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PART IV:

ENVIRONMENTAL PROTECTION AGENCY

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STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES

Modification, Notification and

Title 40—Protection of Environment
 CHAPTER I—ENVIRONMENTAL
 PROTECTION AGENCY
 SUBCHAPTER C—AIR PROGRAMS
 [FRL 402-8]

PART 60—STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES

Modification, Notification, and Reconstruction

On October 15, 1974 (39 FR 36946), under section 111 of the Clean Air Act, as amended (42 U.S.C. 1857), the Environmental Protection Agency (EPA) proposed amendments to the general provisions of 40 CFR Part 60. These amendments included additions and revisions to clarify the definition of the term "modification" appearing in the Act, to require notification of construction or potential modification, and to clarify when standards of performance are applicable to reconstructed sources. These regulations apply to all stationary sources constructed or modified after the proposal date of an applicable standard of performance.

Interested parties participated in the rulemaking by sending comments to EPA. Fifty-three comment letters were received, 43 of which came from industry, with the remainder coming from State and Federal agencies. Copies of the comment letters received and a summary of the comments with EPA's responses are available for public inspection and copying at the EPA Public Information Reference Unit, Room 2922 (EPA Library), 401 M Street SW., Washington, D.C. In addition, copies of the comment summary and Agency responses may be obtained upon written request from the EPA Public Information Center (PM-215), 401 M Street SW., Washington, D.C. 20460 (specify Public Comment Summary—Modification, Notification, and Reconstruction). The comments have been carefully considered, and where determined by the Administrator to be appropriate, changes have been made to the proposed regulations and are incorporated in the regulations promulgated herein. The most significant comments and the differences between the proposed and promulgated regulations are discussed below.

TERMINOLOGY

Understandably there has been some confusion as to the difference between the various types of "sources" and "facilities" defined in § 60.2 of these regulations. Generally speaking, "sources" are entire plants, while "facilities" are identifiable pieces of process equipment or individual components which when taken together would comprise a source. "Affected facilities" are facilities subject to standards of performance, and are specifically identified in the first section of each subpart of Part 60. An "existing facility" is generally a piece of equipment or component of the same type as an affected facility, but which differs in that it was constructed prior to the date of proposal of an applicable standard of performance. This distinction is somewhat complicated because an existing

facility which undergoes a modification within the meaning of the Act and these regulations becomes an affected facility. However, generally speaking, the distinction between "affected facilities" and "existing facilities" depends on the date of construction. The terms are intended to be the direct regulatory counterparts of the statutory definitions of "new source" and "existing source" appearing in section 111 of the Act.

"Designated facilities" form a subcategory of "existing facilities." A "designated facility" is an existing facility which emits a "designated pollutant," i.e., a pollutant which is neither a hazardous pollutant, as defined by section 112 of the Act, nor a pollutant subject to national ambient air quality standards. The term "designated facilities," however, has no special relevance to the issue of modification.

DEFINITION OF "CAPITAL EXPENDITURE"

Several commentators argued that the proposed definition of "capital expenditure," as applicable to the exemption for increasing the production rate of an existing facility in § 60.14(e) (2), was too vague. The regulations promulgated herein correct this deficiency by incorporating by reference and by requiring the application of the procedure contained in Internal Revenue Service Publication 534, which is available from any IRS office. The procedure set forth in IRS Publication 534 is relatively straightforward. First, the total cost of increasing the production or operating rate must be determined. All expenditures necessary to increasing the facility's operating rate must be included in this total. However, for purposes of § 60.14(e) (2) this amount must not be reduced by any "excluded additions," as defined in IRS Publication 534, as would be done for tax purposes. Next, the facility's basis (usually its cost), as defined by Section 1012 of the Internal Revenue Code, must be determined. If the product of the appropriate "annual asset guideline repair allowance percentage" tabulated in Publication 534 and the facility's basis exceeds the cost of increasing the operating rate, the change will not be treated as a modification. Conversely, if the cost of making the change is more than the above product and the emissions have increased, the change will be treated as a modification.

