45.0 PREVENTION OF SIGNIFICANT DETERIORATION

45.1 Definitions

A. Unless specifically defined in this Section, the definitions from Section 13.0 shall apply:

1. "Actual Emissions" means –

   a. The actual rate of emissions of a regulated NSR pollutant from an emission unit, as determined in accordance with Section 45.1-A.1.b through 45.1-A.1.d, except that this definition shall not apply for calculating whether a significant emissions increase has occurred, or for establishing a PAL as described in Section 45.2-O. Instead, Sections 45.1-A.5 and 45.1-A.49 shall apply for those purposes.

   b. In general, actual emissions as of a particular date shall equal the average rate, in tons per year, at which the unit actually emitted the pollutant during a consecutive 24-month period which precedes the particular date and which is representative of normal source operation. The Director shall allow the use of a different time period upon a determination that it is more representative of normal source operation. Actual emissions shall be calculated using the unit's actual operating hours, production rates, and types of materials processed, stored, or combusted during the selected time period.

   c. The Director may presume that source specific allowable emissions for the unit are equivalent to the actual emissions of the unit.

   d. For any emissions unit that has not begun normal operations on the particular date, actual emissions shall equal the potential to emit of the unit on that date.

2. "Adverse Impact on Visibility" means visibility impairment which interferes with the management, protection, preservation or enjoyment of the visitor's visual experience of a Federal Class I area. This determination must be made on a case-by-case basis taking into account the geographic extent, intensity, duration, frequency and time of visibility impairments, and how these factors correlate with the times of visitor use of the Federal Class I area, and with the frequency and timing of natural conditions that reduce visibility.

3. "Allowable emissions" means the emissions rate of a stationary source calculated using the maximum rated capacity of the source (unless the source is subject to federally enforceable limits which restrict the operating rate, or hours of operation, or both) and the most stringent of the following:

   a. The applicable standards set forth in 40 CFR Parts 60 and 61;

b. Any applicable State Implementation Plan emissions limitation including those with a future compliance date; or
c. The emissions rate specified as a federally enforceable permit condition, including those with a future compliance date.

4. "Attainment Area" means any area that has been designated by the Administrator to meet the National Ambient Air Quality Standards.

5. "Baseline actual emissions" means the rate of emissions, in tons per year, of a regulated NSR pollutant, as determined in accordance with Sections 45.1-A.5.a through 45.1-A.5.d.

a. For any existing electric utility steam generating unit, baseline actual emissions means the average rate, in tons per year, at which the unit actually emitted the pollutant during any consecutive 24-month period selected by the owner or operator within the 5-year period immediately preceding when the owner or operator begins actual construction of the project. The Director shall allow the use of a different time period upon a determination that it is more representative of normal source operation.

(1) The average rate shall include fugitive emissions to the extent quantifiable, and emissions associated with startups, shutdowns, and malfunctions.

(2) The average rate shall be adjusted downward to exclude any non-compliant emissions that occurred while the source was operating above an emission limitation that was legally enforceable during the consecutive 24-month period.

(3) For a regulated NSR pollutant, when a project involves multiple emissions units, only one consecutive 24-month period must be used to determine the baseline actual emissions for the emissions units being changed.

(4) The average rate shall not be based on any consecutive 24-month period for which there is inadequate information for determining annual emissions, in tons per year, and for adjusting this amount if required by Section 45.1-A.5.a(2).

b. For an existing emissions unit (other than an electric utility steam generating unit), baseline actual emissions means the average rate, in tons per year, at which the emissions unit actually emitted the pollutant during any consecutive 24-month period selected by the owner of operator within the 10-year period immediately preceding either the date the owner of operator begins actual construction of the project, or the date a complete permit application is received by the Director for a permit required either under this Section or

under a plan approved by the Administrator, whichever is earlier, except that the 10-year period shall not include any period earlier than November 15, 1990.

(1) The average rate shall include fugitive emissions to the extent quantifiable, and emissions associated with startups, shutdowns, and malfunctions.

(2) The average rate shall be adjusted downward to exclude any non-compliant emissions that occurred while the source was operating above an emission limitation that was legally enforceable during the consecutive 24-month period.

(3) The average rate shall be adjusted downward to exclude any emissions that would have exceeded an emission limitation with which the major stationary source must currently comply, had such major stationary source been required to comply with such limitations during the consecutive 24-month period. However, if an emission limitation is part of a maximum achievable control technology standard that the Administrator proposed or promulgated under 40 CFR Part 63, the baseline actual emissions need only be adjusted if the Department has taken credit for such emissions reductions in an attainment demonstration or maintenance plan consistent with the requirements of 40 CFR Subpart 51.165(a)(3)(ii)(G).

(4) For a regulated NSR pollutant, when a project involves multiple emissions units, only one consecutive 24-month period must be used to determine the baseline actual emissions for the emissions units being changed.

(5) The average rate shall not be based on any consecutive 24-month period for which there is inadequate information for determining annual emissions, in tons per year, and for adjusting this amount, if required, by Section 45.1-A.5.b(2) and (3).

c. For a new emissions unit, the baseline actual emissions for purposes of determining the emissions increase that will result from the initial construction and operation of such unit shall equal zero; and thereafter, for all other purposes, shall equal the unit's potential to emit.

d. For a PAL for a stationary source, the baseline actual emissions shall be calculated for existing electric utility steam generating units in accordance with the procedures contained in Section 45.1-A.5.a; for other existing

emissions units in accordance with the procedures contained in Section 45.1-A.5.b; and for a new emissions unit in accordance with the procedures contained in Section 45.1-A.5.c.

6. "Baseline area" means –

a. Any intrastate area (and every part thereof) designated as attainment or unclassifiable under Section 107(d)(1)(A)(ii) or (iii) of the Act in which the major source or major modification establishing the minor source baseline date would construct or would have an air quality impact for the pollutant for which the baseline date is established, as follows: Equal to or greater than 1 $\mu g/m^3$ (annual average) for SO_2, NO_2, or PM_{10}; or equal or greater than 0.3 $\mu g/m^3$ (annual average) for $PM_{2.5}$.

b. Area redesignations under Section 107(d)(1)(A)(ii) or (iii) of the Act cannot intersect or be smaller than the area of impact of any major stationary source or major modification which:

(1) Establishes a minor source baseline date; or

(2) Is subject to 40 CFR 52.21 or under regulations approved pursuant to 40 CFR 51.166, and would be constructed in the same State as the State proposing the redesignation.

c. Any baseline area established originally for the TSP increments shall remain in effect and shall apply for purposes of determining the amount of available PM_{10} increments, except that such baseline area shall not remain in effect if the permit authority rescinds the corresponding minor source baseline date in accordance with paragraph (b)(14)(iv) of 40 CFR 51.166.

7. "Baseline concentration" means –

a. That ambient concentration level that exists in the baseline area at the time of the applicable minor source baseline date. A baseline concentration is determined for each pollutant for which a minor source baseline date is established and shall include:

(1) The actual emissions representative of sources in existence on the applicable minor source baseline date, except as provided in Section 45.1-A.7.b;

(2) The allowable emissions of major stationary sources that commenced construction before the major source baseline date, but were not in operation by the applicable minor source baseline date.

b. The following will not be included in the baseline concentration and will affect the applicable maximum allowable increase(s):

(1) Actual emissions from any major stationary source on which construction commenced after the major source baseline date; and

(2) Actual emission increases and decreases at any stationary source occurring after the minor source baseline date.

8. "Begin actual construction" means, in general, initiation of physical on-site construction activities on an emissions unit which are of a permanent nature. Such activities include, but are not limited to, installation of building supports and foundations, laying of underground pipe work, and construction of permanent storage structures. With respect to a change in method of operation this term refers to those on-site activities, other than preparatory activities, which mark the initiation of the change.

9. "Best available control technology (BACT)" means an emissions limitation (including a visible emissions standard) based on the maximum degree of reduction for each regulated NSR pollutant which would be emitted from any proposed major stationary source or major modification which the Director, on a case-by- case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combination techniques for control of such pollutant. In no event shall application of best available control technology result in emissions of any pollutant which would exceed the emissions allowed by any applicable standard under 40 CFR Parts 60 and 61. If the Director determines that technological or economic limitations on the application of measurement methodology to a particular emissions unit would make the imposition of an emissions standard infeasible, a design, equipment, work practice, operation standard or combination thereof, may be prescribed instead to satisfy the requirement for the application of best available control technology. Such standard shall, to the degree possible, set forth the emissions reduction achievable by implementation of such design, equipment, work practice or operation, and shall provide for compliance by means which achieve equivalent results.

10. "Building, structure, facility, or installation" 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 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*, 1972, as amended by the 1977 Supplement (U.S. Government Printing Office stock numbers 4101-0066 and 003-005-00176-0, respectively).

11. "Clean coal technology" means any technology, including technologies applied at the precombustion, combustion, or post combustion stage, at a new or existing facility which will achieve significant reductions in air emissions of sulfur dioxide or oxides of nitrogen associated with the utilization of coal in the generation of electricity, or process steam which was not in widespread use as of November 15, 1990.

12. "Clean coal technology demonstration project" means a project using funds appropriated under the heading "Department of Energy - Clean Coal Technology," up to a total amount of $2,500,000,000 for commercial demonstration of clean coal technology, or similar projects funded through appropriations for the Environmental Protection Agency. The Federal contribution for a qualifying project shall be at least 20 percent of the total cost of the demonstration project.

13. "Commence" as applied to construction of a major stationary source or major modification means that the owner or operator has all necessary preconstruction approvals or permits and either has:

    a. Begun, or caused to begin, a continuous program of actual on-site construction of the source, to be completed within the time frame as allowed in Section 45.2-N.2, or

    b. Entered into binding agreements or contractual obligations, which cannot be canceled or modified without substantial loss to the owner or operator, to undertake a program of actual construction of the source to be completed within the time frame as allowed in Section 45.2-N.2.

14. "Complete" means, in reference to an application for a permit, that the application contains all the information necessary for processing the application. Designating an application complete for purposes of permit processing does not preclude the Director from requesting or accepting any additional information.

15. "Construction" means any physical change or change in the method of operation (including fabrication, erection, installation, demolition, or modification of an emissions unit) that would result in a change in emissions.

16. "Continuous emissions monitoring system (CEMS)" means all of the equipment that may be required to meet the data acquisition and availability requirements of this Section, to sample, condition (if applicable), analyze, and provide a record of emissions on a continuous basis.

17. "Continuous emissions rate monitoring system (CERMS)" means the total equipment required for the determination and recording of the pollutant mass emissions rate (in terms of mass per unit of time).

18. "Continuous parameter monitoring system (CPMS)" means all of the equipment necessary to meet the data acquisition and availability requirements of this Section, to monitor process and control device operational parameters (for example, control device secondary voltages and electric currents) and other information (for example, gas flow rate, O_2 or CO_2 concentrations), and to record average operational parameter value(s) on a continuous basis.

19. "Director" means the Director of the Knox County Department of Air Quality Management.

20. "Dispersion technique" means –

a. Any technique which attempts to affect the concentration of a pollutant in the ambient air by:

(1) Using the portion of a stack which exceeds good engineering practice stack height;

(2) Varying the rate of emission of a pollutant according to atmospheric conditions or ambient concentrations of that pollutant; or

(3) Increasing final exhaust gas plume rise by manipulating source process parameters, exhaust gas parameters, stack parameters, or combining exhaust gases from several existing stacks into one stack or other selective handling of exhaust gas streams so as to increase the exhaust gas plume rise.

b. The preceding paragraph does not include:

(1) The reheating of a gas stream following use of a pollution control system, for the purpose of returning the gas to the temperature at which it was originally discharged from the facility generating the gas stream;

(2) The merging of exhaust gas streams where:

(A) The source owner or operator demonstrates that the facility was originally designed and constructed with such merged gas streams;

(B) After July 8, 1985, such merging was part of a change in operation at the facility that included the installation of pollution control equipment and is accompanied by a net reduction in the allowable emissions of a pollutant. This exclusion from the definition of dispersion techniques shall apply only to the emission limitation for the pollutant affected by such change in operation; or

(C) Before July 8, 1985, such merging was part of a change in operation at the facility that included the installation of emissions control equipment or was carried out for sound economic or engineering reasons. Where there was an increase in the emission limitation or, in the event that no emission limitation was in existence prior to the merging, an increase in the quantity of pollutants actually emitted prior to the merging, the Director shall presume that merging was significantly motivated by an intent to gain emission credit for greater dispersion. Absent a demonstration by the source owner or operator that merging was not significantly motivated by such intent, the Director shall deny credit for the effects of such merging in calculating the allowable emissions for the source;

(3) Smoke Management in agricultural or silvicultural prescribed burning programs;

(4) Episodic restrictions on residential wood burning and open burning; or

(5) Techniques under Section 45.1-A.20.a(3) which increase final exhaust gas plume rise where the resulting allowable emission of sulfur dioxide from the facility do not exceed 5,000 tons per year.

