, and thus invalidate the analysis.)

4.2.12 Continuously measure and record the response of the FIA until all of the volatile material has been evaporated from the sample and the instrument response has returned to the baseline (i.e., response less than 0.5 percent of the span value). Observe the aspirator supply pressure, FIA back-pressure, atmospheric vent, and other system operating parameters during the run; repeat the analysis procedure if any of these parameters deviate from the values established during the system calibration checks in Section 4.2.7. After each sample perform the drift check described in Section 5.2. If the drift check results are acceptable, calculate the VOC content of the sample using the equations in Section 7. Integrate the area under the FIA response curve, or determine the average concentration response and the duration of sample analysis.

5. Calibration and Quality Assurance

5.1 *FIA calibration and linearity check.* Make necessary adjustments to the air and fuel supplies for the FIA and ignite the burner. Allow the FIA to warm up for the period recommended by the manufacturer. Inject a calibration gas into the measurement system and adjust the back-pressure regulator to the value required to achieve the flow rates specified by the manufacturer. Inject the zero- and the high-range calibration gases and adjust the analyzer calibration to provide the proper responses. Inject the low- and mid-range gases and record the responses of the measurement system. The calibration and linearity of the system are acceptable if the responses for all four gases are within 5 percent of the respective gas values. If the performance of the system is not acceptable, repair or adjust the system and repeat the linearity check. Conduct a calibration and linearity check after assembling the analysis system and after a major change is made to the system.

5.2 *Systems drift checks.* After each sample, repeat the system calibration checks in Section 4.2.7 before any adjustments to the FIA or measurement system are made. If the zero or calibration drift exceeds ±3 percent of the span value, discard the result and repeat the analysis.

5.3 *Critical orifice calibration.*

5.3.1 Each critical orifice must be calibrated at the specific operating conditions that it will be used. Therefore, assemble all components of the liquid sample analysis system as shown in Figure 3. A stopwatch is also required.

5.3.2 Turn on the sample oven, sample line, and water bath heaters and allow the system to reach the proper operating temperature. Adjust the aspirator to a vacuum of 380 mm (15 in.) Hg vacuum. Measure the time required for one soap bubble to move a known distance and record barometric pressure.

5.3.3 Repeat the calibration procedure at a vacuum of 406 mm (16 in.) Hg and at 25-mm (1-in.) Hg intervals until three consecutive determinations provide the same flow rate. Calculate the critical flow rate for the orifice in ml/min at standard conditions. Record the vacuum necessary to achieve critical flow.

6. Nomenclature

A_L = area under the response curve of the liquid sample, area count.
A_S = area under the response curve of the calibration gas, area count.
C_S = actual concentration of system calibration gas, ppm propane.
$K = 1.830 \times 10^{-9}$ g/(ml-ppm).
L = total VOC content of liquid input, kg.
M_L = mass of liquid sample delivered to the sample vessel, g.
q = flow rate through critical orifice, ml/min.
RF = liquid analysis system response factor, g/area count.
T_S = total gas injection time for system calibration gas during integrator calibration, min.
V_{Fj} = final VOC fraction of VOC containing liquid j.
V_{Ij} = initial VOC fraction of VOC containing liquid j.

V_{Aj} = VOC fraction of VOC containing liquid j added during the run.
V = VOC fraction of liquid sample.
W_{Fj} = weight of VOC containing liquid j remaining at end of the run, kg.
W_{Ij} = weight of VOC containing liquid j at beginning of the run, kg.
W_{Aj} = weight of VOC containing liquid j added during the run, kg.