The advantage of adopting the procedure in IRS Publication 534 is that firm and precise guidance is provided as to what constitutes a capital expenditure. The procedure involves concepts and information which are available to all owners and operators and with which they are familiar, and it is the Administrator's opinion that it adequately responds to the complaints of vagueness made in comments.

NOTIFICATION OF CONSTRUCTION

The regulations promulgated herein contain a requirement that owners or operators notify EPA within 30 days of the commencement of construction of an affected facility. Some commentators, however, questioned the Agency's legal

authority to require such a notification and questioned the need for such information.

Section 301(a) of the Act provides the Administrator authority to issue regulations "necessary to carry out his functions under [the] Act." The Agency has learned through experience with administering the new source performance standards that knowledge of the sources which may become subject to the standards is important to the effective implementation of section 111. This notification will not be used for approval or disapproval of the planned construction; the purpose is to allow the Administrator to locate sources which will be subject to the regulations appearing in this part, and to enable the Administrator to inform the sources about applicable regulations in an effort to minimize future problems. In the case of mass produced facilities, which are purchased by the ultimate user when construction is completed, the construction notification requirement will not apply. Notification prior to startup, however will still be required.

USE OF EMISSION FACTORS

The proposed regulations listed emission factors as one possible method to be used in determining whether a facility has increased its emissions. Emission factors have two major advantages. First, they are inexpensive to use. Second, they may be applied prospectively, i.e., they can be used in some cases to determine whether a particular change will increase a facility's emissions before the change is implemented. This is important to owners or operators since they can thereby obtain advance notice of the consequences of proposed changes they are planning prior to commitment to a particular course of action. Emission factors do not, however, provide results as precise as other methods, such as actual stack testing. Nevertheless, in many cases the emission consequences of a proposed change can be reliably predicted by the use of emission factors. In such cases, where emissions will clearly increase or will clearly not increase, the Agency will rely primarily on emission factors. Only where the resulting change in emission rate is ambiguous, or where a dispute arises as to the result obtained by the use of emission factors, will other methods be used. Section 60.14(b) has been revised to reflect this policy.

THE "BUBBLE CONCEPT"

The phrase "bubble concept" has been used to refer to the trading off of emission increases from one facility undergoing a physical or operational change with emission reductions from another facility, in order to achieve no net increase in the amount of any air pollutant (to which a standard applies) emitted into the atmosphere by the stationary source taken as a whole.

Several commentators suggested that the "bubble concept" be extended to cover "new construction." Under the proposed regulations, the "bubble concept" could be utilized to offset emission increases

from a facility undergoing a physical or operational change (as distinguished from a "new facility") at a lower economic cost than would arise if the facility undergoing the change were to be considered by EPA as being modified within the meaning of section 111 of the Act and consequently required to meet standards of performance. Under the suggested approach a new facility could be added to an existing source without having to meet otherwise applicable standards of performance, provided the amount of any air pollutant (to which a standard applies) emitted into the atmosphere by the stationary source taken as a whole did not increase. If adopted, this suggestion could exempt most new construction at existing sources from having to comply with otherwise applicable standards of performance. Such an interpretation of the section 111 provisions of the Act would grant a significant and unfair economic advantage to owners or operators of existing sources replacing facilities with new construction as compared to someone wishing to construct an entirely new source.

If the bubble concept were extended to cover new construction, large sources of air pollution could avoid the application of new source performance standards indefinitely. Such sources could continually replace obsolete or worn out facilities with new facilities of the same type. If the same emission controls were adopted, no overall emission increase would result. In this manner, the source could continue indefinitely without ever being required to upgrade air pollution control systems to meet standards of performance for new facilities. The Administrator interprets section 111 to require that new producers of emissions be subject to the standards whether constructed at a new plant site or an existing one. Therefore, where a new facility is constructed, new source performance standards must be met. In situations involving physical or operational changes to an existing facility which increase emissions from that facility, greater flexibility is permitted to avoid the imposition of large control costs if the projected increase can be offset by controlling other plant facilities.