21. "Electric utility steam generating unit" means any steam electric generating unit that is constructed for the purpose of supplying more than one-third of its potential electric output capacity and more than 25 MW electrical output to any utility power distribution system for sale. Any steam supplied to a steam distribution system for the purpose of providing steam to a steam-electric generator that would produce electrical energy for sale is also considered in determining the electrical energy output capacity of the affected facility.

22. Reserved

23. "Emissions unit" means any part of a stationary source that emits or would have the potential to emit any regulated NSR pollutant and includes an electric utility steam generating unit as defined in Section 45.1-A.21. For purposes of this paragraph, there are two types of emissions units described as follows:

a. A new emissions unit is any emissions unit that is (or will be) newly constructed and that has existed for less than 2 years from the date such emissions unit first operated.

b. An existing emissions unit is any emissions unit that does not meet the requirements in Section 45.1-A.23.a. A replacement unit, as defined in Section 45.1-A.53, is an existing emissions unit.

24. "Excessive concentration" means, for the purpose of determining good engineering practice stack height:

a. For sources seeking credit for stack height exceeding that established under Section 45.1-A.28.c, a maximum ground-level concentration due to emissions from a stack due in whole or part to downwash, wakes, or eddy effects produced by nearby structures or nearby terrain features which individually is at least 40 percent in excess of the maximum concentrations experienced in the absence of such downwash, wakes, or eddy effects and which contributes to a total concentration due to emissions from all sources that is greater than an ambient air quality standard. For sources subject to Section 45.2, an excessive concentration alternatively means a maximum ground-level concentration due to emissions from a stack due in whole or part to downwash, wakes, or eddy effects produced by nearby structures or nearby terrain features which individually is at least 40 percent in excess of the maximum concentration experienced in the absence of such downwash, wakes, or eddy effects and greater than a prevention of significant deterioration increment. The allowable emission rate to be used in making demonstrations shall be prescribed by the new source performance standard that is applicable to the source category unless the owner or operator demonstrates this emission rate to be infeasible. Where such demonstrations are approved by the Director, an alternative emission rate shall be established in consultation with the source owner or operator;

b. For sources seeking credit after October 11, 1983, for increases in existing stack heights up to the heights established under Section 45.1-A.28.b, either

(1) A maximum ground-level concentration due in whole or part to downwash, wakes, or eddy effects as provided in Section 45.1-A.24.a, except that the emission rate specified by an applicable State Implementation Plan (or, in the absence of such a limit the actual emission rate) shall be used, or

(2) The actual presence of a local nuisance caused by the existing stack as determined by the Director; and

c. For source seeking credit after January 12, 1979, for a stack height determined under Section 45.1-A.28.b where the Director requires the use of a field study or fluid model to verify GEP stack height, for sources seeking stack height credit after November 9, 1984, based on the aerodynamic influence of cooling towers and for sources seeking stack height credit after December 31, 1970, based on the aerodynamic influence of structures not adequately represented by the equations in Section 45.1-A.28.c, a maximum ground-level concentration due in whole or in part to downwash, wakes, or eddy effects that is at least 40 percent in excess of the maximum concentration experienced in the absence of such downwash, wakes, or eddy effects.

25. "Federal Land Manager" means, with respect to any lands in the United States, the Secretary of the department with authority over such lands.

26. “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 State Implementation Plan, any permit requirements established pursuant to 40 CFR Subpart 52.21 or under regulations approved pursuant to 40 CFR Part 51, Subpart I, including operating permits issued under an EPA-approved program that is incorporated into the State Implementation Plan and expressly requires adherence to any permit issued under such program.

27. "Fugitive emissions" means those emissions which could not reasonably pass through a stack, chimney, vent, roof monitor, or other functionally equivalent opening.

28. “Good engineering practice” stack height means the greater of:

a. 65 meters measured from the ground-level elevation at the base of the stack; or

b. For stacks in existence on January 12, 1979, and for which the owner or operator had obtained all applicable permits or approvals required under Section 25.0,

H_g = 2.5H, provided the owner or operator produces evidence that this equation was actually relied on in establishing an emission limitation;

c. For all other stacks, H_g = H + 1.5L, where H_g = good engineering practice stack height, measured from the ground-level elevation at the base of the stack, H = height of nearby structure(s) measured from the ground-level elevation at the base of the stack, and L = lesser dimension, height or projected width, of nearby structure(s), provided that the Director and EPA may require the use of field study or fluid model to verify Good Engineering Practice Stack Height for the sources; or

d. The height demonstrated by a fluid model or a field study approved by EPA or the Director, which ensures that the emissions from a stack do not result in excessive concentrations of any air contaminant as a result of atmospheric downwash, wakes, or eddy effects created by the source itself, nearby structures, or nearby terrain features. Before such a height is approved, the Director shall notify the public by advertisement in a local newspaper of the demonstration study, and of the opportunity for comments at a public hearing, if a public hearing is requested in writing.

29. "High terrain" means any area having an elevation 900 feet or more above the base of the stack of a source.

30. "Innovative control technology" means any system of air pollution control that has not been adequately demonstrated in practice, but would have a substantial likelihood of achieving greater continuous emissions reduction than any control system in current practice or of achieving at least comparable reductions at lower cost in terms of energy, economics, or non-air quality environmental impacts.

31. “Legally enforceable” means all limitations and conditions which are enforceable by the Knox County Department of Air Quality Management and any permit requirements established pursuant to the Knox County Air Quality Management Regulations.

32. "Low terrain" means any area other than high terrain.

33. "Lowest achievable emission rate (LAER)” means, for any stationary source, the more stringent rate of emissions based on the following:

a. The most stringent emissions limitation which is contained in the implementation plan of any State for such class or category of stationary source, unless the owner or operator of the proposed source demonstrates that such limitations are not achievable; or

b. The most stringent emissions limitation which is achieved in practice by such class or category of stationary sources. This limitation, when applied to a modification, means the lowest achievable emissions rate for the new or modified emissions units within the stationary source. In no event shall the application of this term permit a proposed new or modified stationary source to emit any pollutant in excess of the amount allowable under 40 CFR Part 60 - New Source Performance Standards.

34. "Major modification" means –

a. Any physical change in or change in the method of operation of a major stationary source that would result in: a significant emissions increase (as defined in Section 45.1-A.57) of a regulated NSR pollutant (as defined in Section 45.1-A.52); and a significant net emissions increase of that pollutant from the major stationary source.

b. Any significant emissions increase (as defined in Section 45.1-A.57) from any emissions units or net emissions increase (as defined in Section 45.1-A.41) at a major stationary source that is significant for volatile organic compounds or NO_X shall be considered significant for ozone.

c. A physical change or change in the method of operation shall not include:

(1) Routine maintenance, repair, and replacement;

(2) Use of an alternative fuel or raw material by reason of any order under Paragraph 2(a) and (b) of the Energy Supply and Environmental Coordination Act of 1974 (or any superseding legislation) or by reason of a natural gas curtailment plan pursuant to the federal power act;

(3) Use of an alternative fuel by reason of an order or rule under Section 125 of the Act;

(4) Use of an alternative fuel at a steam generating unit to the extent that the fuel is generated from municipal solid waste;

(5) Use of an alternative fuel or raw material by a stationary source which:

(A) The source was capable of accommodating before January 6, 1975 (December 21, 1976 for nonattainment areas), unless such change would be prohibited under a federally enforceable permit condition which was established after January 6, 1975 (December

21, 1976 for nonattainment areas), pursuant to 40 CFR Part 52.21, or under regulations approved pursuant to 40 CFR Part 51 Subpart I or 51.166; or

(B) The source is approved to use under any permit issued under 40 CFR Subpart 52.21 or under regulations approved pursuant to 40 CFR Subpart 51.166;

(6) An increase in the hours of operation or in the production rate, unless such change would be prohibited under a federally enforceable permit condition which was established after January 6, 1975 (December 21, 1976 for nonattainment areas), pursuant to 40 CFR Part 52.21 or regulations approved pursuant to 40 CFR Part 51 Subpart I or 40 CFR Part 51.166.

(7) Any change in ownership at a stationary source.

(8) The installation, operation, cessation, or removal of a temporary clean coal technology demonstration project, provided that the project complies with:

(A) The State Implementation Plan for the State in which the project is located; and

(B) Other requirements necessary to attain and maintain the national ambient air quality standards during the project and after it is terminated.

(9) The installation or operation of a permanent clean coal technology demonstration project that constitutes repowering, provided that the project does not result in an increase in the potential to emit of any regulated pollutant emitted by the unit. This exemption shall apply on a pollutant-by-pollutant basis.

(10) The reactivation of a very clean coal-fired electric utility steam generating unit.

d. This definition does not apply with respect to a particular regulated NSR pollutant when the major stationary source is complying with the requirements under Section 45.2-O for a PAL for that pollutant. Instead, the definition in Section 45.2-O.2.h shall apply.

35. "Major source baseline date" means –

a. In the case of PM_{10} and sulfur dioxide, January 6, 1975;

b. In the case of nitrogen dioxide, February 8, 1988; and

c. In the case of $PM_{2.5}$, October 20, 2010.

36. "Major stationary source" means –

a. Any of the following stationary sources which emit or have the potential to emit 100 tons per year of any regulated NSR pollutant:

(1) Fossil fuel fired steam electric plants of more than 250 million British thermal units per hour heat input;

(2) Coal cleaning plants (with thermal dryers);

(3) Kraft pulp mills;

(4) Portland cement plants;

(5) Primary zinc smelters;

(6) Iron and steel mill plants;

(7) Primary aluminum ore reduction plants;

(8) Primary copper smelters;

(9) Municipal incinerators capable of charging more than 250 tons of refuse per day;

(10) Hydrofluoric, sulfuric, and nitric acid plants;

(11) Petroleum refineries;

(12) Lime plants;

(13) Phosphate rock processing plants;

(14) Coke oven batteries;

(15) Sulfur recovery plants;

(16) Carbon black plants (furnace process);

(17) Primary lead smelters;

(18) Fuel conversion plants;

(19) Sintering plants;

(20) Secondary metal production plants;

(21) Chemical process plants;

(22) Fossil fuel boilers (or combinations thereof) totaling more than 250 million British thermal units per hour heat input;

(23) Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels;

(24) Taconite ore processing plants;

(25) Glass fiber processing plants;

(26) Charcoal production plants;

b. Notwithstanding the stationary source size specified in Section 45.1-A.36.a, any stationary source which emits, or has the potential to emit, 250 tons per year or more of a regulated NSR pollutant; or

c. Any physical change that would occur at a stationary source not otherwise qualifying as a major stationary source, under Section 45.1-A.36, if the change would constitute a major stationary source by itself.

d. A major stationary source that is major for volatile organic compounds or nitrogen oxides shall be considered major for ozone.

e. The fugitive emissions of a stationary source shall not be included in determining for any of the purposes of this Section whether it is a major

stationary source, unless the source belongs to one of the following categories of stationary sources:

(1) Source categories listed in Section 45.1-A.36.a; and

(2) Any other stationary source category which, as of August 7, 1980, is being regulated under Section 111 or 112 of the Act.

