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Environmental Compliance Assessment System (ECAS)

U.S. Army
Kentucky Supplement

In response to the growing number of environmental laws and regulations worldwide, the U.S. Army has adopted an environmental compliance program that identifies compliance problems before they are cited as violations by the U.S. Environmental Protection Agency (USEPA).

Beginning in 1985, Major Army Commands (MACOMs) were required to conduct comprehensive environmental assessments at all installations on a 4-year cycle. The installations must also conduct a mid-cycle internal assessment. Because each MACOM was developing a separate assessment system, the Army mandated, through Army Regulation 200-1, one unified Army-wide assessment mechanism. The resulting system combines Federal, Department of Defense (DOD), and Army environmental regulations, along with good management practices and risk management information, into a series of checklists that show (1) legal requirements and (2) which specific items or operations to review. Each assessment protocol lists a point of contact to help assessors review the checklist items as effectively as possible. The Environmental Compliance Assessment System (ECAS) manual incorporates existing checklists from USEPA and private industry.

The Kentucky Supplement was developed to be used in conjunction with the U.S. ECAS manual, using existing Kentucky state environmental legislation and regulations as well as suggested management practices.

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FOREWORD

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The research was performed by the Environmental Compliance Modeling and Systems Division (EC) of the Environmental Sustainment Laboratory (EL), U.S. Army Construction Engineering Research Laboratories (USACERL). The Principal Investigator was Carolyn O'Rourke, CECER-ECP. Lisa A. Gifford, CECER-ECP, was Associate Investigator. Dr. Diane K. Mann, CECER-ECP, is Acting Team Leader. Dr. John T. Bandy is Acting Chief, CECER-EC, and William D. Goran is Chief, CECER-EL.

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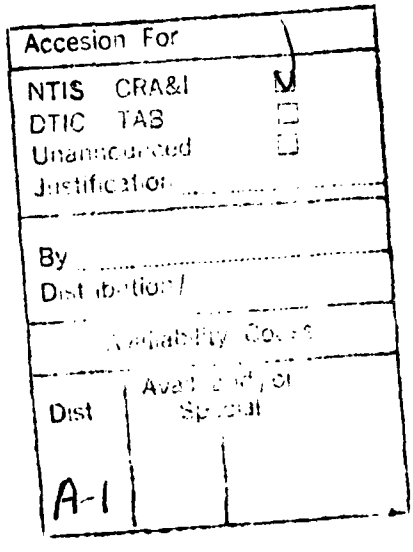

NOTICE

This manual is intended as general guidance for personnel at certain U.S. Army installations. It is not, nor is it intended to be, a complete treatise on environmental laws and regulations. Neither the U.S. Government nor any agency thereof, nor any of their employees, makes any warranty, expressed or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information contained herein. For any specific questions about, or interpretations of, the legal references herein, consult appropriate legal counsel.

KENTUCKY SUPPLEMENT

This Kentucky ECAS Supplement contains the protocols necessary for determining compliance with Kentucky environmental rules and regulations. This manual is a supplement to the U.S. ECAS Manual; it does not replace it.

The following Kentucky agencies have responsibility in the areas indicated:

- Department of Agriculture, Division of Entomology and Pesticides - has responsibility for the regulation of pesticide and herbicide management.

- Department of Fish and Wildlife Resources, Division of Wildlife - has responsibility for permits for wildlife collecting and control activities. The Kentucky Academy of Science compiles an unofficial list of endangered, threatened, and rare wildlife and plants.

- Department of Natural Resources and Environmental Cabinet, Department of Environmental Protection - has responsibility for three major environmental programs: Air Quality, Water, and Waste Management. The Department of Environmental Protection has an office of Permits Coordinator that serves as a clearing house in the permitting process. The Division of Disaster and Emergency Services must be notified in the event of a spill of reportable quantities of a substance covered by Title III of the *Comprehensive Environmental Response, Compensation, and Liability Act* (CERCLA).

- Division of Air Quality - manages Kentucky's air programs, except that the Air Pollution Control District of Jefferson County runs its own comprehensive program. The Division operates branch offices throughout the state. The Division has the authority to manage all of the Federal permit programs, including the regulation of new sources in nonattainment areas.

- Division of Water - manages water pollution control, floodplain management, dam construction, wild river oversight and permit processing, water withdrawal management, and other functions.

- Division of Waste Management - manages solid and hazardous waste management program. Its components are the solid waste management program that regulates landfill and landfarming operations; the landfill operator-certification program; renewable-resource recovery programs including abandoned car, waste paper, and used-oil recycling programs; underground storage tank notification, and the hazardous waste program. The state's underground injection control program is under the control of EPA Region IV.

- Kentucky Heritage Council, Historic Preservation Office - has responsibility for all archeological fieldwork and assessment reports for projects subject to the *National Historic Preservation Act*.

- State Fire Marshal - has responsibility for aboveground storage tank management.

METRIC CONVERSION TABLE

1 in.	=	25.4 mm
1 ft	=	0.305 m
1 kip	=	4448 N
1 psi	=	6.89 kPa
1 psi	=	89.300 g/cm^2
1 lb	=	0.453 kg
1 lb/ h	=	0.126 g/s
1 cu ft	=	0.028 m^3
1 mi	=	1.61 km
1 sq ft	=	0.093 m^2
1 gal	=	3.78 L
°F	=	(°C + 17.78) × 1.8
°C	=	0.55(°F-32)
1 yd	=	0.9144 m
1 Btu/ lb	=	0.556 cal/g

SECTION 1

CLEAN AIR ACT (CAA)

Kentucky Supplement

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CLEAN AIR ACT (CAA)

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The following Federal regulations have been adopted by reference:

40 Code of Federal Regulations (CFR) 60, Subpart QQ (New Publication Rotogravure Printing Operations)
40 CFR 60, Subpart JJJ (*New Petroleum Dry Cleaning Plants*)
40 CFR 60, Subpart XX (*New Bulk Gasoline Terminals*)
40 CFR 60, Subpart I (*New Hot Mix Asphalt Facilities*)
40 CFR 60, Subpart Gb (*New Volatile Organic Liquid Storage Vessels*)
40 CFR 60, Subpart GG (*New Gas Turbines*)
40 CFR 61, Subpart V (*Equipment Leaks*)
40 CFR 61, Subpart J (*Equipment Leaks of Benzene*).

The definitions in this section were obtained from the following regulations of the Kentucky Administrative Rules (KAR), Kentucky Natural Resources and Environmental Protection Cabinet, Department for Environmental Protection, Division for Air Quality:

401 KAR 50:010 Sections 1, 2 and 3
401 KAR 50:025 Section 1
401 KAR 50:047 Section 1
401 KAR 59:001 Sections 1 and 2
401 KAR 59:010 Section 2
401 KAR 59:015 Section 2
401 KAR 59:016 Section 2
401 KAR 59:020 Section 2
401 KAR 59:021 Section 1
401 KAR 59:023 Section 1
401 KAR 59:050 Section 2
401 KAR 59:095 Section 2
401 KAR 59:099 Section 3
401 KAR 59:175 Section 2
401 KAR 59:185 Section 1
401 KAR 59:212 Section 1
401 KAR 59:240 Section 1
401 KAR 61:001 Section 1
401 KAR 61:010 Section 2
401 KAR 61:013 section 1
401 KAR 61:015 Section 1
401 KAR 61:045 Section 2
401 KAR 61:050 Section 1
401 KAR 61:055 Section 2
401 KAR 61:060 Section 2
401 KAR 61:085 Section 2
401 KAR 61:095 Section 1
401 KAR 61:122 Section 1
401 KAR 61:160 Section 1
401 KAR 63:005 Section 2

401 KAR 63:010 Section 2
401 KAR 63:015 Section 2
401 KAR 63:020 Section 2
401 KAR 63:021 Section 2
401 KAR 63:022 Section 2
401 KAR 63:025 Section 1
401 KAR 63:031 Section 1
401 KAR 65:005 Section 1.

Definitions

- *Acid Gases* - sulfur dioxide and hydrogen chloride gases emitted from units.

- *Affected Facility* - an apparatus, building, operation, road, or other entity or series of entities which emits or may emit an air contaminant into the outdoor atmosphere, including the following:
  1. for new process operations, the last operation preceding the emission of air contaminants which results in:
     a. the separation of the air contaminant from the process materials
     b. the conversion of the process materials into air contaminants, but does not include an air pollution abatement operation
  2. new and existing indirect heat exchangers with a heat input capacity of more than one million British thermal units per hour (MBtu/ h)
  3. new electric utility steam generating units capable of combusting more than 250 MBtu/h heat input of fossil fuel
  4. steam generating units in electric utility combined cycle gas turbines
  5. new municipal solid waste incinerator units for which construction, modification, or reconstruction commenced on or after 20 December 1989
  6. new and existing medical waste incinerators for which the construction, modification, or reconstruction commenced on or after 7 February 1991 combusting material that, if included in the waste stream, would be medical waste
  7. drycleaning systems that use perchloroethylene
  8. for new and existing solvent metal cleaning equipment, cold cleaners, open-top vapor degreasers, and conveyorized degreasers that use volatile organic compounds (VOCs) to remove soluble impurities from metal surfaces
  9. new and existing graphic arts facilities with a printing line for packaging rotogravure, specialty rotogravure, and flexographic printing
  10. new and existing oil-effluent water separators that recover 200 gallons per day (gpd) or more of any petroleum products from any equipment which processes, refines, stores, or handles hydrocarbons with a Reid vapor pressure of 0.5 psia or greater
  11. new and existing storage vessels for petroleum liquids that have a storage capacity of greater than 2195 L (580 gal)
  12. the gasoline storage tanks at existing service stations
  13. any article, machine, equipment, or other contrivance used for employing or applying organic solvents
  14. for miscellaneous metal parts and products surface coating operations, a coating line located at job shops and original equipment manufacturing industries that applies coatings on metal substrates
  15. an apparatus, operation, or road that emits or may emit fugitive emissions, provided the fugitive emissions from the facility are not elsewhere subject to an opacity standard within the regulations of the Division for Air Quality.

- *Air Pollutant* - air contaminant.

- *Air Pollution Control Equipment* - a device used to control or prevent air pollution which is not, aside from air pollution control laws and regulations, vital to production of the normal product of the source or to its normal operation.

- *Alteration* - the installation or replacement of air pollution control equipment at a source; a physical change in or change in the method of operation of an affected facility that increases the potential to emit a pollutant (to which a standard applies) emitted by the facility or that results in the emission of an air pollutant (to which a standard applies) not previously emitted.

- *Alternative Method* - a method of sampling and analyzing for an air pollutant that is not a reference or equivalent method but that has been demonstrated to the Cabinet's and the U.S. Environmental Protection Agency's (USEPA) satisfaction to produce results in specific cases adequate for its determination of compliance.

- *Ambient Air* - the portion of the atmosphere, external to buildings, to which the general public has access.

- *Ambient Air Quality Standard* - a numerical expression of a specified concentration level for a particular air contaminant and the time averaging interval over which that concentration level is measured and is a goal to be achieved in a stated time through the application of appropriate preventive or control measures.

- *Anthracite* - coal that is classified as anthracite according to the American Society for Testing and Materials (ASTM D 388-66).

- *Applicator* - the mechanism used to apply ink in a graphic arts facility.

- *Asphalt* - a dark-brown to black cementitious material (solid, semisolid, or liquid in consistency) in which the predominating constituents are bitumens that occur in nature as such or which are obtained as residue in refining petroleum.

- *Asphalt Paving Operations* - the use of asphalt in any paving operation, public or private, including, but not limited to, paving of roads, paving of parking lots, maintenance operations, application of tack coats, and sealants.

- *Auxiliary Fuel* - a substance burned in an incinerator to supply additional heat to attain temperature sufficiently high to dry and ignite waste material and to maintain ignition of the waste material.

- *Available System Capacity* - the capacity determined by subtracting the system load and the system emergency reserves from the net system capacity.

- *Best Available Control Technology (BACT)* - emissions limitation based on the maximum degree of reduction for each pollutant listed in Appendix B in 401 KAR 63:022 that would be emitted from any proposed, affected facility that the Cabinet, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determined to be achievable for the facility through application of production processes or available methods, systems, and techniques for control of a pollutant. In no event is application of best available control technology to result in the emission of an air pollutant that would exceed the emissions allowed by any applicable standard.

- *Biologicals* - a biological product used in the prevention or treatment of disease.

- *Boiler Operating Day* - a 24-h period during which fossil fuel is combusted in a steam generating unit for the entire 24 h.

- *Bubbling Fluidized Bed Incinerator* - a fluidized bed incinerator in which the majority of the bed material remains in the primary combustion zone.

- *Bulk Gasoline Plant* - a facility for the storage and dispensing of gasoline that employs tank trucks, trailers, railroad cars, or other nonmarine, mobile vessels for both incoming and outgoing gasoline transfer operations.

- *Bulk Gasoline Terminal* - a facility for the storage and dispensing of gasoline where incoming gasoline loads are received by pipeline, marine tanks, or barge, and where outgoing loads are transferred by tank trucks, trailers, railroad cars, or other nonmarine, mobile vessels. The throughput for a bulk gasoline terminal is greater than 75,700 L/d (20,000 gpd).

- *Bulk Plant* - see *Bulk Gasoline Plant.*

- *Bulk Terminal* - see *Bulk Gasoline Terminal.*

- *Burnout* - the percent of matter completely burned in the primary chamber of a municipal solid waste incinerator (MSWI) or a medical waste incinerator.

- *Cabinet* - the Natural Resources and Environmental Protection Cabinet of Kentucky.

- *Capital Expenditure* - an expenditure for a physical or operational change to an affected facility that exceeds the product of the applicable "annual asset guideline repair allowance percentage" specified in the Internal Revenue Service Publication 534.

- *Capture* - the containment or recovery of emissions from a process for direction into a duct which may be exhausted through a stack or sent to a control device.

- *Capture System* - all equipment (including, but not limited to, hoods, ducts, fans, booths, ovens, dryers, etc.) that contains, collects, and transports an air pollutant to a control device.

- *Capture Efficiency* - the weight per unit time of VOC entering a capture system and delivered to a control device divided by the weight per unit time of total VOCs generated by a source of VOC, expressed as a percentage.

- *Chief Facility Operator* - the person in direct charge and control of the operation of a municipal solid waste incinerator (MSWI); this person is responsible for daily onsite supervision, technical direction, management, and overall performance of the facility.

- *Chimney* - see *Stack.*

- *Circulating Fluidized Bed Incinerator* - a fluidized bed incinerator in which the majority of the bed material is carried out of the primary combustion zone and transported back to the primary zone through a recirculation loop.

- *Classifications of Counties with Respect to Sulfur Dioxide:*
  1. Class I - Jefferson County
  2. Class IA - McCracken County
  3. Class II - Bell County, Clark County, Woodford County
  4. Class III - Pulaski County
  5. Class IV - Webster County, Hancock County
  6. Class IVA - Muhlenberg County

7. Class V - all counties not otherwise specified
8. Class VA - Boyd County.

- *Classification Date* -
  1. for new process operations, 2 July 1975
  2. for new electric utility steam generating units, 19 September 1978
  3. for incinerators with a charging rate of more than 50 tons/day, 17 August 1971
  4. for incinerators with a charging rate of 50 tons/day or less which emit gases containing particulate matter in excess of 0.23 grams per dry standard cubic meter (g/dscm) (0.1 grains per dry standard cubic foot (gr/dscf)) corrected to 12 percent carbon dioxide, excluding the contribution of carbon dioxide from auxiliary fuel, 6 June 1979
  5. for incinerators with a charging rate of 50 tons/day or less which emit gases containing particulate matter in excess of 0.45 g/dscm (0.2 gr/dscf) corrected to 12 percent carbon dioxide, excluding the contribution of carbon dioxide from auxiliary fuel, 9 April 1972
  6. for incinerators with a charging rate of 50 tons/day or less, 9 April 1972.
  7. for indirect heat exchangers with a capacity of more than 250 MBtu/ h heat input with respect to particulate emissions, sulfur dioxide emissions, and if fuels other than lignite are burned, nitrogen oxide emissions, 17 August 1971.
  8. for indirect heat exchangers with a capacity of 250 MBtu/ h heat input or less with respect to particulate emissions and sulfur dioxide emissions, 9 April 1972
  9. for indirect heat exchangers with a capacity of more than 250 MBtu/ h heat input with respect to nitrogen dioxides if lignite is the fuel burned, 22 December 1976
  10. for electric utility steam generating units, 19 September 1978.

- *Coal Refuse* - waste products of coal mining, physical coal cleaning, and coal preparation operations (e.g., culm, gob, etc.) containing coal, matrix material, clay, and other organic and inorganic material.

- *Cold Cleaner* - a batch-loaded degreaser in which solvent is kept below its boiling point.

- *Combined Cycle Gas Turbine* - a stationary turbine combustion system where heat from the turbine exhaust gases is recovered by a steam generating unit.

- *Commence* - installation has undertaken a continuous program of construction, modification, or reconstruction of an affected facility, or the installation has entered into a contractual obligation to undertake and complete, within a reasonable time, a continuous program of construction, modification, or reconstruction of an affected facility.

- *Commercial Solid Waste* - all types of solid waste generated by stores, offices, restaurants, warehouses, and other nonmanufacturing activities, excluding household and industrial wastes. Commercial solid waste includes waste from medical facilities, schools, and other institutions that is not medical waste.

- *Compliance Schedule* - a schedule of remedial measures, including an enforceable sequence of actions or operations leading to compliance with a limitation or standard.

- *Construction* - fabrication, erection, installation, or modification of an air contaminant source.

- *Continuous Emission* - a visible emission of particulate matter that persists for more than 3 min, the opacity of which is measured in accordance with the specified reference method. See *Reference Method* for the specified methods.

- *Continuous Emission Monitoring System (CEMS) or Continuous Monitoring System* - the total equipment required under the applicable regulations used to sample, condition (if applicable), analyze, and provide a permanent record of emissions or process parameters.

- *Control Device* - equipment, such as an incinerator or carbon adsorber used to reduce, by destruction or removal, the amount of air pollutants in an air stream prior to discharge to the ambient air.

- *Control System* - a combination of one or more capture systems and control devices working in concert to reduce discharges of pollutants to the ambient air.

- *Conveyorized Degreaser* - a degreaser that is continuously loaded by a conveyor system. Its solvent may be boiling or nonboiling.

- *Cutback Asphalt* - asphalt cement that has been liquefied by blending with VOCs as diluents.

- *Daily Average* - the average of all hourly emission rates when the affected facility is operating and combusting municipal solid waste or medical waste; daily average is measured from midnight to the following midnight.

- *Day* - 24 h.

- *Department* - the Department for Environmental Protection.

- *Design Capacity* - the maximum rate at which a unit was designed to operate.

- *Destruction or Removal Efficiency* - the efficiency, expressed as a decimal fraction, of a control device in destroying or removing contaminants.

- *Dioxin or Furan* - total tetra- through octa-chlorinated dibenzo-p-dioxins, and tetra- through octa-chlorinated dibenzofurans.

- *Director* - Director of the Division for Air Quality of the Natural Resources and Environmental Protection Cabinet.

- *Drycleaning System* - a series of equipment or operations that includes, but is not limited to, washer, dryer, filter and purification systems, waste disposal systems, holding tanks, pumps, and attendant piping and valves used for the commercial cleaning of fabrics.

- *Electric Utility Combined Cycle Gas Turbine* - any combined cycle gas turbine used for electric generation that is constructed to supply more than 1/ 3 of its potential electric output capacity and more than 25 megawatts (MW) electrical output to any utility power distribution system for sale. Any steam distribution system constructed to provide steam to a steam electric generator that would produce electrical power for sale is also considered in determining the electrical energy output capacity of the affected facility.

- *Electric Utility Company* - the largest interconnected organization, business, or governmental entity that generates electric power for sale (e.g., a holding company with operating subsidiary companies).

- *Electric Utility Steam Generating Unit* - any steam electric generating unit constructed to supply more than 1/3 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 to provide 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.

- *Emergency Condition* - the period of time when:
  1. the electric generation output of an affected facility with a malfunctioning flue gas desulfurization (FGD) system cannot be reduced or electrical output must be increased because:
     a. all available system capacity in the principal company interconnected with the affected facility is being operated
     b. all available purchase power interconnected with the affected facility is being obtained
  2. the electric generation demand is being shifted as quickly as possible from an affected facility with a malfunctioning FGD system to one or more electrical generating units held in reserve by the principal company or by a neighboring company
  3. an affected facility with a malfunctioning FGD system becomes the only available unit to maintain a part or all of the principal company's system emergency reserves and the unit is operated in spinning reserve at the lowest practical electric generation load consistent with not causing significant physical damage to the unit.

- *Emission Standard* - a numerical limit that fixes the amount of an air contaminant or air contaminants that may be vented into the atmosphere (open air) from an affected facility or from air pollution control equipment installed in an affected facility.

- *Emulsified Asphalt* - an emulsion of asphalt cement, VOC, and water that contains a small amount of an emulsifying agent; a heterogeneous system containing two normally immiscible phases (asphalt and water) in which the water forms the continuous phase of the emulsion and minute globules of asphalt form the discontinuous phase.

- *Equivalent Method* - a method of sampling and analyzing for an air pollutant that has been demonstrated to the Cabinet's and the USEPA's satisfaction to have a consistent and quantitatively known relationship to the reference method under specified conditions.

- *Exempt Solvent* - an organic compound listed in the definition of volatile organic compound as not participating in atmospheric photochemical reactions.

- *Existing Source* - a source that is not a new source.

- *Extreme Nonattainment County or Extreme Nonattainment Area* - a county or portion of a county designated extreme nonattainment.

- *Ferrous Metals* - metals and alloys containing iron. Ferrous metals include, but are not limited to, pieces of scrap metal and household appliances made of iron-containing metals including stoves, refrigerators, air conditioners, and other appliances. Ferrous metals do not include whole automobiles or other vehicles or vehicle bodies.

- *FGD* - Flue Gas Desulfurization.

- *Field-Erected* - assembled from components at a final site of operation.

- *Flare* - a device at the tip of a stack or other opening used for the disposal of waste gas streams by combustion.

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

- *Floating Roof* - a storage vessel cover consisting of a double deck, pontoon single deck, internal floating cover, or covered floating roof, which rests upon and is supported by the liquid being contained; it is equipped with a closure seal or seals to close the space between the roof edge and vessel wall.

- *Fossil Fuel* - natural gas, petroleum, coal, and any form of solid, liquid, or gaseous fuel derived from such material to create useful heat.

- *Four-Hour Block Average* - the average of all hourly emission rates when the affected facility is operating and combusting municipal solid waste measured over 4-h periods of midnight to 4:00 a.m., 4:00 a.m. to 8:00 a.m., 8:00 a.m. to noon, noon to 4:00 p.m., 4:00 p.m. to 8:00 p.m., and 8:00 p.m. to midnight.

- *Freeboard Height* -
  1. for a cold cleaner, the distance from the liquid solvent level in the degreaser tank to the lip of the tank
  2. for a vapor degreaser, the distance from the solvent vapor level in the tank to the lip of the tank.

- *Freeboard Ratio* - the freeboard height divided by the width of the degreaser.

- *Fuel* - natural gas, petroleum, coal, wood, and any form of solid, liquid, or gaseous fuel derived from these materials for the purpose of creating useful heat.

- *Fugitive Emissions* - the emissions of a contaminant into the open air other than from a stack or air pollution control equipment exhaust.

- *Furan* - see *Dioxin*

- *Garbage* - putrescible animal and vegetable matter accumulated by a family in a residence in ordinary, day-to-day living.

- *Gas-gas Method* - either of two methods for determining capture of emissions which rely on only gas phase measurements.

- *Gasoline* - a petroleum distillate or petroleum distillate-alcohol blend with a Reid vapor pressure of 4 psi or greater that is used as a fuel for internal combustion engines.

- *Gasoline Tank Truck* - a delivery tank truck used at bulk gasoline terminals or bulk gasoline plants that is loading gasoline or has loaded gasoline on the immediately previous load.

- *Heavy Duty Vehicle* - any motor vehicle designed primarily for transportation of property and rated at more than 6000 lb gross vehicle weight or designed primarily for the transportation of persons and with a capacity of more than 12 persons.

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

- *Household Battery* - a dry-cell battery.

- *Household Rubbish* - waste material and trash, not to include garbage, normally accumulated by a family in a residence in ordinary, day-to-day living.

- *Household Solid Waste* - solid waste, including garbage and trash, generated by single and multiple family residences, hotels, motels, bunkhouses, ranger stations, crew quarters, and recreational areas such as picnic areas, parks, and campgrounds.

- *Hydrocarbon* - an organic compound consisting predominantly of carbon and hydrogen.

- *Incineration* - the process of igniting and burning solid, semi-solid, liquid, or gaseous combustible wastes.

- *Incinerator* - any furnace used for burning waste to reduce the volume of the waste by removing combustible matter.

- *Indirect Heat Exchanger* - any piece of equipment used for the combustion of fuel in which the energy produced is transferred to its point of usage through a medium that does not come in contact with or add to the products of combustion.

- *Industrial Waste* - a liquid, gaseous, or solid waste substance resulting from a process of industry, manufacture, trade, or business or from the development, process, or recovery of a natural resource.

- *Interconnected* - two or more electric generating units are electrically tied together by a network of power transmission lines and other power transmission equipment.

- *Interlocking System* - devices that keep the storage tank sealed unless the vapor hose is connected or that prevent delivery of fuel until the vapor hose is connected.

- *Intermittent Emissions* - emissions of particulate matter into the open air from a process that operates for less than any six consecutive minutes.

- *Intermittent Emission* - a visible emission of particulate matter which persists for 3 min, the opacity of which is measured in accordance with Kentucky Method 150(F-1). This definition applies for New Source Standards, KAR, Chapter 59.

- *Kentucky Pressure-Vacuum Test Sticker* - a compliance sticker issued annually by the Cabinet to the owner or operator of a gasoline tank truck subject to the Kentucky Administrative Regulation or that may be issued by a local air pollution control district within the Commonwealth of Kentucky with an equivalent administrative regulation approved by the Cabinet and the USEPA.

- *Large MSWI Plant* - a MSWI plant with a capacity greater than 225 megagrams (Mg)/day (250 tons/day) of municipal solid waste.

- *LEL* - lower explosive limit, measured as propane.

- *Light Duty Vehicle* - any motor vehicle designed primarily for transportation of property and rated at 6000 lb gross vehicle weight or less or designed primarily for transportation of persons and with a capacity of 12 persons or less.

- *Lignite* - coal classified as lignite A or B according to ASTM D 388-66.

- *Liquid-Gas Method* - either of two methods for determining capture of emissions that require both gas phase and liquid phase measurements and analysis.

- *Maintenance Operation* - patching of holes and breaks in pavement when necessary for safety.

- *Major Source* - a source with a potential emission rate equal to or greater than 100 tons/yr of any one of the following pollutants: particulate matter, sulfur oxides, nitrogen oxides, VOCs, or carbon monoxide.

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

- *Marginal Nonattainment County or Marginal Nonattainment Area* - a county or portion of a county designated marginal nonattainment.

- *Mass Burn Refractory Incinerator* - an incinerator that combusts waste in a refractory wall furnace.

- *Mass Burn Rotary Waterwall Incinerator* - an incinerator that combusts waste in a cylindrical, rotary, waterwall furnace.

- *Mass Burn Waterwall Incinerator* - an incinerator that combusts waste in a conventional waterwall furnace.

- *Maximum MSWI Unit Load* - the maximum 1 h MSWI load achieved when compliance with all applicable regulations is demonstrated or during a subsequent test demonstrating compliance at a higher unit load.

- *Maximum Unit Load* - the maximum 1 h load achieved when compliance with all applicable regulations is demonstrated or during a subsequent test demonstrating compliance at a higher unit load.

- *Medical Waste* - wastes produced in medical and laboratory procedures including, but not limited to, the following:
  1. cultures and stocks of infectious agents, including specimen cultures collected from medical and pathological laboratories; cultures and stocks of infectious agents from research and industrial laboratories; wastes from the production of biologicals; discarded live and attenuated vaccines; and culture dishes and devices used to transfer, inoculate, and mix cultures
  2. waste human blood and blood products such as serum, plasma, and other blood components
  3. pathological wastes, such as tissues, organs, body parts, and body fluids removed during surgery and autopsy
  4. all discarded sharps including, but not limited to, hypodermic needles, syringes, Pasteur pipettes, broken glass, scalpels, scalpel blades, glass vials used in patient care, autopsy, or embalming or which have come into contact with infectious agents during use in medical, research, or industrial laboratories
  5. carcasses and body parts of animals exposed to pathogens in research, in the production of biologicals, or in the *in vivo* testing of pharmaceuticals
  6. other wastes as may be designated by a permit issued by the Division for Air Quality.

- *Medical Waste Incinerator* - a device that combusts material that, if included in the waste stream, would be medical waste.

- *Metals* - condensible metals emitted from units.

- *Moderate Nonattainment County or Moderate Nonattainment Area* - a county or portion of a county designated moderate nonattainment.

- *Modification* - a physical change in or change in the method of operation of an affected facility that increases the amount of a pollutant (to which a standard applies) emitted into the atmosphere by the facility, or results in the emission of a pollutant (to which a standard applies) into the atmosphere not previously emitted. The following are not to be considered modifications:
  1. maintenance, repair, and replacement which the Cabinet determines to be routine for source category
  2. an increase in production rate of an affected facility if that increase can be accomplished without a capital expenditure
  3. an increase in the hours of operation
  4. use of an alternative fuel or raw material if, prior to the date any standard becomes applicable to that source type, the affected facility was designed to accommodate an alternative fuel or raw material if that use could be accomplished under the facility's construction specifications as amended prior to the change; conversion to coal required for energy considerations is not to be considered a modification
  5. the addition or use of any system or device whose primary function is the reduction of air pollutants, except when an emission control system is removed or replaced by a system the Cabinet determines to be less environmentally beneficial
  6. the relocation or change in ownership of an existing facility.

- *Modular Excess Air Incinerator* - an incinerator that combusts waste, is not field-erected, and has multiple combustion chambers, all of which are designed to operate at conditions with combustion air amounts in excess of theoretical requirements.

- *Modular Starved Air Incinerator* - an incinerator that combusts waste, is not field-erected, and has multiple combustion chambers in which the primary combustion chamber is designed to operate at substoichiometric conditions.