Several commentators argued that if the Administrator adopted the proposed interpretation of the term "modification", which would consider a modification to have occurred even if there was only a relatively minor detectable emission rate increase (thus requiring application of standards of performance), the Administrator would in effect prevent owners or operators from implementing physical or operational changes necessary to switch from gas and oil to coal in comport with the President's policy of reducing gas and oil consumption. The Administrator has concluded that if such situations exist, they will be relatively rare and, in any event, will be peculiar to the group of facilities covered by a particular standard of performance rather than to all facilities in general. Therefore, the Administrator has further concluded that it would be more appropriate to consider such circumstances

and possible avenues of relief in connection with the promulgation of or amendment to particular standards of performance rather than through the amendment of the general provisions of 40 CFR Part 60.

Where the use of the bubble concept is elected by an owner or operator, some guarantee is necessary to insure that emissions do not subsequently increase above the level present before the physical or operational change in question. For example, reducing a facility's operating rate is a permissible means of offsetting emission increases from another facility undergoing a physical or operational change. If the exemption provided by § 60.14(e) (2) as promulgated herein were subsequently used to increase the first facility's operating rate back to the prior level, the intent of the Act would be circumvented and the compliance measures previously adopted would be nullified. Therefore, in those cases where utilization of the exemptions under § 60.14(e) (2), (3), or (4) as promulgated herein would effectively negate the compliance measures, originally adopted, use of those exemptions will not be permitted.

One limitation placed on utilization of the "bubble concept" by the proposed regulation was that emission reductions could be credited only if achieved at an "existing" or "affected" facility. The purpose of this requirement was to limit the "bubble concept" to those facilities which could be source tested by EPA reference methods. One commentator pointed out that some facilities other than "existing" or "affected" facilities (i.e., facilities of the type for which no standards have been promulgated) lend themselves to accurate emission measurement. Therefore, § 60.14(d) has been revised to permit emission reductions to be credited from all facilities whose emissions can be measured by reference, equivalent, or alternative methods, as defined in § 60.2 (s), (t), and (u). In addition, when a facility which cannot be tested by any of these methods is permanently closed, the regulations have been revised to permit emission rate reductions from such closures to be used to offset emission rate increases if methods such as emission factors clearly show, to the Administrator's satisfaction that the reduction offsets any increase. The regulation does not allow facilities which cannot be tested by any of these methods to reduce their production as a means of reducing emissions to offset emission rate increases because establishing allowable emissions for such facilities and monitoring compliance to insure that the allowable emissions are not exceeded would be very difficult and even impossible in many cases.

Also, under the proposed regulations applicable to the "bubble concept," actual emission testing was the only permissible method for demonstrating that there has been no increase in the total emission rate of any pollutant to which a standard applies from all facilities within the stationary source. Several commentators correctly argued that if methods such as emission factors are sufficiently accurate to determine emis-

sion rates under other sections of the regulation (i.e. § 60.14(b)], they should be adequate for the purposes of utilization of the bubble concept. Thus, the regulations have been revised to permit the use of emission factors in those cases where it can be demonstrated to the Administrator's satisfaction that they will clearly show that total emissions will or will not increase. Where the Administrator is not convinced of the reliability of emission factors in a particular case, other methods will be required.

OWNERSHIP CHANGE

The regulation has been amended by adding § 60.14(e) (6) which states that a change in ownership or relocating a source does not by itself bring a source under these modification regulations.

RECONSTRUCTION

Several commentators questioned the Agency's legal authority to propose standards of performance on reconstructed sources. Many commentators further believed that the Agency is attempting to delete the emission increase requirement from the definition of modification. The Agency's actual intent is to prevent circumvention of the law. Section 111 of the Act requires compliance with standards of performance in two cases, new construction and modification. The reconstruction provision is intended to apply where an existing facility's components are replaced to such an extent that it is technologically and economically feasible for the reconstructed facility to comply with the applicable standards of performance. In the case of an entirely new facility the proper time to apply the best adequately demonstrated control technology is when the facility is originally constructed. As explained in the preamble to the proposed regulation, the purpose of the reconstruction provision is to recognize that replacement of many of the components of a facility can be substantially equivalent to totally replacing it at the end of its useful life with a newly constructed affected facility. For existing facilities which substantially retain their character as existing facilities, application of best adequately demonstrated control technology is considered appropriate when any physical or operational change is made which causes an increase in emissions to the atmosphere (this is modification). Thus, the criteria for "reconstruction" are independent from the criteria for "modification."