37. "Minor source baseline date" means the earliest date after the trigger date on which a major stationary source or a major modification subject to 40 CFR 52.21 or to regulations approved pursuant to 40 CFR 51.166 submits a complete application under the relevant regulations. The trigger date is:

a. In the case of PM_{10} and sulfur dioxide, August 7, 1977;

b. In the case of nitrogen dioxide, February 8, 1988; and

c. In the case of $PM_{2.5}$, October 20, 2011.

38. "Minor stationary source" means any stationary source that is not a major stationary source and is required to obtain a construction permit, in accordance with the provisions of Section 25.0.

39. "Nearby" as used in Section 45.1-A.28 is defined for a specific structure or terrain feature and the height of the terrain feature or structure is measured from the ground-level elevation of the stack:

a. For purposes of applying the formula provided in Section 45.1-A.28 means that distance up to five times the lesser of the height or the width dimension of a structure, but not greater than 0.8 km (0.5 mile); and

b. For conducting demonstrations under Section 45.1.A.28.d means not greater than 0.8 km (0.5 mile), except that the portion of a terrain feature may be considered to be nearby which falls within a distance of up to 10 times the maximum height of the feature, not to exceed 3.2 km (2 miles) if such feature achieves a height of 0.8 km (0.5 mile) from the stack that is greater than or equal to 40 percent of the GEP stack height determined by the formula provided in Section 45.1.A.28 or 26 meters whichever is greater, as measured from the ground-level elevation at the base of the stack.

40. "Necessary preconstruction approvals or permits" means those permits or approvals required under Federal air quality control laws and Section 25.0 and Section 41.0 or Section 45.0.

41. "Net emissions increase" means –

a. With respect to any regulated NSR pollutant emitted by a major stationary source, the amount by which the sum of the following exceeds zero:

(1) The increase in emissions from a particular physical change or change in the method of operation at a stationary source, as calculated pursuant to Section 45.2-B.4.a through 45.2-B.4.e; and

(2) Any other increases and decreases in actual emissions at the major stationary source that are contemporaneous with the particular change and are otherwise creditable. Baseline actual emissions for calculating increases and decreases under this item shall be determined as provided in Section 45.1-A.5.a through 45.1-A.5.d, except that Section 45.1-A.5.a(3) and 45.1-A.5.b(4) shall not apply.

b. An increase or decrease in actual emissions is contemporaneous with the increase from the particular change only if it occurs between:

(1) The date five years before a completed application for the particular change is submitted; and

(2) The date that the increase from the particular change occurs.

c. An increase or decrease in actual emissions is creditable only if:

(1) It occurs within the five years prior to the date a completed application for the particular change is submitted; and

(2) The Director has not relied on it in issuing a permit for the source under regulations approved pursuant to this rule, which permit is in effect when the increase in actual emissions from the particular change occurs.

d. An increase or decrease in actual emissions of sulfur dioxide, particulate matter, or nitrogen oxides that occurs before the applicable minor source baseline date is creditable only if it is required to be considered in calculating the amount of maximum allowable increases remaining available.

e. An increase in actual emissions is creditable only to the extent that the new level of actual emissions exceeds the old level.

f. A decrease in actual emissions is creditable only to the extent that:

(1) The old level of actual emissions or the old level of allowable emissions, whichever is lower, exceeds the new level of actual emissions;

(2) It is enforceable as a practical matter at and after the time that actual construction on the particular change begins;

(3) It has approximately the same qualitative significance for public health and welfare as that attributed to the increase from the particular change; and

g. An increase that results from a physical change at a source occurs when the emissions unit on which construction occurred becomes operational and begins to emit a particular pollutant. Any replacement unit that requires shakedown becomes operational only after a reasonable shakedown period as determined by the Director, not to exceed 180 days.

h. Section 45.1-A.1.b shall not apply for determining creditable increases and decreases.

42. "Nonattainment area" means a geographical area designated by the Environmental Protection Agency pursuant to Section 107 of the Act.

43. "Nonattainment major new source review (NSR) program" means a major source preconstruction permit program that has been approved by the Administrator and incorporated into the State Implementation Plan to implement the requirements of 40 CFR 51.165, or a program that implements Part 51, Appendix S, Sections I through VI. Any permit issued under such a program is a major NSR permit.

44. "Pollution prevention" means any activity that through process changes, product reformulation or redesign, or substitution of less polluting raw materials, eliminates or reduces the release of air pollutants (including fugitive emissions) and other pollutants to the environment prior to recycling, treatment, or disposal; it does not mean recycling (other than certain "in-process recycling" practices), energy recovery, treatment, or disposal.

45. "Potential to emit" means the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount

of material combusted, stored, or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable. Secondary emissions do not count in determining the potential to emit of a stationary source.

46. "Predictive emissions monitoring system (PEMS)" means all of the equipment necessary to monitor process and control device operational parameters (for example, control device secondary voltages and electric currents) and other information (for example, gas flow rate, O_2 or CO_2 concentrations), and calculate and record the mass emissions rate (for example, lb/hr) on a continuous basis.

47. "Prevention of Significant Deterioration (PSD) program" means a major source preconstruction permit program that has been approved by the Administrator and incorporated into the State Implementation Plan to implement the requirements of 40 CFR Subpart 51.166. Any permit issued under such a program is a major NSR permit.

48. "Project" means a physical change in, or change in method of operation of, an existing major stationary source.

49. "Projected actual emissions" means –

a. The maximum annual rate, in tons per year, at which an existing emissions unit is projected to emit a regulated NSR pollutant in any one of the 5 years (12-month period) following the date the unit resumes regular operation after the project, or in any one of the 10 years following that date, if the project involves increasing the emissions unit's design capacity or its potential to emit that regulated NSR pollutant, and full utilization of the unit would result in a significant emissions increase, or a significant net emissions increase at the major stationary source.

b. In determining the projected actual emissions under Section 45.1-A.49 (before beginning actual construction), the owner or operator of the major stationary source:

(1) Shall consider all relevant information, including but not limited to, historical operational data, the company's own representations, the company's expected business activity and the company's highest projections of business activity, the company's filings with the State or Federal regulatory authorities, and compliance plans under the approved plan; and

(2) Shall include fugitive emissions to the extent quantifiable and emissions associated with startups, shutdowns, and malfunctions; and

(3) Shall exclude, in calculating any increase in emissions that results from the particular project, that portion of the unit's emissions following the project that an existing unit could have accommodated during the consecutive 24-month period used to establish the baseline actual emissions under Section 45.1-A.5 and that are also unrelated to the particular project, including any increased utilization due to product demand growth; or

(4) In lieu of using the method set out in Section 45.1-A.49.b(1) through (3), may elect to use the emissions unit's potential to emit, in tons per year, as defined under Section 45.1-A.45.

50. "Reasonably available control technology (RACT)" means devices, systems, process modifications, or other apparatus or techniques that are reasonably available taking into account:

a. The necessity of imposing such controls in order to attain and maintain a national ambient air quality standard;

b. The social, environmental, and economic impact of such controls; and

c. Alternative means of providing for attainment and maintenance of such standard. (This provision defines RACT for the purposes of 40 CFR 51.341(b) only.)

51. "Reasonable further progress" means such annual incremental reductions in emissions of the relevant air pollutant as are required by the Act or may reasonably by required by the Director for the purpose of ensuring attainment of the applicable national ambient air quality standard by the applicable date.

52. "Regulated NSR pollutant," for purposes of this Section, means the following:

a. Any pollutant for which a national ambient air quality standard has been promulgated and any pollutant identified under this definition as a constituent or precursor to such pollutant. Precursors identified by the Administrator for purposes of NSR are the following:

(1) Volatile organic compounds and nitrogen oxides are precursors to ozone in all attainment and unclassifiable areas.

(2) Sulfur dioxide is a precursor to $PM_{2.5}$ in all attainment and unclassifiable areas.

(3) Nitrogen oxides are presumed to be precursors to $PM_{2.5}$ in all attainment and unclassifiable areas, unless the Department has demonstrated to the Administrator's satisfaction or EPA demonstrates that emissions of nitrogen oxides from sources in a specific area are not a significant contributor to that area's ambient $PM_{2.5}$ concentrations.

(4) Volatile organic compounds are presumed not to be precursors to $PM_{2.5}$ in any attainment or unclassifiable area, unless the Department has demonstrated to the Administrator's satisfaction or EPA demonstrates that emissions of volatile organic compounds from sources in a specific area are a significant contributor to that area's ambient $PM_{2.5}$ concentrations.

b. Any pollutant that is subject to any standard promulgated under Section 111 of the Act;

c. Any Class I or II substance subject to a standard promulgated under or established by title VI of the Act;

d. Any pollutant that otherwise is subject to regulation under the Act as defined in Section 45.1-A.59.

e. Any pollutant that otherwise is subject to regulation under the Act; except that any or all hazardous air pollutants either listed in Section 112 of the Act or added to the list pursuant to Section 112(b)(2), which have not been delisted pursuant to Section 112(b)(3), are not regulated NSR pollutants unless the listed hazardous air pollutant is also regulated as a constituent or precursor of a general pollutant listed under section 108 of the Act.

f. $PM_{2.5}$ emissions and PM_{10} emissions shall include gaseous emissions from a source or activity which condense to form particulate matter at ambient temperatures. On or after January 1, 2011, such condensable particulate matter shall be accounted for in applicability determinations and in establishing emissions limitations for $PM_{2.5}$ and PM_{10} in PSD permits. Compliance with emissions limitations for $PM_{2.5}$ and PM_{10} issued prior to this date shall not be based on condensable particulate matter unless required by the terms and conditions of the permit or the applicable implementation plan. Applicability determinations made prior to this date without accounting for condensable particulate matter shall not be considered in violation of this

Section unless the applicable implementation plan required condensable particulate matter to be included.

53. "Replacement unit" means an emissions unit for which all the criteria listed in Section 45.1-A.53.a through 45.1-A.53.d are met. No creditable emission reductions shall be generated from shutting down the existing emissions unit that is replaced.

a. The emissions unit is a reconstructed unit within the meaning of 40 CFR Part 60.15(b)(1) or the emissions unit completely takes the place of an existing emissions unit.

b. The emissions unit is identical to or functionally equivalent to the replaced emissions unit.

c. The replacement does not change the basic design parameter(s) of the process unit. Basic design parameters shall include maximum rate of fuel or heat input, maximum rate of material input, or maximum rate of product output.

d. The replaced emissions unit is permanently removed from the major stationary source, otherwise permanently disabled, or permanently barred from operation by a permit that is enforceable as a practical matter. If the replaced emissions unit is brought back into operation, it shall constitute a new emissions unit.

54. "Repowering" means –

a. Replacement of an existing coal-fired boiler with one of the following clean coal technologies: atmospheric or pressurized fluidized bed combustion, integrated gasification combined cycle, magnetohydrodynamics, direct and indirect coal-fired turbines, integrated gasification fuel cells, or as determined by the Administrator, in consultation with the Secretary of Energy, a derivative of one or more of these technologies, and any other technology capable of controlling multiple combustion emissions simultaneously with improved boiler or generation efficiency and with significantly greater waste reduction relative to the performance of technology in widespread commercial use as of November 15, 1990.

b. Repowering shall also include any oil and/or gas-fired unit which has been awarded clean coal technology demonstration funding as of January 1, 1991, by the Department of Energy.

c. The Director shall give expedited consideration to permit applications for any source that satisfies the requirements of this definition and is granted an extension under Section 409 of the Act.

55. "Secondary emissions" means emissions which occur as a result of the construction or operation of a major stationary source or major modification, but do not come from the major stationary source or major modification itself. For the purpose of this rule, secondary emissions must be specific, well defined, quantifiable, and impact the same general area as the stationary source or modification which causes the secondary emissions. Secondary emissions include emissions from any offsite support facility which would not otherwise be constructed or increase its emissions except as a result of the construction or operation of the major stationary source or major modification. Secondary emissions do not include any emissions which come directly from a mobile source, such as emissions from the tailpipe of a motor vehicle, from a train, or from a vessel.