7. Calculations

7.1 *Total VOC content of the input VOC containing liquid.*

$$L = \sum_{j=1}^{n} V_{Ij} W_{Fj} - \sum_{j=1}^{n} V_{Fj} + \sum_{j=1}^{n} V_{Aj} W_{Aj} \quad \text{Eq. 1}$$

7.2 *Liquid sample analysis system response factor for systems using intergrators, grams/area counts.*

$$RF = \frac{C_S\, q\, T_S\, K}{A_S} \quad \text{Eq. 2}$$

7.3 VOC content of the liquid sample.

$$V = \frac{A_L RF}{M_L} \quad \text{Eq. 3}$$

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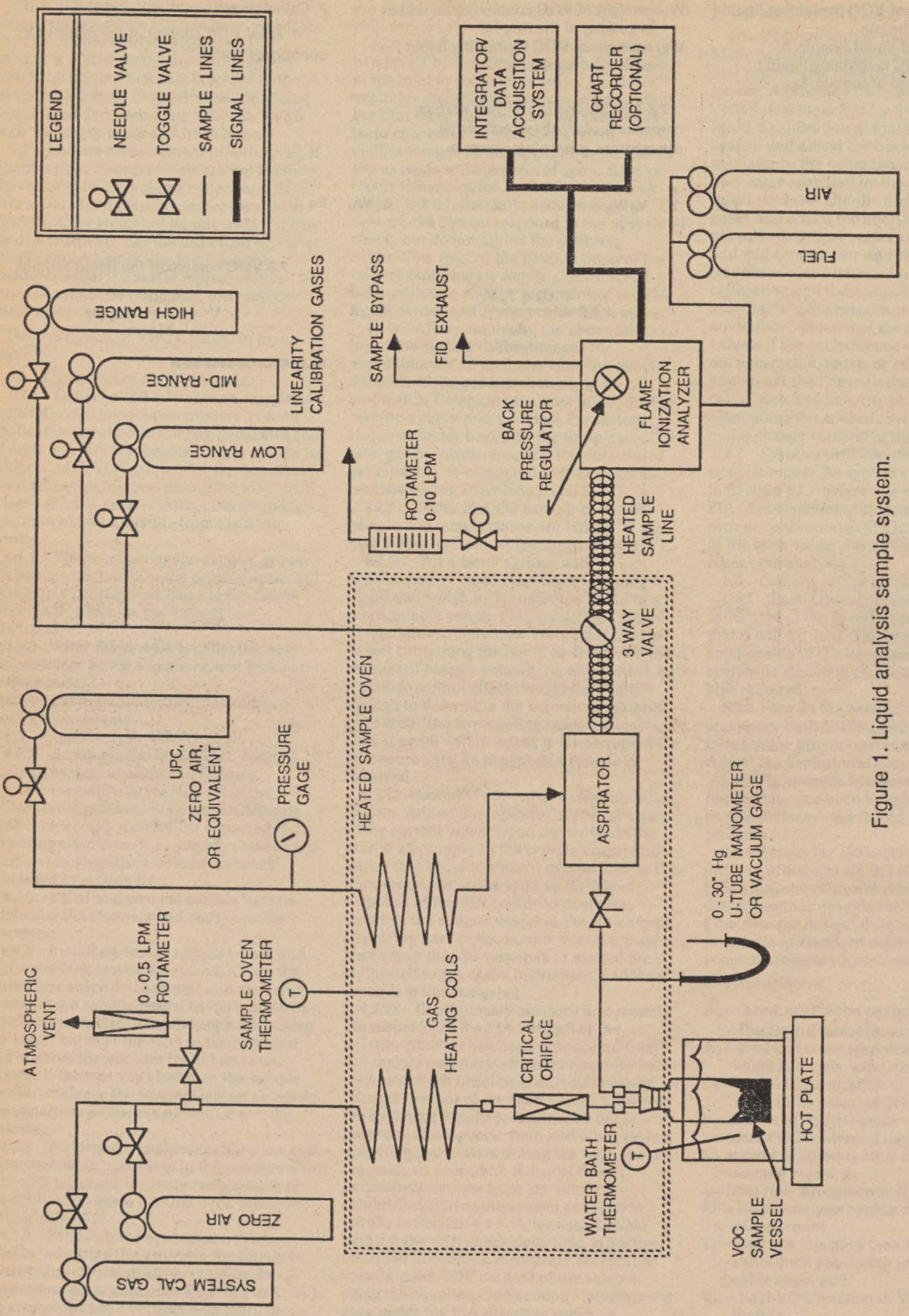


Figure 1. Liquid analysis sample system.