Sections 60.14 and 60.15 set up the procedures and criteria to be used in making the determination to apply best adequately demonstrated control technology to existing facilities to which some changes have been made.

Under the proposed regulations, the replacement of a substantial portion of an existing facility's components constituted reconstruction. Many commentators questioned the meaning of "substantial portion." After considering the comments and the vagueness of this term, the Agency decided to revise the proposed reconstruction provisions to

better clarify to owners or operators what actions they must take and what action the Administrator will take. Section 60.15 of the regulations as revised specifies that reconstruction occurs upon replacement of components if the fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable entirely new facility and it is technologically and economically feasible for the facility after the replacements to comply with the applicable standards of performance. The 50 percent replacement criteria is designed merely to key the notification to the Administrator; it is not an independent basis for the Administrator's determination. The term "fixed capital cost" is defined as the capital needed to provide all the depreciable components and is intended to include such things as the costs of engineering, purchase, and installation of major process equipment, contractors' fees, instrumentation, auxiliary facilities, buildings, and structures. Costs associated with the purchase and installation of air pollution control equipment (e.g., baghouses, electrostatic precipitators, scrubbers, etc.) are not considered in estimating the fixed capital cost of a comparable entirely new facility unless that control equipment is required as part of the process (e.g., product recovery).

The revised § 60.15 leaves the final determination with the Administrator as to when it is technologically and economically feasible to comply with the applicable standards of performance. Further clarification and definition is not possible because the spectrum of replacement projects that will take place in the future at existing facilities is so broad that it is not possible to be any more specific. Section 60.15 sets forth the criteria which the Administrator will use in making his determination. For example, if the estimated life of the facility after the replacements is significantly less than the estimated life of a new facility, the replacement may not be considered reconstruction. If the equipment being replaced does not emit or cause an emission of an air pollutant, it may be determined that controlling the components that do emit air pollutants is not reasonable considering cost, and standards of performance for new sources should not be applied. If there is insufficient space after the replacements at an existing facility to install the necessary air pollution control system to comply with the standards of performance, then reconstruction would not be determined to have occurred. Finally, the Administrator will consider all technical and economic limitations the facility may have in complying with the applicable standards of performance after the proposed replacements.

While § 60.15 expresses the basic Agency policy and interpretation regarding reconstruction, individual subparts may refine and delimit the concept as applied to individual categories of facilities.

RESPONSE TO REQUESTS FOR DETERMINATION

Section 60.5 has been revised to indicate that the Administrator will make a determination of whether an action by an owner or operator constitutes reconstruction within the meaning of § 60.15. Also, in response to a public comment, a new § 60.5(b) has been added to indicate the Administrator's intention to respond to requests for determinations within 30 days of receipt of the request.

STATISTICAL TEST

Appendix C of the regulation incorporates a statistical procedure for determining whether an emission increase has occurred. Several individuals commented on the procedure as proposed. After considering all these comments and conducting further study into the subject, the Administrator has determined that a statistical procedure is substantially superior to a method comparing average emissions, and that no other statistical procedure is clearly superior to the one adopted (Student's *t* test). A more detailed analysis of this issue can be found in EPA's responses to the comments mentioned previously.

Effective date. These regulations are effective on December 16, 1975. Since they represent a clarification of the Agency's existing enforcement policy, good cause is found for not delaying the effective date, as required by 5 U.S.C. 553(d)(3). However, the regulations will, in effect, apply retroactively to any enforcement activity now in progress since they do reflect present Agency policy.

(Sections 111, 114, and 301 of the Clean Air Act, as amended (42 U.S.C. 1857c-6, 1857c-9, and 1857g))

Dated: December 8, 1975.