- *Monitoring Device* - the total equipment required in regulations to measure and record, if applicable, process parameters.

- *MSWI Acid Gases* - sulfur dioxide and hydrogen chloride gases emitted from MSWI units.

- *MSWI Metals* - condensible metals emitted from MSWI units.

- *MSWI Organics* - organic compounds emitted from MSWI units, including dioxins or furans.

- *MSWI Plant* - one or more MSWI units at the same location for which construction, modification, or reconstruction commenced on or after 20 December 1989.

- *MSWI Plant Capacity* - the aggregate MSWI unit capacity of all MSWI units at a MSWI plant. MSWI units for which construction, modification, or reconstruction commenced before 20 December 1989 are not included for determining applicability.

- *MSWI Unit Capacity* - the maximum designed charging rate of the waste for an individual MSWI.

- *Multiple-Chamber Incinerator* - an incinerator consisting of at least two refractory line combustion chambers (primary and secondary) in a series that are physically separated by refractory walls and interconnected by gas passage ports or ducts.

- *Municipal Solid Waste (MSW)* - household and commercial solid waste. Medical waste is not considered MSW.

- *Municipal Waste Incinerator or Municipal Solid Waste Incinerator Unit* - a device that combusts material that, if included in the waste stream, would be municipal solid waste. These devices include, but are not limited to, field-erected incinerators (with or without heat recovery), modular incinerators (starved air or excess air), boilers (i.e., steam generating units), and furnaces (whether suspension-fired, grate-fired, mass-fired, or fluidized bed-fired).

- *Net System Capacity* - the sum of the net electric generating capability (not necessarily equal to rated capacity) of all electric generating equipment owned by an electric utility company (including steam generating units, internal combustion engines, gas turbines, nuclear units, hydroelectric units, and all other electric generating equipment) plus firm contractual purchases that are interconnected to the affected facility with the malfunctioning FGD system. The electric generating capability of equipment under multiple ownership is prorated based on ownership, unless the proportional entitlement to electric output is otherwise established by contractual arrangement.

- *New Source* - a source, the construction, reconstruction, or modification of which commenced on or after the classification date. A source, upon reconstruction, becomes a new source irrespective of a change in emission rate.

- *Nitrogen Oxides* - all oxides of nitrogen, except nitrous oxide, as measured by a test method specified by the Cabinet.

- *Normal* - a volumetric measurement at 0 °C (32 °F) and one atmosphere.

- *Oil-Effluent Water Separator* - any container in which petroleum or another product thereof, floating on or entrained or contained in water entering the container, is physically separated and removed from the water prior to outfall, drainage, or recovery of the water.

- *Opacity* - the degree to which emissions reduce the transmission of light and obscure the view of an object in the background.

- *Open Air* - the air outside buildings, structures, and equipment.

- *Open Burning* - the burning of any matter in a manner that results in the products of combustion from the burning being emitted directly into the outdoor atmosphere without passing through a stack or chimney.

- *Open Top Vapor Degreaser* - a batch-loaded degreaser in which solvent is heated to the boiling point to create a solvent vapor zone.

- *Organic Materials* - chemical compounds of carbon excluding methane, ethane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides, and ammonium carbonate.

- *Organic Solvents* - organic materials that are liquids at standard conditions and are used as dissolvers, viscosity reducers, cleaning agents, diluents, or thinners; materials that exhibit a boiling point higher than 103.4 °C (220 °F) at 0.5 millimeters of mercury (mm Hg) absolute pressure or have an equivalent vapor pressure are not considered solvents unless they are exposed to temperatures exceeding 103.4 °C (220 °F).

- *Organics* - organic compounds emitted from units, including dioxins or furans.

- *Overall Emission Reduction Efficiency* - the weight per unit of time of a VOC removed by a control device divided by the weight per unit of time of a VOC emitted by an emission source, expressed as a percentage.

- *Packaging Rotogravure Printing* - rotogravure printing on paper, paper board, metal foil, plastic film, and other substrates that are, in subsequent operations, formed into packaging products and labels for articles to be sold.

- *Particulate Matter* - a material, except uncombined water, that exists in a finely divided form as a liquid or a solid measured by the appropriate, approved test method. In reference to MSWI units, particulate matter is the total particulate matter emitted from such units.

- *Particulate Matter Carryover* - particulate matter which is passed from the primary chamber of an incinerator into the flue gas stream.

- *Particulate Matter Emissions* - except as used in 40 CFR 60, all finely divided solid or liquid material, other than uncombined water, emitted to the ambient air that is measured by applicable reference methods, an equivalent or alternative method specified in 40 CFR Chapter I, or a test method specified in the approved state implementation plan.

- *Particulate Matter$_{10}$ (PM_{10})* - particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (μm) as measured by a reference method based on Appendix J to 40 CFR 50, which has been incorporated by reference in 401 KAR 50:015, and designated in accordance with 40 CFR 53, or by an equivalent method designated in accordance with 40 CFR 53.

- *PM_{10} Emissions* - finely divided solid or liquid material with an aerodynamic diameter less than or equal to a nominal 10 μm emitted to the ambient air as measured by an applicable reference method, or an equivalent or alternative method, specified in 40 CFR Chapter I, or by a test method specified in the approved state implementation plan.

- *Penetrating Prime Coat* - an application of low-viscosity liquid asphalt to an absorbent surface.

- *Petroleum Liquids* - petroleum, condensate, and any finished or intermediate products manufactured in a petroleum refinery; petroleum liquids do not include Number 2 through Number 6 fuel oils, gas turbine fuel oils Numbers 2-GT through 4-GT, or diesel fuel oils Numbers 2-D and 4-D, as specified by the Cabinet.

- *Potential Combustion Concentration* - the theoretical emissions (lb/ MBtu heat input) that would result from combustion of a fuel in an uncleaned state (without emission control systems)
  1. the Potential Combustion Concentration for particulate matter is:
     a. 7.0 lb/ MBtu heat input for solid fuel
     b. 0.17 lb/ MBtu heat input for liquid fuels
  2. the Potential Combustion Concentration for nitrogen oxides is:
     a. 0.67 lb/ MBtu heat input for gaseous fuels
     b. 0.72 lb/ MBtu heat input for liquid fuels
     c. 2.30 lb/ MBtu heat input for solid fuels.

- *Potential Electrical Output Capacity* - 33 percent of the maximum design heat input capacity of the steam generating unit. For electric utility combined cycle gas turbines, the potential electrical output capacity is determined on the basis of the fossil-fuel firing capacity of the steam generator exclusive of the heat input and electrical power contribution by the gas turbine.

- *Potential to Emit* - the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. A 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, are 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 of a stationary source to emit a pollutant.

- *Potentially Hazardous Matter or Toxic Substances* - matter that may be harmful to the health and welfare of humans, animals, and plants including, but not limited to, antimony, arsenic, bismuth, lead, silica, tin, and compounds of such materials.

- *Printing* - the formation of words, designs, and pictures, usually by a series of application rolls each with only partial coverage. The term applies to flexographic and rotogravure processes for publication, specialty, and packaging printing.

- *Process Operation* - any method, form, action, operation, or treatment of manufacturing or processing, including any storage or handling of material or products, before, during, or after manufacturing or processing.

- *Process Weight* - the total weight of all materials introduced into any affected facility that may cause any emission of particulate matter; process weight does not include liquid and gaseous fuels charged, combustion air, or uncombined water.

- *Process Weight Rate* - a rate established as follows:
  1. for continuous or long-run, steady state operations, the total process weight for the entire period of continuous operation or for a typical portion thereof, divided by the number of hours of such period or portion thereof
  2. for cyclical or batch unit operations or unit processes, the total process weight for a period that covers a complete operation or an integral number of cycles, divided by the hours of actual process operation during the period
  3. where the nature of any process operation or the design of any equipment allows more than one interpretation of this definition, the interpretation that results in the minimum value for allowable emission applies.

- *Processed Municipal Solid Waste (MSW) or Refuse-Derived Fuel (RDF)* - MSW or refuse-derived fuel that has been processed to separate materials for recovery prior to combustion in a MSWI unit. MSW or RDF is considered to be processed MSW or RDF if an overall 40 percent or greater reduction by weight (annual average) of MSW is achieved through the separation of recoverable materials. A maximum of 15 percent reduction (by weight) of the overall MSW is attributed to separation of yard waste. The 40 percent or greater overall reduction requirement may be achieved by onsite mechanical separation, onsite manual separation, offsite mechanical separation, offsite manual separation, a curbside source reduction or materials separation (recycling) program, or a combination thereof.

- *Publication Rotogravure Printing* - rotogravure printing on paper that is subsequently used in books, magazines, catalogues, brochures, directories, newspaper supplements, and other forms of printed materials.

- *Reasonably Available Control Technology (RACT)* - the lowest emission limit a particular affected facility is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility.

- *RDF Spreader Stoker* - a steam generating unit that combusts RDF in a semi-suspension firing mode using air-fed distributors.

- *Reconstruction* - the replacement of components of an existing affected facility to the extent that the fixed capital cost of the new components exceed 50 percent of the fixed capital cost required to construct a comparable, entirely new affected facility and for which it is technologically and economically feasible to meet the applicable new source standards.

- *Recoverable Materials* - paper, paperboard, ferrous metals, nonferrous metals, glass, plastics, household batteries, and yard waste.

- *Reference Method* - a method of sampling and analyzing for an air pollutant as prescribed by Appendices A through K to 40 CFR 50, Appendices A and B to 40 CFR 60, and Appendix B to 40 CFR 61, which have been incorporated by reference in 401 KAR 50:015.

- *Refrigerated Chiller* - a second set of freeboard condenser coils located slightly above the primary condenser coils that create a cold air blanket above the vapor zone.

- *Refuse-Derived Fuel (RDF)* - a type of municipal solid waste (MSW) produced by processing MSW through shredding and size classification. This pertains to all classes of RDF, including low density fluff RDF through densified RDF fuel pellets.

- *RDF Cofired Incinerator* - an incinerator designed to fire refuse-derived fuel simultaneously with other fuels.

- *Resource Recovery Unit* - a facility that combusts more than 75 percent nonfossil fuel on a quarterly (calendar) heat input basis.

- *Rotogravure Printing* - the application of words, designs, and pictures to a substrate by means of a roll printing technique that involves intaglio or recessed image areas in the form of cells.

- *Run* - the net period of time during which an emission sample is collected. Unless otherwise specified, a run may be either intermittent or continuous within the limits of good engineering practice.

- *Same Location* - the same or contiguous property that is under common ownership or control, including properties that are separated only by a street, road, highway, or other public right-of-way. Common ownership or control includes properties that are owned, leased, or operated by the same entity, parent entity, subsidiary, subdivision, or a combination thereof, including a municipality or other government unit or a quasi-government authority.

- *Secondary Emissions* - emissions occurring 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. Secondary emissions must be specific, well defined, quantifiable, and impact the same general area as the stationary source modification that causes the secondary emissions. Secondary emissions may include, but are not limited to, emissions from an offsite support facility that would not otherwise be constructed or increase its emissions as a result of the construction or operation of the major stationary source or major modification. Secondary emissions do not include emissions that come directly from a mobile source, such as the emissions from the tailpipe of a motor vehicle, a train, or a vessel.

- *Serious Nonattainment County or Serious Nonattainment Area* - a county or portion of a county designated serious nonattainment.

- *Service Station* - any public or private establishment, except farms, that dispenses gasoline into vehicle fuel tanks.

- *Severe Nonattainment County or Severe Nonattainment Area* - a county or portion of a county designated severe nonattainment.

- *Shift Supervisor* - the person in direct charge and control of the operation of an affected facility and who is responsible for onsite supervision, technical direction, management, and overall performance of the facility during an assigned shift.

- *Shutdown* - the cessation of an operation.

- *Small MSWI Plant* - a MSWI plant with a MSWI plant capacity of greater than 500 lb/ h but less than or equal to 225 megagrams/day (250 tons/day) of municipal solid waste.

- *Solid-Derived Fuel* - any solid, liquid, or gaseous fuel derived from solid fuel to create useful heat including, but not limited to, solvent refined coal, liquefied coal, and gasified coal.

- *Solid Waste Burnout* - the percent of matter completely burned in the primary chamber of a MSWI.

- *Solvent* - in the regulation of new and existing solvent metal cleaning equipment, "solvent" is considered equal in meaning to VOC.

- *Source* - one or more affected facilities contained within a given contiguous property line. The property shall be considered contiguous if separated only by a public thoroughfare, stream, or other right-of-way.

- *Spare Flue Gas Desulfurization System Module* - a separate system of sulfur dioxide emission control equipment capable of treating an amount of flue gas equal to the total amount of flue gas generated by an affected facility when operated at maximum capacity divided by the total number of nonspare FGD modules in the system.

- *Specialty Rotogravure Printing* - all rotogravure printing except packaging rotogravure and publication rotogravure printing. It includes, but is not limited to, rotogravure printing on paper cups and plates, patterned gift wrap, wallpaper, and floor coverings.

- *Spinning Reserve* - the sum of the unutilized net generating capability of all units of the electric utility company that are synchronized to the power distribution system and are capable of immediately accepting additional load.

- *Stack or Chimney* - a flue, conduit, or duct arranged to conduct emissions to the atmosphere.

- *Standard* -
  1. an emission standard, a standard of performance, or an ambient air quality standard as promulgated under the regulations of the Division for Air Quality or the emission control requirements necessary to comply with Title 401, Chapter 51, of the regulations of the Division for Air Quality
  2. concerning new municipal solid waste incinerators and new medical waste incinerators, a volumetric measurement at 20 °C (68 °F) and one atmosphere.

- *Standard Conditions* -
  1. for source measurements, 20 °C (68 °F) and a pressure of 760 mm Hg (29.92 in. of Hg)
  2. for the purpose of air quality determinations, 25 °C (77 °F) and a reference pressure of 760 mm Hg (29.92 in. of Hg).

- *Startup* - the setting in operation of an affected facility.

- *State Implementation Plan (SIP)* - the most recently prepared plan or revision required by 42 USC 7410.

- *Steam Generating Unit* - any furnace, boiler, or other device used for combusting fuel for the purpose of producing steam including fossil-fuel-fired steam generators associated with combined cycle gas turbines. Nuclear steam generators are not included in this definition.

- *Sticker* - see *Kentucky Pressure-Vacuum Test Sticker.*

- *Storage Vessel* - any tank, reservoir, or container used for the storage of petroleum liquids.

  (NOTE: This does not include pressure vessels designed to operate in excess of 15 pounds per square inch gauge (psig) without emissions to the atmosphere, except under emergency conditions; subsurface caverns or porous rock reservoirs; or underground tanks if the total volume of petroleum liquids added to and taken from a tank annually does not exceed twice the volume of the tank.)

- *Subbituminous Coal* - coal that is classified subbituminous A, B, or C according to ASTM D 388-66, filed by reference in 401 KAR 50:015.

- *Submerged Fill Pipe* -
  1. any fill pipe the discharge opening of which is entirely submerged when the liquid level is 6 in. above the bottom of the tank
  2. when applied to a tank loaded from the side, any fill pipe the discharge opening of which is entirely submerged when the liquid level is two times the fill pipe diameter above the bottom of the tank.

- *System Emergency Reserves* - an amount of electric generating capacity equivalent to the rated capacity of the single largest electric generating unit in the electric utility company (including steam generating units, internal combustion engines, gas turbines, nuclear units, hydroelectric units, and all other electric generating equipment) that is interconnected with the affected facility with the malfunctioning FGD system.

- *System Load* - the entire electric demand of a utility company's service area interconnected with the affected facility that has the malfunctioning FGD system plus firm contractual sales to other electric utility companies.

- *Tank Truck* - see *Gasoline Tank Truck.*

- *Threshold Ambient Limit (TAL)* - the concentration level in the ambient air of a toxic air pollutant, calculated pursuant to Appendix B, 401 KAR 63:021, and Appendix B, 401 KAR 63:022.

- *Total Suspended Particulate* - particulate matter measured by the method described in Appendix B of CFR 50, which has been incorporated by reference in 401 KAR 50:015.

- *Toxic Air Pollutant* - a substance listed in Appendix B, 401 KAR 63:021, and Appendix B, 401 KAR 63:022.

- *Twenty-Four Hour Period* - the period of time between 12:01 a.m. and midnight.

- *Unacceptable Emulsion Asphalt* - any emulsion asphalt that yields more than 7 percent by volume of oil distillate when tested according to the American Association of State Highway and Transportation Officials (AASHTO T 59-78, Sections 7 to 9).

- *Uncombined Water* - water which can be separated from a compound by ordinary physical means and which is not bound to a compound by internal molecular forces.

- *Uncontrolled Hydrogen Chloride Emission Rate* - the hydrogen chloride emission rate from combustion of MSW with no hydrogen chloride emissions control.

- *Uncontrolled Sulfur Dioxide Emission Rate* - the sulfur dioxide emission rate from combustion of MSW with no sulfur dioxide emissions control.

- *Unit* - an affected facility including, but not limited to, field-erected incinerators, boilers, and furnaces.

- *Unit Capacity* - the maximum design charging rate of the waste for an individual unit.

- *Unit Load* - the volume of steam produced, expressed in kilograms per hour of steam.

- *Unprocessed MSW or RDF* - MSW or RDF that has not been processed to separate materials for recovery prior to combustion or for which less than a 40 percent reduction by weight (annual average) of MSW is achieved.

- *Urban County* - a county that is part of an urbanized area with a population of greater than 200,000, based upon the 1980 census. If a portion of a county is a part of an urbanized area, then the entire county shall be classified as urban with respect to the regulations of the Division for Air Quality.

- *Urbanized Area* - an area defined as such by the U. S. Department of Commerce, Bureau of Census.

- *Vapor Balance System* - a system that conducts vapors displaced from storage tanks during filling operations to the storage compartment of the transport vehicle delivering the fuel.

- *Vapor Collection System* - equipment used for containing total organic compound vapors displaced during the loading of gasoline tank trucks.

- *Vapor Recovery System* - a vapor gathering system capable of collecting all hydrocarbon vapors and gases discharged from a storage vessel, and a vapor disposal system capable of processing hydrocarbon vapors and gases to prevent their emission to the atmosphere.

- *Vehicle Battery* - a wet lead-acid battery.

- *Vent Line Restriction* -
  1. an orifice of 1/ 2 to 3/4 in. inside diameter
  2. a pressure-vacuum relief valve set to open at not less than 8 oz/in.^{2} pressure and not less than 1/ 2 oz/in.^{2} vacuum, unless a different vacuum relief setting is required by safety or fire authorities
  3. a vent shutoff valve activated by connection of the vapor return hose.

- *Volatile Organic Compound or VOC* - an organic compound that participates in atmospheric photochemical reactions. This includes an organic compound other than the following compounds: methane; ethane; carbon monoxide; carbon dioxide; carbonic acid; metallic carbides, or carbonates; ammonium carbonates; methylene chloride; 1,1,1-trichloroethane (methyl chloroform); trichlorofluoromethane (CFC-11); dichlorodifluoromethane (CFC-12); dichlorotrifluoroethane (HCFC -123);

tetrafluoroethane (HFC-134a); dichlorofluoroethane (HCFC-141b); chlorodifluoroethane (HCFC 142b); 2-chloro-1,1,1, 2-tetrafluoroethane (HCFC-124); pentafluoroethane (HCFC0-125); 1,1,2,2-tetrafluoroethane (HFC-134); 1,1,1-trifluoroethane (HFC-143a); 1,1-difluoroethane (HFC-152a); and perfluorocarbon compounds that fall into these classes:

1. cyclic, branched, or linear, completely fluorinated alkanes
2. cyclic, branched, or linear, completely fluorinated ethers with no unsaturations
3. cyclic, branched, or linear, completely fluorinated tertiary amines with no unsaturations
4. sulfur containing perfluorocarbons with no unsaturations and with sulfur bonds only to carbon and fluorine.

- *VOC Net Input* - the total amount of VOC input to the affected facility minus the amount of VOC that are not emitted into the atmosphere. VOC prevented from being emitted to the atmosphere by the use of control devices are not to be subtracted from the total for the purposes of determining VOC net input. If the nature of any operation or design of equipment allows more than one interpretation of this definition, the interpretation that results in the minimum value for allowable emissions applies.

- *Yard Waste* - vegetative matter removed as a result of outdoor maintenance practices from residential and commercial yards, municipal parks, gardens, golf courses, and other similar areas and includes, but is not limited to, grass trimmings, tree branches, straw, and leaves.

CLEAN AIR ACT (CAA)

GUIDANCE FOR KENTUCKY CHECKLIST USERS

Applicability:	Refer to Checklist Items:
Permits	1-1
General Operating Requirements	1-2 and 1-3
New Process Operations	1-4
New Indirect Heat Exchangers	1-5 through 1-7
New Electric Utility Steam Generating Units	1-8 through 1-10
New Incinerators	1-11 through 1-13
New Municipal Solid Waste Incinerators	1-14 through 1-22
New Sewage Treatment Plants	1-23
Existing Incinerators	1-24 and 1-25
Existing Medical Waste Incinerators	1-26
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Existing Indirect Heat Exchangers	1-31 and 1-32
Existing Oil - Effluent Water Separators	1-33
New Oil - Effluent Water Separators	1-34
Existing Storage Vessels for Petroleum Liquids	1-35 through 1-37
New Storage Vessels for Petroleum Liquids	1-38 through 1-40
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New and Existing Service Stations	1-44
New and Existing Solvent Metal Cleaning Equipment	1-45 through 1-47
Existing Graphic Arts Facilities Using Rotogravure and Flexography	1-48 and 1-49
New Graphic Arts Facilities Using Rotogravure and Flexography	1-50 and 1-51

CLEAN AIR ACT (CAA)

GUIDANCE FOR KENTUCKY CHECKLIST USERS
(continued)

Applicability:	**Refer to Checklist Items:**
New and Existing Perchloroethylene Drycleaning Systems	1-52
Open Burning	1-53
Fugitive Emissions	1-54
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Existing Sources Emitting Toxic Air Pollutants	1-57
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Liquefied Petroleum Gas Carburetion Systems	1-59
Asphalt Paving Operations	1-60
Leaks from Gasoline Tank Trucks	1-61

COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
PERMITS **1-1.** Installations must obtain permits for sources of air pollution (401 KAR 50:035, Section 1 and Section 6).	Verify that the installation is not operating a source of air pollution without an operating permit, unless the source is one of the following exempt sources: - a facility to which no regulation is applicable and that emits an air pollutant to which no ambient air quality standard applies - incinerators with a charging rate of less than 500 lb/h, unless otherwise required - internal combustion engines, whether fixed or mobile, and vehicles used for transport of passenger or freight, unless otherwise required - direct fired sources used for heating and ventilating - open burning, unless otherwise required - indirect heat exchangers at a source with a total heat input capacity of less than 50 MBtu/h that use natural gas, liquid petroleum gas, or distillate fuel oil as a main fuel, or combinations of these as main and standby fuels and are not subject to other requirements - any indirect heat exchanger with a heat input capacity of less than 50 MBtu/h that use natural gas or liquid petroleum gas as a main fuel, or combinations of these as main and standby fuels and are not subject to other requirements - publicly owned roads - unless otherwise required, all sources with uncontrolled emissions less than 25 tons/yr and with the potential to emit less than or equal to 5 tons/yr of each of the following pollutants: particulate matter, sulfur dioxide, volatile organic compounds, nitrogen oxides, and carbon monoxide (permits are required for incinerators) - sources that install air pollution control equipment where none was required - sources that voluntarily modify or replace their air pollution control equipment to provide an equivalent or more efficient control of air pollutants - affected facilities that are part of a construction project with a total increase in the potential to emit from all affected facilities in the construction project of less than or equal to 2 tons/yr of each of the following pollutants: particulate matter, sulfur dioxide, volatile organic compounds, nitrogen oxides, and carbon monoxide, if the increase does not subject the source to any other regulation. Verify that the installation is not constructing or modifying any source of air pollution without a construction permit from the Cabinet. (NOTE: The Cabinet may allow variances for this permit requirement.)

COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
GENERAL OPERATING REQUIREMENTS	
1-2. Installations are required to meet specific standards when emission standards are violated during shutdowns and malfunctions of air pollution sources (401 KAR 50:055, Section 1).	Determine if emission standards are to be violated by the planned shutdown of an air pollution source and its ensuing startup. Verify that the installation has notified the Director of any planned shutdown of an air pollution source and its ensuing startup no later than 3 days prior to the shutdown. Verify that, in the event of an unforeseen shutdown of an air pollution source, the installation has given written notice of the shutdown to the Director as soon as the the decision to shutdown is made. Determine if emission standards have been violated by malfunctions, unplanned shutdowns, or ensuing startups. Verify that the Director has been notified by telephone of these violations as soon as possible.
1-3. Installations must meet general rules concerning new air pollution sources (401 KAR 59:005, Sections 2 and 3).	Verify that the installation has conducted performance tests on new sources within 60 days after achieving the maximum production rate at which the affected facility will be operated but not later than 180 days after initial startup of the facility. Verify that the installation has submitted the results of these tests to the Department for Environmental Protection within the specified time limits. (NOTE: The following are exempt facilities: process operation with a process weight rate of less than 100 tons/ h, indirect heat exchanger of 250 MBtu/ h heat input or less, and incinerators with a charging rate of 45 metric tons/day (50 tons/day) or less.) Verify that the installation has furnished the Department with the following written notifications: - the date the construction, reconstruction, or modification of an affected facility is commenced - the anticipated date of initial startup of an affected facility - the actual date of initial startup of an affected facility - any physical or operational change to an affected facility that may increase the emission rate of any air pollutant - the date that demonstration of the continuous monitoring system performance commences. Verify that the installation has records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility.

COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) *Kentucky Supplement*	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
1-3. (continued)	Verify that an installation required to install a continuous monitoring system has submitted a written report of excess emissions to the Department for every calendar quarter. Verify that the installation has maintained a file of the following for the past 2 yr: - continuous monitoring system - monitoring device - performance testing measurement - all continuous monitoring system performance evaluations - all continuous monitoring system or monitoring device calibration checks - adjustments and maintenance performed on these systems or devices - all other information recorded in a permanent form suitable for inspection.
NEW PROCESS OPERATIONS **1-4.** Installations must meet certain standards for particulate matter emitted from new process operations (401 KAR 59:010, Section 3).	(NOTE: New process operations are those that commenced on or after 2 July 1975.) Verify that the installation does not allow any continuous emission into the open air from a control device or stack associated with any affected facility that is equal to or greater than 20 percent opacity. Verify that the installation does not allow any continuous or intermittent fugitive emission into the open air from any affected facility or source located in any area designated nonattainment for total suspended particulates which is equal to or greater than 20 percent opacity or which remains visible beyond the lot line of the property on which the emission originates. (NOTE: Variation may be approved by the USEPA.) Verify that the installation does not allow emission into the open air of particulate matter from any affected facility in excess of the particulate emission rates found in Appendix 1-1.

COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
NEW INDIRECT HEAT EXCHANGERS	(NOTE: For affected facilities with a capacity of more than 250 MBtu/ h heat input with respect to particulate emissions, sulfur dioxide emissions, and, if fuels other than lignite are burned, nitrogen oxide emissions, new indirect heat exchangers are those which commenced on or after 17 August 1971. For affected facilities with a capacity of 250 MBtu/ h heat input or less with respect to particulate emissions and sulfur dioxide emissions, new facilities are those which commenced on or after 9 April 1972. For affected facilities with a capacity of more than 250 MBtu/ h heat input with respect to nitrogen oxide, if lignite is the fuel burned, new facilities are those which commenced on or after 22 December 1976.)
1-5. Installations must meet certain standards for particulate matter emitted from new indirect heat exchangers (401 KAR 59:015, Section 4).	Verify that if the installation has a source with a total heat input capacity of 10 MBtu/ h or less, the source's emissions do not exceed 0.56 lb/ MBtu actual heat input. Verify that if the installation has a source with a total heat input capacity of 250 MBtu/ h or more, the source's emissions do not exceed 0.10 lb/ MBtu actual heat input. Verify that if the installation has a source with a total heat input capacity between 10 MBtu/ h and 250 Btu/ h, the source's emissions do not exceed in pounds per million British thermal units actual heat input 0.9634 times the quantity obtained by raising the total heat input capacity (in MBtu per hour) to the -0.2356 power. Verify that the installation is not discharging emissions into the atmosphere that exhibit greater than 20 percent opacity. (NOTE: The following are exceptions: for indirect heat exchangers with heat input capacity of 250 MBtu/ h or more, a maximum of 27 percent opacity is permissible for not more than one 6-min period in any 60 consecutive minutes; for indirect heat exchangers with heat input capacity of less than 250 MBtu/ h, a maximum of 40 percent opacity is permissible for not more than six consecutive minutes in any 60 consecutive minutes during the cleaning of the fire box or the blowing of soot; and emissions from an indirect heat exchanger during the building of a new fire for the period required to bring the boiler up to operating conditions if the method used is the one recommended by the manufacturer and the time does not exceed the manufacturer's recommendations.)

COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
1-6. Installations must meet certain standards for sulfur dioxide emitted from an indirect heat exchanger (401 KAR 59:015, Section 5).	Verify that the source's emissions do not exceed 3.0 lb/MBtu actual heat input for combustion of liquid and gaseous fuels or 5.0 lb/MBtu actual heat input for combustion of solid fuels for sources with a total heat input capacity of 10 MBtu/h or less. Verify that the source's emissions do not exceed 0.8 lb/MBtu actual heat input for combustion of liquid and gaseous fuels or 1.2 lb/MBtu actual heat input for combustion of solid fuels for sources with a total heat input capacity of 250 MBtu/h or more. Verify that the source's emissions do not exceed 7.7223 times the quantity obtained by raising the total heat input capacity (in million British thermal units per hour) to the -0.4106 power for combustion of liquid and gaseous fuels or 13.8781 times the quantity obtained by raising the total heat input capacity to the -0.4434 power for combustion of solid fuels for sources with a total heat input capacity between 10 MBtu/h and 250 MBtu/h.
1-7. Installations must meet certain standards for nitrogen oxides emitted from indirect heat exchangers (401 KAR 59:015, Section 6).	Determine if the installation has an affected facility with a heat input capacity of 250 MBtu/h or more. Verify that the installation does not emit into the atmosphere from indirect heat exchangers any gases which contain nitrogen oxides expressed as nitrogen dioxide in excess of the following: - 0.20 lb/MBtu heat input (0.36 g per million calories) derived from gaseous fuel - 0.30 lb/MBtu heat input (0.54 g per million calories) derived from liquid fuel - 0.70 lb/MBtu heat input (1.26 g per million calories) derived from solid fuel (except lignite) - 0.60 lb/MBtu heat input (1.08 g per million calories) derived from lignite or lignite and wood residue - 0.80 lb/MBtu derived from lignite that is mined in North Dakota, South Dakota, or Montana and is burned in a cycle one-fire unit. (NOTE: When a fossil fuel containing at least 25 percent by weight of coal refuse is burned in combination with gaseous, liquid, or other solid fossil fuel or wood residue, the standard for nitrogen oxides does not apply.)

COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
NEW ELECTRIC UTILITY STEAM GENERATING UNITS	(NOTE: New electric utility steam generating units commenced operations on or after 19 September 1978.)
1-8. Installations must meet certain standards for particulate matter emitted from new electric utility steam generating units (401 KAR 59:016, Section 3).	Verify that the installation does not discharge any gases into the atmosphere that contain particulate matter in excess of the following on or after the date of the required performance test: - 0.03 lb/ MBtu heat input derived from the combustion of solid, liquid, or gaseous fuel - 1 percent of potential combustion concentration (30 percent reduction) when combusting solid fuel - 30 percent of potential combustion concentration (70 percent reduction) when combusting liquid fuel. Verify that the installation does not discharge any gases into the atmosphere that exhibit greater than 20 percent opacity based on a 6-min average. (NOTE: This may be exceeded for one 6-min period per hour with not more than 27 percent opacity.)
1-9. Installations must meet certain standards for sulfur dioxide emitted from new electric utility steam generating units (401 KAR 59:016, Section 4).	Verify that the installation does not discharge into the atmosphere from facilities that combust solid fuel or solid-derived fuel gases containing sulfur dioxide in excess of one of the following: - 1.20 lb/MBtu heat input and 10 percent of the potential combustion concentration (90 percent reduction) - 30 percent of the potential combustion concentration (70 percent reduction), when emissions are less than 0.60 lb/MBtu heat input. Verify that the installation does not discharge into the atmosphere from facilities that combust liquid or gaseous fuels any gases containing sulfur dioxide in excess of one of the following: - 0.80 lb/MBtu heat input and 10 percent of the potential combustion concentration (90 percent reduction) - 100 percent of the potential combustion concentration (0 percent reduction) when emissions are less than 0.20 lb/MBtu heat input. Verify that the installation does not discharge into the atmosphere from facilities that combust solid solvent refined coal (SRC-1) any gases containing sulfur dioxide in excess of 1.20 lb/MBtu heat input and 15 percent of the potential combustion concentration (85 percent reduction). Verify that any facility which combusts 100 percent anthracite or is classified as a resource recovery facility does not emit sulfur dioxide in excess of 1.20 lb/MBtu heat input. (NOTE: These emission reduction requirements do not apply to any affected facility operated under a sulfur dioxide commercial demonstration permit.)

COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
1-10. Installations must meet certain standards for nitrogen oxides emitted from new electric utility steam generating units (401 KAR 59:016, Section 5).	Verify that the installation does not discharge into the atmosphere from any affected facility gases that contain nitrogen oxides in excess of the following emission limits, based on a 30-day rolling average: - for coal-derived gaseous fuels, 0.5 lb/MBtu heat input - for all other gaseous fuels, 0.2 lb/MBtu heat input - for coal-derived liquid fuels, 0.5 lb/MBtu heat input - for shale oil, 0.5 lb/MBtu heat input - for all other liquid fuels, 0.3 lb/MBtu heat input - for coal-derived solid fuels and for subbituminous coal, 0.5 lb/MBtu heat input - for lignite not subject to the 0.8 lb/MBtu heat input emission limit, 0.6 lb/MBtu heat input - for bituminous coal, 0.6 lb/MBtu heat input - for anthracite coal, 0.6 lb/MBtu heat input - for all other solid fuels, 0.6 lb/MBtu heat input - for any fuel containing more than 25 percent by weight lignite, if the lignite is mined in North Dakota, South Dakota, or Montana and is combusted in a slag tap furnace, 0.8 lb/MBtu heat input. (NOTE: Any fuel containing more than 25 percent by weight coal refuse is exempt from nitrogen oxide standards.) Verify that the installation meets the following nitrogen oxide reduction requirements: - 25 percent reduction of potential combustion concentration for gaseous fuels - 30 percent reduction of potential combustion concentration for liquid fuels - 65 percent reduction of potential combustion concentration for solid fuels. (NOTE: These emission limitations do not apply to any affected facility that is combusting coal-derived liquid fuel and is operating under a commercial demonstration permit issued by the USEPA.)

COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
NEW INCINERATORS	(NOTE: For incinerators with a charging rate of more than 50 tons/day, "new" means any incinerator that commenced after 17 August 1971.)
1-11. Installations must meet standards for particulate matter emitted from new incinerators (401 KAR 59:020, Section 3).	Verify that the installation does not allow the emission produced by the incineration of any substance to have greater than 20 percent opacity. Verify that facilities with a charging rate of 500 lb/ h and up to and including 45 metric tons/day (50 tons/day) that commenced on or after 6 June 1979, do not emit into the atmosphere any gases that contain particulate matter in excess of 0.23 grams per dry standard cubic meter (g/dscm) (0.1 grains per dry standard cubic foot (gr/dscf)) corrected to 12 percent carbon dioxide, excluding the contribution of carbon dioxide from auxiliary fuel. Verify that facilities with a charging rate of 500 lb/ h and up to and including 45 metric tons/day (50 tons/day) that commenced on or after 9 April 1972, do not emit into the atmosphere any gases that contain particulate matter in excess of 0.45 g/dscm (0.2 gr/dscf) corrected to 12 percent carbon dioxide, excluding the contribution of carbon dioxide from auxiliary fuel. Verify that facilities with a charging rate of more than 45 metric tons/day (50 tons/day) do not emit into the atmosphere on or after the date of the required performance test any gases that contain particulate matter in excess of 0.18 g/dscm (0.08 gr/dscf) corrected to 12 percent carbon dioxide, excluding the contribution of carbon dioxide from auxiliary fuel.
1-12. Installations must monitor the operations of new incinerators (401 KAR 59:020, Section 4).	Determine if the installation has a facility with a charging rate of more than 45 metric tons/day (50 tons/day). Verify that the installation has maintained records of the daily charging rates and hours of operation.
1-13. Installations must install nameplates on new incinerators (401 KAR 59:020, Section 5).	Verify that the installation has installed, in a conspicuous place on the unit, a nameplate with the manufacturer's name, model number, rated capacity, and the types of waste material for which the unit is designed.

COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
NEW MUNICIPAL SOLID WASTE INCINERATORS	(NOTE: These rules apply to each MSWI unit for which construction, modification, or reconstruction is commenced on or after 20 December 1989. RDF cofired incinerators that combust less than or equal to 20 percent RDF are exempt from these rules. Incinerators that combine and combust municipal solid waste and medical waste are subject to medical waste requirements.)
1-14. Installations must meet standards for MSWI metals emitted from new municipal solid waste incinerators (401 KAR 59:021, Section 3).	Verify that the installation does not discharge into the atmosphere on or after the date of the initial performance test either of the following: - emissions that contain particulate matter in excess of 34 mg/dscm (0.015 gr/dscf), corrected to 7 percent oxygen (dry basis) - emissions that exhibit greater than 10 percent opacity.
1-15. Installations must meet standards for MSWI organics emitted from new municipal solid waste incinerators (401 KAR 59:021, Section 4).	Verify that no facility located within a small MSWI plant and required to complete an initial performance test discharges into the atmosphere emissions that contain dioxin or furan emissions that exceed 75 nanograms (ng) per normal cubic meter (30 gr/ billion dscf), corrected to 7 percent oxygen (dry basis), on or after the date on which the performance test is completed or required. Verify that no facility located within a large MSWI plant and required to complete an initial performance test discharges into the atmosphere emissions that contain dioxin or furan that exceed 30 ng per normal cubic meter (14 gr/ billion dscf), corrected to 7 percent oxygen (dry basis), on or after the date on which the performance test is completed or required.
1-16. Installations must meet standards for MSWI acid gases emitted from new municipal solid waste incinerators (401 KAR 59:021, Section 5).	Verify that no facility located within a small MSWI plant discharges into the atmosphere, on or after the date of the initial performance test, emissions that contain the following: - sulfur dioxide in excess of either 50 percent of the uncontrolled sulfur dioxide emission rate (50 percent reduction by weight) or 30 ppm by volume, corrected to 7 percent oxygen (dry basis), whichever is less stringent - hydrogen chloride in excess of either 20 percent of the uncontrolled hydrogen chloride emission rate (80 percent reduction by weight) or 25 ppm by volume, corrected to 7 percent oxygen (dry basis), whichever is less stringent. Verify that no facility located within a large MSWI plant discharges into the atmosphere, on or after the date of the initial performance test, emissions that contain the following: - sulfur dioxide in excess of either 15 percent of the uncontrolled sulfur dioxide emission rate (85 percent reduction by weight) or 30 ppm by volume, corrected to 7 percent oxygen (dry basis), whichever is less stringent - hydrogen chloride in excess of either 5 percent of the uncontrolled hydrogen chloride emission rate (95 percent reduction by weight) or 25 ppm by volume, corrected to 7 percent oxygen (dry basis), whichever is less stringent.

COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
1-17. Installations must meet standards for nitrogen oxides emitted from new municipal solid waste incinerators (401 KAR 59:021, Section 6).	Verify that the installation does not discharge into the atmosphere, on or after the date of the initial performance test, emissions that contain nitrogen oxides in excess of 120 ppm by volume, corrected to 7 percent oxygen (dry basis).
1-18. Installations must meet standards for carbon monoxide emitted from new municipal solid waste incinerators (401 KAR 59:021, Section 7).	Verify that the installation does not discharge into the atmosphere, on or after the date of the initial performance test, emissions that exceed the carbon monoxide standard for the applicable MSWI technology in Appendix 1-2.
1-19. Installations must meet certain standards for MSWI operating practices (401 KAR 59:021, Section 8).	Verify that no steam generating facility operates at a load level greater than 100 percent of the maximum MSWI unit load. (NOTE: A facility may operate at a load level greater than the maximum MSWI unit load if the facility is conducting all applicable compliance tests to establish a higher maximum MSWI unit load.) Verify that the installation does not burn MSW in anything other than a multiple chamber incinerator with a solid hearth. (NOTE: The Cabinet may approve other devices of incineration.) Verify that facilities with secondary chambers meet all of the following temperature and residence time requirements while combusting MSW: - the secondary chamber is maintained at a minimum temperature of 982 °C (1800 °F) - the minimum secondary chamber residence time is 1.0 s - the incinerator has interlocks or other process control devices to prevent operation of the incinerator until the appropriate conditions are met. Verify that no facility on or after the date of initial startup combusts unprocessed MSW or RDF. (NOTE: The Cabinet may approve variations.) Verify that no facility combusts yard waste or vehicle batteries. Verify that, prior to initial startup, the installation established and meets thereafter, an approved plan of removing household batteries from MSW before combustion. Verify that the installation tests ash from MSWI units to determine the toxicity of the ash.

COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
1-19. (continued)	Verify that the installation disposes of hazardous ash in accordance with the regulations of the Division of Waste Management. (NOTE: Installations may apply to the Cabinet for a materials separation or combustion permit for any combustible material designated for separation under the materials separation plan.)
1-20. Installations must meet certain requirements for operator certification and training (401 KAR 59:021, Section 9).	Verify that each operator has either a current provisional or operator certification from the American Society of Mechanical Engineers (ASME). Verify that no facility is operated without either an ASME certified shift supervisor or ASME certified chief facility operator on duty at all times during periods of operation. Verify that the installation develops and updates a site-specific operating manual on a yearly basis that, at a minimum, addresses all of the following elements of MSWI unit operations: - summary of the applicable standards - description of basic combustion theory applicable to a MSWI unit - procedures for receiving, handling, and feeding MSW - MSWI unit startup, shutdown, and malfunction procedures - procedures for maintaining proper combustion air supply levels - procedures for operating a MSWI unit within the established standards - procedures for responding to periodic upset or off-specification conditions - procedures for minimizing particulate matter carryover - procedures for monitoring solid waste burnout - procedures for handling ash - procedures for monitoring MSWI unit emissions - reporting and recordkeeping procedures. Verify that the installation has a program for reviewing the operating manual annually with all persons who have responsibilities affecting the operation of the facility. (NOTE: These persons include, but are not limited to, chief facility operators, shift supervisors, control room operators, ash handlers, maintenance personnel, and crane or load handlers.) Verify that the operating manual is in a location readily accessible to all persons required to be trained. Verify that the installation maintains documentation to support compliance with the rules concerning operator certification and training.

COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
1-21. Installations must conduct performance tests of new municipal solid waste incinerators (401 KAR 59:021, Section 10).	Verify that the facility has undergone the required performance test within 60 days after achieving the maximum production rate at which the facility is to be operated. Verify that the performance test occurred no later than 180 days after initial startup of the facility.
1-22. Installations must meet reporting and recordkeeping requirements (401 KAR 59:021, Section 11).	Verify that the installation maintains records of all of the following information for each facility: - calendar date that data from performance tests or continuous monitoring systems (CEMS) were obtained - emission rates and parameters measured using the units and the time bases required for demonstrating compliance - identification of the operating periods that the calculated sulfur dioxide, nitrogen oxides, or carbon monoxide emission rates, the opacity, or the operating parameters exceeded the applicable standards, including reasons for the exceedences and a description of the corrective actions taken - identification of operating periods for which sulfur dioxide, nitrogen oxides, or carbon monoxide emissions, opacity, or operational data have not been obtained, including reasons for not obtaining sufficient data and a description of corrective actions taken - identification of the times that sulfur dioxide, nitrogen oxides, or carbon monoxide emission, opacity, or operational data have been excluded from the calculation of average emission rates or parameters and the reasons for excluding the data - the results of required daily sulfur dioxide, nitrogen oxides, and carbon monoxide CEMS drift tests and accuracy assessments - the results of all annual performance tests conducted to determine compliance with the mass particulate matter, dioxin or furan, and hydrogen chloride standards - beginning the month after the date of the initial startup, the amount (by weight) of MSW or RDF received on a monthly basis at the affected facility, the amount (by weight) of MSW or RDF combusted on a monthly basis, and the amount of recoverable materials (by type and weight) separated on a monthly basis - beginning the month after the date of the initial startup, the estimated amount (by type and weight) of recoverable materials reduced or separated for recovery on a monthly basis through an offsite or community source reduction or materials separation (recycling) program - beginning at the end of the first full calendar year after the date of initial startup, the calculations of the annual average percentage reduction in MSW achieved for the previous calendar year - beginning the month after the date of the initial startup and for each month thereafter, the amount (by weight) of vehicle batteries separated for recovery. Verify that all pertinent records are submitted to the Cabinet on a quarterly basis.

COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
1-22. (continued)	Verify that the installation has submitted to the Cabinet all of the following: - the initial performance test data of the facility - the performance evaluation of the CEMS using the applicable performance specifications - the maximum MSWI unit load within 60 days of completion. Verify that the installation has submitted all of the following to the Cabinet by 30 days after the end of the second full calendar year following initial startup: - a plan describing the procedures for separating materials for recovery to achieve the 40 percent or greater MSW reduction requirement for MSW or RDF - a plan describing the procedures for ensuring that vehicle batteries are not combusted in an affected facility - a description of the program for removal of household batteries. Verify that records of CEMS, steam flow, and temperature data are maintained for at least 2 yr after the date of recording. Verify that a description of the procedures employed for ensuring that unprocessed MSW or RDF are not combusted in an affected facility are maintained, with associated records. Verify that documentation demonstrating that ash is properly disposed of is submitted to the Division of Waste Management.
NEW SEWAGE TREATMENT PLANTS	
1-23. Installations must meet certain standards for the emission of particulate matter from new sewage treatment plants (401 KAR 59:070, Section 3).	Verify that no sewage sludge incinerator discharges either of the following into the atmosphere: - particulate matter at a rate in excess of 0.65 g/kg of dry sludge (1.30 lb/ton dry sludge input) - any gases that exhibit 20 percent opacity or greater.

COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
EXISTING INCINERATORS	(NOTE: This section applies to incinerators with a capacity of 2.5 ft^3 or greater that commenced before the following classification dates: 17 August 1971 for incinerators with a charging rate of more than 50 tons/day, and 9 April 1972 for incinerators with a charging rate of 50 tons/day or less.)
1-24. Installations are required to restrict the emission of particulate matter from existing incinerators (401 KAR 61:010, Sections 1, 2(3) and 3).	Verify that the installation does not allow emissions produced by the incineration of any substance other than sawdust, wood chips, or bark to exceed the following limits: - 20 percent opacity - 0.20 gr of particulate matter per standard cubic foot of dry flue gas corrected to 12 percent carbon dioxide, excluding the contribution of carbon dioxide from auxiliary fuel, for incinerators with a charging rate greater than or equal to 500 lb/h. Verify that the installation does not allow the emission produced by the incineration of sawdust, wood chips, or bark to exceed the following limits: - equal to or greater than 40 percent opacity - 0.21 gr of particulate matter per standard cubic foot of dry flue gas corrected to 12 percent carbon dioxide, excluding the contribution of carbon dioxide from auxiliary fuel.
1-25. Installations that operate an incinerator of more than 50 tons/day charging rate must record the daily charging rates and hours of operation (401 KAR 61:010, Section 4).	Determine if the installation operates an incinerator of more than 50 tons/day charging rate. Verify that the installation records the daily charging rates and hours of operation.
EXISTING MEDICAL WASTE INCINERATORS	(NOTE: Existing medical waste incinerators are those for which construction, modification, or reconstruction commenced before 7 February 1991.)
1-26. Installations are required to restrict the emission of particulate matter from existing medical waste incinerators (401 KAR 61:013, Section 3).	Verify that installations that operate a medical waste incinerator with a plant capacity of 500 lb/h or less do not allow the following to be discharged into the atmosphere: - particulate matter in excess of 229 mg/dscm (0.1 gr/dscf) of exhaust gas, corrected to 7 percent oxygen (dry basis) - carbon monoxide in excess of 100 ppm by volume corrected to 7 percent oxygen (dry basis) - visible air contaminants in excess of 10 percent opacity. Verify that installations that operate a medical waste incinerator with a plant capacity greater than 500 lb/h but less than or equal to 250 tons/day do not allow the following to be discharged into the atmosphere:

COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
1-26. (continued)	- particulate matter in excess of 183 mg/dscm (0.08 gr/dscf) of exhaust gas, corrected to 7 percent oxygen (dry basis) - carbon monoxide in excess of 100 ppm by volume corrected to 7 percent oxygen (dry basis) - visible air contaminants in excess of 10 percent opacity - sulfur dioxide emissions in excess of 15 percent of the uncontrolled sulfur dioxide emission rate (85 percent reduction) (by weight) on an hourly basis or 30 ppm by volume, corrected to 7 percent oxygen (dry basis), whichever is less stringent. (NOTE: Excluded from this provision are emissions from affected facilities that combust only medical waste.) Verify that installations that operate a medical waste incinerator with a plant capacity greater than 250 tons/day do not allow the following to be discharged into the atmosphere: - particulate matter in excess of 183 mg/dscm (0.08 gr/dscf) of exhaust gas, corrected to 7 percent oxygen (dry basis) - carbon monoxide in excess of 100 ppm by volume corrected to 7 percent oxygen (dry basis) - visible air contaminants in excess of 10 percent opacity - sulfur dioxide emissions in excess of 15 percent of the uncontrolled sulfur dioxide emission rate (85 percent reduction) (by weight) on an hourly basis or 30 ppm by volume, corrected to 7 percent oxygen (dry basis), whichever is less stringent - hydrochloric acid (HCl) in excess of 5 percent of the uncontrolled hydrochloric acid emission rate (95 percent reduction) (by weight) on an hourly basis or 25 ppm by volume, corrected to 7 percent oxygen (dry basis), whichever is less stringent. (NOTE: Excluded from this provision are emissions from affected facilities that combust only medical waste.)
NEW MEDICAL WASTE INCINERATORS	(NOTE: New medical waste incinerators are those for which construction, modification, or reconstruction commenced on or after 7 February 1991.)
1-27. Installations are required to restrict the emission of particulate matter from new medical waste incinerators (401 KAR 59:023, Section 3).	Verify that installations that operate a medical waste incinerator with a plant capacity of 500 lb/ h or less do not allow the following to be discharged into the atmosphere: - particulate matter in excess of 183 mg/dscm (0.08 gr/dscf) of exhaust gas, corrected to 7 percent oxygen (dry basis) - carbon monoxide in excess of 100 ppm by volume corrected to 7 percent oxygen (dry basis) - visible air contaminants in excess of 10 percent opacity. Verify that installations that operate a medical waste incinerator with a plant capacity greater than 500 lb/ h but less than or equal to 250 tons/day do not allow the following to be discharged into the atmosphere:

COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
1-27. (continued)	- particulate matter in excess of 34 mg/dscm (0.015 gr/dscf) of exhaust gas, corrected to 7 percent oxygen (dry basis) - carbon monoxide in excess of 100 ppm by volume corrected to 7 percent oxygen (dry basis) - hydrochloric acid emissions in excess of 10 percent of the uncontrolled hydrochloric acid emission rate (90 percent reduction) (by weight) on an hourly basis or 25 ppm by volume, corrected to 7 percent oxygen (dry basis), whichever is less stringent - visible air contaminants in excess of 10 percent opacity - sulfur dioxide emissions in excess of 15 percent of the uncontrolled sulfur dioxide emission rate (85 percent reduction) (by weight) on an hourly basis or 30 ppm by volume, corrected to 7 percent oxygen (dry basis), whichever is less stringent. (NOTE: Excluded from this provision are emissions from affected facilities which combust only medical waste.) Verify that installations that operate a medical waste incinerator with a plant capacity greater than 250 tons/day do not allow the following to be discharged into the atmosphere: - particulate matter in excess of 34 mg/dscm (0.015 gr/dscf) of exhaust gas, corrected to 7 percent oxygen (dry basis) - carbon monoxide in excess of 100 ppm by volume corrected to 7 percent oxygen (dry basis) - visible air contaminants in excess of 10 percent opacity - sulfur dioxide emissions in excess of 15 percent of the uncontrolled sulfur dioxide emission rate (85 percent reduction) (by weight) on an hourly basis or 30 ppm by volume, corrected to 7 percent oxygen (dry basis), whichever is less stringent - hydrochloric acid in excess of 5 percent of the uncontrolled hydrochloric acid emission rate (95 percent reduction) (by weight) on an hourly basis or 25 ppm by volume, corrected to 7 percent oxygen (dry basis), whichever is less stringent - nitrogen oxides emissions in excess of 120 ppm by volume, corrected to 7 percent oxygen (dry basis). (NOTE: Excluded from this provision are emissions from affected facilities which combust only medical waste.)
1-28. Personnel that operate new medical waste incinerators are required to have specific training (401 KAR 59:023, Section 5(1) and (2)).	Verify that each chief facility operator and shift supervisor of a new medical waste incinerator has successfully completed the USEPA's Hospital Incinerator Operator Training Course. Verify that the chief facility operator or a shift supervisor who successfully completed the training course is on duty at the incinerator during all periods of unit operation.

COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
1-29. Installations that operate new medical waste incinerators are required to meet specific operating standards (401 KAR 59:023, Section 4(1) through (4)).	Verify that the installation does not cause a medical waste incinerator that generates steam to operate at a load level greater than 100 percent of the maximum unit load. Verify that the installation does not burn medical waste except in a multiple-chamber incinerator with a solid hearth or in a device found to be equally effective for air contaminant control as determined by the Cabinet. Verify that the following temperature and residence time requirements for incinerators equipped with a secondary chamber are met while the incinerator is combusting medical waste: - the incinerator secondary chamber is maintained at a temperature of 982 °C plus or minus 93 °C (1800 °F plus or minus 200 °F) - the minimum secondary chamber residence time is 1.0 s - the incinerator has interlocks or other process control devices to prevent operation of the incinerator until the conditions outlined above are assured. Verify that the temperature of flue gases entering the particulate matter control device inlet does not exceed 149 °C (300 °F) while the incinerator is combusting medical waste, if the incinerator is one that does not use a wet scrubber as a particulate matter control device.
1-30. Installations that operate a new medical waste incinerator are required to develop an operation manual (401 KAR 59:023, Section 5(3)).	Verify that the installation develops and updates on an annual basis a site-specific operation manual that contains at least the following elements: - summary of the applicable standards under this regulation - description of the basic combustion theory applicable to a unit - procedures for receiving, handling, and feeding the waste - procedures for unit startup, shutdown, and malfunction - procedures for maintaining proper combustion air supply levels - procedures for operating the unit within the standards established under this regulation - procedures for responding to periodic upset or off-specification conditions - procedures for minimizing particulate matter carry-over - procedures for monitoring burnout - procedures for handling ash - procedures for monitoring unit emissions - reporting and recordkeeping procedures.

COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
EXISTING INDIRECT HEAT EXCHANGERS	(NOTE: For affected facilities with a capacity of more than 250 MBtu/h heat input, existing indirect heat exchangers are the facilities that commenced before 17 August 1971. For affected facilities with a capacity of 250 MBtu/h heat input or less, existing heat exchangers are those facilities which commenced before 9 April 1972.)

1-31. Installations are required to restrict the emission of particulate matter from indirect heat exchangers (401 KAR 61:015, Section 4).	Determine if the installation operates an indirect heat exchanger.
	
	Verify that the installation does not allow the following to be discharged into the atmosphere:
	
	- particulate matter in excess of that specified in Appendix 1-3
	- emissions that exhibit greater than 20 percent opacity in regions classified as Priority I with respect to particulate matter, except:
	  - for cyclone or pulverized fired indirect heat exchangers, a maximum of 40 percent opacity is permissible for not more than one 6 min period in any 60 consecutive minutes
	  - for stoker fired indirect heat exchangers, a maximum of 40 percent opacity is permissible for not more than six consecutive minutes in any 60 consecutive minutes while cleaning the fire box or blowing soot
	  - for indirect heat exchangers with stationary grates, a maximum of 40 percent opacity is permissible during cleaning of the grates for not more than three consecutive minutes in any 60 consecutive minutes for each section of grates cleaned
	  - for emissions from an indirect heat exchanger while building a new fire for the period required to bring the boiler up to operating conditions, if the method used is the one recommended by the manufacturer and the time does not exceed the manufacturer's recommendations.
	- emissions that exhibit greater than 40 percent opacity in regions classified as Priority II or III with respect to particulate matter, except:
	  - for cyclone or pulverized fired indirect heat exchangers, a maximum of 60 percent opacity is permissible for not more than one 6-min period in any 60 consecutive minutes
	  - for stoker fired indirect heat exchangers, a maximum of 60 percent opacity is permissible for not more than six consecutive minutes in any 60 consecutive minutes while cleaning the fire box or blowing soot
	  - for indirect heat exchangers with stationary grates, a maximum of 60 percent opacity is permissible during cleaning of the grates for not more than three consecutive minutes in any 60 consecutive minutes for each section of grates cleaned
	  - for emissions from an indirect heat exchanger while building a new fire for the period required to bring the boiler up to operating conditions, if the method used is the one recommended by the manufacturer and the time does not exceed the manufacturer's recommendations.

COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
1-32. Installations are required to restrict the emission of gases containing sulfur dioxide from indirect heat exchangers (401 KAR 61:015, Section 5(1)).	Determine if the installation operates an indirect heat exchanger. Verify that the installation does not allow gases containing sulfur dioxide to be discharged into the atmosphere in excess of the amounts specified in Appendix 1-4.
EXISTING OIL - EFFLUENT WATER SEPARATORS	
1-33. Existing oil-effluent water separators must be equipped with specific devices (401 KAR 61:045, Sections 1(1) and (2), and 3(2)).	Verify that any existing oil-effluent water separator is a vessel equipped with a floating roof, a vapor recovery system, or their equivalent. Verify that all gauging and sampling devices are gas tight except when gauging and sampling is taking place. (NOTE: The provisions of this regulation apply to each oil-effluent water separator that recovers 200 gpd or more of any petroleum product from any equipment that processes, refines, stores, or handles hydrocarbons with a Reid vapor pressure of 0.5 psi or greater, that commenced before 29 June 1972 and is located in an urban county designated nonattainment for ozone or in any other county and is a part of a major source of VOC.)
NEW OIL-EFFLUENT WATER SEPARATORS	
1-34. New oil-effluent water separators are required to be equipped with specific devices (401 KAR 59:095, Sections 1(1) and (2) and 3(2)).	Verify that any new oil-effluent water separator is equipped with a floating roof, a vapor recovery system, or their equivalent. Verify that all gauging and sampling devices are gas tight except when gauging and sampling is taking place. (NOTE: The provisions of this regulation apply to each oil-effluent water separator that recovers 200 gpd or more of any petroleum product from any equipment that processes, refines, stores, or handles hydrocarbons with a Reid vapor pressure of 0.5 psi or greater that commenced on or after 9 April 1972 and is located in an urban county designated nonattainment for ozone or in any other county and is a part of a major source of VOC.)

COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
EXISTING STORAGE VESSELS FOR PETROLEUM LIQUIDS **1-35.** Storage vessels for petroleum liquids are required to be equipped with specific devices (401 KAR 61:050, Sections 2(1) and 3).	(NOTE: This regulation applies to storage vessels for petroleum liquids with a capacity of greater than 2195 L (580 gal) which commenced before 9 April 1972 and are located in a county or portion of a county designated ozone nonattainment, for any nonattainment classification except marginal.) Determine if the installation uses storage vessels for petroleum liquids. Verify that a vessel with a storage capacity greater than 151,400 L (40,000 gal) and a true vapor pressure of the petroleum liquid, as stored, equal to or greater than 78 mm Hg (1.5 psia), but not greater than 574 mm Hg (11.1 psia), is equipped with a floating roof, vapor recovery system, or their equivalent. Verify that a vessel with a storage capacity greater than 151,400 L (40,000 gal) and a true vapor pressure of the petroleum liquid, as stored, greater than 574 mm Hg (11.1 psia) is equipped with a vapor recovery system or its equivalent. Verify that a vessel with a storage capacity greater than 2195 L (580 gal) and a true vapor pressure of the petroleum liquid, as stored, greater than 10.3 kilopascal (kPa) (1.5 psia) is equipped with a permanent, submerged fill pipe. Verify that a storage vessel that is an external floating roof tank with a storage capacity greater than 151,400 L (40,000 gal) is retrofitted with a continuous secondary seal extending from the floating roof to the tank wall (a rim-mounted secondary seal) under the following circumstances: - the tank is a welded tank, the true vapor pressure of the contained liquid is 27.6 kPa (4.0 psia) or greater, and the primary seal is either a metallic-type shoe seal, a liquid-mounted foam seal, a liquid-mounted liquid-filled type seal, or any other closure device equivalent to the primary seal - the tank is a riveted tank and the true vapor pressure of the contained liquid is 10.3 kPa (1.5 psia) or greater - the tank is a welded tank, the true vapor pressure of the contained liquid is 10.3 kPa (1.5 psia) or greater, and the primary seal is vapor-mounted. (NOTE: If the primary seal closure device can be demonstrated equivalent to a metallic-type shoe seal, a liquid-mounted foam seal, or a liquid-mounted liquid-filled type seal, the secondary seal is required if the vapor pressure is 27.6 kPa (4.0 psia) or greater.)

COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**

1-36. Installations are required to meet specific operating requirements in regard to storage vessels for petroleum liquids (401 KAR 61:050, Sections 4 and 7).	Determine if the installation uses any of the following types of external floating roof tanks for storing liquid petroleum which are exempt from this regulation:
	- external floating roof tanks with capacities less than 1,600,000 L (422,000 gal) used to store produced crude oil and condensate prior to custody transfer
	- a metallic-type shoe seal in a welded tank with a secondary seal from the top of the shoe seal to the tank wall (a shoe-mounted secondary seal)
	- external floating roof tanks storing waxy, heavy-pour crudes
	- external floating roof tanks with a closure or other devices equivalent to a metallic-type shoe seal, a liquid-mounted foam seal, or a liquid-mounted liquid-filled type seal.
	
	Verify that the installation meets the following operating requirements:
	- there are no visible holes, tears, or other openings in the seal or any seal fabric
	- all openings, except stub drains, are equipped with covers, lids, or seals so:
	  - the cover, lid, or seal is in the closed position at all times, except during actual use
	  - automatic bleeder vents are closed at all times, unless the roof is floated off or landed on the roof leg supports
	  - rim vents, if provided, are set to open if the roof is being floated off the roof leg supports or at the manufacturer's recommended setting.
	
	Verify that external floating roof tanks meet the following additional requirements:
	- the seals are intact and uniformly in place around the circumference of the floating roof between the floating roof and the tank wall
	- the gap area of gaps exceeding 0.32 cm (1/8 in.) in width between the secondary seal and the tank wall does not exceed 6.5 cm^2/0.3 m of tank diameter (1.0 $in.^2$/ft)
	- all openings in the external floating roof, except for automatic bleeder vents, rim space vents, and leg sleeves, provide a projection below the liquid surface
	- any emergency roof drain contains a slotted membrane fabric or equivalent that covers at least 90 percent of the area of the opening.

1-37. Installations that use storage vessels for petroleum liquids are required to keep records under certain circumstances (401 KAR 61:050, Section 5).	Verify that the installation maintains a record of the average monthly storage temperature, the type of liquid, and the Reid vapor pressure of the liquid if it has a true vapor pressure greater than 7.0 kPa (1.0 psia) and is stored in an external floating roof tank with a capacity of greater than 151,400 L (40,000 gal) and is not equipped with a secondary seal or approved alternative control technology.

COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
1-37. (continued)	Verify that the installation retains the record for 2 yr after the date on which the record was made. (NOTE: The true vapor pressure is determined by using the average monthly storage temperature and typical Reid vapor pressure of the contained liquid or from typical available data on the contained liquid.)
NEW STORAGE VESSELS FOR PETROLEUM LIQUIDS	(NOTE: Unless otherwise specified, this section applies to storage vessels for petroleum liquids commenced on or after 9 April 1972 and prior to 24 July 1984 with a storage capacity less than or equal to 151,400 L (40,000 gal) to storage vessels for petroleum liquids with a storage capacity less than 40,000 L (10,567 gal) that commenced on or after 24 July 1984 and are located in an urban county designated non-attainment for ozone, or in any other county, and are a part of a major source of VOC.)
1-38. Storage vessels for petroleum liquids are required to be equipped with specific devices (401 KAR 59:050, Sections 1 and 3).	Determine if the installation uses storage vessels for petroleum liquids. Verify that a vessel with a storage capacity greater than 151,400 L (40,000 gal) and a true vapor pressure of the petroleum liquid, as stored, equal to or greater than 78 mm Hg (1.5 psia) but not greater than 574 mm Hg (11.1 psia), that commenced on or after 9 April 1972 and prior to 19 May 1978 is equipped with a floating roof, vapor recovery system, or their equivalents. Verify that a vessel with a storage capacity greater than 151,400 L (40,000 gal) and a true vapor pressure of the petroleum liquid, as stored, greater than 574 mm Hg (11.1 psia) that commenced after 9 April 1972 and prior to 19 May 1978 is equipped with a vapor recovery system or its equivalent. Verify that a vessel with a storage capacity greater than 2195 L (580 gal) and a true vapor pressure of the petroleum liquid, as stored, greater than 10.3 kPa (1.5 psia) that commenced after 9 April 1972 is equipped with a permanent submerged fill pipe. Verify that a storage vessel with storage capacity greater than 151,400 L (40,000 gal) and a true vapor pressure of the petroleum liquid, as stored, equal to or greater than 10.3 kPa (1.5 psia) but not greater than 76.6 kPa (11.1 psia) commenced on or after 19 May 1978 and prior to 24 July 1984 is equipped with one of the following: - an external floating roof, consisting of a pontoon-type or double-deck-type cover that rests on the surface of the liquid contents and is equipped with a closure device between the tank wall and the roof edge (NOTE: The closure device is to consist of two seals, one above the other. The lower seal is referred to as the primary seal and the upper seal is referred to as the secondary seal.)

COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**

1-38. (continued)	- primary and secondary seals that meet the following requirements:
	  - the primary seal is to be a metallic shoe seal, a liquid-mounted seal, or a vapor-mounted seal
	  - the secondary seal is to be installed above the primary seal so it completely covers the space between the roof edge and the tank wall
	  - a fixed roof with an internal floating type cover equipped with a continuous closure device between the tank wall and the cover edge
	  - a vapor recovery system that collects all VOC vapors and gases discharged from the storage vessel, and a vapor return or disposal system that is designed to process such VOC vapors and gases to reduce their emission to the atmosphere by at least 95 percent by weight
	  - an equivalent system, as determined by the Cabinet.
	
	(NOTE: Installations are exempted from the requirements for secondary seals and the secondary seal gap criteria when performing gap measurements or inspections of the primary seal.)
	
	Verify that a storage vessel commenced on or after 19 May 1978 and prior to 24 July 1984 with a storage capacity greater than 151,400 L (40,000 gal) and a true vapor pressure of the petroleum liquid, as stored, greater than 76.6 kPa (11.1 psia) is equipped with a vapor recovery system that collects all VOC vapors and gases discharged from the storage vessel and a vapor return or disposal system designed to process such VOC vapors and gases so as to reduce their emission to the atmosphere by at least 95 percent by weight.

1-39. Installations are required to meet specific operating requirements in regard to storage vessels for petroleum liquids (401 KAR 59:050, Section 4).	Verify that the installation meets the following operating requirements:
	
	- there are no visible holes, tears, or other openings in the seal, any seal fabric, shoe, or seal envelope
	- all openings (except stub drains, automatic bleeder vents, rim space vents, and leg sleeves) are equipped with covers, lids, or seals so:
	  - the cover, lid, or seal is in the closed position at all times (i.e., no visible gap), except when in actual use
	  - automatic bleeder vents are closed at all times, except when the roof is floated off or landed on the roof leg supports
	  - rim vents, if provided, are set to open if the roof is being floated off the roof leg supports or at the manufacturer's recommended setting.
	
	Verify that storage vessels with a storage capacity greater than 151,400 L (40,000 gal) with external and internal floating roof tanks commenced on or after 19 May 1978 and prior to 24 July 1984 meet these additional requirements:
	
	- the roof is floating on the liquid at all time (i.e., off the roof leg supports), except during initial fill when the tank is completely emptied and subsequently refilled

COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
1-39. (continued)	(NOTE: The process of emptying and refilling when the roof is resting on the leg supports is to be continuous and accomplished in the minimum time necessary.) - for each primary seal associated with an external floating roof tank, the accumulated area of gaps between the tank wall and the metallic shoe seal or the liquid-mounted seal does not exceed 212 cm^2/m (10.0 $in.^2/ft$) of tank diameter and the width of any portion of any gap does not exceed 3.81 cm (1.5 in.) - for each primary and each secondary seal associated with an external floating roof tank, the accumulated area of gaps between the tank wall and the vapor-mounted primary seal or between the tank wall and the secondary seal used in combination with a metallic shoe or liquid-mounted seal does not exceed and 21.2 cm^2/m (1.0 $in.^2/ft$) of tank diameter and the width of any portion of any gap does not exceed 1.27 cm (1/2 in.) (NOTE: There are no gaps between the tank wall and the secondary seal used in combination with a vapor-mounted primary seal.) - one end of the metallic shoe associated with an external floating roof tank extends into the stored liquid and the other end extends a minimum vertical distance of 61 cm (24 in.) above the stored liquid surface - each opening in the roof, except for automatic bleeder vents and rim space vents, is to provide a projection below the liquid surface - each emergency roof drain associated with an external floating roof tank is to be provided with a slotted membrane fabric that covers at least 90 percent of the area of the opening.
1-40. Installations that use storage vessels for petroleum liquids are required to keep records under certain circumstances (401 KAR 59:050, Section 5).	(NOTE: The following are exempt from the requirements of this section: vessels that store a petroleum liquid with a Reid vapor pressure of less than 6.9 kPa (1.0 psia) if the maximum true vapor pressure does not exceed 6.9 kPa (1.0 psia), and storage vessels equipped with a vapor recovery and return or disposal system.) Verify that installations containing any storage vessel with a capacity of greater than 151,400 L (40,000 gal) maintain a record that includes the following information: - petroleum liquid stored - period of storage - maximum true vapor pressure of that liquid during the respective storage period.

COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
EXISTING LOADING FACILITIES AT BULK GASOLINE TERMINALS	(NOTE: Existing loading facilities at bulk gasoline terminals are those facilities that commenced before 29 June 1979.)
1-41. Installations that operate loading facilities at bulk gasoline terminals are required to meet specific operation and equipment standards (401 KAR 61:055, Section 3(1) through (5)).	Determine if the installation operates a loading facility at a bulk gasoline terminal in a county designated nonattainment for ozone or in a county designated nonattainment or unclassified and is part of a major source of VOCs. Verify that the facility is equipped with a vapor control system in good working order and in operation before any gasoline is loaded. Verify that, during loading, all displaced vapor and air is vented only to the vapor collection system. Verify that measures are taken to prevent liquid drainage from the loading device when it is not in use or to accomplish complete drainage before the loading device is disconnected. Verify that VOC emissions from the vapor control device do not exceed 80 mg/L of gasoline loaded. Verify that the installation does not allow gasoline to be spilled, discarded in sewers, stored in open containers, or handled in any other manner that would result in evaporation.
1-42. Installations that operate a bulk gasoline terminal and are located in an urban county are prohibited from allowing loading, unless specific provisions are met (401 KAR 61:055, Section 3(6)).	Determine if the installation operates a bulk gasoline terminal located in an urban county. Verify that the installation does not load gasoline unless the following provisions are met: - the vapor control system and associated equipment are designed and operated to prevent gauge pressure in the tank truck from exceeding 450 mm water (18 in. water) and prevent vacuum from exceeding 150 mm water (6 in. water) - a pressure tap or any equivalent system approved by the Department is installed on the vapor collection system (NOTE: The pressure tap is installed as close as possible to the connection with the delivery tank and consists of a 1/4 in. tubing connector that is compatible with the use of 3/16 in. inside diameter plastic tubing.) - during loading operations there is no reading greater than or equal to 100 percent of the lower explosive limit (LEL), (measured as propane) at a distance of 2.5 cm around the perimeter of a potential leak source associated with the vapor collection system of a bulk gasoline terminal as detected by a combustible gas detector - the tank truck has a valid Kentucky pressure-vacuum test sticker attached and visibly displayed.

COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
EXISTING SOURCES USING ORGANIC SOLVENTS	(NOTE: This requirement applies to facilities that are located in Priority I Regions that commenced before 29 June 1979 and facilities located in Priority III Regions that commenced before 29 June 1979 but on or after 9 April 1972.)
1-43. Installations are required to restrict emissions from organic solvents (401 KAR 61:060, Section 3(1), (3), and (6)).	Verify that the installation does not discharge into the open air more than 40 lb of organic material in any 1 day, nor 8 lb in any 1 h unless said emissions have been reduced by at least 85 percent by weight. (NOTE: Installations may apply to the Department for approval of an emissions reduction plan as an alternative to these standards.) Verify that the emissions of organic materials into the atmosphere are reduced by one of the following methods: - incineration, if 90 percent or more of the carbon in the organic material discharged is oxidized to carbon dioxide - adsorption - modifying processing procedures, equipment, and/or materials that achieve no less than the required degree of control or organic solvents.
NEW AND EXISTING SERVICE STATIONS	
1-44. Installations that operate service stations are required to meet specific operation and equipment standards (401 KAR 59:175, Sections 3 and 4, and 61:085, Sections 3 and 5).	Determine if the installation operates a service station with gasoline storage tanks with an annual throughput of greater than or equal to 120,000 gal. (NOTE: Gasoline storage tanks with an annual throughput of less than or equal to 120,000 gal are exempt from this regulation.) Verify that the installation maintains and operates the following devices: - submerged fill pipe - vent line restriction on the gasoline storage tank vent line - vapor balance system with an interlocking system and vapor-tight connections on the liquid fill line and the vapor return line (NOTE: The cross-sectional area of the vapor return hose must be at least 50 percent of the liquid fill hose and free of flow restrictions to achieve acceptable recovery. The size and design of the vapor return line and connections, including coaxial systems, are subject to the approval of the Department.) - a gauge well drop tube that extends to within 6 in. of the bottom of the tank, if the gasoline storage tank is equipped with a separate gauge well. (NOTE: The installation may elect to use an alternate control system if it is approved the Department.)

COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
1-44. (continued)	Verify that the installation does not allow any transport vehicle to deliver fuel to a gasoline storage tank until the transport vehicle is properly connected to the vapor balance system or alternate control system.
NEW AND EXISTING SOLVENT METAL CLEANING EQUIPMENT	
1-45. Installations that use cold cleaners are required to meet certain equipment specifications and operating requirements in order to reduce VOC emissions from solvent metal cleaning operations (401 KAR 59:185, Sections 3, 4, and 8 and 61:095, Sections 3, 4, and 8).	Determine if the installation uses cold cleaners. Determine if the cold cleaners meet the following criteria to make them exempt from this regulation: - the cold cleaner has a remote solvent reservoir - the solvent used in the cold cleaner does not have a vapor pressure that exceeds 33 mm Hg measured at 37.4 °C (100 °F) or is heated above 48.4 °C (120 °F) - the sink-like work area has an open drain area less than 100 cm^2 - waste solvent is stored or properly disposed of with minimal loss due to evaporation. Verify that the cold cleaner is equipped with a cover. Verify that the cold cleaner has a cover that can be easily operated with one hand when one or more of the following conditions exist: - the solvent volatility is greater than 15 mm Hg measured at 37.4 °C (100 °F) - the solvent is agitated - the solvent is heated. Verify that the cold cleaner is equipped with a drainage facility so the solvent that drains off parts removed from the cleaner will return to the cleaner. Verify that the drainage facility is internal so parts are enclosed under the cover while draining, if the solvent volatility is greater than 32 mm Hg measured at 37.4 °C (100 °F). (NOTE: The drainage facility may be external if the Cabinet determines that an internal drainage facility cannot fit into the cleaning system.) Verify that solvent sprays have a solid fluid stream (not a fine, atomized, or shower-type spray) and are at a pressure that does not cause excessive splashing. Verify that any cold cleaner solvent with a solvent volatility greater than 32 mm Hg measured at 37.4 °C (100 °F) or heated above 48.4 °C (120 °F) uses one of the following control devices:

COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
1-45. (continued)	- freeboard that gives a freeboard ratio greater than or equal to 0.7 - water cover (solvent is insoluble in and heavier than water) - other systems of equivalent control, such as refrigerated chiller or carbon adsorption. Verify that a permanent, conspicuous label summarizing the operating requirements is affixed on or near the cleaner. Verify that the installation meets the following operating requirements: - degreaser cover is closed if not handling parts in the cleaner - cleaned parts are drained until dripping ceases (15 s is usually necessary) - waste solvent is not disposed of or transferred to another party so that greater than 20 percent by weight of the waste solvent can evaporate into the atmosphere - waste solvent is stored in covered containers only.
1-46. Installations that use open top vapor degreasers are required to meet certain equipment specifications and operating requirements to reduce VOC emissions from solvent metal cleaning operations (401 KAR 59:185, Sections 3 and 5, and 61:095, Sections 3 and 5).	Determine if the installation uses open top vapor degreasers. Verify that the open top degreaser is equipped with a cover that can be opened and closed easily without disturbing the vapor zone. Verify that the open top degreaser is equipped with the following safety switches: - condenser flow switch and thermostat to shut off sump heat if condenser coolant either is not circulating or is too warm - spray safety switch to shut off spray pump if the vapor level drops more than 4 in. below the bottom condenser coil to prevent spraying above the vapor level - vapor level control thermostat that shuts off sump heat if the vapor zone rises above the design level - equivalent safety systems as approved on a case-by-case basis by the Cabinet. Verify that the open top degreaser is equipped with at least one of the following major control devices: - freeboard with a freeboard ratio greater than or equal to 0.75 - a mechanically assisted or powered cover if the degreaser opening is greater than 10 ft^2 - a refrigerated chiller - an enclosed design so the cover or door opens only when the dry part is actually entering or exiting the degreaser - a carbon adsorption system with ventilation greater than or equal to 50 cubic feet per minute (cfm)/ ft^2 of air/vapor interface area (if cover is open), and exhausting less than 25 ppm by volume solvent averaged over one complete adsorption cycle - a control system demonstrated to have control efficiency equivalent to or better than these requirements.

COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**

1-46. (continued)	Verify that a permanent, conspicuous label summarizing the operating procedures is affixed on or near the degreaser.
	
	Verify that the installation meets the following operating requirements:
	
	- the cover is kept closed at all times, unless processing work loads through the degreaser
	- solvent carryout is minimized by the following measures:
	  - parts are racked so entrainment of solvent is avoided and full drainage is accomplished
	  - parts are moved in and out of the degreaser at vertical speed less than 11 ft/min
	  - work load in the vapor zone is degreased until condensation ceases (30 s or more is usually necessary)
	  - any pools of solvent on the cleaned parts are tipped off before removal
	  - parts are allowed to dry within the degreaser above the vapor zone until visually dry (15 s is usually necessary)
	- porous or adsorbent materials such as cloth, leather, wood, or rope are not degreased
	- work loads do not occupy more than half of the degreaser's open top area
	- spraying is not allowed above the vapor level
	- solvent leaks are repaired immediately, or the degreaser is shut down until the leaks are repaired
	- exhaust ventilation does not exceed 65 cfm/ ft^2 of degreaser area, unless necessary to meet Occupational Safety and Health Administration (OSHA) requirements or control device requirements
	- ventilation fans are not used near the degreaser opening
	- water is not visually detectable in solvent exiting the water separator
	- waste solvent is not disposed of or transferred to another party so that greater than 20 percent by weight of the waste solvent can evaporate into the atmosphere
	- waste solvent is stored in closed containers only.

1-47. Installations that use conveyorized degreasers are required to meet certain equipment specifications and operating requirements to reduce VOC emissions from solvent metal cleaning operations (401 KAR 59:185, Sections 3 and 6, and 61:095, Sections 3 and 6).	Determine if the installation uses conveyorized degreasers. Verify that the conveyorized degreaser is enclosed except for work load entrances and exits. Verify that the conveyorized degreaser is equipped with a drying tunnel or other means such as rotating baskets sufficient to prevent cleaned parts from carrying out solvent liquid or vapor. Verify that entrances and exits silhouette work loads so the average clearance between the largest parts and the edge of the degreaser opening is either less than 4 in. or less than 10 percent of the width of the opening. Verify that the degreaser is equipped with covers for closing off the entrance and exit during shutdown hours.

COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**

1-47. (continued)	Verify that a degreaser with an air/solvent interface or air/vapor interface area equal to or greater than 20 ft^2 is equipped with at least one of the following major control devices:
	
	- a refrigerated chiller
	- a carbon adsorption system with ventilation greater than or equal to 50 cfm/ft^2 of air/vapor interface area (when down-time covers are open), and exhausting less than 25 ppm of solvent by volume averaged over a complete adsorption cycle
	- a system demonstrated to have a control efficiency equivalent to or better than either of the above.
	
	Verify that, if the degreaser is a vapor type, it is equipped with the following safety switches:
	
	- condenser flow switch and thermostat that shuts off the sump heat if coolant is either not circulating or is too warm
	- a vapor level control thermostat that shuts off sump heat if the vapor level rises above the design level
	- a spray safety switch, that shuts off the spray pump or conveyor if the vapor level drops more than 4 in. below the bottom condenser coil to prevent spraying above the vapor level
	- equivalent safety systems as approved on a case-by-case basis by the Cabinet.
	
	Verify that a permanent, conspicuous label summarizing the operating procedures is affixed on or near the degreaser.
	
	Verify that the installation meets the following operating requirements:
	
	- exhaust ventilation does not exceed 65 cfm/ft^2 of degreaser opening, unless necessary to meet OSHA requirements or control device requirements
	- work place fans are not used near the degreaser opening
	- solvent carryout is minimized by the following measures:
	  - parts are racked so entrainment of solvent is avoided and full drainage is accomplished
	  - vertical conveyor speed is maintained at less than 11 ft/min
	- solvent leaks are repaired immediately, or the degreaser is shut down until the leaks are repaired
	- water is not visually detectable in solvent exiting the separator
	- down-time covers are placed over entrances and exits of the degreaser immediately after the conveyor and exhaust are shut down and are removed just before they are started up
	- waste solvent is not disposed of or transferred to another party in a way greater than 20 percent by weight of the waste solvent can evaporate into the atmosphere
	- waste solvent is stored in closed containers only.

COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
EXISTING GRAPHIC ARTS FACILITIES USING ROTOGRAVURE AND FLEXOGRAPHY	(NOTE: Existing graphic arts facilities are those facilities that existed on or before 4 February 1981.)
1-48. Installations are required to restrict VOC emissions from publication rotogravure, packaging rotogravure, specialty rotogravure, and flexographic printing facilities (401 KAR 61:122, Sections 3 and 6).	Determine if the installation operates one of the following types of printing facilities: - publication rotogravure - packaging rotogravure - specialty rotogravure - flexographic printing. Determine if the printing systems of these facilities meet any of the following criteria that makes them exempt from this regulation: - utilizes a water-borne ink with a volatile portion consisting of 75 volume percent water and 25 volume percent organic solvent (or a lower VOC content) in all printing units - achieves a 70 volume percent overall reduction of solvent usage (compared to all solvent-borne ink usage) - utilizes inks that, excluding water, contain 60 percent or more by volume nonvolatile material as applied to the substrate - utilizes inks with an emission limit of 0.5 lb VOC/ lb solids as delivered to the applicator. Verify that the installation does not allow the publication rotogravure printing facility to discharge into the atmosphere more than 25 percent by weight of the VOC net input. Verify that the installation does not allow the packaging rotogravure printing facility or specialty rotogravure printing facility to discharge into the atmosphere more than 35 percent by weight of the VOC net input. Verify that the installation does not allow the flexographic printing facility to discharge into the atmosphere more than 40 percent by weight of the VOC net input.

COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
1-49. Installations that operate a rotogravure or flexographic printing facility are required to keep certain records (401 KAR 61:122, Section 4(6)).	Verify that the installation maintains daily records that include, but are not limited to, the following information: - applicable regulation number - application method and substrate type - amount and type of graphic arts material or solvent used at each point of application, including exempt compounds - the VOC content as applied in each graphic arts material or solvent - the date for each application for graphic arts material or solvent - the amount of surface preparation, cleanup, or washup solvent (including exempt compounds) used and the VOC content of each - oven temperature, if applicable. Verify that the records are kept for the most recent 2-yr period.
NEW GRAPHIC ARTS FACILITIES USING ROTOGRAVURE AND FLEXOGRAPHY	(NOTE: Existing graphic arts facilities are those that commenced after 4 February 1981.)
1-50. Installations are required to restrict VOC emissions from packaging rotogravure, specialty rotogravure, and flexographic printing facilities (401 KAR 59:212, Sections 3 and 6).	Determine if the installation operates one of the following types of printing facilities: - packaging rotogravure - specialty rotogravure - flexographic printing. Determine if the printing systems of these facilities meet any of the following criteria, that makes them exempt from this regulation: - utilizes a water-borne ink with a volatile portion consisting of 75 volume percent water and 25 volume percent organic solvent (or a lower VOC content) in all printing units - achieves a 70 volume percent overall reduction of solvent usage (compared to all solvent-borne ink usage) - utilizes inks that, excluding water, contain 60 percent or more by volume nonvolatile material as applied to the substrate - utilizes inks with an emission limit of 0.5 lb VOC/lb solids as delivered to the applicator. Verify that the installation does not allow the packaging rotogravure printing facility or specialty rotogravure printing facility to discharge into the atmosphere more than 35 percent by weight of the VOC net input. Verify that the installation does not allow the flexographic printing facility to discharge into the atmosphere more than 40 percent by weight of the VOC net input.

COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
1-51. Installations that operate a rotogravure or flexographic printing facility are required to keep certain records (401 KAR 59:212, Section 4(6)).	Verify that the installation maintains daily records that include, but are not limited to, the following information: - applicable regulation number - application method and substrate type - amount and type of graphic arts material or solvent used at each point of application, including exempt compounds - the VOC content as applied in each graphic arts material or solvent - the date for each application for graphic arts material or solvent - the amount of surface preparation, cleanup, or washup solvent (including exempt compounds) used and the VOC content of each - oven temperature, if applicable. Verify that the records are kept for a 2-yr period.
NEW AND EXISTING PER-CHLOROETHYLENE DRYCLEANING SYSTEMS	
1-52. Installations are required to restrict the emissions of VOC from new and existing perchloroethylene drycleaning operations (401 KAR 59:240, Sections 3, 4(1), and 6 and KAR 61:160, Sections 3, 4(1), and 6).	Determine if the installation operates a perchloroethylene drycleaning facility. (NOTE: Perchloroethylene drycleaning facilities which are coin-operated are exempt from this regulation.) Verify that the installation maintains and operates control equipment so the following requirements are met: - the entire dryer exhaust is vented through a properly functioning carbon adsorber or equally effective control device - no liquid leakage of organic solvents from the system occur - the maximum organic solvent concentration in the vent from the dryer control device does not exceed 100 ppm before dilution - the residue from a diatomaceous earth filter is cooked or treated so that wastes do not contain more than 25 kg of solvent per 100 kg of wet waste material - the residue from a solvent still does not contain more than 60 kg of solvent per 100 kg of wet waste material - filtration cartridges are drained in the filter housing for at least 24 h before being discarded - the drained cartridges are dried in the dryer tumbler after draining. (NOTE: Any other filtration or distillation system may be used if equivalency to these requirements is demonstrated. A system reducing waste losses below 1 kg solvent per 100 kg clothes cleaning is considered equivalent.)

COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
1-52. (continued)	Verify that the installation conducts a visual inspection of the following sources to check for liquid leakage: - hose connections, unions, couplings, and valves - machine door gasket and seating - filter head gasket and seating - pumps - base tanks and storage containers - water separators - filter sludge recovery operations - distillation units - diverter valves - saturated lint from lint basket - cartridge filters.
OPEN BURNING	
1-53. Installations are prohibited from engaging in open burning (401 KAR 63:005, Section 3(1) through (5) and (7) through (11)).	Determine if the installation engages in any of the following types of open burning which are exempt from this prohibition: - fires set for the cooking of food for human consumption on other than commercial premises - fires set for recreational or ceremonial purposes - small fires set by construction and other workers for comfort heating purposes, if excessive or unusual smoke is not created - fires set for weed abatement and disease and pest prevention - fires set for prevention of a fire hazard, including the disposal of dangerous materials when no safe alternative is available - fires set for recognized agricultural, silvicultural, range, and wildlife management practices - fires set by individual home owners for burning of leaves, except in cities greater than 8000 population located in a Priority I Region (see Appendix 1-3) - fires set for disposal of household rubbish, not to include garbage, originating at dwellings of five family units or less, provided that fires are maintained by an occupant of the dwelling at the dwelling, except in cities greater than 8000 population located in a Priority I Region (see Appendix 1-3) - fires set for the purpose of disposing of accidental spills or leaks of crude oil, petroleum products or other organic materials, and the disposal of absorbent material used in their removal when no other economically feasible means of disposal is available and practical, if permission is obtained from the Cabinet prior to burning - fires set for disposal of natural growth for land clearing, trees, and tree limbs felled by storms if no extraneous material such as tires or heavy oil that tend to produce dense smoke are used to ignite or aid combustion, and the burning is done on sunny days with mild winds.

COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
1-53. (continued)	(NOTE: In regions classified Priority I, with respect to particulate matter, the emissions must not be equal to or exceed 40 percent opacity.) Verify that the installation does not engage in open burning.
FUGITIVE EMISSIONS	
1-54. Installations are prohibited from allowing the discharge of visible fugitive dust emissions beyond the lot line of the property on which the emissions originate (401 KAR 63:010, Sections 3(1), (2), (4), and 4(3)).	Verify that the installation does not allow the handling, processing, transporting, or storage of any material without taking reasonable precaution to prevent particulate matter from becoming airborne. Verify that the installation does not allow a building or its appurtenances to be constructed, altered, repaired, or demolished, or a road to be used without taking reasonable precaution to prevent particulate matter from becoming airborne. Verify that the reasonable precautions include, but are not limited to, the following: - use, where possible, of water or chemicals for control of dust in the demolition of existing buildings or structures, construction operations, the grading of roads, or the clearing of land - application and maintenance of asphalt, oil, water, or suitable chemicals on roads, materials stockpiles, and other surfaces that can create airborne dusts - installation and use of hoods, fans, and fabric filters to enclose and vent the handling of dusty materials, or the use of water sprays or other measures to suppress the dust emissions during handling (NOTE: Adequate containment methods must be employed during sandblasting or similar operations.) - covering, at all times when in motion, open-bodied trucks transporting materials likely to become airborne - the maintenance of paved roadways in a clean condition - the prompt removal of earth or other material from a paved street to which earth or other material has been transported by trucking or earth moving equipment or erosion by water. (NOTE: The provisions of this regulation do not apply to agricultural practices, such as tilling of land or application of fertilizers, or to temporary blasting or construction operations.)
FLARES	
1-55. Installations are required to restrict the emission of particulate matter from flares (401 KAR 63:015, Section 3).	Determine if a flare is located on the premises of the installation. Verify that the installation does not allow the emission into the open air of particulate matter from any flare greater than 20 percent opacity for more than 3 min in any 1 day.

COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
POTENTIALLY HAZARDOUS MATTER OR TOXIC SUBSTANCES	
1-56. Installations are required to restrict emissions from potentially hazardous matter or toxic substances (401 KAR 63:020, Section 3).	Verify that the installation does not allow the emission of potentially hazardous matter or toxic substances in such quantities or for such a duration as to be harmful to the health and welfare of humans, animals, and plants.
EXISTING SOURCES EMITTING TOXIC AIR POLLUTANTS	
1-57. Installations are required to restrict the emission of toxic air pollutants from existing sources (401 KAR 63:021, Section 1(2) and 3(1)).	(NOTE: The provisions of this regulation do not apply to emissions regulated under Title 401, Chapter 57, or 40 CFR 61 (National Emission Standards for Hazardous Air Pollutants).) Determine if the installation operates any of the following sources which are exempt from this regulation: - laboratory equipment used for chemical or physical analysis or experimentation - drycleaning facilities - sources which emit less than the significant levels specified in Appendix 1-5 adjusted for height of release and hours of operation per week pursuant to Appendix 1-6 - indirect heat exchangers using fossil fuel, except for indirect heat exchangers that burn waste material containing toxic substances - gasoline dispensing facilities other than gasoline bulk plants and terminals - agricultural operations. Verify that the installation does not allow any source to exceed the allowable emission limit determined by the formula specified in Appendix 1-7. Verify that the installation does not allow the threshold ambient limits and significant emission levels of toxic air pollutants to exceed the amounts listed in Appendix 1-5.

COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
NEW OR MODIFIED SOURCES EMITTING TOXIC AIR POLLUTANTS	(NOTE: New sources are affected facilities that commenced on or after 11 November 1986, and modified sources are affected facilities modified on or after 11 November 1986.)
1-58. Installations are required to restrict the emission of toxic air pollutants from new or modified sources (401 KAR 63:022, Section 1(2) and 3(1)).	(NOTE: The provisions of this regulation do not apply to emissions regulated under Title 401, Chapter 57, or 40 CFR 61, *National Emission Standards for Hazardous Air Pollutants.*) Determine if the installation operates any of the following sources which are exempt from this regulation: - laboratory equipment used for chemical or physical analysis or experimentation - drycleaning facilities - sources which emit less than the significant levels specified in Appendix 1-8 adjusted for height of release and hours of operation per week pursuant to Appendix 1-7 - indirect heat exchangers using fossil fuel, except for indirect heat exchangers which burn waste material containing toxic substances - gasoline dispensing facilities other than gasoline bulk plants and terminals - agricultural operations. Verify that the installation does not allow any source to exceed the allowable emission limit determined by the formula specified in Appendix 1-5. Verify that the installation does not allow the threshold ambient limits and significant emission levels of toxic air pollutants to exceed the amounts listed in Appendix 1-8.
LIQUEFIED PETROLEUM GAS CARBURETION SYSTEMS	
1-59. Installations are required to restrict emissions from motor vehicles modified to use liquefied petroleum gas (401 KAR 65:005, Sections 1(3) and 2).	Determine if the installation uses motor vehicles modified to use liquefied petroleum gas. Verify that any modification of a motor vehicle that allows the vehicle to use liquefied petroleum gas (LPG) for fuel does not in its operation and function or malfunction cause the following to occur: - any emission into the ambient air of any noxious or toxic matter that would not be emitted in the operation of the motor vehicle or motor vehicle engine operating without the a modification - any unsafe condition that endangers the motor vehicle, or its occupants or other persons or property.

COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**

1-59. (continued)	Verify that the installation adheres to the exhaust emission standards for liquefied petroleum gas carburetion systems listed below:
	
	- light duty vehicles
	  - hydrocarbon emissions do not exceed 0.41 g per vehicle mile
	  - carbon monoxide emissions do not exceed 3.4 g per vehicle mile
	  - oxides of nitrogen emissions do not exceed 0.4 g per vehicle mile.
	- heavy duty vehicles
	  - hydrocarbons plus oxides of nitrogen (as NO_2) emissions do not exceed 16 g per brake horsepower hour
	  - carbon monoxide emissions do not exceed 40 g per brake horsepower hour.

ASPHALT PAVING OPERATIONS	
1-60. Installations are required to restrict the emission of VOC from asphalt paving operations (401 KAR 63:025, Sections 2, 3, and 4).	(NOTE: This regulation is applicable to all asphalt paving operations located in a county or portion of a county designated ozone nonattainment for any nonattainment classification except marginal nonattainment.) Determine if the installation engages in any of the following types of asphalt paving operations which are exempt from this rule: - application of penetrating prime coat - dust suppression operations - maintenance operations during the months of November, December, January, February, and March. Verify that the installation does not use cutback asphalts or unacceptable emulsion asphalts for asphalt paving operations. (NOTE: If this requirement becomes applicable because the county was previously designated nonurban nonattainment or redesignated after 15 November 1990, compliance is extended to 31 May 1995.)

COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
LEAKS FROM GASOLINE TANK TRUCKS **1-61.** Installations that conduct loading operations at bulk gasoline terminals or plants are required to meet specific operating and equipment standards (401 KAR 63:031, Sections 2(1) and 3).	(NOTE: This regulation applies to gasoline tank trucks which load gasoline at bulk terminals or plants on or after 8 February 1993 in a county or portion of a county designated ozone nonattainment for any nonattainment classification except marginal.) Verify that the installation does not allow the loading of a gasoline tank truck unless the truck displays a valid sticker. (NOTE: The sticker should be attached to the tank, near the U.S. Department of Transportation certification plate and should be clearly visible.) Verify that, during loading operations, there is no reading greater than or equal to 100 percent of the LEL at a distance of 2.5 cm around the perimeter of a potential leak source associated with the gasoline tank truck or its vapor collection system. Verify that, during loading operations, there are no visible liquid leaks. (NOTE: Drops of liquid resulting from the disconnection of dry breaks in well maintained liquid lines are allowed.)

Appendix 1-1

Allowable Rate of Particulate Emission Based on Process Weight Rate

(Source: 401 KAR 59:010)

Process Weight Rate		Maximum Allowable Emission Rate
lb/ h	ton/ h	lb/ h
1000 or less	0.50 or less	2.34
1500	0.75	3.00
2000	1.00	3.59
2500	1.25	4.12
3000	1.50	4.62
3500	1.75	5.08
4000	2.00	5.52
5000	2.50	6.34
6000	3.00	7.09
7000	3.50	7.81
8000	4.00	8.48
9000	4.50	9.12
10,000	5.00	9.74
12,000	6.00	10.90
16,000	8.00	13.03
18,000	9.00	14.02
20,000	10.00	14.97
30,000	15.00	19.24
40,000	20.00	23.00
50,000	25.00	26.41
60,000	30.00	29.57
70,000	35.00	30.57
80,000	40.00	31.23
90,000	45.00	31.83
100,000	50.00	32.37
120,000	60.00	33.33
140,000	70.00	34.16
160,000	80.00	34.90
200,000	100.00	36.17
1,000,000	500.00	46.79
2,000,000	1000.00	52.28
6,000,000	3000.00	62.32

Interpolation of the data for process weight rates up to 60,000 lb/ h are accomplished by use of the equation $E = 3.59P^{0.62}$, and interpolation and extrapolation of the data for process weight rates in excess of 60,000 lb/ h are accomplished by the use of the equation $E = 17.31P^{0.16}$, where E = rate of emission in pounds per hour and P = process weight rate in tons per hour.

Appendix 1-2

Carbon Monoxide Standards for Municipal Solid Waste Incinerators

(Source: Appendix A to 401 KAR 59:021)

Municipal Solid Waste Incinerator Technology	Carbon Monoxide Emission Limit (ppmv)*
Mass burn waterwall	100
Mass burn refractory	100
Mass burn rotary waterwall	150
Modular starved air	50
Modular excess air	50
Refuse-derived fuel spreader stoker	150
Bubbling fluidized bed incinerator	100
Circulating fluidized bed incinerator	100
RDF co-fired incinerator	150
Other technologies	150

*Measured at the incinerator outlet in conjuction with a measurement of oxygen concentration, corrected to 7 percent oxygen (dry basis) using a 4-h block average.

Appendix 1-3

Allowable Particulate Emission Rates

(Source: 401 KAR 61:015)

For sources having a Total Heat Input Capacity of:	The standard is:* (in pounds per MBtu actual heat input)		
(MBtu/ h)	Priority I	Priority II	Priority III
10 or less	0.56	0.75	0.80
50	0.38	0.52	0.57
100	0.33	0.44	0.49
250	0.26	0.35	0.40
500	0.22	0.30	0.34
1000	0.19	0.26	0.30
2500	0.15	0.21	0.24
5000	0.13	0.18	0.21
7500	0.12	0.16	0.19
10,000 or more	0.11	0.15	0.18

* Based upon the Priority classification with respect to particulates of the region in which the source is located.

Appendix 1-4

Allowable Sulfur Dioxide Emission Rates

(Source: 401 KAR 61:015)

For sources having a total heat input (as determined by Section 3(1) of: (MBtu/ h)	The standard* (in lb/ MBtu actual heat input) is (based upon the classification with respect to sulfur dioxide of the county in which the source is located):							
	Class I		Class IA		Class II		Class III	
	Liquid/ Gaseous Fuel	Solid Fuel	Liquid/ Gaseous Fuel	Solid Fuel	Liquid/ Gaseous Fuel	Solid Fuel	Liquid/ Gaseous Fuel	Solid Fuel
10 or less	3.0	5.0	3.0	5.0	4.0	6.0	4.6	7.0
50	1.5	2.4	1.5	3.9	2.4	3.7	3.2	4.8
100	1.2	1.8	1.2	3.6	2.0	3.0	2.7	4.1
150	1.0	1.5	1.0	3.3	1.8	2.7	2.5	3.7
200	0.9	1.3	0.9	3.2	1.6	2.5	2.3	3.5
250 - 1500	0.8	1.2	0.8	3.1	1.5	2.3	2.2	3.3
1501 - 21,000	0.8	1.2	0.8	1.2	1.5	2.3	2.2	3.3
21,000 or more	0.8	1.2	0.8	1.2	1.5	2.3	2.2	3.3

(MBtu/ h)	Class I		Class IA		Class II		Class III	
	Liquid/ Gaseous Fuel	Solid Fuel	Liquid/ Gaseous Fuel	Solid Fuel	Liquid/ Gaseous Fuel	Solid Fuel	Liquid/ Gaseous Fuel	Solid Fuel
10 or less	5.4	8.0	5.4	8.0	6.0	9.0	6.0	9.0
50	4.3	6.4	4.3	6.4	4.9	7.3	4.9	7.3
100	4.0	5.9	4.0	5.9	4.5	6.7	4.5	6.7
150	3.7	5.6	3.7	5.6	4.3	6.4	4.3	6.4
200	3.6	5.4	3.6	5.4	4.1	6.2	4.1	6.2
250 - 1500	3.5	5.2	3.5	5.2	4.0	6.0	4.0	6.0
1501 - 21,000	3.5	5.2	2.3	3.5	4.0	6.0	1.1	1.1
21,000 or more	3.5	5.2	2.1	3.1	4.0	6.0	1.1	1.1

* All standards are 24 h averages.

NOTE: In counties classified as VA with respect to sulfur dioxide, for sources having a total heat input greater than 1500 MBtu/ h, the installation is prohibited from allowing the annual average sulfur dioxide emission rate from all existing and new affected facilities combined at the source to exceed 0.60 lb/ MBtu.

NOTE: In counties classified as IA with respect to sulfur dioxide, for sources having a total rated heat input greater than 1500 MBtu/ h, the Cabinet allows one affected facility, as specified on the operating permit, to emit sulfur dioxide at a rate not to exceed a 24 h average of 8.0 lb/ MBtu when the facility is being operated to generate high sulfur dioxide content flue gases for use in any experimental sulfur dioxide removal system.

Appendix 1-5

Threshold Ambient Limits and Significant Emmission Levels of Toxic Air Pollutants

(Source: Appendix B to 401 KAR 63:021)

Substance	Y*	Average Time	Significant Levels (M)** lb/ h
1,1,1-Trichloroethane (methyl chloroform)	7600.00	8 h	4.848E-01
1,1,2-Trichloroethane	180.00	8 h	1.148E-02
1,3-Butadiene	88.00	8 h	5.613E-03
4,4'-Methylenebis (2-chloroaniline)(MOCA)	RACT		5.613E-05
Acetaldehyde	720.00	8 h	4.593E-02
Acetic acid	100.00	8 h	6.379E-03
Acetone	7120.00	8 h	4.542E-01
Acrolein	1.00	8 h	6.379E-05
Acrylic acid	120.00	8 h	7.655E-03
Acrylonitrile	RACT		1.148E-03
Allyl chloride	12.00	8 h	7.654E-04
Ammonia	72.00	8 h	4.593E-03
Ammonium chloride	40.00	8 h	2.551E-03
Antimony and compounds, as Sb	2.00	8 h	1.276E-04
Arsenic and arsenic compounds	RACT		5.103E-05
Barium, soluble compounds, as Ba	2.00	8 h	1.276E-04
Benzene	RACT		7.654E-03
Benzo(a)anthracene	RACT		5.100E-07
Benzo(a)pyrene	RACT		5.100E-07
Cadmium	RACT		1.276E-05
Calcium hydroxide	20.00	8 h	1.276E-03
Carbon disulfide	120.00	8 h	7.655E-03
Carbon tetrachloride	RACT		7.654E-03
Chlorine	12.00	8 h	7.654E-04
Chlorine dioxide	1.20	8 h	7.654E-05
Chloroform	RACT		1.276E-02
Chlorophenols	RACT		5.100E-07
Chromium VI	RACT		1.276E-05
Cumene	980.00	8 h	6.251E-02
Cyanides, as CN	20.00	8 h	1.276E-03
Diacetone alcohol	960.00	8 h	6.124E-02
Dimethylamine	72.00	8 h	4.593E-03
Dioxin (2,3,7,8-tetrachlorodibenzo-p-dioxin)	RACT		5.100E-07
Ethyl benzene	1740.00	8 h	1.110E-01
Ethylene dibromide	RACT		5.100E-07
Ethylene dichloride (EDC)	RACT		1.021E-02
Ethylene oxide	RACT		5.103E-04
Formaldehyde	RACT		3.827E-04
Formic acid	36.00	8 h	2.296E-03
Hexylene glycol	500.00	1 h	2.240E-02

(continued)

Substance	Y*	Average Time	Significant Levels (M)** lb/ h
Hydrogen bromide	40.00	8 h	2.551E-03
Hydrogen chloride	28.00	1 h	1.254E-03
Maleic anhydride	4.00	8 h	2.551E-04
Manganese dust and compounds as Mn	20.00	1 h	8.959E-04
Manganese fume, as Mn	4.00	8 h	2.551E-04
Mercury, alkyl compounds, as Hg	0.04	8 h	2.551E-06
Mercury, as Hg, all forms except alkyl vapor	0.20	8 h	1.276E-05
Mercury, as Hg, Aryl and inorganic compounds	0.40	8 h	2.551E-05
Methanol	1040.00	8 h	6.634E-02
Methyl bromide	80.00	8 h	5.103E-03
Methyl chloride	420.00	8 h	2.679E-02
Methyl ethyl ketone	2360.00	8 h	1.505E-01
Methylamine	48.00	8 h	3.062E-03
Methylene bisphenyl isocyanate (MDI)	0.80	1 h	3.583E-05
Methylene chloride (dichloromethane)	1400.00	8 h	8.930E-02
Nickel carbonate	RACT		2.551E-05
Nickel carbonyl	RACT		8.930E-05
Nickel metal	RACT		2.551E-04
Nickel oxide	RACT		2.551E-05
Nickel subsulfide	RACT		2.551E-04
Nickel, soluble compounds, as Ni	RACT		2.551E-05
Nitric acid	20.00	8 h	1.276E-03
Nonane	4200.00	8 h	2.679E-01
n-Butanol	600.00	1 h	2.688E-02
n-Hexane	720.00	8 h	4.593E-02
Pentachlorophenol	2.00	8 h	1.276E-04
Perchloroethylene	1340.00	8 h	8.548E-02
Phenol	76.00	8 h	4.848E-03
Phosphoric acid	4.00	8 h	2.551E-04
Potassium hydroxide	8.00	1 h	3.583E-04
Propargyl alcohol	8.00	8 h	5.103E-04
Propylene dichloride	1400.00	8 h	8.930E-02
Propylene oxide	200.00	8 h	1.276E-02
Selenium compounds, as Se	0.80	8 h	5.103E-05
Silver, metal	0.40	8 h	2.551E-05
Silver, soluble compounds, as Ag	0.04	8 h	2.551E-06
Sodium hydroxide	8.00	1 h	3.583E-04
Styrene, monomer	860.00	8 h	5.486E-02
Sulfuric acid	4.00	8 h	2.551E-04
Tetrahydrofuran	2360.00	8 h	1.505E-01
Tetrasodium pyrophosphate	20.00	8 h	1.276E-03
Tin, organic compound, as Sn	0.40	8 h	2.551E-05
Tin, oxide, metal and inorganic compounds except SnH4, as Sn	8.00	8 h	5.103E-04
Titanium dioxide	20.00	8 h	1.276E-03
Toluene	1500.00	8 h	9.568E-02

(continued)

Substance	Y*	Average Time	Significant Levels (M)** lb/ h
Toluene 2,4-diisocyanate (TDI)	0.16	8 h	1.021E-05
Trichlorethylene	1080.00	8 h	6.889E-02
Trimethylamine	96.00	8 h	6.124E-03
Vinyl acetate	120.00	8 h	7.654E-03
Xylene (o-, m-, p-isomers)	1740.00	8 h	1.110E-01
Zinc chloride fume	4.00	8 h	2.551E-04
Zinc oxide fume	20.00	8 h	1.276E-03

* Threshold ambient limit (TAL) mg/m^3 = Y/ T

where T = Hours of emission of the substance per week from the source, except that T = 40 if the hours per week of emission are less than 40.

** The significant levels (M) may be adjusted for the height of release, H, and hours of emission, T, using the procedures in Appendix C to 401 KAR 63:021.

Appendix 1-6

Correction Factors for Height of Release and Hours of Emission

(Source: Appendix C to 401 KAR 63:021 and Appendix C to 63:022)

Minimum Height of Release (H)		Height of Release Correction Factor
(meters)	(feet)	(K)
1	3.3	1
2	6.6	4
3	9.9	12
4	13.1	24
5	16.4	41
6	19.7	62
7	23.0	89
8	26.2	121
9	29.5	159
10	32.8	204
15	49.2	489
20	65.6	901
25	82.0	1429
30	98.4	2037
35	114.8	2738
40	131.2	3535
45	147.6	4418
50	164.0	5394
55	180.4	6405
60	196.9	7494
65	213.3	8622

The significant level (L) in Section 1(2)(d) shall be calculated from the formula:

$$L = M \times K \times (168/T)$$

where:

L = Adjusted significant level (lb/ h).

M = Significant level (lb/ h) for the substance as listed in Appendix B to 401 KAR 63:021.

K = Height of release correction factor from this table. H is the minimum height of release of the substance from the source. When H is between two values, the lower number is to be used.

T = Hours of emission of the substance per week from the source, except that T = 40 if the hours per week of emission are less than 40.

Appendix 1-7

Allowable Emission Limit

(Source: Appendix A to 401 KAR 63:021 and
Appendix A to 401 KAR 63:022)

The following equation is to be used to determine the allowable emission limit for toxic air pollutants:

$$E_{Allowable} = E_{Actual} \times TAL / C$$

where:

$E_{Allowable}$ = Allowable emission limit in pounds per hour, expressed as an average for a time averaging period corresponding to the TAL time average.

E_{Actual} = Actual emission rate in pounds per hour.

TAL = Threshold ambient limit determined using the formula in Appendix B to 401 KAR 63:021.

C = Maximum ground level concentration in the ambient air estimated through the use of a dispersion model specified in the *Guideline on Air Quality Models*.

Appendix 1-8

Threshold Ambient Limits and Significant Emmission Levels of Toxic Air Pollutants

(Source: Appendix B to 401 KAR 63:022)

Substance	Y*	Average Time	Significant Levels (M)** lb/ h
1,1,2,2-Tetrachloroethane	28.00	8 h	1.786E-03
1,1,1-Trichloroethane (methyl chloroform)	7600.00	8 h	4.848E-01
1,1,2-Trichloroethane	180.00	8 h	1.148E-02
1,1-Dichloroethane	3240.00	8 h	2.067E-01
1,1-Diochloro-1-nitroethane	40.00	8 h	2.551E-03
1,1-Dimethylhydrazine	BACT		2.551E-04
1,2,3-Trichloropropane	1200.00	8 h	7.654E-02
1,2,4-Trichlorobenzene	160.00	1 h	7.167E-03
1,2-Dibromo-3-chloropropane (DBCP)	BACT		5.100E-07
1,2-Dichloroethylene	3160.00	8 h	2.016E-01
1,2-Diethylhydrazine	BACT		2.551E-05
1,2-Dimethylhydrazine	BACT		2.551E-04
1,3-Butadiene	88.00	8 h	5.613E-03
1,3-Dichloro-5,5-dimethylhydantoin	0.80	8 h	5.103E-05
1,3-Propane sultone	BACT		5.100E-07
1,4-Butanediol dimethanesulphonate (Myleran)	BACT		5.100E-07
1,4-Dioxane	BACT		2.296E-02
1-Amino-2-methylanthraquinone	BACT		1.021E-04
1-Chloro-1-nitropropane	40.00	8 h	2.551E-03
1-Nitropropane	360.00	8 h	2.296E-02
1-(2-Chloroethyl)-3-cyclohexyl-1-nitrosourea (CCNU)	BACT		5.100E-07
1-[(5-Nitrofurfurylidene)amino]-2-imidazolidinone	BACT		5.100E-07
2,2-Dichloropropionic acid	24.00	8 h	1.531E-03
2,4,5-Trichlorophenoxyacetic acid (2,4,5-T)	40.00	8 h	2.551E-03
2,4,6-Trichlorophenol	BACT		5.100E-07
2,4,6-Trinitrotoluene (TNT)	2.00	8 h	1.276E-04
2,4-D	40.00	8 h	2.551E-03
2,4-Diaminoanisole sulfate	BACT		5.100E-07
2,4-Dinitrotoluene	BACT		3.827E-04
2,6-Ditert. butyl-p-cresol	40.00	8 h	2.551E-03
2-Acetylaminofluorene	BACT		5.100E-07
2-Aminoanthraquinone	BACT		1.021E-04
2-Aminopyridine	8.00	8 h	5.103E-04
2-Amino-5-(5-nitro-2-furyl)-1,3,4-thiadiazole	BACT		5.100E-07
2-Butoxyethanol	480.00	8 h	3.062E-02
2-Ethoxyethanol	76.00	8 h	4.848E-03
2-Ethoxyethyl acetate	108.00	8 h	6.889E-03
2-Hydroxypropyl acrylate	12.00	8 h	7.654E-07

(continued)

Appendix 1-8 (continued)

Substance	Y*	Average Time	Significant Levels (M)** lb/ h
2-Methylaziridine	BACT		5.100E-07
2-Methyl-1-nitroanthraquinone	BACT		1.021E-04
2-Naphthylamine	BACT		5.100E-07
2-Nitropropane	BACT		1.613E-02
2-N-Dibutylaminoethanol	56.00	8 h	3.572E-03
2-(2-Formylhydrazine)-4-(5-nitro-2-furyl)thiazole	BACT		5.100E-07
3,3'-Dichlorobenzidine	BACT		5.100E-07
3,3'-Dichloro-4,4'-diaminodiphenyl ether	BACT		5.100E-07
3,3'-Dimethoxybenzidine	BACT		5.100E-07
3,3'-Dimethylbenzidine	BACT		5.100E-07
4,4'-Diaminodiphenyl ether	BACT		5.100E-07
4,4'-Methylene bis (2-chloroaniline)(MOCA)	BACT		5.613E-05
4,4'-Methylene bis (2-methylaniline)	BACT		5.103E-04
4,4'-Methylene bis (N,N-dimethyl) benzenamine	BACT		5.100E-07
4,4'-Methylene dianiline	3.20	8 h	2.041E-04
4,4'-Thiobis (6-tert, butyl-m-cresol)	40.00	8 h	2.551E-03
4,4'-Thiodianiline	BACT		5.100E-07
4,4-Methylene dianiline	3.20	8 h	2.041E-04
4-Aminobiphenyl	BACT		5.100E-07
4-Chloro-ortho-phenylenediamine	BACT		7.654E-04
4-Dimethylaminoazobenzene	BACT		5.100E-07
4-Methoxyphenol	20.00	8 h	1.276E-03
5-Nitroacenaphthene	BACT		5.100E-07
5-Nitro-o-anisidine	BACT		5.100E-07
5-(Morpholinomethyl)-3[(5-nitrofurfurylidene)amino]-2-oxazolidinone	BACT		5.100E-07
Acetaldehyde	720.00	8 h	4.593E-02
Acetic acid	100.00	8 h	6.379E-03
Acetic anhydride	80.00	1 h	3.583E-03
Acetone	7120.00	8 h	4.542E-01
Acetonitrile	BACT		1.786E-02
Acetylene tetrabromide	60.00	8 h	3.827E-03
Acetylsalicylic acid	20.00	8 h	1.276E-03
Acrolein	1.00	8 h	6.379E-05
Acrylamide	1.20	8 h	7.654E-05
Acrylic acid	120.00	8 h	7.654E-03
Acrylonitrile	BACT		1.148E-03
Actymomycin D	BACT		5.100E-07
Adriamycin	BACT		5.100E-07
Aflatoxins	BACT		5.100E-07
Aldrin	10.00	8 h	6.379E-04
Allyl alcohol	20.00	8 h	1.276E-03
Allyl chloride	12.00	8 h	7.654E-04
Allyl glycidyl ether	88.00	8 h	5.613E-03
Allyl propyl disulfide	48.00	8 h	3.062E-03
alpha-Chloroacetophenone	1.20	8 h	7.654E-04

(continued)

Appendix 1-8 (continued)

Substance	Y*	Average Time	Significant Levels (M)** lb/ h
Aluminum metal and oxide	40.00	8 h	2.551E-03
Alkyls (NOC)	8.00	8 h	5.103E-04
Pyro powders	20.00	8 h	1.276E-03
Soluble salts	8.00	8 h	5.103E-04
Amitrole	BACT		5.103E-05
Ammonia	72.00	8 h	4.593E-03
Ammonium chloride	40.00	8 h	2.551E-03
Ammonium sulfamate	40.00	8 h	2.551E-03
Aniline	40.00	8 h	2.551E-03
Antimony Trioxide Production	2.00	8 h	1.276E-04
Antimony and compounds, as Sb	2.00	8 h	1.276E-04
ANTU	1.20	8 h	7.654E-05
Aramite	BACT		5.100E-07
Arsenic and arsenic compounds	BACT		5.103E-05
Arsenic Trioxide Production	BACT		5.103E-05
Arsine	0.80	8 h	5.103E-05
Atrazine	20.00	8 h	1.276E-03
Auramine	BACT		5.100E-07
Azaserine	BACT		5.100E-07
Azathioprine	BACT		5.100E-07
Azinphos-methyl	0.80	8 h	5.103E-05
a-Methyl styrene	960.00	8 h	6.124E-02
Barium soluble compounds, as Ba	2.00	8 h	1.276E-04
Benomyl	40.00	8 h	2.551E-03
Benzal chloride	1000.00	8 h	6.379E-02
Benzene	BACT		7.654E-03
Benzidine	BACT		5.100E-07
Benzotrichloride	BACT		1.276E-03
Benzoyl chloride	20.00	8 h	1.276E-03
Benzoyl peroxide	20.00	8 h	1.276E-03
Benzo(a)pyrene	BACT		5.100E-07
Benzo(b)fluoranthene	BACT		5.100E-07
Benzyl chloride	BACT		1.276E-03
Benzyl violet 4B	BACT		5.100E-07
Benz(a)anthracene	BACT		5.100E-07
Beryl ore	BACT		5.103E-07
Beryllium	BACT		5.103E-07
Beryllium carbonate	BACT		5.103E-07
Beryllium chloride	BACT		5.103E-07
Beryllium fluoride	BACT		5.103E-07
Beryllium hydroxide	BACT		5.103E-07
Beryllium oxide	BACT		5.103E-07
Beryllium phosphate	BACT		5.103E-07
Beryllium silicate	BACT		5.103E-07
Beryllium sulfate	BACT		5.103E-07
Beryllium-aluminum alloy	BACT		5.103E-07
beta-Chloroprene	140.00	8 h	8.930E-03

(continued)