56. "Significant" means –

a. In reference to a net emissions increase or the potential of a source to emit any of the following pollutants, a rate of emissions that would equal or exceed any of the following rates:

(1) Carbon monoxide: 100 tons per year (tpy)

(2) Nitrogen oxides: 40 tpy

(3) Sulfur dioxide: 40 tpy

(4) Particulate matter: 25 tpy

(5) PM_{10}: 15 tpy

(6) $PM_{2.5}$: 10 tpy of direct $PM_{2.5}$ emissions; 40 tpy of sulfur dioxide emissions; 40 tpy of nitrogen oxide emissions unless demonstrated not to be a $PM_{2.5}$ precursor under 45.1-A.52.

(7) Ozone: 40 tpy of volatile organic compounds or nitrogen oxides

(8) Lead: 0.6 tpy

(9) Fluorides: 3 tpy

(10) Sulfuric acid mist: 7 tpy

(11) Hydrogen sulfide (H_2S): 10 tpy

(12) Total reduced sulfur (including H_2S): 10 tpy

(13) Reduced sulfur compounds (including H_2S): 10 tpy

(14) Municipal waste combustor organics (measured as total tetra-through octa-chlorinated dibenzo-p-dioxins and dibenzofurans): 3.2×10^{-6} megagrams per year (3.5×10^{-6} tons per year)

(15) Municipal waste combustor metals (measured as particulate matter): 14 megagrams per year (15 tons per year)

(16) Municipal waste combustor acid gases (measured as sulfur dioxide and hydrogen chloride): 36 megagrams per year (40 tons per year)

(17) Municipal solid waste landfill emissions (measured as nonmethane organic compounds): 45 megagrams per year (50 tons per year)

b. In reference to a net emission increase or the potential of a source to emit a regulated NSR pollutant that Section 45.1-A.56.a, does not list, any emission rate.

c. Notwithstanding Section 45.1-A.56.a, any emission rate or any net emissions increase associated with a major stationary source or major modification, which would construct within 10 kilometers of a Class I area, and have an impact on such area equal to or greater than 1 $\mu g/m^3$.

57. “Significant emissions increase” means, for a regulated NSR pollutant, an increase in emissions that is significant (as defined in Section 45.1-A.56) for that pollutant.

58. "Stationary source" means any building, structure, facility, or installation which emits or may emit a regulated NSR pollutant.

59. “Subject to regulation” means, for any air pollution, that the pollutant is subject to either a provision in the Clean Air Act, or a nationally-applicable regulation codified by the Administrator in subchapter C of Chapter I of Title 40 of the Code of Federal

Regulations, that requires actual control of the quantity of emissions of that pollutant, and that such a control requirement has taken effect and is operative to control, limit or restrict the quantity of emissions of that pollutant released from the regulated activity. Except that:

a. Greenhouse gases (GHGs), the air pollutant defined in 40 CFR 86.1818-12(a) as the aggregate group of six greenhouse gases: Carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride, shall not be subject to regulation except as provided in Section 45.1-A.59.d.

b. For purposes of Section 45.1-A.59.c through 45.1-A.59.d, the term tpy CO_2 equivalent emissions (CO_2e) shall represent an amount of GHGs emitted, and shall be computed as follows:

(1) Multiplying the mass amount of emissions (tpy), for each of the six greenhouse gases in the pollutant GHGs, by the gas's associated global warming potential published at Table A-1 to subpart A of 40 CFR 98 - Global Warming Potentials. For purposes of Section 45.1-A.59.b(1), prior to July 21, 2014, the mass of the greenhouse gas carbon dioxide shall not include carbon dioxide emissions resulting from the combustion or decomposition of non-fossilized and biodegradable organic material originating from plants, animals, or micro-organisms (including products, by-products, residues and waste from agriculture, forestry and related industries as well as the non-fossilized and biodegradable organic fractions of industrial and municipal wastes, including gases and liquids recovered from the decomposition of non-fossilized and biodegradable organic material).

(2) Sum the resultant value from Section 45.1-A.59.b(1) for each gas to compute a tpy CO_2e.

c. The term *emissions increase* as used in Section 45.1-A.59.d shall mean that both a significant emissions increase (as calculated using the procedures in Section 45.2-B.4.a through 45.2-B.4.e) and a significant net emissions increase (as defined in Section 45.1-A.41 and 45.1-A.56) occur. For the pollutant GHGs, an emissions increase shall be based on tpy CO_2e, and shall be calculated assuming the pollutant GHGs is a regulated NSR pollutant, and "significant" is defined as 75,000 tpy CO_2e instead of applying the value in Section 45.1-A.56.b.

d. Beginning January 2, 2011, the pollutant GHGs is subject to regulation if:

(1) The stationary source is a new major stationary source for a regulated NSR pollutant that is not GHGs, and also will emit or will have the potential to emit 75,000 tpy CO_2e or more; or

(2) The stationary source is an existing major stationary source for a regulated NSR pollutant that is not GHGs, and also will have an emissions increase of a regulated NSR pollutant, and an emissions increase of 75,000 tpy CO_2e or more.

60. "Temporary clean coal technology demonstration project" means a clean coal technology demonstration project that is operated for a period of 5 years or less, and which complies with the State Implementation Plan for the State in which the project is located and other requirements necessary to attain and maintain the national ambient air quality standards during and after the project is terminated.

61. "Volatile organic compounds (VOC)" means any compound as defined by 40 CFR Part 51, Subpart F.

45.2 Prevention of Significant Deterioration

A. The Director shall not grant a permit for the construction or modification of any air contaminant source in an attainment or unclassified area if such construction or modification will interfere with the maintenance of an air quality standard or PSD increment where applicable, or will violate any provisions of the Knox County Air Quality Management Regulations or Section 165 (a)(3) of the Act.

B. Applicability

1. The requirements of this Section apply to the construction of any new major stationary source (as defined in Section 45.2-A.36) or any project at an existing major stationary source in an area designated as attainment or unclassifiable under sections 107(d)(1)(A)(ii) or (iii) of the Federal Clean Air Act.

2. The requirements of Sections 45.2-D.1, 45.2-D.2, 45.2-D.6, 45.2-I, 45.2-J, 45.2-K, 45.2-L, and 45.2-N.1 through 45.2-N.4 apply to the construction of any new major stationary source or the major modification of any existing major stationary source, except as Section 45.2 otherwise provides.

3. No new major stationary source or major modification to which the requirements of Sections 45.2-D.1, 45.2-D.2, 45.2-D.6, 45.2-I, 45.2-J, 45.2-K, 45.2-L, and 45.2-N.1 through 45.2-N.4 apply shall begin actual construction without a permit

that states that the major stationary source or major modification will meet those requirements.

4. a. Except as otherwise provided in Section 45.2-B.5 and consistent with the definition of a major modification contained in Section 45.1-A.34, a project is a major modification for a regulated NSR pollutant if it causes two types of emissions increases - a significant emissions increase (as defined in Section 45.1-A.57), and a significant net emissions increase (as defined in Section 45.1-A.41 and Section 45.1-A.56). The project is not a major modification if it does not cause a significant emissions increase. If the project causes a significant emissions increase, then the project is a major modification only if it also results in a significant net emissions increase.

b. The procedure for calculating (before beginning actual construction) whether a significant emissions increase (*i.e.,* the first step of the process) will occur depends upon the type of emissions units being modified, according to Section 45.2-B.4.c through 45.2-B.4.e. The procedure for calculating (before beginning actual construction) whether a significant net emissions increase will occur at the major stationary source (*i.e.,* the second step of the process) is contained in the definition in Section 45.1-A.41. Regardless of any such preconstruction projections, a major modification results if the project causes a significant emissions increase and a significant net emissions increase.

c. Actual-to-projected-actual applicability test for projects that only involve existing emissions units. A significant emissions increase of a regulated NSR pollutant is projected to occur if the sum of the difference between the projected actual emissions (as defined in Section 45.1-A.49) and the baseline actual emissions (as defined in Section 45.1-A.5.a and b) for each existing emissions unit, equals or exceeds the significant amount for that pollutant (as defined in Section 45.1-A.56).

d. Actual-to-potential test for projects that only involve construction of a new emissions unit(s). A significant emissions increase of a regulated NSR pollutant is projected to occur if the sum of the difference between the potential to emit (as defined in Section 45.1-A.45) from each new emissions unit following completion of the project and the baseline actual emissions (as defined in Section 45.1-A.5.c) of these units before the project equals or exceeds the significant amount for that pollutant (as defined in Section 45.1-A.56).

e. Hybrid test for projects that involve multiple types of emissions units. A significant emissions increase of a regulated NSR pollutant is projected to occur if the sum of the emissions increases for each emissions unit, using the method specified in Section 45.2-B.4.c and d as applicable with respect to each emissions unit, for each type of emissions unit equals or exceeds the significant amount for that pollutant (as defined in Section 45.1-A.56).

5. For any major stationary source for a PAL for a regulated NSR pollutant, the major stationary source shall comply with requirements under Section 45.2-O.

C. Major stationary sources and major modifications are exempt from the requirements of 45.2-D, 45.2-I, 45,2-J, 45.2-K, 45.2-L, and 45.2-N in accordance with the following:

1. Reserved

2. Major stationary sources or major modifications as defined in Section 45.1-A.36 and 45.1-A.34 shall not be subject to the requirements of this Section 45.2 if the source or modification would be a major stationary source or major modification only if fugitive emissions, to the extent quantifiable, are considered in calculating the potential to emit of the stationary source or modification and such source does not belong to any of the categories listed under Section 45.1-A.36.a or Section 45.1-A.36.e(2).

3. No major stationary source or major modification as defined in Section 45.1-A.36 and 45.1-A.34 shall be subject to the requirements of Section 45.2 with respect to a particular pollutant if the owner or operator demonstrates that, as to that pollutant, the source or modification is located in an area designated as nonattainment as defined in Section 45.1-A.42.

4. Source impact and air quality analysis as required in Section 45.2-D shall not apply to a proposed major stationary source or major modification with respect to a particular pollutant, if the allowable emissions of that pollutant from a new source, or the net emissions increase of that pollutant from a modification, would be temporary and impact no Class I area and no area where an applicable increment is known to be violated.

5. Source impact and air quality analysis as required in Section 45.2-D as they relate to any maximum allowable increase for a Class II area do not apply to a major modification of a stationary source that was in existence on March 1, 1978, if the net increase in allowable emissions of each regulated NSR pollutant from the modification after the application of best available control technology would be less than 50 tons per year.

6. Air quality analysis as required in Section 45.2-D may be exempted with respect to preconstruction monitoring for a particular pollutant by the Director if:

a. The emissions increase of the pollutant from a new stationary source or the net emissions increase of the pollutant from a modification would cause, in any area, air quality impacts less than the following amounts:

(1) Carbon monoxide - 575 $\mu g/m^3$, 8-hour average;

(2) Nitrogen dioxide - 14 $\mu g/m^3$, annual average;

(3) PM_{10} – 10 $\mu g/m^3$, 24-hour average;

(4) Sulfur dioxide - 13 $\mu g/m^3$, 24-hour average;

(5) Ozone - no de minimis air quality level has been established. However, any net increase of 100 tons per year or more of volatile organic compounds or nitrogen oxides subject to PSD would be required to perform an ambient impact analysis, including the gathering of ambient air quality data;

(6) Lead - 0.1 $\mu g/m^3$, 3-month average;

(7) Fluorides - 0.25 $\mu g/m^3$, 24-hour average;

(8) Total reduced sulfur – 10 $\mu g/m^3$, 1-hour average;

(9) Reduced sulfur compounds - 10 $\mu g/m^3$, l-hr. average;

(10) Hydrogen sulfide – 0.2 $\mu g/m^3$, 1-hour average; or

b. The pollutants are not listed in Section 45.2-C.6.a; or

c. Representative existing ambient air quality data, consistent with the requirements of the Ambient Monitoring Guideline for Prevention of Significant Deterioration (PSD), EPA-450/4-87-007, are available for any pollutant as emitted by a major stationary source, or major modification; or

d. The existing air pollutant levels are conservatively estimated to be less than the concentrations listed in Section 45.2-C.6.a, and a monitoring network may not reliably measure the predicted background concentrations; or

e. The concentrations of the pollutant in the area that the source or modification would affect are less than the concentrations listed in Section 45.2-C.6.a.