RUSSELL E. TRAIN,
Administrator.

Part 60 of Chapter I, Title 40 of the Code of Federal Regulations is amended as follows:

1. The table of sections is amended by adding §§ 60.14 and 60.15 and Appendix C as follows:

Subpart A—General Provisions

*	*	*	*	*
Sec.				
60.14	Modification.			
60.15	Reconstruction.			
*	*	*	*	*

Appendix C—Determination of Emission Rate Change.

2. In § 60.2, paragraphs (d) and (h) are revised and paragraphs (aa) and (bb) are added as follows:

§ 60.2 Definitions.

(d) "Stationary source" means any building, structure, facility, or installation which emits or may emit any air pollutant and which contains any one or combination of the following:

- (1) Affected facilities.
- (2) Existing facilities.

(3) Facilities of the type for which no standards have been promulgated in this part.

(h) "Modification" means any physical change in, or change in the method of operation of, an existing facility which increases the amount of any air pollutant (to which a standard applies) emitted into the atmosphere by that facility or which results in the emission of any air pollutant (to which a standard applies) into the atmosphere not previously emitted.

(aa) "Existing facility" means, with reference to a stationary source, any apparatus of the type for which a standard is promulgated in this part, and the construction or modification of which was commenced before the date of proposal of that standard; or any apparatus which could be altered in such a way as to be of that type.

(bb) "Capital expenditure" means an expenditure for a physical or operational change to an existing facility which exceeds the product of the applicable "annual asset guideline repair allowance percentage" specified in the latest edition of Internal Revenue Service Publication 534 and the existing facility's basis, as defined by section 1012 of the Internal Revenue Code.

3. Section 60.5 is revised to read as follows:

§ 60.5 Determination of construction or modification.

(a) When requested to do so by an owner or operator, the Administrator will make a determination of whether action taken or intended to be taken by such owner or operator constitutes construction (including reconstruction) or modification or the commencement thereof within the meaning of this part.

(b) The Administrator will respond to any request for a determination under paragraph (a) of this section within 30 days of receipt of such request.

4. In § 60.7, paragraphs (a)(1) and (a)(2) are revised, and paragraphs (a)(3), (a)(4), and (e) are added as follows:

§ 60.7 Notification and recordkeeping.

(a) Any owner or operator subject to the provisions of this part shall furnish the Administrator written notification as follows:

(1) A notification of the date construction (or reconstruction as defined under § 60.15) of an affected facility is commenced postmarked no later than 30 days after such date. This requirement shall not apply in the case of mass-produced facilities which are purchased in completed form.

(2) A notification of the anticipated date of initial startup of an affected facility postmarked not more than 60 days nor less than 30 days prior to such date.

(3) A notification of the actual date of initial startup of an affected facility postmarked within 15 days after such date.

(4) A notification of any physical or operational change to an existing facility which may increase the emission rate of any air pollutant to which a standard applies, unless that change is spe-

cifically exempted under an applicable subpart or in § 60.14(e) and the exemption is not denied under § 60.14(d)(4). This notice shall be postmarked 60 days or as soon as practicable before the change is commenced and shall include information describing the precise nature of the change, present and proposed emission control systems, productive capacity of the facility before and after the change, and the expected completion date of the change. The Administrator may request additional relevant information subsequent to this notice.

(e) If notification substantially similar to that in paragraph (a) of this section is required by any other State or local agency, sending the Administrator a copy of that notification will satisfy the requirements of paragraph (a) of this section.

5. Subpart A is amended by adding §§ 60.14 and 60.15 as follows:

§ 60.14 Modification.

(a) Except as provided under paragraphs (d), (e) and (f) of this section, any physical or operational change to an existing facility which results in an increase in the emission rate to the atmosphere of any pollutant to which a standard applies shall be considered a modification within the meaning of section 111 of the Act. Upon modification, an existing facility shall become an affected facility for each pollutant to which a standard applies and for which there is an increase in the emission rate to the atmosphere.