Substance	Y*	Average Time	Significant Levels (M)** lb/ h
Biphenyl	6.00	8 h	3.827E-04
bis Chloromethyl ether	0.02	8 h	1.276E-06
Bischloroethyl nitrosourea (BCNU)	BACT		5.100E-07
Bismuth telluride	40.00	8 h	2.551E-03
Bis(2-chloroethyl) ether	120.00	8 h	7.654E-03
Bis(chloromethyl) ether (BCME)	BACT		1.276E-06
Borates, tetra, sodium salts, Anhydrous	4.00	8 h	2.551E-04
Borates, tetra, sodium salts, Decahydrate	20.00	8 h	1.276E-03
Borates, tetra, sodium salts, Pentahydrate	4.00	8 h	2.551E-04
Boron oxide	40.00	8 h	2.551E-03
Boron tribromide	40.00	1 h	1.792E-03
Boron trifluoride	12.00	1 h	5.375E-04
Bromacil	40.00	8 h	2.551E-03
Bromine pentafluoride	2.80	8 h	1.786E-04
Bromine	2.80	8 h	1.786E-04
Bromoform	20.00	8 h	1.276E-03
Butyl acrylate	220.00	8 h	1.403E-02
Butyl mercaptan	6.00	8 h	3.827E-04
Butylamine	60.00	1 h	2.688E-03
b-Butyrolactone	BACT		5.100E-07
b-Propiolactone	BACT		3.827E-04
Cadmium	BACT		1.276E-05
Cadmium oxide	BACT		8.959E-06
Cadmium sulfate	BACT		1.276E-05
Cadmium sulfide	BACT		1.276E-05
Calcium chromate	0.20	8 h	1.276E-05
Calcium cyanamide	2.00	8 h	1.276E-04
Calcium hydroxide	20.00	8 h	1.276E-03
Calcium oxide	8.00	8 h	5.103E-04
Camphor, synthetic	48.00	8 h	3.062E-03
Caprolactam dust	4.00	8 h	2.551E-04
Caprolactam vapor	80.00	8 h	5.103E-03
Captafol	0.40	8 h	2.551E-05
Captan	20.00	8 h	1.276E-03
Carbaryl	20.00	8 h	1.276E-03
Carbofuran	0.40	8 h	2.551E-05
Carbon black	14.00	8 h	8.930E-04
Carbon disulfide	120.00	8 h	7.654E-03
Carbon tetrabromide	5.60	8 h	3.572E-04
Carbon tetrachloride	BACT		7.654E-03
Carbonyl fluoride	20.00	8 h	1.276E-03
Catechol	80.00	8 h	5.103E-04
Cesium hydroxide	8.00	8 h	5.103E-04
Chlorambucil	BACT		5.100E-07
Chloramphenicol	BACT		5.100E-07
Chlordane	2.00	8 h	1.276E-04
Chlordecone (Kepone)	BACT		5.100E-07

(continued)

Substance	Y*	Average Time	Significant Levels (M)** lb/ h
Chlorinated camphene	2.00	8 h	1.276E-04
Chlorinated diphenyl oxide	2.00	8 h	1.276E-04
Chlorine	12.00	8 h	7.654E-04
Chlorine dioxide	1.20	8 h	7.654E-05
Chlorine trifluoride	1.60	1 h	7.167E-05
Chloroacetaldehyde	12.00	1 h	5.375E-04
Chloroacetyl chloride	0.80	8 h	5.103E-05
Chlorobenzene	1400.00	8 h	8.930E-02
Chlorobromomethane	4200.00	8 h	2.679E-01
Chorodiphenyl	2.00	8 h	1.276E-04
Chloroform	BACT		1.276E-02
Chloromethyl methyl ether (CMME)	BACT		5.100E-07
Chlorophenols	BACT		5.100E-07
Chloropicrin	2.80	8 h	1.786E-04
Chloroprene	140.00	8 h	8.930E-03
Chlorpyrifos	0.80	8 h	5.103E-05
Chromium metal	2.00	8 h	1.276E-04
Chromium VI compounds, certain water insoluble, as Cr	BACT		1.276E-05
Chromium (III) compounds, as Cr	2.00	8 h	1.276E-04
Chromium (II) compounds, as Cr	2.00	8 h	1.276E-04
Chromyl chloride	0.60	8 h	3.827E-05
Chrysene	0.80	8 h	5.103E-05
Cisplatin	BACT		5.100E-07
Citrus Red No. 2	BACT		5.100E-07
Clopidol	40.00	8 h	2.551E-03
Coal Tar Pitch Volatiles	0.80	8 h	5.103E-05
Cobalt carbonyl, as Co	0.40	8 h	2.551E-05
Colbat hydrocarbonyl, as Co	0.40	8 h	2.551E-05
Cobalt	0.40	8 h	2.551E-05
Cobalt-chromium alloy	0.20	8 h	1.276E-05
Coke oven emissions	BACT		5.103E-05
Copper	0.80	8 h	5.103E-05
Dusts and mists, as Cu	4.00	8 h	2.551E-04
Cresol all isomers	88.00	8 h	5.613E-03
Crotonaldehyde	24.00	8 h	1.531E-03
Cruformate	20.00	8 h	1.276E-03
Cumene	980.00	8 h	6.251E-02
Cupferron	BACT		5.100E-07
Cyanamide	8.00	8 h	5.103E-04
Cyanides, as CN	20.00	8 h	1.276E-03
Cyanogen chloride	2.40	1 h	1.075E-04
Cyanogen	80.00	8 h	5.103E-03
Cycasin	BACT		5.100E-07
Cyclohexane	4200.00	8 h	2.679E-01
Cyclohexanol	800.00	8 h	5.103E-02
Cyclohexanone	400.00	8 h	2.551E-02

(continued)

Substance	Y*	Average Time	Significant Levels (M)** lb/ h
Cyclohexene	4060.00	8 h	2.590E-01
Cyclohexylamine	160.00	8 h	1.021E-02
Cyclonite	6.00	8 h	3.827E-04
Cyclopentadiene	800.00	8 h	5.103E-02
Cyclopentane	6880.00	8 h	4.389E-01
Cyclophosphamide	BACT		5.100E-07
Cyhexatin	20.00	8 h	1.276E-03
Dacarbazine	BACT		5.100E-07
Daunomycin	BACT		5.100E-07
DDT	BACT		2.551E-04
Decaborane	1.20	8 h	7.654E-05
Demeton	0.40	8 h	2.551E-05
Diacetone alcohol	960.00	8 h	6.124E-02
2,4-Diaminotoluene	BACT		5.100E-07
Diazinon	0.40	8 h	2.551E-05
Diazomethane	1.60	8 h	1.021E-04
7H-Dibenzo(c,g)carbazole	BACT		5.100E-07
Dibenzo(a,h)pyrene	BACT		5.100E-07
Dibenzo(a,i)pyrene	BACT		5.100E-07
Dibenz(a,h)acridine	BACT		5.100E-07
Dibenz(a,h)anthracene	BACT		5.100E-07
Dibenz(a,j)acridine	BACT		5.100E-07
Diborane	0.40	8 h	2.551E-05
1,2-Dibromoethane (EDB)	BACT		5.100E-07
Dibutyl phosphate	20.00	8 h	1.276E-03
Dibutyl phthalate	20.00	8 h	1.276E-03
Dichloroacetylene	1.60	1 h	7.167E-05
Dichlorobenzene-ortho	1200.00	1 h	5.375E-02
Dichlorobenzene-para	1800.00	8 h	1.148E-01
Dichloroethyl ether	120.00	8 h	7.654E-03
Dichlorofluoromethane	160.00	8 h	1.021E-02
Dichloropropene	20.00	8 h	1.276E-03
Dichlorvos	4.00	8 h	2.551E-04
Dicrotophos	1.00	8 h	6.379E-05
Dicyclopentadiene	120.00	8 h	7.654E-03
Dicyclopentadienyl iron	40.00	8 h	2.551E-03
Dieldrin	1.00	8 h	6.379E-05
Dienoestrol	BACT		5.100E-07
Diepoxybutane	BACT		5.100E-07
Diethanolamine	60.00	8 h	3.827E-03
Diethyl ketone	2820.00	8 h	1.799E-01
Diethyl sulfate	BACT		5.100E-07
Diethylamine	120.00	8 h	7.654E-03
Diethylaminoethanol	200.00	8 h	1.276E-02
Diethylene traimine	16.00	8 h	1.021E-03
Diethylstilbestrol (DES)	BACT		5.100E-07
Difluorodibromomethane	3440.00	8 h	2.194E-01

(continued)

Appendix 1-8 (continued)

Substance	Y*	Average Time	Significant Levels (M)** lb/ h
Diglycidyl ether	2.00	8 h	1.276E-04
Dihydrosafrole	BACT		5.100E-07
Diisobutyl ketone	1000.00	8 h	6.379E-02
Diisopropylamine	80.00	8 h	5.103E-03
Dimethyl acetmide	140.00	8 h	8.930E-03
Dimethyl sulfate	BACT		1.276E-04
Dimethylamine	72.00	8 h	4.593E-03
Dimethylaniline	100.00	8 h	6.379E-03
Dimethylcarbamoyl chloride	BACT		5.100E-07
Dimethylformamide	120.00	8 h	7.654E-03
Dimethylphthalate	20.00	8 h	1.276E-03
Dinitolmide	20.00	8 h	1.276E-03
Dinitrobenzene	4.00	8 h	2.551E-04
Dinitrotoluene	6.00	8 h	3.827E-04
Dinitro-o-cresol	0.80	8 h	5.103E-05
Dioxane	360.00	8 h	2.296E-02
Dioxathion	0.80	8 h	5.103E-05
Dioxin (2,3,7,8-tetrachlorodibenzo-p-dioxin)	BACT		5.100E-07
Diphenylamine	40.00	8 h	2.551E-03
Diphenylhydrazine	0.40	8 h	2.551E-05
Dipropyl ketone	940.00	8 h	5.996E-02
Dipropylene glycol methyl ether	2400.00	8 h	1.531E-01
Diquat	2.00	8 h	1.276E-04
Direct Black 38	BACT		5.103E-05
Direct Blue 6	BACT		5.103E-05
Direct Brown 95	BACT		5.103E-05
Di-sec, octyl phthalate	20.00	8 h	1.276E-03
Disulfiram	8.00	8 h	5.103E-04
Disulfoton	0.40	8 h	2.551E-05
Diuron	40.00	8 h	2.551E-03
Divinyl benzene	200.00	8 h	1.276E-02
Di(2-ethylhexyl)phthalate	BACT		1.276E-03
Endosulfan	0.40	8 h	2.551E-05
Endrin	0.40	8 h	2.551E-05
Epichlorohydrin	BACT		2.551E-03
EPN	2.00	8 h	1.276E-04
Ethanolamine	32.00	8 h	2.041E-03
Ethinyloestradiol	BACT		5.100E-07
Ethion	1.60	8 h	1.021E-04
Ethyl acetate	5600.00	8 h	3.572E-01
Ethyl acrylate	80.00	8 h	5.103E-03
Ethyl amyl ketone	520.00	8 h	3.317E-02
Ethyl benzene	1740.00	8 h	1.110E-01
Ethyl bromide	3560.00	8 h	2.271E-01
Ethyl butyl ketone	920.00	8 h	5.868E-02
Ethyl chloride	10400.00	8 h	6.634E-01
Ethyl ether	4800.00	8 h	3.062E-01

(continued)

Substance	Y*	Average Time	Significant Levels (M)** lb/ h
Ethyl formate	1200.00	8 h	7.654E-02
Ethyl mercaptan	4.00	8 h	2.551E-04
Ethyl methanesulphonate	BACT		5.100E-07
Ethyl silicate	340.00	8 h	2.169E-02
Ethylamine	72.00	8 h	4.593E-03
Ethylene chlorohydrin	12.00	1 h	5.375E-04
Ethylene dibromide (EDB)	BACT		5.100E-07
Ethylene dichloride (EDC)	BACT		1.021E-02
Ethylene glycol dinitrate	1.20	8 h	7.654E-05
Ethylene glycol vapor	500.00	1 h	2.240E-02
Ethylene oxide	BACT		5.103E-04
Ethylene thiourea	BACT		5.103E-07
Ethylenediamine	100.00	8 h	6.379E-03
Ethylenimine	4.00	8 h	2.551E-04
Ethylidene norbornene	100.00	1 h	4.479E-03
Fenamiphos	0.40	8 h	2.551E-05
Fensulfothion	0.40	8 h	2.551E-05
Fenthion	0.80	8 h	5.103E-05
Ferbam	40.00	8 h	2.551E-03
Ferrovanadium dust	4.00	8 h	2.551E-04
Fonofos	0.40	8 h	2.551E-05
Formaldehyde	BACT		3.827E-04
Formamide	120.00	8 h	7.654E-03
Formic acid	36.00	8 h	2.296E-03
Furfural	32.00	8 h	2.041E-03
Furfuryl alcohol	160.00	8 h	1.021E-02
Germanium tetrahydride	2.40	8 h	1.531E-04
Glutaraldehyde	2.80	1 h	1.254E-04
Glycidaldehyde	BACT		5.100E-07
Glycidol	300.00	8 h	1.914E-02
Hafnium	2.00	8 h	1.276E-04
Hematite underground mining	BACT		1.276E-03
Heptachlor	2.00	8 h	1.276E-04
Hexachlorobenzene	BACT		7.654E-03
Hexachlorobutadiene	0.96	8 h	6.124E-05
Hexachlorocyclohexane	2.00	8 h	1.276E-04
Hexachlorocyclopentadiene	0.40	8 h	2.551E-05
Hexachlorodibenzodioxin	BACT		5.100E-07
Hexachloroethane	BACT		2.551E-02
Hexachloronaphthalene	0.80	8 h	5.103E-05
Hexafluoroacetone	2.80	8 h	1.786E-04
Hexamethylphosphoramide	BACT		5.100E-07
Hexylene glycol	500.00	1 h	2.240E-02
Hydrazine	BACT		2.551E-05
Hydrazine sulfate	BACT		2.551E-05
Hydrazobenzene (1,2-diphenylhydrazine)	BACT		2.551E-05

(continued)

Appendix 1-8 (continued)

Substance	Y*	Average Time	Significant Levels (M)** lb/ h
Hydrogen bromide	40.00	8 h	2.551E-03
Hydrogen chloride	28.00	1 h	1.254E-03
Hydrogen cyanide	40.00	1 h	1.792E-03
Hydrogen peroxide	6.00	8 h	3.827E-04
Hydrogen selenide, as Se	0.80	8 h	5.103E-05
Hydrogenated terphenyls	20.00	8 h	1.276E-03
Hydroquinone	8.00	8 h	5.103E-04
Indene	180.00	8 h	1.148E-02
Indeno(1,2,3-cd)pyrene	BACT		5.100E-07
Indium and compounds, as In	0.40	8 h	2.551E-05
Iodine	4.00	1 h	1.792E-04
Iodoform	40.00	8 h	2.551E-03
Iron dextran complex	BACT		2.551E-04
Iron pentacarbonyl, as Fe	3.20	8 h	2.041E-04
Iron salts, soluble, as Fe	4.00	8 h	2.551E-04
Isoamyl acetate	2100.00	8 h	1.340E-01
Isoamyl alcohol	1440.00	8 h	9.185E-02
Isobutyl acetate	2800.00	8 h	1.786E-01
Isobutyl alcohol	600.00	8 h	3.827E-02
Isoocytl alcohol	1080.00	8 h	6.889E-02
Isophorone diisocyanate	0.36	8 h	2.296E-05
Isophorone	100.00	1 h	4.479E-03
Isopropoxyethanol	420.00	8 h	2.679E-02
Isopropyl acetate	3800.00	8 h	2.424E-01
Isopropyl alcohol manufacturing (strong acid process)	BACT		5.100E-07
Isopropyl ether	4200.00	8 h	2.679E-01
Isopropyl glycidyl ether	960.00	8 h	6.124E-02
Isopropylamine	48.00	8 h	3.062E-03
Isosafrole	BACT		5.100E-07
Ketene	3.60	8 h	2.296E-04
Lasiocarpine	BACT		5.100E-07
Lead, inorganic dusts and fumes, as Pb	0.60	8 h	3.827E-05
Lead acetate	BACT		3.827E-05
Lead arsenate, as Pb3(AsO4)2	0.60	8 h	3.827E-05
Lead chromate, as Cr	BACT		1.276E-05
Lead chromate oxide	BACT		1.276E-05
Lead phosphate	BACT		3.827E-05
Lindane (all isomers)	BACT		1.276E-04
Lithium hydride	0.10	8 h	6.379E-06
Magenta	BACT		5.100E-07
Magnesium oxide fume	40.00	8 h	2.551E-03
Malathion	40.00	8 h	2.551E-03
Maleic anhydride	4.00	8 h	2.551E-04
Manganese cyclopentadienyl tricarbonyl, as Mn	0.40	8 h	2.551E-05
Manganese tetroxide	4.00	8 h	2.551E-04
Manganese, dust and compounds as Mn	20.00	1 h	8.959E-04

(continued)

Appendix 1-8 (continued)

Substance	Y*	Average Time	Significant Levels (M)** lb/ h
Manganese, fume, as Mn	4.00	8 h	2.551E-04
Melphalan	BACT		5.100E-07
Mercury, alkyl compounds, as Hg	0.04	8 h	2.551E-06
Mercury, as Hg, all forms except alkyl vapor	0.20	8 h	1.276E-05
Mercury, as Hg, Aryl and inorganic compounds	0.40	8 h	2.551E-05
Merphalan	BACT		5.100E-07
Mesityl oxide	240.00	8 h	1.531E-02
Mestranol	BACT		5.100E-07
Methacrylic acid	280.00	8 h	1.786E-02
Methomyl	10.00	8 h	6.379E-04
Methoxychlor	40.00	8 h	2.551E-03
2-Methoxyethanol	64.00	8 h	4.082E-03
2-Methoxyethyl acetate	96.00	8 h	6.124E-03
4-Methoxyphenol	20.00	8 h	1.276E-03
Methyl 2-cyanoacrylate	32.00	8 h	2.041E-03
Methyl acetate	2440.00	8 h	1.556E-01
Methyl acetylene	6600.00	8 h	4.210E-01
Methyl acetylene-propadiene mixture	7200.00	8 h	4.593E-01
Methyl acrylate	140.00	8 h	8.930E-03
Methyl alcohol	1040.00	8 h	6.634E-02
Methyl bromide	80.00	8 h	5.103E-03
Methyl chloride	420.00	8 h	2.679E-02
Methyl chloroform	7600.00	8 h	4.848E-01
Methyl demeton	2.00	8 h	1.276E-04
Methyl ether	4800.00	8 h	3.062E-01
Methyl ethyl ketone	2360.00	8 h	1.505E-01
Methyl ethyl ketone peroxide	6.00	1 h	2.688E-04
Methyl formate	1000.00	8 h	6.379E-02
Methyl hydrazine	1.40	8 h	6.271E-05
Methyl iodide	BACT		2.551E-03
Methyl isoamyl ketone	960.00	8 h	6.124E-02
Methyl isobutyl carbinol	400.00	8 h	2.551E-02
Methyl isobutyl ketone	820.00	8 h	5.231E-02
Methyl isocyanate	0.20	8 h	1.276E-05
Methyl isopropyl ketone	2820.00	8 h	1.799E-01
Methyl mercaptan	4.00	8 h	2.551E-04
Methyl methacrylate	1640.00	8 h	1.046E-01
Methyl methanesulphonate	BACT		5.100E-07
Methyl n-amyl ketone	80.00	8 h	5.103E-03
Methyl n-butyl ketone	80.00	8 h	5.103E-03
Methyl parathion	0.80	8 h	5.103E-05
Methyl propyl ketone	2800.00	8 h	1.786E-01
Methyl silicate	24.00	8 h	1.531E-03
Methylacrylonitrile	12.0	8 h	7.654E-04
Methylal	12400.00	8 h	7.910E-01
Methylamine	48.00	8 h	3.062E-03
Methylazoxymethanol and its acetate	BACT		5.100E-07

(continued)

Substance	Y*	Average Time	Significant Levels (M)** lb/ h
Methylcyclohexane	6400.00	8 h	4.082E-01
Methylcyclohexanol	940.00	8 h	5.996E-02
Methylcyclopentadienyl manganese tricarbonyl, as Mn	0.80	8 h	5.103E-05
Methylene bis (4-cyclohexylisocyanate)	0.44	1 h	1.971E-05
Methylene bisphenyl isocyanate (MDI)	0.80	1 h	3.583E-05
Methylene chloride (dichloromethane)	1400.00	8 h	8.930E-02
Methylthiouracil	BACT		5.100E-07
Metribuzin	20.00	8 h	1.276E-03
Metronidazole	BACT		5.100E-07
Mevinphos	0.40	8 h	2.551E-05
Michler's ketone (Tetramethyl-diaminobenzophenone)	BACT		5.100E-07
Mirex	BACT		5.100E-07
Mitromycin C	BACT		5.100E-07
Molybdenum, as Mo, insoluble compounds	40.00	8 h	2.551E-03
Molybdenum, as Mo, soluble compounds	20.00	8 h	1.276E-03
Monocrotaline	BACT		5.100E-07
Monocrotophos	1.00	8 h	6.379E-05
Morpholine	280.00	8 h	1.786E-02
m-Phthalodinitrile	20.00	8 h	1.276E-03
m-Xylene alpha,alpha'-diamine	0.40	1 h	1.792E-05
Nafenopin (perfluorosulfonic acid)	BACT		5.100E-07
Naled	12.00	8 h	7.654E-04
Naphthalene	200.00	8 h	1.276E-02
Nickel carbonate	BACT		2.551E-05
Nickel carbonyl	BACT		8.930E-05
Nickel oxide	BACT		2.551E-05
Nickel subsulfide	BACT		2.551E-04
Nickel - metal	BACT		2.551E-04
Nickel - soluble compounds, as Ni	BACT		2.551E-05
Nickelocene (dicyclopentadienylnickel)	BACT		2.551E-05
Niridazole	BACT		5.100E-07
Nitrapyrin	40.00	8 h	2.551E-03
Nitric acid	20.00	8 h	1.276E-03
Nitriloacetic acid	BACT		5.100E-07
Nitrilotriacetic acid	BACT		5.100E-07
Nitrobenzene	20.00	8 h	1.276E-03
Nitroethane	1240.00	8 h	7.910E-02
Nitrofen (2,4-dichlorophenyl-p-nitrophenylether)	BACT		5.100E-07
Nitrogen mustard N-oxide	BACT		5.100E-07
Nitrogen mustard (Mechlorethamine hydrochloride)	BACT		5.100E-07
Nitrogen trifluoride	120.00	8 h	7.654E-03
Nitroglycerin (NG)	2.00	8 h	1.276E-04
Nitromethane	1000.00	8 h	6.379E-02
Nitrotoluene	44.00	8 h	2.807E-03
Nonane	4200.00	8 h	2.679E-01
Norethisterone	BACT		5.100E-07

(continued)

Substance	Y*	Average Time	Significant Levels (M)** lb/ h
N,N-bis(2-chloroethyl)-2-napththylamine (chlornaphazine)	BACT		5.100E-07
N,N-Diacetylbenzidine	BACT		5.100E-07
n-Amyl acetate	2120.00	8 h	1.352E-01
n-Butyl acetate	2840.00	8 h	1.812E-01
n-Butyl alcohol	600.00	1 h	2.688E-02
n-Butyl glycidyl ether	540.00	8 h	3.444E-02
n-Butyl lactate	100.00	8 h	6.379E-03
N-Ethylmorpholine	92.00	8 h	5.868E-03
n-Hexane	720.00	8 h	4.593E-02
N-Isopropylaniline	40.00	8 h	2.551E-03
N-Methyl aniline	8.00	8 h	5.103E-04
N-Methyl-N'-nitro-n-nitrosoguanidine	BACT		5.100E-07
N-Nitrosodiethanolamine	BACT		5.100E-07
N-Nitrosodiethylamine	BACT		5.100E-07
N-Nitrosodimethylamine	BACT		5.100E-07
N-Nitrosodi-n-butylamine	BACT		5.100E-07
N-Nitrosodi-n-propylamine	BACT		5.100E-07
N-Nitrosomethylethylamine	BACT		5.100E-07
N-Nitrosomethylvinylamine	BACT		5.100E-07
N-Nitrosomorpholine	BACT		1.786E-02
N-Nitrosonornicotine (nicotine)	BACT		1.276E-04
N-Nitrosopiperidine	BACT		5.100E-07
N-Nitrosopyrrolidine	BACT		5.100E-07
N-Nitrososarcosine	BACT		5.100E-07
N-Nitroso-n-ethylurea	BACT		5.100E-07
N-Nitroso-n-methylurea	BACT		5.100E-07
N-Nitroso-n-methylurethane	BACT		5.100E-07
N-Nitroso-n-propylamine	BACT		5.100E-07
N-Phenyl-2-naphthylamine	BACT		5.100E-07
N-Phenyl-beta-naphthylamine	BACT		5.100E-07
n-Propyl acetate	3360.00	8 h	2.143E-01
n-Propyl nitrate	420.00	8 h	2.679E-02
N-[4-(5-Nitro-2-furyl)-2-thiazolyl] acetamide	BACT		5.100E-07
Octachloronaphthalene	0.40	8 h	2.551E-05
Oestradiol-17 beta	BACT		5.100E-07
Oestrone	BACT		5.100E-07
Oil orange SS (phenylazo-2-naphthol)	BACT		5.100E-07
Osmium tetroxide, as Os	0.01	8 h	5.103E-07
Oxalic acid	4.00	8 h	2.551E-04
Oxymetholone	BACT		5.100E-07
o-Aminoazotoluene	BACT		5.100E-07
o-Anisidine	BACT		1.276E-04
o-Anisidine hydrochloride	BACT		1.276E-04
o-Chlorobenzylidene malononitrile	1.60	1 h	7.167E-05
o-Chlorostyrene	1140.00	8 h	7.272E-02
o-Chlorotoluene	1000.00	8 h	6.379E-02

(continued)

Substance	Y*	Average Time	Significant Levels (M)** lb/ h
o-Methylcyclohexanone	920.00	8 h	5.868E-02
o-sec-Butylphenol	120.00	8 h	7.654E-03
o-Tolidine	BACT		5.100E-07
o-Toluidine	BACT		2.296E-03
o-Toluidine hydrochloride	BACT		2.296E-03
Panfuran S(dihydroxymethylfuratrizine)	BACT		5.100E-07
Paraffin wax fume	8.00	8 h	5.103E-04
Paraquat	0.40	8 h	2.551E-05
Parathion	0.40	8 h	2.551E-05
Pentaborane	0.04	8 h	2.551E-06
Pentachloronaphthalene	2.00	8 h	1.276E-04
Pentachlorophenol	2.00	8 h	1.276E-04
Perchloroethylene	1340.00	8 h	8.548E-02
Perchloromethyl mercaptan	3.20	8 h	2.041E-04
Perchloryl fluoride	56.00	8 h	3.572E-03
Phenacetin	BACT		5.100E-07
Phenazopyridine	BACT		5.100E-07
Phenazopyridine hydrochloride	BACT		5.100E-07
Phenol	76.00	8 h	4.484E-03
Phenothiazine	20.00	8 h	1.276E-03
Phenoxyacetic acid herbicides	BACT		5.100E-07
Phenoxybenzamine and its hydrochloride	BACT		5.100E-07
Phenyl ether	28.00	8 h	1.786E-03
Phenyl glycidyl ether	24.00	8 h	1.531E-03
Phenyl mercaptan	8.00	8 h	5.103E-04
Phenylhydrazine	80.00	8 h	5.103E-03
Phenylphosphine	1.00	8 h	4.479E-05
Phenytoin and sodium salt of phenytoin	BACT		5.100E-07
Phorate	0.20	8 h	1.276E-05
Phosgene	1.60	8 h	1.021E-04
Phosphine	1.60	8 h	1.021E-04
Phosphoric acid	4.00	8 h	2.551E-04
Phosphorus oxychloride	2.40	8 h	1.531E-04
Phosphorus pentachloride	4.00	8 h	2.551E-04
Phosphorus pentasulfide	4.00	8 h	2.551E-04
Phosphorus trichloride	6.00	8 h	3.827E-04
Phosphorus	0.40	8 h	2.551E-05
Phthalic anhydride	24.00	8 h	1.531E-03
Picloram	40.00	8 h	2.551E-03
Picric acid	0.40	8 h	2.551E-05
Pindone	0.40	8 h	2.551E-05
Piperazine dihydrochloride	20.00	8 h	1.276E-03
Platinum metal	4.00	8 h	2.551E-04
Platinum soluble salts, as Pt	0.01	8 h	5.103E-07
Polybrominated biphenyls (PBBs)	BACT		1.276E-04
Polychlorinated biphenyls (PCBs)	BACT		1.276E-04
Ponceau 3R	BACT		5.100E-07

(continued)

Substance	Y*	Average Time	Significant Levels (M)** lb/ h
Ponceau MX	BACT		5.100E-07
Potassium hydroxide	8.00	1 h	3.583E-04
Procarbazine	BACT		5.100E-07
Procarbazine hydrochloride	BACT		5.100E-07
Progesterone	BACT		5.100E-07
Propargyl alcohol	8.00	8 h	5.103E-04
Propionic acid	120.00	8 h	7.654E-03
Propoxur	2.00	8 h	1.276E-04
Propyl alcohol	2000.00	8 h	1.276E-01
Propylene dichloride	1400.00	8 h	8.930E-02
Propylene glycol dinitrate	1.20	8 h	7.654E-05
Propylene glycol monomethyl ether	1440.00	8 h	9.185E-02
Propylene imine	20.00	8 h	1.276E-03
Propylene oxide	200.00	8 h	1.276E-02
Propylthiouracil	BACT		5.100E-07
Pyrethrum	20.00	8 h	1.276E-03
Pyridine	60.00	8 h	3.827E-03
p-Cresidine	BACT		5.100E-07
p-Nitroaniline	12.00	8 h	7.654E-04
p-Nitrochlorobenzene	12.00	8 h	7.654E-04
p-Nitrosodiphenylamine	BACT		5.100E-07
p-Phenylene diamine	0.40	8 h	2.551E-05
p-tert-Butyltoluene	240.00	8 h	1.531E-02
p-Toluidine	36.00	8 h	2.296E-03
Quinone	1.60	8 h	1.021E-04
Reserpine	BACT		5.100E-07
Resorcinol	180.00	8 h	1.148E-02
Rhodium metal and insoluble compounds, as Rh	4.00	8 h	2.551E-04
Rhodium, soluble compounds, as Rh	0.04	8 h	2.551E-06
Ronnel	40.00	8 h	2.551E-03
Rosin core solder pyrolysis products, as formaldehyde	0.40	8 h	2.551E-05
Rotenone	20.00	8 h	1.276E-03
Saccharin	BACT		5.100E-07
Safrole	BACT		5.100E-07
sec-Amyl acetate	2660.00	8 h	1.697E-01
sec-Butyl acetate	3800.00	8 h	2.424E-01
sec-Butyl alcohol	1220.00	8 h	7.782E-02
sec-Hexyl acetate	1200.00	8 h	7.654E-02
Selenium compounds, as Se	0.80	8 h	5.103E-05
Selenium hexafluoride	0.80	8 h	5.103E-05
Selenium sulfide	BACT		5.103E-05
Sesone	40.00	8 h	2.551E-03
Silicon tetrahydride	28.00	8 h	1.786E-03
Silver metal	0.40	8 h	2.551E-05
Silver soluble compounds, as Ag	0.04	8 h	2.551E-06
Sintered calcium chromate	BACT		1.276E-05