7. A portable stationary source which has previously received a construction approval under the requirements of this Sections 45.2-D, 45.2-I, 45,2-J, 45.2-K, 45.2-L, and 45.2-N may relocate if:

a. Emissions from the source would be temporary and would not exceed its allowable emissions; and

b. The emissions from the source would impact no Class I area and no area where an applicable increment is known to be violated; and

c. Notice shall be given to the Director 30 days prior to the relocation, giving the new temporary location and the probable length of operation at the new location.

8. Exclusions from Increment Consumption

a. Maximum allowable increases (ambient air increments) as specified in Section 45.2-E shall not apply to concentrations as described below.

(1) Concentrations attributable to the increase in emissions from stationary sources which have converted from the use of petroleum products, natural gas, or both by reason of an order in effect under Sections 2(a) and (b) of the Energy Supply and Environmental Coordination Act of 1974 (or any superseding legislation) over the emissions from such sources before the effective date of such an order;

(2) Concentrations attributable to the increase in emissions from sources which have converted from using natural gas by reason of a natural gas curtailment plan in effect pursuant to the Federal Power Act over the emissions from such sources before the effective date of such plan;

(3) Concentrations of particulate matter attributable to the increase in emissions from construction or other temporary emissions-related activities of new or modified sources;

(4) Concentrations attributable to the temporary increase in emissions of sulfur dioxide, particulate matter, or nitrogen oxides from stationary sources which are affected by plan revisions approved as meeting the criteria specified in Section 45.2-C.8.c.

b. No exclusion of such concentrations shall apply more than five years after the effective date of the order to which Section 45.2-C.8.a(1) or plan to which Section 45.2-C.8.a(2) refers, whichever is applicable. If both such order and plan are applicable, no such exclusion shall apply more than five years after the later of such effective dates.

c. For purposes of excluding concentrations pursuant to Section 45.2-C.8.a(4), the proposed plan revision shall:

(1) Specify the time over which the temporary emissions increase of sulfur dioxide, particulate matter, or nitrogen oxides would occur. Such time is not to exceed two years in duration.

(2) Specify that the time period for excluding certain contributions in accordance with Section 45.2-C.8.c.(1) is not renewable.

(3) Allow no emission increase from a stationary source which would:

(A) Impact a Class I area or an area where an applicable increment is known to be violated; or

(B) Cause or contribute to the violation of a National Ambient Air Quality Standard;

(4) Require limitations to be in effect at the end of the time period specified in accordance with Section 45.2-C.8.c(1) which would ensure that the emissions levels from stationary sources affected by the plan revision would not exceed those levels occurring from such sources before the plan revision was approved.

D. The owner or operator of the proposed major stationary source or major modification:

1. Shall demonstrate by performing source impact analysis that allowable emission increases from the proposed source or modification, in conjunction with all other applicable emissions increases or reduction (including secondary emissions) would not cause or contribute to air pollution in violation of:

a. Any National Ambient Air Quality Standard in the air quality control region.

b. Any applicable maximum allowable increase over the baseline concentration in any area.

2. Shall submit all data necessary to make the analyses and determinations required under Section 45.2.

a. The data shall include:

(1) A description of the nature, location, design capacity, and typical operating schedule of the source or modification, including specifications and drawings needed for the review showing its design and plant layout.

(2) A detailed proposed schedule for construction of the source or modification.

(3) A detailed description as to what system of continuous emission reduction is planned for the source or modification, emission estimates, and any other information necessary to determine that best available control technology (BACT) would be applied where required by Section 45.2-I.

(4) Additional impact analysis

(A) The impairment to visibility, soils, and vegetation that would occur as a result of the source or modification and the associated general commercial, residential, industrial, and other growth. Vegetation having no significant commercial or recreational value may be excluded from the analysis.

(B) The air quality impact projected for the area as a result of general commercial, residential, industrial, and other growth associated with the source or modification.

(C) The Director may require monitoring of visibility in any Federal Class I area near the proposed new stationary source or major modification, for such purposes and by such means as the Director deems necessary and appropriate.

b. Upon request by the Director, the owner or operator shall also provide information on:

(1) The air quality impact of the source or modification, including meteorological and topographical data.

(2) The air quality impacts, and the nature and extent of any or all general commercial, residential, industrial, and other growth which has occurred since August 7, 1977 in the area the source or modification would affect. Such data in the possession of the Director shall be made available to the owner or operator.

3. Shall, after construction of the stationary source or modification, conduct such post-construction monitoring as the Director determines is necessary to determine the effect emissions from the stationary source or modification may have, or are having on air quality in any area.

4. Shall meet the quality assurance requirements as specified in 40 CFR Part 58, Appendix B, during the operation of monitoring stations for purposes of satisfying Sections 45.2-D.3 and 45.2-D.6.

5. Shall insure that the major stationary source or the major modification be in compliance with all applicable air emission limitations of the Knox County Air Quality Management Regulations.

6. Shall perform the preapplication air quality analysis as outlined below:

a. Any application for a construction permit pursuant to Section 45.0 shall contain an analysis of ambient air quality in the area that the major stationary source or major modification would affect for each of the following pollutants:

(1) For the source, each pollutant that it would have the potential to emit in a significant amount;

(2) For the modification, each pollutant for which it would result in a significant net emissions increase.

b. For a pollutant for which a National Ambient Air Quality Standard exists in these regulations (other than non-methane hydrocarbons), the analysis shall contain continuous air quality monitoring data gathered for purposes of determining whether emissions of that pollutant would cause or contribute to a violation of the standard or any maximum allowable increase unless specifically exempted in Section 45.2-C.

c. In general, the continuous air monitoring data that is required shall have been gathered over a period of one year and shall represent the year preceding receipt of the application, except that, if the Director determines that a complete and adequate analysis can be accomplished with monitoring data gathered over a period shorter than one year (but not to be less than four months), the data that is required shall have been gathered over at least that shorter period.

d. With respect to any pollutant for which no National Ambient Air Quality Standard exists, the analysis shall contain such air quality monitoring data as is determined by the Director and EPA to be necessary to assess ambient air quality for that pollutant in any area that the emissions of the pollutant would affect.

E. Ambient Air Increments. In areas designated as class I, II, or III, increases in pollutant concentration over the baseline concentration shall be limited to the following:

MAXIMUM ALLOWABLE INCREASE
(Micrograms per cubic meter)

Class I Area		
Pollutant		$\mu g/m^3$
$PM_{2.5}$:	Annual arithmetic mean	1
	24-hr maximum	2
PM_{10}:	Annual arithmetic mean	4
	24-hr maximum	8
Sulfur dioxide:	Annual arithmetic mean	2
	24-hr maximum	5
	3-hr maximum	25
Nitrogen dioxide:	Annual arithmetic mean	2.5

Class II Area

Pollutant		μg/m^3
$PM_{2.5}$:	Annual arithmetic mean	4
	24-hr maximum	9
PM_{10}:	Annual arithmetic mean	17
	24-hr maximum	30
Sulfur dioxide:	Annual arithmetic mean	20
	24-hr maximum	91
	3-hr maximum	512
Nitrogen dioxide:	Annual arithmetic mean	25

Class III Area		
Pollutant		μg/m^3
$PM_{2.5}$:	Annual arithmetic mean	8
	24-hr maximum	18
PM_{10}:	Annual arithmetic mean	34
	24-hr maximum	60
Sulfur dioxide:	Annual arithmetic mean	40
	24-hr maximum	182
	3-hr maximum	700
Nitrogen dioxide:	Annual arithmetic mean	50

For any period other than an annual period, the applicable maximum allowable increase may be exceeded during one such period per year at any one location.

F. Area classifications - For the purpose of Section 45.0, the following classifications shall apply:

1. Class I Areas - Great Smoky Mountains National Park, Joyce Kilmer Slickrock National Wilderness Area, and the Cohutta National Wilderness Area.

2. Class III Areas – None

3. Class II Areas - Remainder of Tennessee

Areas in surrounding states are classified as specified in the EPA approved implementation plan for each adjoining state.

G. Restrictions on area classifications.

1. All of the following areas which were in existence on August 7, 1977, shall be Class I areas and may not be redesignated:

   a. International parks,

   b. National wilderness areas which exceed 5,000 acres in size,

   c. National memorial parks which exceed 5,000 acres in size, and

   d. National parks which exceed 6,000 acres in size.

2. Areas which were redesignated as Class I before August 7, 1977, shall remain Class I, but may be redesignated as provided in Section 45.2-G.5.

3. Any other area, unless otherwise specified in the legislation creating such an area, is initially designated Class II, but may be redesignated as provided in Section 45.2-G.5.

4. The following areas may be redesignated only as Class I or II:

   a. An area which as of August 7, 1977, exceeded 10,000 acres in size and was a national monument, a national primitive area, a national preserve, a national recreational area, a national wild and scenic river, a national wildlife refuge, a national lakeshore or seashore; and

   b. A national park or national wilderness area established after August 7, 1977, which exceeds 10,000 acres in size.

5. In redesignation, the procedures specified in 40 CFR 51.166(g) shall be applied.

H. Ambient air ceilings

1. No concentration of a pollutant shall exceed the concentration permitted under the National Secondary Ambient Air Quality Standard, or the concentration permitted under the National Primary Ambient Air Quality Standard, whichever concentration is lowest for the pollutant for a period of exposure.

2. Except as permitted by Section 123 of the Clean Air Act Amendments of 1977, dispersion techniques which exceed good engineering practice, and which were implemented after December 31, 1970, will not be considered when determining the emission limitations required for control of any pollutant.

I. Control Technology Review

1. A major stationary source or major modification shall meet each applicable emissions limitation outlined in Knox County Air Quality Management Regulations, and each applicable emission standard and standard of performance under 40 CFR Parts 60 and 61.

2. A new major stationary source shall apply best available control technology for each regulated NSR pollutant that it would have the potential to emit in significant amounts.

3. A major modification shall apply best available control technology for each regulated NSR pollutant for which it would result in a significant net emissions increase at the source. This requirement applies to each proposed emissions unit at which a net emissions increase in the pollutant would occur as a result of a physical change or change in the method of operation in the unit.

4. For phased construction projects, the determination of best available control technology shall be reviewed and modified as appropriate at the least reasonable time which occurs no later than 18 months prior to commencement of construction of each independent phase of the project. At such time, the owner or operator of the applicable stationary source may be required to demonstrate the adequacy of any previous determination of best available control technology for the source.

J. Air Quality Models

1. All estimates of ambient concentrations required under Section 45.2 shall be based on the applicable air quality models, data bases, and other requirements specified in 40 CFR Part 51 Appendix W. Where an air quality impact model specified in 40 CFR Part 51 Appendix W is inappropriate, the model may be

modified or another model substituted by the Director after consultation with the EPA Administrator. The use of a modified or substituted model must have written approval by the Administrator and be subject to notice and opportunity for public comment under procedures developed in accordance with Section 45.2-K.

K. Public Participation

1. Within 30 days after receipt of an application to construct, or any addition to such application, the Director shall advise the applicant of any deficiency in the application or in the information submitted. In the event of such a deficiency, the date of receipt of the application shall be, for the purpose of this Section 45.2-K, the date on which the Director received all required information.

2. Within sixty days after receipt of the completed application, the Director shall make a preliminary determination whether construction should be approved, approved with conditions, or disapproved.

3. Within seventy-five days after receipt of a completed application, the Director shall notify the public by advertisement in a local newspaper of the preliminary determination, the degree of increment consumption expected from the stationary source, and the opportunity for comments at a public hearing, if a public hearing is requested in writing, as well as written comments. A copy of all materials that the applicant submitted, a copy of the preliminary determination, and a copy or summary of the other materials considered in making the preliminary determination shall be made available to the public.