(b) Emission rate shall be expressed as kg/hr of any pollutant discharged into the atmosphere for which a standard is applicable. The Administrator shall use the following to determine emission rate:

(1) Emission factors as specified in the latest issue of "Compilation of Air Pollutant Emission Factors," EPA Publication No. AP-42, or other emission factors determined by the Administrator to be superior to AP-42 emission factors, in cases where utilization of emission factors demonstrate that the emission level resulting from the physical or operational change will either clearly increase or clearly not increase.

(2) Material balances, continuous monitor data, or manual emission tests in cases where utilization of emission factors as referenced in paragraph (b) (1) of this section does not demonstrate

to the Administrator's satisfaction whether the emission level resulting from the physical or operational change will either clearly increase or clearly not increase, or where an owner or operator demonstrates to the Administrator's satisfaction that there are reasonable grounds to dispute the result obtained by the Administrator utilizing emission factors as referenced in paragraph (b) (1) of this section. When the emission rate is based on results from manual emission tests or continuous monitoring systems, the procedures specified in Appendix C of this part shall be used to determine whether an increase in emission rate has occurred. Tests shall be conducted under

such conditions as the Administrator shall specify to the owner or operator based on representative performance of the facility. At least three valid test runs must be conducted before and at least three after the physical or operational change. All operating parameters which may affect emissions must be held constant to the maximum feasible degree for all test runs.

(c) The addition of an affected facility to a stationary source as an expansion to that source or as a replacement for an existing facility shall not by itself bring within the applicability of this part any other facility within that source.

(d) A modification shall not be deemed to occur if an existing facility undergoes a physical or operational change where the owner or operator demonstrates to the Administrator's satisfaction (by any of the procedures prescribed under paragraph (b) of this section) that the total emission rate of any pollutant has not increased from all facilities within the stationary source to which appropriate reference, equivalent, or alternative methods, as defined in § 60.2 (s), (t) and (u), can be applied. An owner or operator may completely and permanently close any facility within a stationary source to prevent an increase in the total emission rate regardless of whether such reference, equivalent or alternative method can be applied, if the decrease in emission rate from such closure can be adequately determined by any of the procedures prescribed under paragraph (b) of this section. The owner or operator of the source shall have the burden of demonstrating compliance with this section.

(1) Such demonstration shall be in writing and shall include: (i) The name and address of the owner or operator.

(ii) The location of the stationary source.

(iii) A complete description of the existing facility undergoing the physical or operational change resulting in an increase in emission rate, any applicable control system, and the physical or operational change to such facility.

(iv) The emission rates into the atmosphere from the existing facility of each pollutant to which a standard applies determined before and after the physical or operational change takes place, to the extent such information is known or can be predicted.

(v) A complete description of each facility and the control systems, if any, for those facilities within the stationary source where the emission rate of each pollutant in question will be decreased to compensate for the increase in emission rate from the existing facility undergoing the physical or operational change.

(vi) The emission rates into the atmosphere of the pollutants in question from each facility described under paragraph (d) (1) (v) of this section both before and after the improvement or installation of any applicable control system or any physical or operational

changes to such facilities to reduce emission rate.

(vii) A complete description of the procedures and methods used to determine the emission rates.

(2) Compliance with paragraph (d) of this section may be demonstrated by the methods listed in paragraph (b) of this section, where appropriate. Decreases in emissions resulting from requirements of a State implementation plan approved or promulgated under Part 52 of this chapter will not be acceptable. The required reduction in emission rate may be accomplished through the installation or improvement of a control system or through physical or operational changes to facilities including reducing the production of a facility or closing a facility.

(3) Emission rates established for the existing facility which is undergoing a physical or operational change resulting in an increase in the emission rate, and established for the facilities described under paragraph (d) (1) (v) of this section shall become the baseline for determining whether such facilities undergo a modification or are in compliance with standards.