(continued)

Appendix 1-8 (continued)

Substance	Y*	Average Time	Significant Levels (M)** lb/ h
Sintered chromium trioxide	BACT		1.276E-05
Sodium arsenate	0.80	8 h	5.103E-05
Sodium arsenite	0.80	8 h	5.103E-05
Sodium azide	1.20	1 h	5.375E-05
Sodium bisulfite	20.00	8 h	1.276E-03
Sodium dichromate	BACT		1.276E-05
Sodium fluoroacetate	0.20	8 h	1.276E-05
Sodium hydroxide	8.00	1 h	3.583E-04
Sodium metabisulfite	20.00	8 h	1.276E-03
Sodium saccharin	BACT		5.100E-07
Spironolactone	BACT		5.100E-07
Sterigmatocystin	BACT		5.100E-07
Stibine	2.00	8 h	1.276E-04
Streptozotocin	BACT		5.100E-07
Strontium chromate	BACT		1.276E-05
Strychnine	0.60	8 h	3.827E-05
Styrene, monomer	860.00	8 h	5.486E-02
Styrene oxide	860.00	8 h	5.486E-02
Subtilisins (Proteolytic enzymes as 100% pure crystalline enzyme)	2.40E-04	1 h	1.075E-08
Sulfallate	BACT		5.100E-07
Sulfotep	0.80	8 h	5.103E-05
Sulfur monochloride	24.00	8 h	1.531E-03
Sulfur pentafluoride	1.00	8 h	6.379E-05
Sulfur tetrafluoride	1.60	8 h	1.021E-04
Sulfuric acid	4.00	8 h	2.551E-04
Sulfuryl fluoride	80.00	8 h	5.103E-03
Sulprofos	4.00	8 h	2.551E-04
Tantalum	20.00	8 h	1.276E-03
Tellurium hexafluoride, as Te	0.80	8 h	5.103E-05
Tellurium and compounds, as Te	0.40	8 h	2.551E-05
Temephos	40.00	8 h	2.551E-03
TEPP	0.20	8 h	1.276E-05
Terphenyls	20.00	1 h	8.959E-04
tert-Butyl acetate	3800.00	8 h	2.424E-01
tert-Butyl alcohol	1200.00	8 h	7.654E-02
tert-Butyl chromate, as Cr	0.40	1 h	1.792E-05
Testosterone and its esters	BACT		5.100E-07
Tetrachloronaphthalene	8.00	8 h	5.103E-04
Tetraethyl lead, as Pb	0.40	8 h	2.551E-05
Tetrahydrofuran	2360.00	8 h	1.505E-01
Tetramethyl lead, as Pb	0.60	8 h	3.827E-05
Tetramethyl succinonitrile	12.00	8 h	7.654E-04
Tetranitromethane	32.00	8 h	2.041E-03
Tetraasodium pyrophosphate	20.00	8 h	1.276E-03
Tetryl	6.00	8 h	3.827E-04

(continued)

Substance	Y*	Average Time	Significant Levels (M)** lb/ h
Thallium soluble compounds, as Tl	0.40	8 h	2.551E-05
Thioacetamide	BACT		5.100E-07
Thioglycolic acid	16.00	8 h	1.021E-03
Thiourea	BACT		5.100E-07
Thiram	20.00	8 h	1.276E-03
Thorium dioxide	BACT		5.100E-07
Tin, organic compounds, as Sn	0.40	8 h	2.551E-05
Tin, oxide, metal and inorganic compounds except SnH4, as Sn	8.00	8 h	5.103E-04
Titanium dioxide	20.00	8 h	1.276E-05
Toluene 2,4-diisocyanate (TDI)	0.16	8 h	1.021E-05
Toluene	1500.00	8 h	9.568E-02
Toxaphene (polychlorinated camphenes)	BACT		1.276E-04
Trans-2[(dimethylamino)-methyliminol]-5-[2-(5-nitro-2-furyl)vinyl]-1,3,4-oxadiazole	BACT		5.100E-07
Treosulphan	BACT		5.100E-07
Tributyl phosphate	10.00	8 h	6.379E-04
Trichloroacetic acid	28.00	8 h	1.786E-03
Trichloroethylene	1080.00	8 h	6.889E-02
Trichloronaphthalene	20.00	8 h	1.276E-03
Triethylamine	160.00	8 h	1.021E-02
Trimellitic anhydride	0.16	8 h	1.021E-05
Trimethyl benzene	500.00	8 h	3.189E-02
Trimethyl phosphite	40.00	8 h	2.551E-03
Trimethylamine	96.00	8 h	6.124E-03
Triorthocresyl phosphate	0.40	8 h	2.551E-05
Triphenyl amine	20.00	8 h	1.276E-03
Triphenyl phosphate	12.00	8 h	7.654E-04
Tris (2,3-dibromopropyl)phosphite	BACT		5.100E-07
Tris (2,3-dibromopropyl)phosphate	BACT		5.100E-07
Tris(1-aziridinyl)phosphine sulfide (Thiotepa)	BACT		5.100E-07
Tris(aziridinyl)-para-benzoquinone (Triaziquone)	BACT		5.100E-07
Trypan blue (commercial grade)	BACT		5.100E-07
Tungsten, as W, Insoluble compounds	20.00	8 h	1.276E-03
Tungsten, as W, Soluble compounds	4.00	8 h	2.551E-04
Uracil mustard	BACT		5.100E-07
Uranium compounds, as U	0.80	8 h	5.103E-05
Urethane	BACT		5.100E-07
Valeraldehyde	700.00	8 h	4.465E-02
Vanadium, as V205, respirable dust and fume	0.20	8 h	1.276E-05
Vinyl acetate	120.00	8 h	7.654E-03
Vinyl bromide	80.00	8 h	5.103E-03
Vinyl cyclohene dioxide	240.00	8 h	1.531E-02
Vinyl toluene	960.00	8 h	6.124E-02
Vinylidene chloride	80.00	8 h	5.103E-03
Warfarin	0.40	8 h	2.551E-05
Xylene (o-, m-, p-isomers)	1740.00	8 h	1.110E-01

(continued)

Substance	Y*	Average Time	Significant Levels (M)** lb/ h
Xylidine	40.00	8 h	2.551E-03
Yttrium	4.00	8 h	2.551E-04
Zinc beryllium silicate	BACT		5.103E-07
Zinc chloride fume	4.00	8 h	2.551E-04
Zinc chromate	BACT		1.276E-05
Zinc oxide fume	20.00	8 h	1.276E-03
Zirconium compounds, as Zr	20.00	8 h	1.276E-03

* Threshold Ambient Limit (TAL) = mg/m^3 = Y/ T

Where T = Hours of emission of the substance per week from the source, except that T = 40 if the hours per week of emission are less than 40.

** The significant levels (M) may be adjusted for the height of release, H, and hours of emission, T, using the procedures in Appendix C to 401 KAR 63:022.

INSTALLATION:	COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) Kentucky Supplement	DATE:	REVIEWER(S):

STATUS NA C RMA	REVIEWER COMMENTS:

SECTION 2

CLEAN WATER ACT (CWA)

Kentucky Supplement

SECTION 2

CLEAN WATER ACT (CWA)

Kentucky Supplement

These definitions were obtained from the Kentucky Water Quality Regulations, Kentucky Administrative Regulations (KAR) Title 401, Chapter 5:005, Section 1; 401 KAR 5:029, Section 1; 401 KAR 5:050, Section 1; 401 KAR 5:055, Section 9; 401 KAR 5:060, Sections 5, 7, and 8; 401 KAR 5:065, Sections 1(13) and 1(14); and 401 KAR 6:310, Section 1.

Kentucky has incorporated by reference 40 CFR 401, Chapter I, Subchapter N et seq., revised as of 1 July 1986.

Definitions

- *Abandoned Well* - a well unsuitable for its intended use that has been sealed or plugged to prevent entry of surface water and to prevent mixing of water from different aquifers.

- *Acute Criteria* - the highest instream concentration of a toxic substance or an effluent to which organisms can be exposed for a brief period of time without causing unacceptable harmful effects.

- *Acute Toxicity* - lethal or other harmful effect sustained by either indigenous aquatic organisms or representative indicator organisms used in toxicity tests due to a short-term exposure (96 h or less) to a specific toxic substance or mixture of toxic substances.

- *Administrator* - the Administrator of the U.S. Environmental Protection Agency (USEPA) or an authorized representative.

- *Agricultural Wastes Handling System* - a no-discharge structure or equipment source that conveys, stores, or treats manure from a concentrated animal feeding operation prior to land application.

- *Animal Feeding Operation* - a lot or facility other than an aquatic animal production facility where the following conditions are met:
  1. animals, other than aquatic animals, have been, are, or will be stabled or confined and fed or maintained for a total of 45 days or more in any 12-mo period
  2. crops, vegetation forage growth, or postharvest residues are not sustained in the normal growing season over any portion of the lot or facility.

- *Aquaculture Project* - a defined, managed water area that uses discharges of pollutants into that designated area for the maintenance or production of harvestable freshwater plants and animals.

- *Bypass* - the intentional diversion of waste streams from any portion of a treatment facility.

- *Cabinet* - the Natural Resources and Environmental Protection Cabinet.

- *Chronic Criteria* - the highest instream concentration of a toxic substance or an effluent to which organisms can be exposed indefinitely without causing an unacceptable harmful effect.

- *Chronic Toxicity* - lethal, reduced growth or reproduction, or other harmful effect sustained by either indigenous aquatic organisms or representative indicator organisms used in toxicity tests due to long-term exposures (relative to the life span of the organisms or a significant portion of their life span) to toxic substances or mixtures of toxic substances.

- *Control Authority* - the Publicly Owned Treatment Works (POTW) if the POTW's submission for its pretreatment program has been approved or the Director if the submission has not been approved.

- *Direct Discharge* - the discharge of a pollutant into waters of the Commonwealth when the discharge is not an indirect discharge.

- *Director* - the Secretary of the Cabinet or an authorized representative. For the purposes of permit issuance decisions, the Director is the Director of the Division of Water in the Department for Environmental Protection.

- *Discharge or Discharge of a Pollutant* - the addition of any pollutant or combination of pollutants to waters of the Commonwealth from any point source. This definition includes, but is not limited to, additions of pollutants into waters of the Commonwealth from surface runoff that is collected or channeled by man; discharges through pipes, sewers or other conveyances whether publicly or privately owned that do not lead to a treatment works; and discharges through pipes, sewers, or other conveyances leading into privately owned treatment works.

- *Division* - the Division of Water in the Department for Environmental Protection.

- *Effluent Limitation* - any restriction imposed by the Director on quantities, discharge rates, and concentrations of pollutants which are discharged from point sources into waters of the Commonwealth.

- *Epilminion* - the thermally homogeneous water layer overlying the region of the thermocline of a thermally stratified lake or reservoir.

- *Establishment* - any industrial plant, mill, factor, tannery, paper or pulp mill, mine or mineral processing or producing facility, quarry, oil refinery, boat, vessel or other type of commercial, manufacturing or industrial works or facility in the operation of which sewage, industrial wastes, or other wastes are produced or stored.

- *Existing Uses* - the legitimate uses attained in or on a surface water of the Commonwealth on or after 28 November 1975, irrespective of its use classification.

- *Facility or Activity* - any Kentucky Pollution Discharge Elimination System (KPDES) point source or any other facility or activity, including land or appurtenances, subject to regulation under the KPDES program.

- *Indigenous Aquatic Life* - naturally occurring aquatic organisms including, but not limited to, bacteria, fungi, algae, aquatic insects, other aquatic invertebrates, reptiles and amphibians, and fishes. Under some natural conditions one or more of these groups may be absent from any given surface water.

- *Indirect Discharge* - the introduction of pollutants into a POTW from any nondomestic source regulated by the KPDES program.

- *Industrial User* - a source of indirect discharge.

- *Industrial Wastes* - any liquid or other waste resulting from any process of industry, manufacture, trade, or business or from the depletion of any natural resource.

- *Interference* - an inhibition or disruption of the POTW, its treatment processes or operations, or its sludge processes, the use or disposal of which is a cause of or significantly contributes to a violation of any requirement of the POTW's KPDES permit, including an increase in the magnitude or duration of a violation or to the prevention of sewage sludge use or disposal by the POTW in violation of any applicable regulation. An industrial user significantly contributes to a permit violation or prevention of sludge use or disposal whenever the user:
  1. discharges a daily pollutant loading in excess of that allowed by contract with the POTW or by applicable law
  2. discharges wastewater that substantially differs in nature or constituents from the user's average discharge
  3. knows or has reason to know that its discharge, alone or in conjunction with discharges from other sources, would result in a POTW permit violation or prevent sewage sludge use or disposal in accordance with the POTW's approved method of sludge management.

- *Intermittent Water* - a stream that flows only at certain times of the year when it receives water from springs or precipitation in its immediate watershed.

- *Kentucky Pollutant Discharge Elimination System (KPDES)* - the Kentucky program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements.

- *Lethal Concentration$_{50}$ (LC_{50})* - that concentration of a toxic substance or mixture of toxic substances that is lethal (or immobilize, if appropriate) to 50 percent of the species tested in a toxicity test during a specified exposure period.

- *Maintain* - to preserve or keep in present condition by not allowing adverse permanent or long-term changes to water quality or to populations of aquatic organisms or their habitat.

- *Milligrams per Liter (mg/L)* - the milligrams of substance per liter of solution and its equivalent to parts per million (ppm) in water assuming a unit density of one.

- *Mixing Zone* - a domain of a water body contiguous to a treated or untreated wastewater discharge of quality characteristics different from those of the receiving water. The discharge is in transit and progressively diluted from the source to the receiving system. The mixing zone is the domain where wastewater and receiving water mix.

- *Monitoring Well* - a well constructed when the actual or intended use, in whole or part, is the removal of water for sampling, measuring, or test-pumping for scientific, engineering, or regulatory purposes.

- *National Pollutant Discharge Elimination System (NPDES)* - the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements.

- *Natural Temperature* - the temperature that would exist in waters of the Commonwealth without the change of enthalpy of artificial origin as contrasted with that caused by climatic change or naturally occurring variable temperature associated with riparian vegetation and seasonal changes.

- *Natural Water Quality* - those naturally occurring physical, chemical, and biological properties of water.

- *New Source* - any building, structure, facility, or installation from which there is or may be a direct or indirect discharge of pollutants the construction of which commenced:
  1. after promulgation of USEPA standards of performance or pretreatment standards applicable to the source, but only if the Federal standards are promulgated within 120 days of their proposal
  2. after proposal of USEPA standards applicable to the source, but only if the Federal standards are promulgated within 120 days of their proposal.

- *Nonpoint* - any source of pollutants not defined by point source as used in this regulation.

- *Other Wastes* - sawdust, bark or other wood debris, garbage, refuse, ashes, offal, tar, oil, chemicals, acid drainage, wastes from agricultural enterprises, and all other foreign substances not included in the definition of industrial wastes and sewage which may cause or contribute to the pollution of any waters of the Commonwealth.

- *Pass Through* - the discharge of pollutants through the POTW into waters of the Commonwealth in quantities or concentrations that are a cause of or significantly contribute to a violation of any requirement of the POTW's KPDES permit, including an increase in the magnitude or duration of a violation. An industrial user significantly contributes to such permit violations when the user:
  1. discharges a daily pollutant loading in excess of that allowed by contract with the POTW or by applicable law
  2. discharges wastewater that substantially differs in nature and constituents from the user's average discharge
  3. knows or has reason to know that discharges from the source, alone or in conjunction with the discharges from other sources, would result in a permit violation
  4. knows or has reason to know that the POTW is for any reason, violating its final effluent limitations in its permit and that such industrial user's discharger either alone or in conjunction with discharges from other sources increases the magnitude or duration of the POTW's violations.

- *Permit* - a written permission, in whatever form, by the Cabinet or the USEPA to construct and operate a facility. Permit does not include any permit that has not yet been the subject of final agency action, such as a draft permit or a proposed permit.

- *Point Source* - any discernible, confined, and discrete conveyance including, but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, or concentrated animal feeding operation from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture.

- *Pretreatment* - the reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in wastewater prior to or in lieu of discharging or otherwise introducing pollutants into a POTW. The reduction or alteration may be obtained by physical, chemical, or biological processes, process changes, or by other means except as prohibited by regulations.

- *Privately Owned Treatment Works* - any device or system used to treat wastes from any facility whose operator is not the operator of the treatment works and the facility is not a POTW.

- *Professional Engineer or Engineer* - a person registered to practice engineering.

- *Publicly Owned Treatment Works (POTW)* - any device or system used in the treatment, including recycling and reclamation, of municipal sewage or industrial wastes of a liquid nature owned by the Commonwealth or a municipality. This definition includes sewers, pipes, or other conveyances only if they convey wastewater to a POTW providing treatment. For purposes of pretreatment, POTW includes a municipality with jurisdiction over the indirect discharges to and discharges from the treatment works.

- *Sewage* - the water-carried human or animal wastes from residences, buildings, industrial establishments, or other places as well as any industrial wastes (underground, surface, storm, or other water) as may be present.

- *Sewage From Vessels* - human body wastes from toilets and other receptacles intended to receive or retain body wastes that are discharged from vessels and regulated under the Clean Water Act, Section 312.

- *Sewer Line* - devices used for collecting, pumping, and disposing of sewage but not the devices used for tap-ons by individual discharges.

- *Stormwater Point Source* - a conveyance or system of conveyances primarily used for collecting and conveying stormwater runoff. Conveyances that discharge stormwater runoff combined with municipal sewage are point sources that must obtain KPDES permits but are not stormwater point sources.

- *Surface Waters* - constantly or intermittently flowing waters with well defined banks and beds, lakes and impounded waters; marshes and wetlands; and any subterranean waters flowing in well defined channels with a demonstrable hydrologic connection with the surface. Effluent ditches and lagoons used for waste treatment that are situated on property owned, leased, or under valid easement by a permitted discharger are not considered to be surface waters of the Commonwealth.

- *Thermocline* - the plane in a body of water in which the maximum rate of decrease in temperature occurs with respect to depth.

- *Toxic Pollutant* - any pollutant listed as toxic by Kentucky.

- *Toxic Substances* - substances that are bioaccumulative, synergistic, antagonistic, teratogenic, mutagenic, or carcinogenic and cause death, disease, behavioral abnormalities, physiological malfunctions, or physical deformities in any organism or its offspring or interfere with normal propagation.

- *Upset* - an exceptional incident in which there is unintentional and temporary noncompliance with technology-based, permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

- *Wetlands* - land with a predominance of hydric soils and is inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of hydrophytic vegetation typically adapted for life in saturated soil conditions.

CLEAN WATER ACT (CWA)

GUIDANCE FOR KENTUCKY CHECKLIST USERS

Applicability	Refer to Checklist Items:
KPDES Permits	2-1 through 2-9
Sewage Systems Permits	2-10
Sewage System Operators	2-11
Sewage Systems Spills and Bypasses	2-12
Surface Waters	2-13 through 2-21
Treatment Standards for Discharges	2-22
Biochemically Degradable Wastes	2-23 and 2-24
Wells	2-25
Water Withdrawal Permits	2-26

COMPLIANCE CATEGORY: CLEAN WATER ACT Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
KPDES PERMITS	
2-1. Installations discharging pollutants from any point source into the waters of the Commonwealth must have a valid KPDES permit (401 KAR 5:055, Sections 1 and 5(1)).	(NOTE: Examples of specific categories of point sources requiring KPDES permits include: concentrated animal feeding operations, concentrated aquatic animal production, discharges into aquaculture projects, discharges from separate storm sewers, and silviculture point sources.) (NOTE: The following categories of point sources are exempt from KPDES permit requirements: - sewage from vessels, effluent from marine engines, laundry, shower, and galley sink waste or any other discharge incidental to the normal operation of a vessel - discharges of dredge or fill material into waters of the Commonwealth - sewage, industrial wastes, or other pollutants into a publicly owned treatment works by indirect discharges - discharges meeting the state hazardous substance contingency plan - nonpoint source agricultural and silvicultural activities, including runoff from orchards, cultivated crops, pastures, range lands, and forest lands - return flows from irrigated agriculture - discharges into privately owned treatment works - discharges into permitted underground injection wells.) Verify that installations with nonexempt point sources that discharge pollutants into the waters of the Commonwealth have a valid KPDES permit. Verify that the terms and the conditions of the permit are met. (NOTE: The Director may issue a general permit to regulate stormwater point sources or other point sources as determined by the Director. The Director may require installations with a point source authorized by a general permit to apply for an individual KPDES permit.)
2-2. Installations with a POTW or a combination of POTWs with a total design flow greater than 5 million gallons per day (gpd) must develop a pretreatment program (401 KAR 5:055, Section 9(7)).	Determine if the installation has a POTW, or a combination of POTWs, that meets any of the following criteria: - a total design flow greater than 5 million gpd and that receive pollutants from industrial users that pass through or interfere with the operation of the POTW - are subject to pretreatment standards that require the establishment of a POTW pretreatment program - are required by the Director to establish a POTW pretreatment program. Verify that the installation has an approved POTW pretreatment program. Verify that the installation meets the conditions of the POTW pretreatment program.

COMPLIANCE CATEGORY: CLEAN WATER ACT Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
2-3. Installations with industrial users that discharge to a POTW must meet specific reporting standards (401 KAR 5:055, Section 9(10)(a) through (f)).	Verify that existing industrial users subject to categorical pretreatment standards and currently discharging to, or scheduled to discharge to, a POTW submit a report to the control authority within 180 days of the effective date of a categorical pretreatment standard that includes the following: - facility name and address - a list of environmental control permits held - description of operations - the measured average and maximum daily flow in gallons per day to the POTW in regulated process streams - measurement of pollutants - certification - compliance schedules, if any. Verify that, within 90 days of the date for final compliance with categorical pretreatment standards, or for new sources the commencement of the introduction of wastewater into the POTW, industrial users subject to pretreatment standards have submitted to the control authority a report that includes the following: - the nature and concentration of all pollutants in the discharge that are limited by the pretreatment standards - the average and maximum daily flow for the process units in the industrial user that are limited by pretreatment standards - whether the applicable pretreatment standards are met on a consistent basis and, if not, methods to bring the industrial user into compliance. Verify that industrial users subject to categorical pretreatment standards have submitted to the control authority periodic reports on continued compliance after the pretreatment compliance date or the commencement of the discharge into the POTW for new sources. Verify that industrial users notify the POTW immediately of any slug loading.

COMPLIANCE CATEGORY: CLEAN WATER ACT Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
2-4. Installations with POTW compliance schedules or removal allowances must meet specific reporting standards (401 KAR 5:055, Section 9(10)(h)3 through (10)(j)).	Determine if the installation's POTW has a compliance schedule or a removal allowance. Verify that the POTW submits a progress report to the Director within 14 days following each date in the schedule and the final date for compliance. Verify that not more than 9 mo elapse between progress reports to the Director. Verify that POTW receiving authorization to modify categorical pretreatment standards for pollutants removed by the POTW do the following: - submit to the Director an initial report within 60 days after the pretreatment standard's effective date - collect one sample per month during the initial reporting period - submit to the approval authority, at 6-mo intervals following the initial report (unless required more frequently by the Director), a periodic report to demonstrate continued compliance with the removal allowance.
2-5. Installations with POTW or industrial users subject to reporting standards must meet record-keeping standards (401 KAR 5:055, Section 9(10)(n)).	Verify that POTW or industrial users subject to reporting standards maintain records of all information resulting from any monitoring activities for a minimum of 3 yr. Verify that monitoring records include the following for all samples: - the date, exact place, method, and time of sampling - the name of the person(s) who took the sample - the dates of analyses - who performed the analyses - the analytical technique or methods used - analyses results. Verify that reports submitted to a POTW by an industrial user are maintained for a minimum of 3 yr.
2-6. Installations with a valid KPDES permit must meet specific operating standards (401 KAR 5:065, Section (4), (5), and (10)(a) through (c)).	Verify that the installation has taken all reasonable steps to minimize or prevent any discharge in violation of the permit that has a reasonable likelihood to adversely affect human health or the environment. Verify that the permitted facility is operated properly and maintained at all times. Verify that monitoring samples and measurements are representative of the monitored activity. Verify that records of all monitoring information are retained for a period of at least 3 yr from the date of the sample, measurement, report, or application and include the following:

COMPLIANCE CATEGORY: CLEAN WATER ACT Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
2-6. (continued)	- all calibration and maintenance records - all original strip chart recordings for continuous monitoring instrumentation - copies of all reports required by the permit - records of all data used to complete the permit application. Verify that monitoring records include the following for all samples: - the date, exact place, method, and time of sampling - the name of the person(s) who took the sample - the dates of analyses - who performed the analyses - the analytical technique or methods used - analyses results.
2-7. Installations with a valid KPDES permit must meet specific notification standards (401 KAR 5:065, Section (12)(a) through (c) and 5:070, Section 5(2)(a)).	Verify that the Director is notified as soon as possible of any planned physical alteration or addition to the permitted facility if either of the following applies: - the facility is a new source - the alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. Verify that the Director is notified of any planned change in the permitted facility or activity that may result in noncompliance with the permit. Verify that the Director is notified at least 30 days prior to any transfer of the permit. Verify that reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of the permit are submitted no later than 14 days following the scheduled date.
2-8. Installations with a valid KPDES permit must meet specific reporting standards for noncompliance, bypasses, or upsets (401 KAR 5:065, Section 1(12)(f), 1(12)(g), 1(13)(b), and 1(13)(c)).	Verify that permitted installations experiencing any of the following events meet the 24-h reporting requirements: - an unanticipated bypass - an upset that exceeds any effluent limitation in the permit - a violation of a maximum daily discharge limitation for any pollutants listed in the permit to be reported within 24 h - any noncompliance that may endanger health or the environment. Verify that permitted installations required to meet 24-h reporting requirements perform the following: - orally notify the Director within 24 h of becoming aware of the event - submit a written report within 5 days.

COMPLIANCE CATEGORY: CLEAN WATER ACT Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
2-8. (continued)	Verify that the written report for the 24-h reporting requirement contains the following: - a description of the noncompliance, cause, and period - whether the noncompliance has been corrected or the anticipated period the noncompliance is expected to continue - the steps taken or planned to reduce, eliminate, and prevent noncompliance recurrence. Verify that any other noncompliance is reported at the time monitoring reports are submitted. Verify that permitted installations that anticipated a bypass not exceeding effluent limitations notify the Director at least 10 days prior to the bypass. (NOTE: Installations may allow bypasses to occur that do not cause effluent limitations to be exceeded if it is essential maintenance to assure efficient operation.)
2-9. Installations with KPDES permits for existing manufacturing, commercial, mining, or silvicultural discharges must meet additional reporting standards (401 KAR 5:065, Section (15)).	Determine if the installation has KPDES permits for existing manufacturing, commercial, mining, or silvicultural discharges. Verify that installations with routine or frequent discharges of any toxic pollutant not limited by the permit and exceeding one of the following level criteria have notified the Director as soon as the discharge occurs or the installation has reason to believe it has occurred: - 100 micrograms per liter (μg/L) for any toxic pollutant not limited by the permit - 200 μg/L for acrolein and acrylonitrile - 500 μg/L for 2,4-dinitrophenol and 2-methyl-4,6-dinitrophenol - 1.0 mg/L for antimony - five times the maximum concentration value reported for that pollutant in the permit application - a Director-determined level. Verify that installations with nonroutine or infrequent discharges of a toxic pollutant not limited by the permit and exceeding one of the following level criteria has notified the Director as soon as the discharge occurs or the installation has reason to believe it has occurred: - 500 μg/L for any toxic pollutant not limited by the permit - 1.0 mg/L for antimony - 10 times the maximum concentration value reported for that pollutant in the permit application - a Director-determined level.

COMPLIANCE CATEGORY: CLEAN WATER ACT Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
2-9. (continued)	Verify that POTW provide adequate notice to the Director of any of the following: - any new introduction of pollutants into the POTW from an indirect discharger that would be subject to KPDES regulations if it were directly discharging those pollutants - any substantial change in the volume or character of pollutants being introduced into the POTW by a source introducing pollutants into the POTW at the time the permit is issued. Verify that adequate notice includes the quality and quantity of effluent introduced into the POTW and any anticipated impact on the POTW discharged effluent.
SEWAGE SYSTEMS PERMITS	
2-10. Installations that construct, modify, or operate a sewage system facility must have a valid permit (401 KAR 5:005, Sections 2 and 3).	Verify that installations that construct, modify, or operate a sewage system facility have a valid construction permit. Verify that the Cabinet is notified in writing within 30 days of completed construction and commencement of trial operation. Verify that terms and conditions of the permit are met. (NOTE: The permit may specify the type of analysis required for a facility, the frequency of analysis, and reporting requirements.)
SEWAGE SYSTEM OPERATORS	
2-11. Installations with wastewater systems must meet operator certification standards (401 KAR 5:010, Section 2 and Section 7(7)).	Determine if the installation has a wastewater system. Verify that wastewater systems are operated under the supervision of an individual holding a current Kentucky operator's certificate for at least the class of system supervised. Verify that wastewater treatment facilities are operated by certified personnel. Verify that the operator with primary responsibility is reasonably available, if not physically present, while the system is operating. Verify that certificates are prominently displayed in the office of the operator.