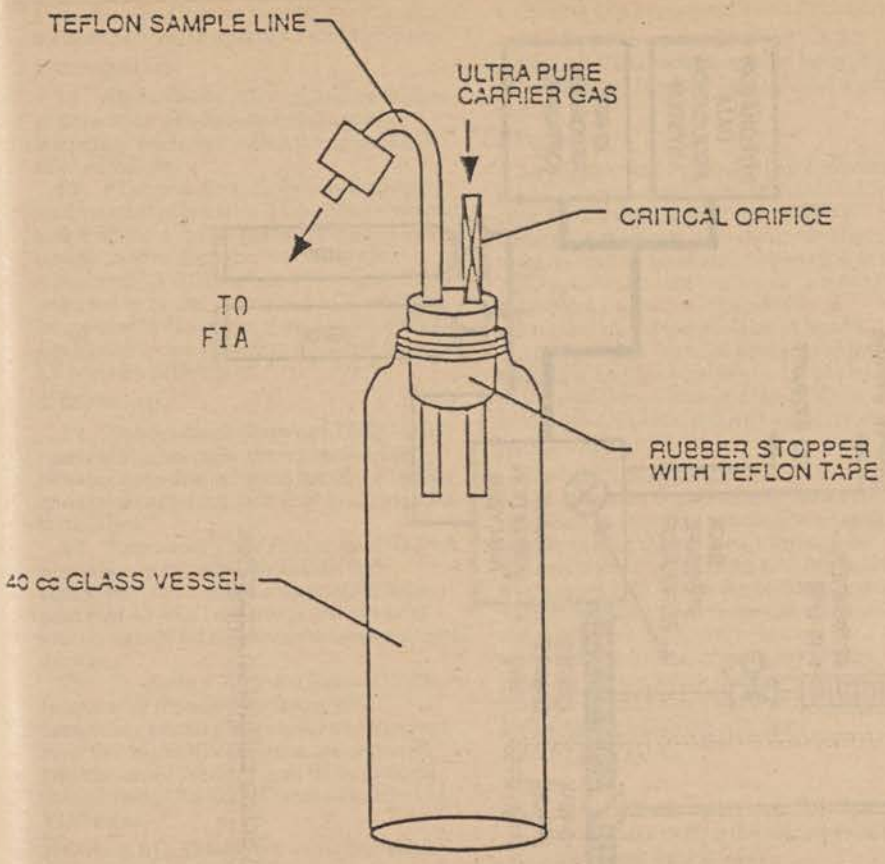


Figure 2. VOC sampling vessel.