4. The Director shall send a copy of the Notice of Public Comment to the applicant; the Environmental Protection Agency, Region IV, Regional Administrator; The State of Tennessee, Division of Air Pollution Control Division; the Knox County Mayor; Mayor of Knoxville; the Mayor of the Town of Farragut; the Executive Director of the Knoxville/Knox County Metropolitan Planning Commission; and Federal Land Managers.

5. The Director shall consider all written comments submitted and all comments received at any public hearing in making a final decision. No later than ten days after the public comment period or after the public hearing, the owner or operator of the stationary source may submit a written response to any comments submitted by the public. The Director shall make all comments available for public inspection.

6. The Director shall make a final determination whether construction should be approved, approved with conditions, or disapproved within 180 days of receipt of the completed application. The applicant shall be notified of such final determination,

and the Director shall make such notification available for public inspection at the same location where the reviewing authority made available preconstruction information and public comments relating to the source.

L. Sources Impacting Class I Areas - Additional Requirements

1. Notice to Federal Land Managers and the EPA Administrator

The Director shall promptly provide written notice of receipt of any permit application for a proposed major stationary source or major modification, the emissions from which may affect a Class I area or which may have an adverse impact on visibility in any Class I area to the EPA Administrator, the Federal Land Manager, and the Federal official charged with direct responsibility for management of any lands within any such area. The Director shall transmit to the EPA Administrator and the Federal Land Manager a copy of each permit application relating to a major stationary source or major modification which would affect a Class I area. This application shall include a copy of all information relevant to the permit application and shall be given within 30 days of receipt of the permit application, and at least 60 days prior to any public hearing on the application for a permit to construct. Such notification shall include an analysis of the proposed source's anticipated impacts on visibility in the Federal Class I area. The Director shall also provide the EPA Administrator, the Federal Land Manager and such Federal officials with a copy of the preliminary determination and shall make available to them any materials used in making that determination promptly after the Director makes it. In addition, notification of public hearings, final determinations, and permits issued shall be provided. Finally, the Director shall also notify all affected Federal Land Managers within 30 days of receipt of any advance notification of any such permit application.

2. Denial - Impact on Air Quality Related Values

The Federal Land Manager of any such lands may demonstrate to the Director that the emissions from a proposed source or modification would have an adverse impact on the air quality-related values (including visibility) of those lands, notwithstanding that the change in air quality resulting from emissions from such source or modification would not cause or contribute to concentrations which would exceed the maximum allowable increases for a Class I area. If the Director concurs with such demonstration, then he shall not issue the permit.

3. Class I Variances

The owner or operator of a proposed source or modification may demonstrate to the Federal Land Manager that the emissions from such source or modification would

have no adverse impact on the air quality related values of any such lands (including visibility), notwithstanding that the change in air quality resulting from emissions from such source or modification would cause or contribute to concentrations which would exceed the maximum allowable increases for a Class I area. If the Federal Land Manager concurs with such demonstration and he so certifies, the Director, provided that the applicable requirements of Section 45.2 are otherwise met, may issue the permit with such emission limitations as may be necessary as approved by the Knox County Air Pollution Control Board to assure that emissions of sulfur dioxide, particulate matter, and nitrogen oxides would not exceed the following maximum allowable increases over baseline concentration for such pollutants:

MAXIMUM ALLOWABLE INCREASE
(Micrograms per cubic meter)

Class I Area		
Pollutant		$\mu g/m^3$
$PM_{2.5}$:	Annual arithmetic mean	4
	24-hr maximum	9
PM_{10}:	Annual arithmetic mean	17
	24-hr maximum	30
Sulfur dioxide:	Annual arithmetic mean	20
	24-hr maximum	91
	3-hr maximum	325
Nitrogen dioxide:	Annual arithmetic mean	25

4. Visibility Analysis

The Director shall consider any analysis performed by the Federal Land Manager, provided to the Director within 30 days of the notification and analysis required in Section 45.2-L.1, that shows that a proposed new major stationary source or major modification may have an adverse impact on visibility in any Federal Class I area. If the Director concurs with the analysis then he shall not issue the permit. Where the Director finds that such an analysis does not demonstrate to the satisfaction of the Director that an adverse impact on visibility will result in the Federal Class I area, the Director must, in the notice of public hearing on the permit application, either explain his decision or give notice as to where the explanation can be obtained.

M. Innovative Control Technology

1. The owner or operator of a proposed major stationary source or major modification may request that the Director approve a system of innovative control technology.

2. The Director, with the consent of the Governor(s) of the other affected State(s), may determine that the source or modification may employ a system of innovative control technology if:

a. The proposed control system would not cause or contribute to an unreasonable risk to public health, welfare, or safety in its operation or function.

b. The owner or operator agrees to achieve a level of continuous emissions reduction equivalent to that which would have been required under Section 45.2-I.2 by a date specified by the Director. Such date shall not be later than 4 years from the time of startup, or 7 years from permit issuance.

c. The source or modification would meet the requirements of Sections 45.2-D.1 and 45.2-I based on the emission rate that the stationary source employing the system of innovative control technology would be required to meet on the date specified by the Director.

d. The source or modification shall not before the date specified by the Director:

(1) Cause or contribute to a violation of an applicable ambient air quality standard; or

(2) Impact any area where an applicable increment is known to be violated;

e. All other applicable requirements including those for public participation have been met.

f. The system must satisfy all provisions of Section 45.2-L with respect to all periods during the life of the source or modification.

3. The Director shall withdraw any approval to employ a system of innovative control technology made under this Section 45.2-M, if:

a. The proposed system fails by the specified date to achieve the required continuous emissions reduction rate; or

b. The proposed system fails before the specified date so as to contribute to an unreasonable risk to public health, welfare, or safety; or

c. The Director decides at any time that the proposed system is unlikely to achieve the required level of control, or to protect the public health, welfare, or safety.

4. If a source or modification fails to meet the required level of continuous emission reduction within the specified time period or the approval is withdrawn in accordance with Section 45.2-M.3, the Director may allow the source or modification up to an additional 3 years to meet the requirement for the application of best available control technology through use of a demonstrated system of control.

N. Source Obligation

1. Any owner or operator who constructs or operates a source or modification not in accordance with the application submitted pursuant to this section or with the terms of any approval to construct, or any owner or operator of a source or modification subject to this section who commences construction after the effective date of these regulations without applying for and receiving approval hereunder, shall be subject to appropriate enforcement action.

2. Approval to construct shall become invalid if construction is not commenced within 18 months after receipt of such approval, if construction is discontinued for a period of 18 months or more, or if construction is not completed within a reasonable time. The Director may extend the 18-month period upon a satisfactory showing that an extension is justified. This provision does not apply to the time period between construction of the approved phases of a phased construction project; each phase must commence construction within 18 months of the projected and approved commencement date.

3. Approval to construct shall not relieve any owner or operator of the responsibility to comply fully with applicable provisions of the State implementation plan and any other requirements under local, State, or Federal law.

4. At such time that a particular source or modification becomes a major stationary source or major modification solely by virtue of a relaxation in any enforceable limitation which was established after August 7, 1980, on the capacity of the source or modification otherwise to emit a pollutant, such as a restriction on hours of operation, then the requirements of Section 45.2 shall apply to the source or modification as though construction had not yet commenced on the source or modification.

5. Reserved

6. The following specific provisions apply to projects at existing emissions units at a major stationary source (other than projects at a source with a PAL) in circumstances where there is a reasonable possibility that a project that is not a part of a major modification may result in a significant emissions increase and the owner or operator elects to use the method specified in Section 45.1-A.49.b(1) through 45.1-A.49.b(3) for calculating projected actual emissions.

   a. Before beginning actual construction of the project, the owner or operator shall document and maintain a record of the following information:

      (1) A description of the project;

      (2) Identification of the emissions unit(s) whose emissions of a regulated NSR pollutant could be affected by the project; and

      (3) A description of the applicability test used to determine that the project is not a major modification for any regulated NSR pollutant, including the baseline actual emissions, the projected actual emissions, the amount of emissions excluded under Section 45.1-A.49.b(3) and an explanation for why such amount was excluded, and any netting calculations, if applicable.

   b. If the emissions unit is an existing electric utility steam generating unit, before beginning actual construction, the owner or operator shall provide a copy of the information in Section 45.2-N.6.a to the Director. Nothing in Section 45.2-N.6.b shall be construed to require the owner or operator of such a unit to obtain any determination from the Director before beginning actual construction.

c. The owner or operator shall monitor the emissions of any regulated NSR pollutant that could increase as a result of the project and that is emitted by any emissions units identified in Section 45.2-N.6.a(2); and calculate and maintain a record of the annual emissions, in tons per year on a calendar year basis, for a period of 5 years following resumption of regular operations after the change, or for a period of 10 years following resumption of regular operations after the change if the project increases the design capacity or potential to emit of that regulated NSR pollutant at such emissions unit.

d. If the unit is an existing electric utility steam generating unit, the owner or operator shall submit a report to the Director within 60 days after the end of each year during which records must be generated under Section 45.2-N.6.c setting out the unit's annual emissions during the year that preceded submission of the report.

e. If the unit is an existing unit other than an electric utility steam generating unit, the owner or operator shall submit a report to the Director if the annual emissions, in tons per year, from the project identified in Section 45.2-N.6.a(1), minus the baseline actual emissions (as documented and maintained pursuant to Section 45.2-N.6.a(3)) is a significant emissions increase (as defined in Section 45.1-A.57) for that regulated NSR pollutant, and if such emissions differ from the preconstruction projection as documented and maintained pursuant to Section 45.2-N.6.a(3). Such report shall be submitted to the Director within 60 days after the end of such year. The report shall contain the following:

(1) The name, address and telephone number of the major stationary source;

(2) The annual emissions as calculated pursuant to Section 45.2-N.6.c; and

(3) Any other information that the owner or operator wishes to include in the report (e.g., an explanation as to why the emissions differ from the preconstruction projection).

f. A “reasonable possibility” under Section 45.2-N.6 occurs when the owner or operator calculates the project to result in either:

(1) A projected actual emissions increase of at least 50 percent of the amount that is a “significant emissions increase,” as defined under Section 45.1-A.57 (without reference to the amount that is a significant net emissions increase), for the regulated NSR pollutant; or

(2) A projected actual emissions increase that, added to the amount of emissions excluded under Section 45.1-A.49.b(3), sums to at least 50 percent of the amount that is a "significant emissions increase," as defined under Section 45.1-A.57 (without reference to the amount that is a significant net emissions increase), for the regulated NSR pollutant. For a project for which a reasonable possibility occurs only within the meaning of Section 45.2-N.6.f(2), and not also within the meaning of Section Section 45.2-N.6.f(1), then provisions 45.2-N.6.b through 45.2-N.6.e do not apply to the project.

g. The owner or operator of the source shall make the information required to be documented and maintained pursuant to Section 45.2-N.6 available for review upon a request for inspection by the Director or the general public pursuant to the requirements contained in Section 25.70-G.8.

O. Plantwide Applicability Limitation (PAL)

1. Applicability

a. The Director may approve the use of an actuals PAL for any existing major stationary source if the PAL meets the requirements in Section 45.2-O. The term "PAL" shall mean "actuals PAL" throughout Section 45.2-O.

b. Any physical change in or change in the method of operation of a major stationary source that maintains its total source-wide emissions below the PAL level, meets the requirements of Section 45.2-O, and complies with the PAL permit:

(1) Is not a major modification for the PAL pollutant;

(2) Does not have to be approved through the plan's major NSR program; and

(3) Is not subject to the provisions in Section 45.2-N.4 (restrictions on relaxing enforceable emission limitations that the major stationary source used to avoid applicability of the major NSR program).

c. Except as provided under Section 45.2-O.1.b(3), a major stationary source shall continue to comply with all applicable Federal, State, and Knox County requirements, emission limitations, and work practice requirements that were established prior to the effective date of the PAL.