(4) Any emission rate in excess of that rate established under paragraph (d) (3) of this section shall be a violation of these regulations except as otherwise provided in paragraph (e) of this section. However, any owner or operator electing to demonstrate compliance under this paragraph (d) must apply to the Administrator to obtain the use of any exemptions under paragraphs (e) (2), (e) (3), and (e) (4) of this section. The Administrator will grant such exemption only if, in his judgment, the compliance originally demonstrated under this paragraph will not be circumvented or nullified by the utilization of the exemption.

(5) The Administrator may require the use of continuous monitoring devices and compliance with necessary reporting procedures for each facility described in paragraph (d) (1) (iii) and (d) (1) (v) of this section.

(e) The following shall not, by themselves, be considered modifications under this part:

(1) Maintenance, repair, and replacement which the Administrator determines to be routine for a source category, subject to the provisions of paragraph (c) of this section and § 60.15.

(2) An increase in production rate of an existing facility, if that increase can be accomplished without a capital expenditure on the stationary source containing that facility.

(3) An increase in the hours of operation.

(4) Use of an alternative fuel or raw material if, prior to the date any standard under this part becomes applicable to that source type, as provided by § 60.1, the existing facility was designed to accommodate that alternative use. A facility shall be considered to be designed to accommodate an alternative fuel or raw material if that use could be accomplished under the facility's construction

specifications, as amended, prior to the change. Conversion to coal required for energy considerations, as specified in section 119(d) (5) of the Act, shall not be considered a modification.

(5) The addition or use of any system or device whose primary function is the reduction of air pollutants, except when an emission control system is removed or is replaced by a system which the Administrator determines to be less environmentally beneficial.

(6) The relocation or change in ownership of an existing facility.

(f) Special provisions set forth under an applicable subpart of this part shall supersede any conflicting provisions of this section.

(g) Within 180 days of the completion of any physical or operational change subject to the control measures specified in paragraphs (a) or (d) of this section, compliance with all applicable standards must be achieved.

§ 60.15 Reconstruction.

(a) An existing facility, upon reconstruction, becomes an affected facility, irrespective of any change in emission rate.

(b) "Reconstruction" means the replacement of components of an existing facility to such an extent that:

(1) The fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable entirely new facility, and

(2) It is technologically and economically feasible to meet the applicable standards set forth in this part.

(c) "Fixed capital cost" means the capital needed to provide all the depreciable components.

(d) If an owner or operator of an existing facility proposes to replace components, and the fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable entirely new facility, he shall notify the Administrator of the proposed replacements. The notice must be postmarked 60 days (or as soon as practicable) before construction of the replacements is commenced and must include the following information:

(1) Name and address of the owner or operator.

(2) The location of the existing facility.

(3) A brief description of the existing facility and the components which are to be replaced.

(4) A description of the existing air pollution control equipment and the proposed air pollution control equipment.

(5) An estimate of the fixed capital cost of the replacements and of constructing a comparable entirely new facility.

(6) The estimated life of the existing facility after the replacements.

(7) A discussion of any economic or technical limitations the facility may have in complying with the applicable standards of performance after the proposed replacements.

(e) The Administrator will determine, within 30 days of the receipt of the notice required by paragraph (d) of this section and any additional information he may reasonably require, whether the proposed replacement constitutes reconstruction.

(f) The Administrator's determination under paragraph (e) shall be based on:

(1) The fixed capital cost of the replacements in comparison to the fixed capital cost that would be required to construct a comparable entirely new facility;

(2) The estimated life of the facility after the replacements compared to the life of a comparable entirely new facility;

(3) The extent to which the components being replaced cause or contribute to the emissions from the facility; and

(4) Any economic or technical limitations on compliance with applicable standards of performance which are inherent in the proposed replacements.

(g) Individual subparts of this part may include specific provisions which refine and delimit the concept of reconstruction set forth in this section.

6. Part 60 is amended by adding Appendix C as follows:

APPENDIX C—DETERMINATION OF EMISSION RATE CHANGE

1. Introduction.

1.1 The following method shall be used to determine whether a physical or operational change to an existing facility resulted in an increase in the emission rate to the atmosphere. The method used is the Student's *t* test, commonly used to make inferences from small samples.