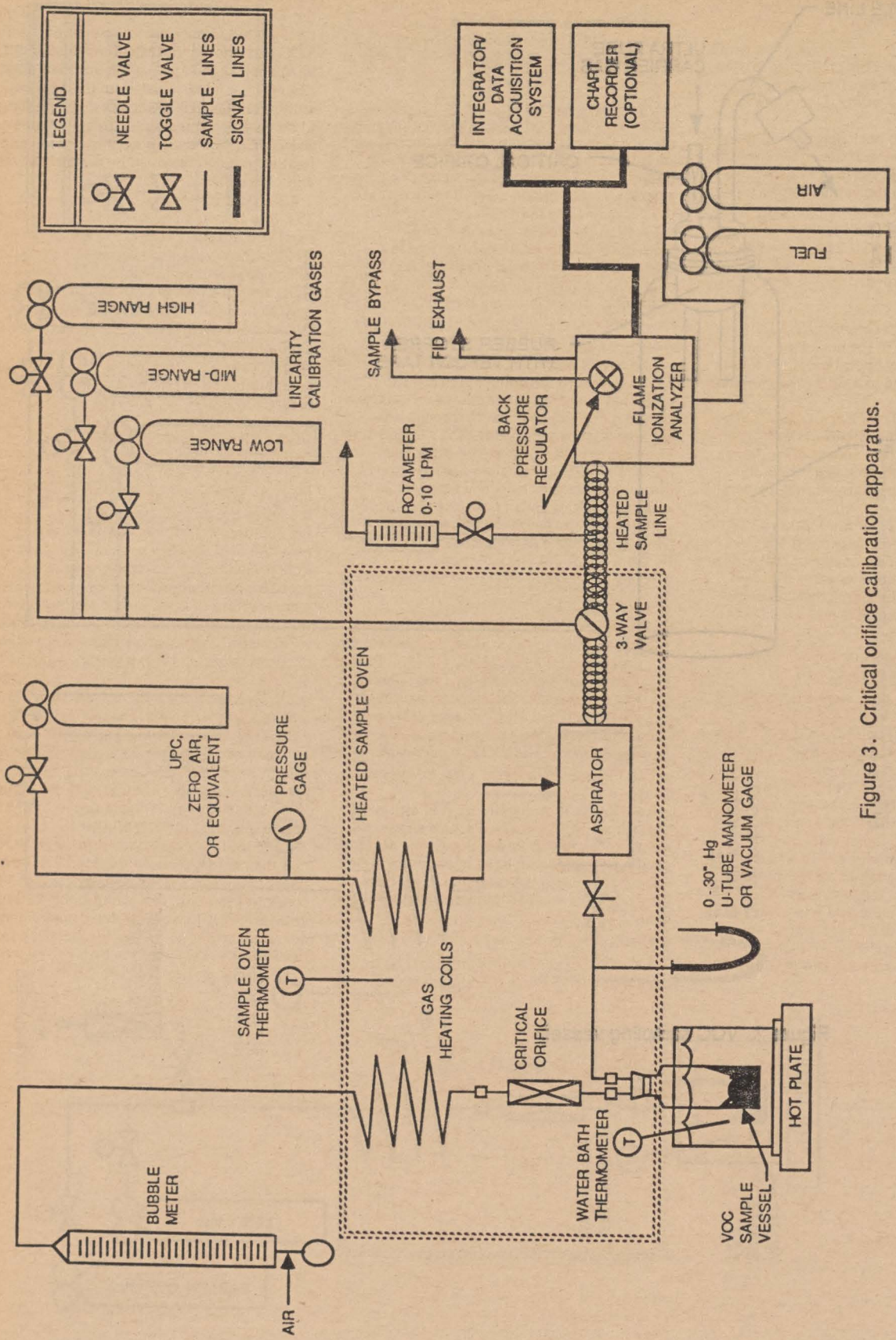


Figure 3. Critical orifice calibration apparatus.

Procedure T—Criteria for and Verification of a Permanent or Temporary Total Enclosure

1. Introduction

1.1 *Applicability.* This procedure is used to determine whether a permanent or temporary enclosure meets the criteria of a total enclosure.

1.2 *Principle.* An enclosure is evaluated against a set of criteria. If the criteria are met and if all the exhaust gases are ducted to a control device, then the volatile organic compounds (VOC) capture efficiency (CE) is assumed to be 100 percent and CE need not be measured. However, if part of the exhaust gas stream is not ducted to a control device, CE must be determined.

2. Definitions

2.1 *Natural Draft Opening (NDO)*—Any permanent opening in the enclosure that remains open during operation of the facility and is not connected to a duct in which a fan is installed.

2.2 *Permanent Total Enclosure (PTE)*—A permanently installed enclosure that completely surrounds a source of emissions such that all VOC emissions are captured and contained for discharge through a control device.

2.3 *Temporary Total Enclosure (TTE)*—A temporarily installed enclosure that completely surrounds a source of emissions such that all VOC emissions are captured and contained for discharge through ducts that allow for the accurate measurement of VOC rates.