2. Definitions. When a term is not defined in Section 45.2-O.2, it shall have the meaning given in Section 45.1-A or in the Act.

a. "Actuals PAL" for a major stationary source means a PAL based on the baseline actual emissions (as defined in Section 45.1-A.5) of all emissions units (as defined in Section 45.1-A.23) at the source, that emit or have the potential to emit the PAL pollutant.

b. "Allowable emissions" means "allowable emissions" as defined in Section 45.1-A.3, except as this definition is modified as follows:

(1) The allowable emissions for any emissions unit shall be calculated considering any emission limitations that are enforceable as a practical matter on the emissions unit's potential to emit.

(2) An emissions unit's potential to emit shall be determined using the definition in Section 45.1-A.45, except that the words "or enforceable as a practical matter" should be added after "federally enforceable."

c. "Small emissions unit" means an emissions unit that emits or has the potential to emit the PAL pollutant in an amount less than the significant level for that PAL pollutant, as defined in Section 45.1-A.56 or in the Act, whichever is lower.

d. "Major emissions unit" means:

(1) Any emissions unit that emits or has the potential to emit 100 tons per year or more of the PAL pollutant in an attainment area; or

(2) Any emissions unit that emits or has the potential to emit the PAL pollutant in an amount that is equal to or greater than the major source threshold for the PAL pollutant as defined by the Act for nonattainment areas. For example, in accordance with the definition of major stationary source in section 182(c) of the Act, an emissions unit would be a major emissions unit for VOC if the emissions unit is located in a serious ozone nonattainment area and it emits or has the potential to emit 50 or more tons of VOC per year.

e. "Plantwide applicability limitation (PAL)" means an emission limit expressed in tons per year, for a pollutant at a major stationary source, that is enforceable as a practical matter and established source-wide in accordance with Section 45.2-O.

f. “PAL effective date” generally means the date of issuance of the PAL permit. However, the PAL effective date for an increased PAL is the date any emissions unit that is part of the PAL major modification becomes operational and begins to emit the PAL pollutant.

g. “PAL effective period” means the period beginning with the PAL effective date and ending 10 years later.

h. “PAL major modification” means, notwithstanding Sections 45.1-A.34 and 45.1-A.41 (the definitions for major modification and net emissions increase), any physical change in or change in the method of operation of the PAL source that causes it to emit the PAL pollutant at a level equal to or greater than the PAL.

i. “PAL permit” means the major NSR permit, the minor NSR permit, state operating permit under a program approved into the State Implementation Plan, or the title V permit issued by the Director that establishes a PAL for a major stationary source.

j. “PAL pollutant” means the pollutant for which a PAL is established at a major stationary source.

k. “Significant emissions unit” means an emissions unit that emits or has the potential to emit a PAL pollutant in an amount that is equal to or greater than the significant level (as defined in Section 45.1-A.56 or in the Act, whichever is lower) for that PAL pollutant, but less than the amount that would qualify the unit as a major emissions unit as defined in Section 45.2-O.2.d.

3. Permit application requirements. As part of a permit application requesting a PAL, the owner or operator of a major stationary source shall submit the following information to the Director for approval.

a. A list of all emissions units at the source designated as small, significant or major based on their potential to emit. In addition, the owner or operator of the source shall indicate which, if any, Federal, State, or Local applicable requirements, emission limitations, or work practices apply to each unit.

b. Calculations of the baseline actual emissions (with supporting documentation). Baseline actual emissions are to include emissions associated not only with operation of the unit, but also emissions associated with startup, shutdown, and malfunction.

c. The calculation procedures that the major stationary source owner or operator proposes to use to convert the monitoring system data to monthly emissions and annual emissions based on a 12-month rolling total for each month as required by Section 45.2-O.13.a.

4. General requirements for establishing PALs.

a. The Director may establish a PAL at a major stationary source, provided that at a minimum, the following requirements are met:

(1) The PAL shall impose an annual emission limitation in tons per year, that is enforceable as a practical matter, for the entire major stationary source. For each month during the PAL effective period after the first 12 months of establishing a PAL, the major stationary source owner or operator shall show that the sum of the monthly emissions from each emissions unit under the PAL for the previous 12 consecutive months is less than the PAL (a 12-month average, rolled monthly). For each month during the first 11 months from the PAL effective date, the major stationary source owner or operator shall show that the sum of the preceding monthly emissions from the PAL effective date for each emissions unit under the PAL is less than the PAL.

(2) The PAL shall be established in a PAL permit that meets the public participation requirements in Section 45.2-O.5.

(3) The PAL permit shall contain all the requirements of Section 45.2-O.7.

(4) The PAL shall include fugitive emissions, to the extent quantifiable, from all emissions units that emit or have the potential to emit the PAL pollutant at the major stationary source.

(5) Each PAL shall regulate emissions of only one pollutant.

(6) Each PAL shall have a PAL effective period of 10 years.

(7) The owner or operator of the major stationary source with a PAL shall comply with the monitoring, recordkeeping, and reporting requirements provided in Sections 45.2-O.12 through 45.2-O.14 for each emissions unit under the PAL through the PAL effective period.

b. At no time (during or after the PAL effective period) are emissions reductions of a PAL pollutant that occur during the PAL effective period creditable as decreases for purposes of offsets under Section 41.3-A.5 unless the level of the PAL is reduced by the amount of such emissions reductions and such reductions would be creditable in the absence of the PAL.

5. Public participation requirements for PALs.

a. PALs for existing major stationary sources shall be established, renewed, or increased, through a procedure that is consistent with 40 CFR Subparts 51.160 and 51.161, or Section 45.2-K. This includes the requirement that the Director provide the public with notice of the proposed approval of a PAL permit and at least a 30-day period for submittal of public comment. The Director must address all material comments before taking final action on the permit.

6. Setting the 10-year actuals PAL level.

a. Except as provided in Section 45.2-O.6.b, the actuals PAL level for a major stationary source shall be established as the sum of the baseline actual emissions (as defined in Section 45.1-A.5) of the PAL pollutant for each emissions unit at the source; plus an amount equal to the applicable significant level for the PAL pollutant under Section 45.1-A.56 or under the Act, whichever is lower. When establishing the actuals PAL level, for a PAL pollutant, only one consecutive 24-month period must be used to determine the baseline actual emissions for all existing emissions units. Emissions associated with units that were permanently shut down after this 24-month period must be subtracted from the PAL level. The Director shall specify a reduced PAL level(s) (in tons/yr) in the PAL permit to become effective on the future compliance date(s) of any applicable Federal, State, and Knox County regulatory requirement(s) that the Director is aware of prior to issuance of the PAL permit. For instance, if the source owner or operator will be required to reduce emissions from industrial boilers in half from baseline emissions of 60 ppm NO_X to a new rule limit of 30 ppm, then the permit shall contain a future effective PAL level that is equal to the current PAL level reduced by half of the original baseline emissions of such unit(s).

b. For newly constructed units (which do not include modifications to existing units) on which actual construction began after the 24-month period, in lieu of adding the baseline actual emissions as specified in Section 45.2-O.6.a, the emissions must be added to the PAL level in an amount equal to the potential to emit of the units.

7. Contents of the PAL permit. The PAL permit shall contain, at a minimum, the following information:

a. The PAL pollutant and the applicable source-wide emission limitation in tons per year.

b. The PAL permit effective date and the expiration date of the PAL (PAL effective period).

c. Specification in the PAL permit that if a major stationary source owner or operator applies to renew a PAL in accordance with Section 45.2-O.10 before the end of the PAL effective period, then the PAL shall not expire at the end of the PAL effective period. It shall remain in effect until a revised PAL permit is issued by the Director.

d. A requirement that emission calculations for compliance purposes include emissions from startups, shutdowns and malfunctions.

e. A requirement that, once the PAL expires, the major stationary source is subject to the requirements of Section 45.2-O.9.

f. The calculation procedures that the major stationary source owner or operator shall use to convert the monitoring system data to monthly emissions and annual emissions based on a 12-month rolling total for each month as required by Section 45.2-O.13.a.

g. A requirement that the major stationary source owner or operator monitor all emissions units in accordance with the provisions under Section 45.2-O.12.

h. A requirement to retain the records required under Section 45.2-O.13 on site. Such records may be retained in an electronic format.

i. A requirement to submit the reports required under Section 45.2-O.14 by the required deadlines.

j. Any other requirements that the Director deems necessary to implement and enforce the PAL.

8. PAL effective period and reopening of the PAL permit.

a. PAL effective period. The Director shall specify a PAL effective period of 10 years.

b. Reopening of the PAL permit.

(1) During the PAL effective period, the Director shall reopen the PAL permit to:

(A) Correct typographical/calculation errors made in setting the PAL or reflect a more accurate determination of emissions used to establish the PAL;

(B) Reduce the PAL if the owner or operator of the major stationary source creates creditable emissions reductions for use as offsets under Section 41.3-A.5; and

(C) Revise the PAL to reflect an increase in the PAL as provided under Section 45.2-O.11.

(2) The Director may reopen the PAL permit for the following:

(A) Reduce the PAL to reflect newly applicable Federal requirements (for example, NSPS) with compliance dates after the PAL effective date;

(B) Reduce the PAL consistent with any other requirement, that is enforceable as a practical matter, and that Knox County may impose on the major stationary source under the plan; and

(C) Reduce the PAL if the Director determines that a reduction is necessary to avoid causing or contributing to a NAAQS or PSD increment violation, or to an adverse impact on an AQRV that has been identified for a Federal Class I area by a Federal Land Manager and for which information is available to the general public.

(3) Except for the permit reopening in Section 45.2-O.8.b(1)(A) for the correction of typographical/calculation errors that do not increase the PAL level, all reopenings shall be carried out in accordance with the public participation requirements of Section 45.2-O.5.

9. Expiration of a PAL. Any PAL that is not renewed in accordance with the procedures in Section 45.2-O.10 shall expire at the end of the PAL effective period, and the following requirements shall apply:

a. Each emissions unit (or each group of emissions units) that existed under the PAL shall comply with an allowable emission limitation under a revised permit established according to the following procedures:

(1) Within the time frame specified for PAL renewals in Section 45.2-O.10.b, the major stationary source shall submit a proposed allowable emission limitation for each emissions unit (or each group of emissions units, if such a distribution is more appropriate as decided by the Director) by distributing the PAL allowable emissions for the major stationary source among each of the emissions units that existed under the PAL. If the PAL had not yet been adjusted for an applicable requirement that became effective during the PAL effective period, as required under Section 45.2-O.10.e, such distribution shall be made as if the PAL had been adjusted.

(2) The Director shall decide whether and how the PAL allowable emissions will be distributed and issue a revised permit incorporating allowable limits for each emissions unit, or each group of emissions units, as the Director determines is appropriate.

b. Each emissions unit(s) shall comply with the allowable emission limitation on a 12-month rolling basis. The Director may approve the use of monitoring systems (source testing, emission factors, etc.) other than CEMS, CERMS, PEMS or CPMS to demonstrate compliance with the allowable emission limitation.

c. Until the Director issues the revised permit incorporating allowable limits for each emissions unit, or each group of emissions units, as required under Section 45.2-O.9.a(1), the source shall continue to comply with a source-wide, multi-unit emissions cap equivalent to the level of the PAL emission limitation.

d. Any physical change or change in the method of operation at the major stationary source will be subject to major NSR requirements if such change meets the definition of major modification in Section 45.1-A.34.

e. The major stationary source owner or operator shall continue to comply with any State or Federal applicable requirements (BACT, RACT, NSPS, etc.) that may have applied either during the PAL effective period or prior to the PAL effective period except for those emission limitations that had been established

pursuant to Section 45.2-N.4, but were eliminated by the PAL in accordance with the provisions in Section 45.2-O.1.b(3).

10. Renewal of a PAL.

a. The Director shall follow the procedures specified in Section 45.2-O.5 in approving any request to renew a PAL for a major stationary source, and shall provide both the proposed PAL level and a written rationale for the proposed PAL level to the public for review and comment. During such public review, any person may propose a PAL level for the source for consideration by the Director.

b. Application deadline. A major stationary source owner or operator shall submit a timely application to the Director to request renewal of a PAL. A timely application is one that is submitted at least 6 months prior to, but not earlier than 18 months from, the date of permit expiration. This deadline for application submittal is to ensure that the permit will not expire before the permit is renewed. If the owner or operator of a major stationary source submits a complete application to renew the PAL within this time period, then the PAL shall continue to be effective until the revised permit with the renewed PAL is issued.

c. Application requirements. The application to renew a PAL permit shall contain the following information:

(1) The information required in Section 45.2-O.3.a through 45.2-O.3.c.