2. Data.

2.1 Each emission test shall consist of *n* runs (usually three) which produce *n* emission rates. Thus two sets of emission rates are generated, one before and one after the change, the two sets being of equal size.

2.2 When using manual emission tests, except as provided in § 60.8(b) of this part, the reference methods of Appendix A to this part shall be used in accordance with the procedures specified in the applicable subpart both before and after the change to obtain the data.

2.3 When using continuous monitors, the facility shall be operated as if a manual emission test were being performed. Valid data using the averaging time which would be required if a manual emission test were being conducted shall be used.

3. Procedure.

3.1 Subscripts a and b denote prechange and postchange respectively.

3.2 Calculate the arithmetic mean emission rate, \bar{E} , for each set of data using Equation 1.

$$\bar{E} = \sum_{i=1}^n E_i = \frac{E_1 + E_2 + \dots + E_n}{n} \quad (1)$$

where:

E_i = Emission rate for the *i* th run;
n = number of runs

3.3 Calculate the sample variance, S^2 , for each set of data using Equation 2.

$$S^2 = \frac{\sum_{i=1}^n (E_i - \bar{E})^2}{n-1} = \frac{\sum_{i=1}^n E_i^2 - \left(\sum_{i=1}^n E_i\right)^2/n}{n-1} \quad (2)$$

3.4 Calculate the pooled estimate, S_p , using Equation 3.

$$S_p = \left[\frac{(n_a - 1) S_a^2 + (n_b - 1) S_b^2}{n_a + n_b - 2} \right]^{1/2} \quad (3)$$

3.5 Calculate the test statistic, *t*, using Equation 4.

$$t = \frac{\bar{E}_b - \bar{E}_a}{S_p \left[\frac{1}{n_a} + \frac{1}{n_b} \right]^{1/2}} \quad (4)$$

4. Results.

4.1 If $\bar{E}_b > \bar{E}_a$ and $t > t'$, where t' is the critical value of *t* obtained from Table 1, then with 95% confidence the difference between \bar{E}_b and \bar{E}_a is significant, and an increase in emission rate to the atmosphere has occurred.

TABLE 1

Degree of freedom ($n_a + n_b - 2$):	<i>t'</i> (95 percent confidence level)
2	2.920
3	2.353
4	2.132
5	2.015
6	1.943
7	1.895
8	1.860

For greater than 8 degrees of freedom, see any standard statistical handbook or text.

5.1 Assume the two performance tests produced the following set of data:

Test a:	Test b
Run 1. 100	115
Run 2. 95	120
Run 3. 110	125

5.2 Using Equation 1—

$$\bar{E}_a = \frac{100 + 95 + 110}{3} = 102$$

$$\bar{E}_b = \frac{115 + 120 + 125}{3} = 120$$

5.3 Using Equation 2—

$$S_a^2 = \frac{(100 - 102)^2 + (95 - 102)^2 + (110 - 102)^2}{3 - 1} = 58.5$$

$$S_b^2 = \frac{(115 - 120)^2 + (120 - 120)^2 + (125 - 120)^2}{3 - 1} = 25$$

5.4 Using Equation 3—

$$S_p = \left[\frac{(3-1)(58.5) + (3-1)(25)}{3+3-2} \right]^{1/2} = 6.40$$

5.5 Using Equation 4—

$$t = \frac{120 - 102}{6.40 \left[\frac{1}{3} + \frac{1}{3} \right]^{1/2}} = 3.412$$

5.6 Since $(n_1 + n_2 - 2) = 4$, $t' = 2.132$ (from Table 1). Thus since $t > t'$ the difference in the values of \bar{E}_a and \bar{E}_b is significant, and there has been an increase in emission rate to the atmosphere.

6. Continuous Monitoring Data.

6.1 Hourly averages from continuous monitoring devices, where available, should be used as data points and the above procedure followed.

(Secs. 111 and 114 of the Clean Air Act, as amended by sec. 4(a) of Pub. L. 91-604, 84 Stat 1678 (42 U.S.C. 1857b-6, 1857c-9))

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