3. Criteria of a Temporary Total Enclosure

3.1 Any NDO shall be at least 4 equivalent opening diameters from each VOC emitting point.

3.2 Any exhaust point from the enclosure shall be at least 4 equivalent duct or hood diameters from each NDO.

3.3 The total area of all NDO's shall not exceed 5 percent of the surface area of the enclosure's four walls, floor, and ceiling.

3.4 The average facial velocity (FV) of air through all NDO's shall be at least 3,600 m/hr (200 fpm). The direction of air through all NDO's shall be into the enclosure.

3.5 All access doors and windows whose areas are not included in section 3.3 and are not included in the calculation in section 3.4 shall be closed during routine operation of the process.

4. Criteria of a Permanent Total Enclosure

4.1 Same as sections 3.1 and 3.3–3.5.

4.2 All VOC emissions must be captured and contained for discharge through a control device.

5. Procedure

5.1 Determine the equivalent diameters of the NDO's and determine the distances from each VOC emitting point to all NDO's. Determine the equivalent diameter of each exhaust duct or hood and its distance to all NDO's. Calculate the distances in terms of equivalent diameters. The number of equivalent diameters shall be at least 4.

5.2 Measure the total area (A_t) of the enclosure and the total area (A_N) of all NDO's of the enclosure. Calculate the NDO to enclosure area ratio (NEAR) as follows:

$$NEAR = A_N/A_t$$

The NEAR must be <0.05.

5.3 Measure the volumetric flow rate, corrected to standard conditions, of each gas stream exiting the enclosure through an exhaust duct or hood using EPA Method 2. In some cases (*e.g.*, when the building is the enclosure), it may be necessary to measure the volumetric flow rate, corrected to standard conditions, of each gas stream entering the enclosure through a forced makeup air duct using Method 2. Calculate FV using the following equation:

$$FV = [Q_o - Q_i]/A_N$$

where:

Q_o = the sum of the volumetric flow from all gas streams exiting the enclosure through an exhaust duct or hood.

Q_i = the sum of the volumetric flow from all gas streams into the enclosure through a forced makeup air duct; zero, if there is no forced makeup air into the enclosure.

A_N = total area of all NDO's in enclosure.

The FV shall be at least 3,600 m/hr (200 fpm).

5.4 Verify that the direction of air flow through all NDO's is inward. Use streamers, smoke tubes, tracer gases, etc. Strips of plastic wrapping film have been found to be effective. Monitor the direction of air flow at intervals of at least 10 minutes for at least 1 hour.

6. Quality Assurance

6.1 The success of this protocol lies in designing the TTE to simulate the conditions that exist without the TTE, i.e., the effect of the TTE on the normal flow patterns around the affected facility or the amount of fugitive VOC emissions should be minimal. The TTE must enclose the application stations, coating reservoirs, and all areas from the application station to the oven. The oven does not have to be enclosed if it is under negative pressure. The NDO's of the temporary enclosure and a fugitive exhaust fan must be properly sized and placed.

6.2 Estimate the ventilation rate of the TTE that best simulates the conditions that exist without the TTE, i.e., the effect of the TTE on the normal flow patterns around the affected facility or the amount of fugitive VOC emissions should be minimal. Figure 1 may be used as an aid. Measure the concentration (C_G) and flow rate (Q_G) of the captured gas stream, specify a safe concentration (C_F) for the fugitive gas stream, estimate the CE, and then use the plot in Figure 1 to determine the volumetric flowrate of the fugitive gas stream (Q_F). A fugitive VOC emission exhaust fan that has a variable flow control is desirable.

6.2.1 Monitor the concentration of VOC into the capture device without the TTE. To minimize the effect of temporal variation on the captured emissions, the baseline measurement should be made over as long a time period as practical. However, the process conditions must be the same for the measurement in section 6.2.3 as they are for this baseline measurement. This may require short measuring times for this quality control check before and after the construction of the TTE.