(2) A proposed PAL level.

(3) The sum of the potential to emit of all emissions units under the PAL (with supporting documentation).

(4) Any other information the owner or operator wishes the Director to consider in determining the appropriate level for renewing the PAL.

d. PAL adjustment. In determining whether and how to adjust the PAL, the Director shall consider the options outlined in Sections 45.2-O.10.d(1) and 45.2-O.10.d(2). However, in no case may any such adjustment fail to comply with Section 45.2-O.10.d(3).

(1) If the emissions level calculated in accordance with Section 45.2-O.6 is equal to or greater than 80 percent of the PAL level, the Director may

renew the PAL at the same level without considering the factors set forth in Section 45.2-O.10.d(2); or

(2) The Director may set the PAL at a level that it determines to be more representative of the source's baseline actual emissions, or that it determines to be appropriate considering air quality needs, advances in control technology, anticipated economic growth in the area, desire to reward or encourage the source's voluntary emissions reductions, or other factors as specifically identified by the Director in its written rationale.

(3) Notwithstanding Sections 45.2-O.10.d(1) and 45.2-O.10.d(2):

(A) If the potential to emit of the major stationary source is less than the PAL, the Director shall adjust the PAL to a level no greater than the potential to emit of the source; and

(B) The Director shall not approve a renewed PAL level higher than the current PAL, unless the major stationary source has complied with the provisions of Section 45.2-O.11 (increasing a PAL).

e. If the compliance date for a Federal, State or Local requirement that applies to the PAL source occurs during the PAL effective period, and if the Director has not already adjusted for such requirement, the PAL shall be adjusted at the time of PAL permit renewal or title V permit renewal, whichever occurs first.

11. Increasing a PAL during the PAL effective period.

a. The Director may increase a PAL emission limitation only if the major stationary source complies with the provisions in Section 45.2-O.11.a(1) through 45.2-O.11.a(4).

(1) The owner or operator of the major stationary source shall submit a complete application to request an increase in the PAL limit for a PAL major modification. Such application shall identify the emissions unit(s) contributing to the increase in emissions so as to cause the major stationary source's emissions to equal or exceed its PAL.

(2) As part of this application, the major stationary source owner or operator shall demonstrate that the sum of the baseline actual emissions of the small emissions units, plus the sum of the baseline actual emissions of the significant and major emissions units assuming application of BACT

equivalent controls, plus the sum of the allowable emissions of the new or modified emissions unit(s), exceeds the PAL. The level of control that would result from BACT equivalent controls on each significant or major emissions unit shall be determined by conducting a new BACT analysis at the time the application is submitted, unless the emissions unit is currently required to comply with a BACT or LAER requirement that was established within the preceding 10 years. In such a case, the assumed control level for that emissions unit shall be equal to the level of BACT or LAER with which that emissions unit must currently comply.

(3) The owner or operator obtains a major NSR permit for all emissions unit(s) identified in Section 45.2-O.11.a(1), regardless of the magnitude of the emissions increase resulting from them (that is, no significant levels apply). These emissions unit(s) shall comply with any emissions requirements resulting from the major NSR process (for example, BACT or LAER), even though they have also become subject to the PAL or continue to be subject to the PAL.

(4) The PAL permit shall require that the increased PAL level shall be effective on the day any emissions unit that is part of the PAL major modification becomes operational and begins to emit the PAL pollutant.

b. The Director shall calculate the new PAL as the sum of the allowable emissions for each modified or new emissions unit, plus the sum of the baseline actual emissions of the significant and major emissions units (assuming application of BACT equivalent controls as determined in accordance with Section 45.2-O.11.a(2)), plus the sum of the baseline actual emissions of the small emissions units.

c. The PAL permit shall be revised to reflect the increased PAL level pursuant to the public notice requirements of Section 45.2-O.5.

12. Monitoring requirements for PALs

a. General requirements.

(1) Each PAL permit must contain enforceable requirements for the monitoring system that accurately determines plantwide emissions of the PAL pollutant in terms of mass per unit of time. Any monitoring system authorized for use in the PAL permit must be based on sound science and meet generally acceptable scientific procedures for data quality and

manipulation. Additionally, the information generated by such system must meet minimum legal requirements for admissibility in a judicial proceeding to enforce the PAL permit.

(2) The PAL monitoring system must employ one or more of the four general monitoring approaches meeting the minimum requirements set forth in 45.2-O.12.b(1) through 45.2-O.12.b(4) and must be approved by the Director.

(3) Notwithstanding Section 45.2-O.12.a(2), the owner or operator of the major stationary source may also employ an alternative monitoring approach that meets Section 45.2-O.12.a(1) if approved by the Director.

(4) Failure to use a monitoring system that meets the requirements of this paragraph renders the PAL invalid.

b. Minimum performance requirements for approved monitoring approaches. The following are acceptable general monitoring approaches when conducted in accordance with the minimum requirements in Section 45.2-O.12.c through 45.2-O.12.i:

(1) Mass balance calculations for activities using coatings or solvents;

(2) CEMS;

(3) CPMS or PEMS; and

(4) Emission factors.

c. Mass balance calculations. An owner or operator using mass balance calculations to monitor PAL pollutant emissions from activities using coating or solvents shall meet the following requirements:

(1) Provide a demonstrated means of validating the published content of the PAL pollutant that is contained in or created by all materials used in or at the emissions unit;

(2) Assume that the emissions unit emits all of the PAL pollutant that is contained in or created by any raw material or fuel used in or at the emissions unit, if it cannot otherwise be accounted for in the process; and

(3) Where the vendor of a material or fuel, which is used in or at the emissions unit, publishes a range of pollutant content from such material, the owner or operator must use the highest value of the range to calculate the PAL pollutant emissions unless the Director determines there is site-specific data or a site-specific monitoring program to support another content within the range.

d. CEMS. An owner or operator using CEMS to monitor PAL pollutant emissions shall meet the following requirements:

(1) CEMS must comply with applicable Performance Specifications found in 40 CFR Part 60, Appendix B; and

(2) CEMS must sample, analyze, and record data at least every 15 minutes while the emissions unit is operating.

e. CPMS or PEMS. An owner or operator using CPMS or PEMS to monitor PAL pollutant emissions shall meet the following requirements:

(1) The CPMS or the PEMS must be based on current site-specific data demonstrating a correlation between the monitored parameter(s) and the PAL pollutant emissions across the range of operation of the emissions unit; and

(2) Each CPMS or PEMS must sample, analyze, and record data at least every 15 minutes, or at another less frequent interval approved by the Director, while the emissions unit is operating.

f. Emission factors. An owner or operator using emission factors to monitor PAL pollutant emissions shall meet the following requirements:

(1) All emission factors shall be adjusted, if appropriate, to account for the degree of uncertainty or limitations in the factors' development;

(2) The emissions unit shall operate within the designated range of use for the emission factor, if applicable; and

(3) If technically practicable, the owner or operator of a significant emissions unit that relies on an emission factor to calculate PAL pollutant emissions shall conduct validation testing to determine a site-specific emission factor within 6 months of PAL permit issuance, unless the Director determines that testing is not required.

g. A source owner or operator must record and report maximum potential emissions without considering enforceable emission limitations or operational restrictions for an emissions unit during any period of time that there is no monitoring data, unless another method for determining emissions during such periods is specified in the PAL permit.

h. Notwithstanding the requirements in Section 45.2-O.12.c through 45.2-O.12.g, where an owner or operator of an emissions unit cannot demonstrate a correlation between the monitored parameter(s) and the PAL pollutant emissions rate at all operating points of the emissions unit, the Director shall, at the time of permit issuance:

(1) Establish default value(s) for determining compliance with the PAL based on the highest potential emissions reasonably estimated at such operating point(s); or

(2) Determine that operation of the emissions unit during operating conditions when there is no correlation between monitored parameter(s) and the PAL pollutant emissions is a violation of the PAL.

i. Re-validation. All data used to establish the PAL pollutant must be re-validated through performance testing or other scientifically valid means approved by the Director. Such testing must occur at least once every 5 years after issuance of the PAL.

13. Recordkeeping requirements.

a. The PAL permit shall require an owner or operator to retain a copy of all records necessary to determine compliance with any requirement of this Section and of the PAL, including a determination of each emissions unit's 12-month rolling total emissions, for 5 years from the date of such record.

b. The PAL permit shall require an owner or operator to retain a copy of the following records, for the duration of the PAL effective period plus 5 years:

(1) A copy of the PAL permit application and any applications for revisions to the PAL; and

(2) Each annual certification of compliance pursuant to title V and the data relied on in certifying the compliance.

14. Reporting and notification requirements. The owner or operator shall submit semi-annual monitoring reports and prompt deviation reports to the Director in accordance with the applicable title V operating permit program. The reports shall meet the following requirements:

a. Semi-annual report. The semi-annual report shall be submitted to the Director within 30 days of the end of each reporting period. This report shall contain the following information:

(1) The identification of the owner or operator of the major stationary source and the permit number.

(2) Total annual emissions (tons/year) based on a 12-month rolling total for each month in the reporting period recorded pursuant to Section 45.2-O.13.a.

(3) All data relied upon, including, but not limited to, any Quality Assurance or Quality Control data, in calculating the monthly and annual PAL pollutant emissions.

(4) A list of any emissions units modified or added to the major stationary source during the preceding 6-month period.

(5) The number, duration, and cause of any deviations or monitoring malfunctions (other than the time associated with zero and span calibration checks), and any corrective action taken.

(6) A notification of a shutdown of any monitoring system, whether the shutdown was permanent or temporary, the reason for the shutdown, the anticipated date that the monitoring system will be fully operational or replaced with another monitoring system, and whether the emissions unit monitored by the monitoring system continued to operate, and the calculation of the emissions of the pollutant or the number determined by method included in the permit, as provided by Section 45.2-O.12.g.

(7) A signed statement by the responsible official (as defined by the applicable title V operating permit program) certifying the truth, accuracy, and completeness of the information provided in the report.

b. Deviation report. The major stationary source owner or operator shall promptly submit reports of any deviations or exceedance of the PAL requirements, including periods where no monitoring is available. A report submitted

pursuant to Section 25.70 shall satisfy this reporting requirement. The deviation reports shall be submitted within the time limits prescribed by Section 25.70. The reports shall contain the following information:

(1) The identification of the owner or operator of the major stationary source and the permit number;

(2) The PAL requirement that experienced the deviation or that was exceeded;

(3) Emissions resulting from the deviation or the exceedance; and

(4) A signed statement by the responsible official (as defined by the applicable title V operating permit program) certifying the truth, accuracy, and completeness of the information provided in the report.

c. Re-validation results. The owner or operator shall submit to the Director the results of any re-validation test or method within three months after completion of such test or method.

15. Transition requirements.

a. The Director may not issue a PAL that does not comply with the requirements of Section 45.2-O after the Administrator has approved regulations incorporating these requirements into the State Implementation Plan.

b. The Director may supersede any PAL which was established prior to the date of approval of Section 45.2-O by the Administrator with a PAL that complies with the requirements of paragraphs (w)(1) through (15) of 40 CFR 51.166.

45.3 Severability

A. If any provision of Section 45.0, or the application of such provision to any person or circumstance, is held invalid, the remainder of Section 45.0, or the application of such provision to persons or circumstances other than those as to which it is held invalid, shall not be affected thereby.

	Date Submitted to EPA	**Date Approved by EPA**	**Federal Register**
Original Reg	Aug 17, 1972	Oct 28, 1972	37 FR 23085
1st Revision	Jul 07, 1986	Aug 03, 1989	54 FR 31953
2nd Revision	Jun 15, 1992	Apr 28, 1993	58 FR 25776
3rd Revision	Mar 07, 2017	Sep 17, 2018	83 FR 46880