6.2.2 After the TTE is constructed, monitor the VOC concentration inside the TTE. This concentration shall continue to increase and must not exceed the safe level according to OSHA requirements for permissible exposure limits. An increase in VOC concentration indicates poor TTE design or poor capture efficiency.

6.2.3 Monitor the concentration of VOC into the capture device with the TTE. To limit the effect of the TTE on the process, the VOC concentration with and without the TTE must be within ± 10 percent. If the measurements do not agree, adjust the ventilation rate from the TTE until they agree within 10 percent.

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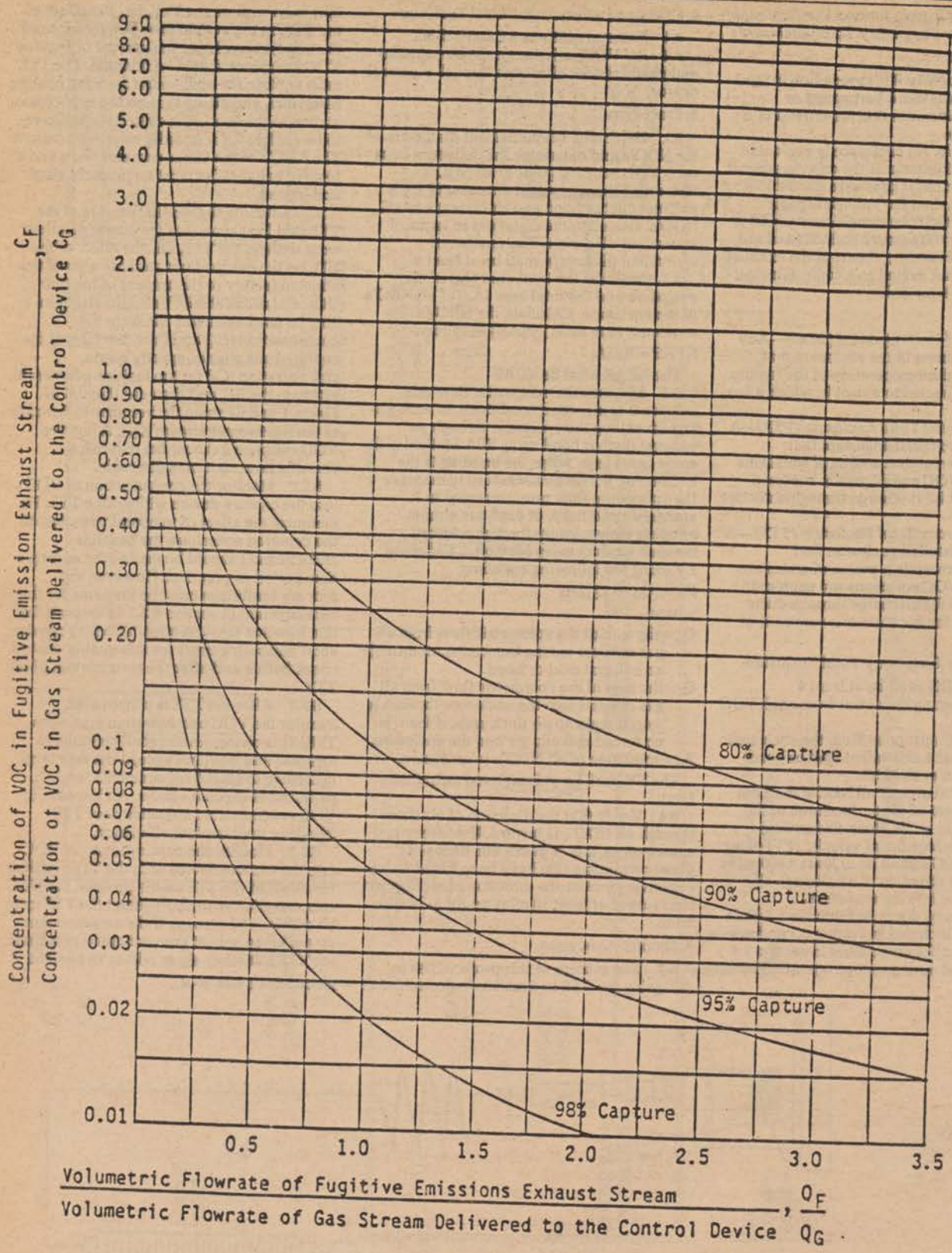


Figure 1. The Crumpler Chart

3. 40 CFR part 52 is amended by adding a new § 52.742 to subpart O to read as follows:

§ 52.742 Incorporation by reference.

The materials listed below are incorporated by reference in the corresponding sections noted. The incorporation by reference was approved by the Director of the Office of Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. These materials are incorporated as they exist on the date of approval, and a notice of any change in these materials will be published in the **Federal Register**. The materials are available from the sources listed below.

(a) The following material is available for purchase from the American Society for Testing and Materials (ASTM), 1916 Race Street, Philadelphia, Pennsylvania, 19103.

(1) ASTM D1475–85, Standard Test Method for Density of Paint, Varnish, Lacquer, and Related Products, for § 52.741(a)(4)(i)(B)(*3*)(*i*).

(2) ASTM D2369–87, Standard Test Method for Volatile Content of Coatings, for § 52.741(a)(4)(i)(B)(*3*)(*ii*).

(3) ASTM D3792–86, Standard Test Method for Water Content of Water-Reducible Paints by Direct Injection into a Gas Chromatograph, for § 52.741(a)(4)(i)(B)(*3*)(*iii*).

(4) ASTM D4017–81(Reapproved 1987), Standard Test Method for Water in Paints and Paint Materials by Karl Fischer Method, for § 52.741(a)(4)(i)(B)(*3*)(*iv*).

(5) ASTM D4457–85, Standard Test Method for Determination of Dichloromethane and 1,1,1-Trichloroethane in Paints and Coatings by Direct Injection into a Gas Chromatograph, for § 52.741(a)(4)(i)(B)(*3*)(*v*).

(6) ASTM D2697–86, Standard Test Method for Volume Nonvolatile Matter in Clear or Pigmented Coatings, for § 52.741(a)(4)(i)(B)(*3*)(*vi*).

(7) ASTM D3980–87, Standard Practice for Interlaboratory Testing of Paint and Related Materials, for § 52.741(a)(4)(i)(B)(*3*)(*vi*).

(8) ASTM E180–85, Standard Practice for Determining the Precision of ASTM Methods for Analysis and Testing of Industrial Chemicals, for § 52.741(a)(4)(i)(B)(*3*)(*viii*).

(9) ASTM D2372–85, Standard Method of Separation of Vehicle from Solvent-Reducible Paints, for § 52.741(a)(4)(i)(B)(*3*)(*ix*).

(10) ASTM D2879–86, Standard Test Method for Vapor Pressure-Temperature Relationship and Initial Decomposition Temperature of Liquids by Isoteniscope, for § 52.741(a)(3), (a)(8)(ii), (a)(9)(iii), and (a)(10)(iii).

(11) ASTM D323–82, Standard Test Method for Vapor Pressure of Petroleum Products (Reid Method), for § 52.741(a)(3).

(12) ASTM D86–82, Standard Method for Distillation of Petroleum Products, for § 52.741(a)(3).

(13) ASTM D3925–81(Reapproved 1985), Standard Practice for Sampling Liquid Paints and Related Pigment Coatings, for § 52.741(a)(4)(i)(A)(*1*).

(14) ASTM E300–86, Standard Practice for Sampling Industrial Chemicals, for § 52.741(a)(4)(i)(A)(*2*).

(b) The Evaporation Loss From External Floating-Roof Tanks, Publication 2517, second edition, February 1980, for § 52.741(a)(3) is available for purchase from the American Petroleum Institute, 2101 L Street, NW., Washington, DC, 20037.

(c) The Standard Industrial Classification Manual, 1987, for § 52.741(a)(3) is available for purchase from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC, 20402.

(d) 35 Illinois Administrative Code 215, June 1989, subparts (B), (E) (sections 215.182, 215.183, and 215.184), (K) (sections 215.301 and 215.302), (Q) (excluding sections 215.432 and 215.436), (R) (excluding sections 215.447, 215.450, and 215.452), (S), (V), (X), (Y) (sections 215.582, 215.583, and 215.584), and (Z) of 35 Ill. Adm. Code 215 for § 52.741 (d)(l)–(d)(3); (e)(3), (e)(4); (h)(2); (i)(1), (i)(2); (j)(1)–(j)(3); (q)(1); (s)(1); (u)(1), (3); (v)(1); (w)(1); and (x)(1), (x)(3) is available from the United States Environmental Protection Agency, Air and Radiation Division, Region V, 230 S. Dearborn, Chicago, IL, 60604.

4. Section 52.726 is further amended by adding paragraph (e) to read as follows:

§ 52.726 Control strategy—ozone

* * * * *

(e) Disapproval—The Administrator finds that the following State rules have not been demonstrated to be consistent with the reasonably available control technology requirements of section 172 of the Clean Air Act, as amended in 1977, and thus, are disapproved: subpart F, section 215.204(c); subpart F, section 215.206(b); subpart F, section 215.204(j)(4); subpart I; subpart AA; subpart PP; subpart QQ; subpart RR; subpart A, section 215.102; subpart T; subpart H, section 215.245; subpart F, section 215.207; and subpart A, section 215.107, all of title 35; Environmental Protection; subtitle B: Air Pollution; Chapter 1: Pollution Control Board of the Illinois Administrative Code (June 1989).

5. Section 52.720 is amended by adding paragraph (c)(78) to read as follows:

§ 52.720 Identification of plan.

* * * * *

(c) * * *

(78) On January 28, 1983, June 25, 1987, August 21, 1987, September 28, 1987, October 2, 1987, December 22, 1987, January 8, 1988, March 29, 1988, and May 2, 1988 the State submitted stationary source control measures for incorporation in the ozone plan.

(i) *Incorporation by reference.* (A) The following sections of title 35, Environmental Protection; subtitle B: Air Pollution; Chapter 1: Pollution Control Board of the Illinois Administrative Code, (June 1989): section 211.122 (definitions of bead-dipping; component; dry cleaning facility; external floating roof; gas service; green tire spraying; green tires; heavy liquid; liquid mounted seal; liquid service; pneumatic rubber tire manufacture; refinery unit, process unit, or unit; tread end cementing; undertread cementing; valves not externally regulated; vapor collection system; vapor mounted primary seal; volatile organic liquid; and volatile organic material) of subpart B (part 211); section 215.104 (definitions of continuous process; in vacuum service; material recovery section; open-ended valve; polystyrene plant; polystyrene resin; repaired; styrene devolatilizer unit; and styrene recovery unit) of subpart A (part 215); sections 215.124, 215.125, and 215.126 of subpart B (part 215); section 215.205 of subpart F (part 215); sections 215.240, 215.241, and 215.249 of subpart H (part 215); section 215.408 of subpart P (part 215); sections 215.420 through 215.431, 215.433, 215.434, 215.435, 215.437, and 215.438, all of subpart Q (part 215); section 215.453 of subpart R (part 215); sections 215.465 and 215.466 of subpart S (part 215); sections 215.520, 215.521, 215.525, 215.526, and 215.527 all of subpart V (part 215); sections 215.582, 215.583, and 215.584 of subpart Y (part 215); sections 215.607 through 215.613 of subpart Z (part 215); and sectons 215.875, 215.877, 215.879, 215.881, 215.883, and 215.886 all of subpart BB (part 215) are approved.

(ii) *Additional material.*

[FR Doc. 90–13929 Filed 6–28–90; 8:45 am]

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