COMPLIANCE CATEGORY: CLEAN WATER ACT Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
SEWAGE SYSTEMS SPILLS AND BYPASSES	
2-12. Installations with spills and bypasses from sewage systems must meet notification standards (401 KAR 5:015, Sections 1 through 4).	Determine if the installation's sewage system has had a spill or bypass. Verify that the Division of Water is notified prior to a bypass, if the bypass of the sewage system is necessary and is known in advance. Verify that the Division of Water is notified immediately or by the most rapid means available whenever an emergency, accidental spill, or discharge occurs from a sewage system or from a container or pipeline used to transport or store substances that would result in or contribute to the pollution of the water. Verify that the Division is notified of the following spill or discharge information: - the point of discharge - the nature of the material discharged - the quantity of the material discharged - an assessment of probable environmental impact. (NOTE: The Director may require that accidental or emergency spill or discharge notifications be confirmed in writing within 10 days.)
SURFACE WATERS	(NOTE: The use classifications for specific surface waters of the Commonwealth designated by the Cabinet are: warm water aquatic habitat, cold water aquatic habitat, primary contact recreation, secondary contact recreation, domestic water supply, and outstanding resource waters.)
2-13. Surface waters, including mixing zones, must meet minimum water quality standards (401 KAR 5:031, Section 2(1)).	(NOTE: The toxicity to aquatic life in the mixing zones are determined on a case-by-case basis.) Verify that surface waters, including mixing zones, are not aesthetically or otherwise degraded by substances that: - settle to form objectionable deposits - float as debris, scum, oil, or other matter to form a nuisance - produce objectionable color, odor, taste, or turbidity - injure, are chronically or acutely toxic to, or produce adverse physiological or behavioral responses in humans, animals, fish, and other aquatic life - produce undesirable aquatic life or result in the dominance of nuisance species - cause flesh tainting in fish. Verify that surface waters, including mixing zones, do not have an instream concentration of phenolic compounds that cause flesh tainting in fish exceeding 5 $\mu g/L$.

COMPLIANCE CATEGORY: CLEAN WATER ACT Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
2-13. (continued)	Verify that surface waters, including mixing zones, do not cause the following changes in radionuclides: - the gross total alpha particle activity, including radium-226 but excluding radon and uranium, to exceed 15 picoCurie per liter (pCi/L) - combined radium-226 and radium-228 to exceed 5 pCi/L - the concentration of total gross beta particle activity to exceed 50 pCi/L - the concentration of tritium to exceed 20,000 pCi/L - the concentration of total strontium-90 to exceed 8 pCi/L. (NOTE: Specific determinations of radium-226 and radium-228 are not necessary if dissolved gross alpha particle activity does not exceed 5 pCi/L.)
2-14. All surface waters outside designated mixing zones and points where water is withdrawn for domestic water supply use must meet specific human health standards from the consumption of fish tissue (401 KAR 5:031, Section 2(2)).	Verify that surface waters, with the exception of designated mixing zones and points where water is withdrawn for domestic water supply use, do not exceed the levels in Appendix 2-1.

2-15. Installations with surface waters designated as warm water aquatic habitat must meet specific parameters (401 KAR 5:031, Section 4(1)).	Determine if the installation affects or alters surface waters designated as warm water aquatic habitat.
	Verify that the following parameters are met:
	- natural alkalinity:
	  - as calcium carbonate is not reduced by more than 25 percent
	  - if the natural level is below 20 mg/L calcium carbonate, there is no reduction below the natural level
	  - alkalinity is not reduced or increased to a degree that adversely affect the aquatic community
	- pH:
	  - not less than 6.0 or more than 9.0
	  - does not fluctuate more than one unit over a period of 24 h
	- flow not altered to a degree that will adversely affect the aquatic community
	- temperature:
	  - does not exceed 31.7 °C (89 °F)
	  - maintenance of the normal daily and seasonal temperature fluctuations that existed before the addition of heat.
	(NOTE: The Cabinet will determine allowable surface water temperatures on a site-specific basis.)

COMPLIANCE CATEGORY: CLEAN WATER ACT Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
2-15. (continued)	Verify that the following parameters for dissolved oxygen are met: - a daily average maintained at a minimum concentration of 5 mg/L - the instantaneous minimum is never less than 4 mg/L - dissolved oxygen measured at middepth in waters with a total depth of 10 ft or less and at representative depths in other waters. Verify that the following parameters for solids are met: - total dissolved solids and total suspended solids are not changed to the extent that the indigenous aquatic community is adversely affected - settleable solids do not adversely alter the stream bottom. Verify that the concentration of unionized ammonia is not greater than 0.05 mg/L at any time in instream after mixing. Verify that the toxic substances meet the following standards: - the allowable instream concentration of toxic substances that are noncumulative or nonpersistent (half-life of less than 96 h) do not exceed 0.1 of the 96-h median LC_{50} of a representative indigenous aquatic organism(s) - the allowable instream concentration of toxic substances that are bioaccumulative or persistent including pesticides, when not specified do not exceed 0.01 of the 96-h median LC_{50} of a representative indigenous aquatic organism(s). (NOTE: The Cabinet may approve other criteria for toxic substance standards.) Verify that the acute and chronic criteria of Appendix 2-2 are not exceeded.

2-16. Installations with surface waters designated as cold water aquatic habitat must meet specific parameters (401 KAR 5:031, Section 4(2)).	Determine if the installation affects or alters surface waters designated as cold water aquatic habitat and/or streams that support trout populations (whether self-sustaining or reproducing) on a year-round basis.
	
	Verify that the criteria for warm water aquatic habitats are met.
	
	Verify that the following additional parameters are met:
	
	- water temperature is not increased above the natural seasonal temperatures through man's activities
	- dissolved oxygen:
	  - a minimum concentration of 6 mg/L as a daily average and 5 mg/L as an instantaneous minimum is maintained at all times
	  - for impoundments that support trout, the concentration in waters below the epilminion is kept consistent with natural water quality.

COMPLIANCE CATEGORY: CLEAN WATER ACT Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
2-17. Installations with surface waters designated as domestic water supply use must meet specific parameters (401 KAR 5:031, Section 5).	Determine if the installation affects or alters surface waters designated as domestic water supply use. Verify that, at the points used to withdraw surface water for domestic water supply, the levels in Appendix 2-3 are not exceeded.
2-18. Installations with surface waters designated as primary contact recreational waters must meet specific parameters (401 KAR 5:031, Section 6(1)).	Determine if the installation affects or alters surface waters designated as primary contact recreational water use. Verify that the surface water's fecal coliform content between 1 May and 31 October meets the following criteria: - does not exceed 200 colonies per 100 mL as a monthly geometric mean based on not less than five samples per month - does not exceed 400 colonies per 100 mL in 20 percent or more of all samples taken during the month. Verify that the surface water's fecal coliform content other than 1 May through 31 October meets the following criteria: - does not exceed 1000 colonies per 100 mL as a monthly geometric mean based on not less than five samples per month - does not exceed 2000 colonies per 100 mL in 20 percent or more of the all samples taken during the month. Verify that pH is between 6.0 and 9.0 and does not change more than one pH unit within this range over a 24-h period.
2-19. Installations with surface waters designated as secondary contact recreational waters must meet specific parameters (401 KAR 5:031, Section 6(2)).	Determine if the installation alters or affects surface waters designated as secondary contact recreational waters. Verify that the surface water's fecal coliform content meets the following criteria year-round: - does not exceed 1000 colonies per 100 mL as a monthly geometric mean based on not less than five samples per month - does not exceed 2000 colonies per 100 mL in 20 percent or more of the all samples taken during the month. Verify that pH is between 6.9 and 9.0 and does not change more than one pH unit within this range over a period of 24 h.
2-20. Installations with surface waters designated as outstanding resource waters must meet specific parameters (401 KAR 5:031, Section 7(2)(b)).	Determine if the installation alters or affects surface waters designated as outstanding resource waters. Verify that existing water quality and habitat is maintained and protected in those waters that support Federally threatened and endangered species of aquatic organisms, unless the lowering of water quality is allowed by the Cabinet.

COMPLIANCE CATEGORY: CLEAN WATER ACT Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
2-20. (continued)	Verify that any additional or more stringent criteria required by the Cabinet are met. (NOTE: There are additional water quality criteria for the Main Stem of the Ohio River.) (NOTE: The Cabinet may grant exceptions to any water quality criteria.)
2-21. Installations which are located along specific areas of the Main Stem of the Ohio River must meet specific parameters (401 KAR 5:031, Section 8).	Determine if the installation is located along the Main Stem of the Ohio River from its juncture with the Big Sandy River at River Mile 317.1 to its confluence with the Mississippi River. Verify that the installation does not discharge into the Ohio River or otherwise cause the stream temperatures to exceed the allowable temperatures listed in Appendix 2-4. Verify that the installation does not discharge into the Ohio River or otherwise cause the in-stream concentrations to exceed the specific parameters listed in Appendix 2-5. Verify that the installation does not cause the total dissolved solids in the Ohio River to exceed 500 mg/L as a monthly average, nor to exceed 750 mg/L at any time (equivalent 25 °C (77 °F) specific conductants values are 800 and 1200 $\mu g/cm$, respectively). Verify that the installation does not discharge aldrin; dieldrin; DDT, including DDD and DDE; endrin; toxaphene; benzidine; or PCBs into the Ohio River or its juncture with the Big Sandy River.
TREATMENT STANDARDS FOR DISCHARGES	
2-22. Installations that discharge pollutants through point sources must meet treatment standards (401 KAR 5:035, Section 2).	Determine if the installation discharges pollutants through point sources. Verify that, at a minimum, the installation applies secondary treatment or the equivalent prior to discharge. Verify that the best available waste control technology or the equivalent is used.

COMPLIANCE CATEGORY: CLEAN WATER ACT Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
BIOCHEMICALLY DEGRADABLE WASTES	
2-23. Installations that discharge into the waters of the Commonwealth and receive an influent of biochemically degradable wastes must meet permit renewal standards (KAR 401 5:045, Section 6(1)).	Determine if the installation discharges into the waters of the Commonwealth and receives an influent of biochemically degradable waters. Verify that the installation applies to the Cabinet for a permit to continue to discharge to the waters of the Commonwealth 150 days prior to the expiration of the current permit.

2-24. Installations that receive an influent of biochemically degradable wastes must meet specific secondary treatment prior to discharging into the waters of the Commonwealth (KAR 401 5:045, Sections 3 through 5).	Verify that secondary treatment results in an effluent quality that meets the following standards:
	
	- Biological Oxygen Demand (BOD) 5-day:
	  - the arithmetic mean of the effluent samples collected during 30 consecutive days does not exceed 30 mg/L
	  - the arithmetic mean of the effluent samples collected during seven consecutive days does not exceed 45 mg/L
	- suspended solids:
	  - the arithmetic mean of the effluent samples collected during 30 consecutive days does not exceed 30 mg/L
	  - the arithmetic mean of the effluent samples collected during seven consecutive days does not exceed 45 mg/L.
	
	(NOTE: The Cabinet may permit different suspended solid levels for waste stabilization ponds with a maximum capacity of not more than 2,000,000 gpd and used as a sole process for secondary treatment.)
	
	Verify that secondary treatment results in an effluent quality that meets the following additional standards for fecal coliform bacteria during the months between 1 May and 31 October:
	
	- the geometric mean of samples collected during a period of 30 consecutive days does not exceed 200 colonies per 100 mL
	- the geometric mean of samples collected during a period of seven consecutive days does not exceed 400 colonies per 100 mL
	- year-round the pH values are not less than 6.0 and not more than 9.0.
	
	(NOTE: Fecal coliform levels for secondary treatment effluent quality during the months not between 1 May and 31 October are based upon stream use classification assignments applicable to the specific surface water.)
	
	(NOTE: The Cabinet may require more stringent secondary treatment.)

COMPLIANCE CATEGORY: CLEAN WATER ACT Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
WELLS	
2-25. Installations with wells must meet specific standards (401 KAR 6:310, Section 3(1), 3(2), Section 12(1)(g), and Section 13(6)).	Verify that all water wells are constructed by a person with a valid certificate. Verify that the driller has submitted a report of construction to the Cabinet within 30 days after a water well has been constructed or modified. Verify that monitoring wells and water wells are properly abandoned within 30 days of the last sampling date or the determination is made that the well is not to be used. Verify that well abandonment records that include the well location and all information relative to the abandonment procedure are maintained.
WATER WITHDRAWAL PERMITS	
2-26. Installations that withdraw water must meet specific permit conditions (401 KAR 4:010).	Verify that installations meeting any of the following water withdrawal conditions have a valid permit: - an average withdrawal rate of more than 10,000 gpd - irregular withdrawals determined by the Division. (NOTE: Installations that withdraw water at a relatively constant rate each day with an average withdrawal rate of 10,000 gpd or less are not required to have a permit.) Verify that installations with a water withdrawal permit submit a report to the Division as follows: - if withdrawals are made at a relatively constant daily rate, the monthly recorded amounts are reported to the Division semiannually - if withdrawals are irregular, recording frequency is Division determined and reported semiannually.

Appendix 2 - 1

Water Quality Criteria for Protection of Human Health from the Consumption of Fish Tissue

(Source: 401 KAR 5:031, Section 2(2), Table 1)

Substances Not Linked to Cancer

Metals*	Concentration (µg/L)
Antimony	45,000
Chromium (III)	3,433,000
Mercury	0.146
Nickel	100
Thallium	48
Organics	
Acrolein	780
1,2,4,5-tetrachlorobenzene	48
Pentachlorobenzene	85
1,1,1-trichloroethane	1,030,000
bis(2-chloroisopropyl) ether	4360
Dichlorobenzenes	2600
Dichloropropenes	14,100
Endosulfan	159
Ethylbenzene	3280
Fluoranthene	54
Isophorone	520,000
2,4-dinitro-o-cresol	765
Dinitrophenol	14,300
Dibutyl phthalate	154,000
Diethyl Phthalate	1,800,000
Di-2-ethylhexyl phthalate	50,000
Dimethyl phthalate	2,900,000
Toluene	424,000

*Metals in total recoverable form measured in an unfiltered sample.

(NOTE: An acceptable risk level of no more than one additional cancer case in a population of 1,000,000 people will be utilized to establish the allowable concentration for substances associated with a cancer risk.)

(continued)

Appendix 2 - 1 (continued)

Substances Linked to Cancer

Metals*	Concentration (μg/L)
Beryllium	0.117
Organics	
Acrylonitrile	0.65
Aldrin	0.000079
Benzene	40.0
Benzidine	0.00053
Carbon tetrachloride	6.94
Chlordane	0.00048
Hexachlorobenzene	0.00074
1,2-dichloroethane	243
1,1,2-trichloroethane	41.8
1,1,2,2,-tetrachloroethane	10.7
Hexachloroethane	8.74
2,4,6-trichlorophenol	3.6
bis(2-chloroethyl) ether	1.36
Chloroform	15.7
DDT	0.000024
Dichlorobenzidine	0.02
1,1-dichloroethylene	1.85
Dieldrin	0.000076
2,4-dinitrotoluene	9.1
Dioxin (2,3,7,8-TCDO)	0.000000014
Diphenylhydrazine	0.56
Halomethanes	0.7
Heptachlor	0.00029
Hexachlorobutadiene	50.0
alpha Hexachlorocyclohexane (HCH)	0.031
beta HCH	0.0547
gamma HCH (lindane)	0.0625
Technical HCH	0.0414
N-nitrosodiethylamine	1.24
N-nitrosodimethylamine	16.0
N-nitrosodibutylamine	0.587
N-nitrosodiphenylamine	16.1
N-nitrosopyrrolidine	91.9
Polychlorinated Biphenyls (PCB)	0.000079
Polynuclear Aromatic Hydrocarbons (PAH)	0.0311
Tetrachloroethylene	8.85
Toxaphene	0.00073
Trichlorethylene	80.7
Vinyl Chloride	525

Appendix 2 - 2

Warmwater Aquatic Habitat Criteria*

(Source: 401 KAR 5:031, Section 4(1)(h)5, Table 2)

Metals

Substance	Acute Criteria	Chronic Criteria
Arsenic		50 μg/L
Arsenic (III)	360 μg/L	190 μg/L
Beryllium		11 μg/L soft water**
		1100 μg/L hard water**
Cadmium (μg/L)	exp(1.128(ln Hard****)-3.828)	exp(0.7852(ln Hard)-3.490)
Chromium (III) (μg/L)	exp(0.8190(ln Hard)+3.688)	exp(0.8190(ln Hard)+1.561)
Chromium (VI)	16 μg/L	11 μg/L
Copper (μg/L)	exp(0.9422(ln Hard)-1.464)	exp(0.8545(ln Hard)-1.465)
Iron	4.0 mg/L	1.0 mg/L***
Lead (μg/L)	exp(1.273(ln Hard)-1.460)	exp(1.273(ln Hard)-4.705)
Mercury	2.4 μg/L	0.012 μg/L
Nickel (μg/L)	exp(0.8460(ln Hard)+3.3612)	exp(0.8460(ln Hard)+1.1645)
Selenium	20 μg/L	5 μg/L
Silver (μg/L)	exp(1.72(ln Hard)-6.52)	
Zinc (μg/L)	exp(0.8473(ln Hard)+0.8604)	exp(0.8473(ln Hard)+0.7614)

Organics

Substance	Acute Criteria	Chronic Criteria
Aldrin	3.0 μg/L	
Chlordane	2.4 μg/L	0.0043 μg/L
Chloropyrifos	0.083 μg/L	0.041 μg/L
DDT	1.1 μg/L	0.001 μg/L
Dieldrin	2.5 μg/L	0.0019 μg/L
Endosulfan	0.22 μg/L	0.056 μg/L
Endrin	0.18 μg/L	0.0023 μg/L
Heptachlor	0.52 μg/L	0.0038 μg/L
Lindane	2.0 μg/L	0.080 μg/L
Parathion	0.065 μg/L	0.013 μg/L
Pentachlorophenol (μg/L)	exp(1.005(pH)-4.830)	exp(1.005(pH)-5.290)
Phthalate esters		3 μg/L
Polychlorinated Biphenyls (PCBs)		0.0014 μg/L
Toxaphene	0.73 μg/L	0.0002 μg/L

(continued)

Appendix 2 - 2 (continued)

Others

Substance	Acute Criteria	Chronic Criteria
Chloride	1200 mg/L	600 mg/L
Chlorine, total residual	19 μg/L	10 μg/L
Cyanide, free	22 μg/L	5 μg/L
Hydrogen sulfide (undissociated)		2 μg/L

* Metal criteria, for purposes of this regulation, are total recoverable metals to be measured in an unfiltered sample.

** Soft water has an equivalent concentration of calcium carbonate ($CaCO_3$) of 0 to 75 mg/L, and hard water has an equivalent concentration of calcium carbonate ($CaCO_3$) of over 75 mg/L.

*** The chronic criterion for total recoverable iron should not exceed 3.5 mg/L when it is established that there will be no damage to aquatic life.

**** Hard = Hardness as mg/L $CaCO_3$.

Appendix 2 - 3

Domestic Water Supply Source Criteria*

(Source: 401 KAR 5:031, Section 5, Table 3)

Substances Not Linked to Cancer

Contaminant	Maximum Concentration Level
Metals	
Antimony	0.146 mg/ L
Barium	1 mg/ L
Cadmium	0.010 mg/ L
Chromium	0.05 mg/ L
Chromium (III)	170 mg/ L
Copper	1 mg/ L
Lead	0.05 mg/ L
Manganese	0.05 mg/ L
Mercury	0.144 µg/ L
Nickel	13.4 µg/ L
Selenium	0.01 mg/ L
Silver	0.05 mg/ L
Thallium	0.013 mg/ L
Organics	
Acrolein	0.320 mg/ L
Monochlorobenzene	0.488 mg/ L
1-2-4-5-tetrachlorobenzene	0.038 mg/ L
Pentachlorobenzene	0.074 mg/ L
1.1.1-trichloroethane	18.4 mg/ L
2.4.5-trichlorophenol	2.6 mg/ L
Bis(2-chloroisopropyl) ether	0.0347 mg/ L
Dichlorobenzenes	0.400 mg/ L
2,4-dichlorophenol	3.090 mg/ L
Dichloropropenes	0.087 mg/ L
Endosulfan	0.074 mg/ L
Endrin	0.001 mg/ L
Ethylbenzene	1.4 mg/ L
Fluoranthene	0.042 mg/ L
Hexachlorocyclopentadiene	0.206 mg/ L
Isophorone	5.2 mg/ L
Nitrobenzene	19.8 mg/ L
2-4-dinitro-o-cresol	0.0134 mg/ L
Dinitrophenol	0.070 mg/ L
Pentachlorophenol	1.0 mg/ L
Phenol	3.5 mg/ L
Dibutyl phthalate	34 mg/ L

(continued)

Appendix 2 - 3 (continued)

Contaminant	Maximum Concentration Level
Organics (continued)	
Diethyl phthalate	350 mg/ L
Di-2-ethylhexyl phthalate	15 mg/ L
Dimethyl phthalate	313 mg/ L
Toluene	14.3 mg/ L
Others	
Chloride	250 mg/ L
Color	75 Platinum Cobalt Color Units
Cyanide (free)	0.200 mg/ L
Fecal Coliform	2000/100 m L (Geometric mean)
Fluoride	1.0 mg/ L
Methylene Blue Active Substances	0.5 mg/ L
Nitrate (NO_3-N)	10 mg/ L
Sulfate	250 mg/ L
Total Dissolved Solids	750 mg/ L

Substances Linked to Cancer

Metals (µg/ L)	
Beryllium	0.0068
Organics (µg/ L)	
Acrylonitrile	0.058
Aldrin	0.000074
Asbestos (fibers/ L)	30,000
Benzene	0.66
Benzidine	0.00012
Carbon tetrachloride	0.40
Chlordane	0.00046
Hexachlorobenzene	0.00072
1,2-dichloroethane	0.94
1,1,2-trichloroethane	0.60
1,1,2,2,-tetrachloroethane	0.17
Hexachloroethane	1.9
2,4,6-trichlorophenol	1.2
bis(2-chloroethyl) ether	0.03
Chloroform	0.19
DDT	0.000024
Dichlorobenzidine	0.01
1,1-dichloroethylene	0.033
Dieldrin	0.000071

(continued)

Appendix 2 - 3 (continued)

Contaminant	Maximum Concentration Level
Organics (µg/ L) (continued)	
2,4-dinitrotoluene	0.11
Dioxin (2,3,7,8-TCDO)	0.000000013
Diphenylhydrazine	0.042
Halomethanes	0.19
Heptachlor	0.00028
Hexachlorobutadiene	0.45
alpha Hexachlorocyclohexane (HCH)	0.009
beta HCH	0.016
gamma HCH (Lindane)	0.019
Technical HCH	0.012
N-nitrosodiethylamine	0.0008
N-nitrosodimethylamine	0.0014
N-nitrosodibutylamine	0.0064
N-nitrosodiphenylamine	4.9
N-nitrosopyrrolidine	0.016
Polychlorinated Biphenyls (PCBs)	0.000079
Polynuclear Aromatic Hydrocarbons (PAHs)	0.0028
Tetrachloroethylene	0.8
Toxaphene	0.00071
Trichloroethylene	2.7
Vinyl Chloride	2.0

* Metal criteria, for purposes of the regulation, are total recoverable metals to be measured in an unfiltered sample.

Appendix 2 - 4

Allowable Stream Temperatures for the Main Stem of the Ohio River

(Source: 401 KAR 5:031, Section 8(2)(a))

Month/Date	Period Average (°F)	Instantaneous Maximum (°F)
January 1 through 31	45	50
February 1 through 29	45	50
March 1 through 15	51	56
March 16 through 31	54	59
April 1 through 15	58	64
April 16 through 30	64	69
May 1 through 15	68	73
May 16 though 31	75	80
June 1 through 15	80	85
June 16 through 30	83	87
July 1 through 31	84	89
August 1 through 31	84	89
September 1 through 15	84	87
September 16 through 30	82	86
October 1 through 15	77	82
October 16 through 31	72	77
November 1 through 30	67	72
December 1 through 31	52	57

Appendix 2 - 5

Maximum Allowable In-Stream Concentrations for the Main Stem of the Ohio River

(Source: 401 KAR 5:031, Section 8(4))

Parameter*	Concentration (mg/L)
Arsenic	0.05
Barium	1.0
Chloride	250
Fluoride	1.0
Nitrite + Nitrate Nitrogen	10.0
Nitrite-Nitrogen	1.0
Phenolics	0.005
Sulfate	250

Parameter*	Chronic Criteria Concentration µg/L	Acute Criteria Concentration µg/L
Cadmium	e(0.7852(ln Hard)-3.490)	e(1.128(ln Hard)-3.828)
Chromium (hexavalent)	11	16
Copper	e(0.8545(ln Hard)-1.465)	e(0.9422(ln Hard)-1.464)
Cyanide (free)	5	22
Lead	e(1.273(ln Hard)-4.705)	e(1.273(ln Hard)-1.460)
Mercury	0.012	2.4
Zinc	e(0.8473(ln Hard)+0.7614)	e(0.8473(ln Hard)+0.8604)

* Metal concentrations are total recoverable values except hexavalent chromium which is dissolved.

INSTALLATION:	COMPLIANCE CATEGORY: CLEAN WATER ACT (CWA) Kentucky Supplement	DATE:	REVIEWER(S):

STATUS NA C RMA	REVIEWER COMMENTS:

SECTION 3

SAFE DRINKING WATER ACT (SDWA)

Kentucky Supplement

SECTION 3

SAFE DRINKING WATER ACT (SDWA)

Kentucky Supplement

Definitions

These definitions were obtained from the Kentucky Administrative Regulations (KAR), Division of Water.

- *Approved Source* - the source of water, whether it be from a spring, well, public water system, or other source that has been sampled or the water analyzed and found safe and sanitary.

- *Auxiliary Intake* - a piping connection or other device whereby raw water may be secured for treatment from a location or source other than the intake normally used.

- *Backflow* - the flow in any direction opposite to its normal flow caused by back siphonage or back pressure. Back siphonage is caused by negative or reduced pressure in the supply piping. Back pressure occurs when the potable supply is connected to a system or fixture that exceeds the operating pressure of the supply piping.

- *Backflow Prevention Device Assembly* - a pressure vacuum breaker, a double check valve, or a reduced pressure principal device and the attached shut off valves on the inlet and the outlet ends of the device assembled as a complete unit.

- *Best Available Technology (BAT)* - the best technology, treatment techniques, or other means that the U.S. Environmental Protection Agency (USEPA) finds, after examination for efficiency under field conditions and not solely under laboratory conditions, are available.

- *Blood Lead Level or PbB Level* - the concentration of lead in blood as measured in micrograms (µg) of lead per deciliter of blood.

- *Board* - the Kentucky Board of Certification of Water Treatment Plant and Water Distribution System Operators.

- *Boil Water Advisory* - a notice to the consuming public through radio, television, direct mail, posting, newsletter, or other media to convey in the quickest manner possible information that water provided by a system may cause adverse human health effects if consumed. The advisory must include information concerning all actions which the affected public is advised to take.

- *Boil Water Notice* - a notice to the consuming public through radio, television, direct mail, posting, newsletter, or other media to convey in the quickest manner possible information that water provided by a system may cause adverse human health effects if consumed unless boiled first for 2 min at a rolling boil.

- *Bottled Water* - potable water from a source approved by the Division for domestic use that is placed in small, easily transportable containers.

- *Bottled Water System* - a water system that provides bottled drinking water. The term includes, but is not limited to, the source water, treatment, storage, bottling, manufacture, or distribution facilities. The term excludes a public water system that provides only a source of supply for a bottled water

system and excludes an entity that provides transportation, distribution, or sale of bottled water in sealed bottles or other sealed containers.

- *Bottled Water Treatment Plant* - a facility that provides water used for bottled water produced from an approved source.

- *Bypass* - a physical arrangement whereby water may be diverted around any feature of a purification process at a water treatment plant.

- *Cabinet* - the Natural Resources of Environmental Protection Cabinet, Department for Environmental Protection, Division of Water, or its successor.

- *Certificate* - a certificate of competency issued by the Secretary or his/ her designated agent stating that the operator has met all requirements for the specified operator classification.

- *Certified Laboratory* - a laboratory at which physical, instrumental, procedural, and personnel capabilities have been approved by either the USEPA or the Cabinet.

- *Check Samples* - chemical and radiological samples taken subsequent to a routine compliance sample at the same location to determine if the results from a routine sample are valid.

- *Check Valve* - a valve that allows flow in only one direction.

- *Coagulation* - a process using chemicals and mixing so a colloid and suspended material are destabilized and agglomerated into a floc.

- *Coliform Positive* - the presence of coliform in a water sample.

- *Confluent Growth* - a continuous growth covering the entire filtration area of a membrane filter, or a portion thereof, in which bacterial colonies are not discrete.

- *Contaminant* - any physical, chemical, biological, or radiological substance or matter in water.

- *Contaminant Group* - all of the constituent members that collectively comprise the individual bacteriological, inorganic chemical, organic chemical, radiological, volatile organic chemical, synthetic organic chemical, and secondary contaminant groups.

- *Conventional Filtration Treatment* - a series of processes including coagulation, flocculation, sedimentation, and filtration resulting in substantial particulate removal.

- *Corrosion* - the dissolution of pipe or other plumbing material by water.

- *Corrosion Inhibitor* - a substance capable of reducing the corrosivity of water toward metal plumbing materials, especially lead and copper, by forming a protective film on the interior surface of those materials.

- *Corrosivity* - the tendency of water to form or dissolve calcium carbonate as a film or scale.

- *Cross Connection* - any link or channel between the piping that carries drinking water and the piping or fixtures that carry other water or other substances.

- *CT* - the product of the residual disinfectant concentration, "C" (measured in milligrams per liter), and the disinfectant contact time(s), "T" (measured in minutes).

- *Department* - the Kentucky Department of Environmental Protection.

- *Diacomaceous Earth Filtration* - a process resulting in substantial particulate removal in which a precoat cake of diatomaceous earth filter media is deposited on a support membrane; while the water is passing through the cake on the septum, additional filter media known as body feed are continuously added to the feed water to maintain the permeability of the filter cake.

- *Direct Filtration* - a series of processes, including coagulation and filtration but excluding sedimentation, resulting in substantial particulate removal.

- *Direct Responsible Charge* - personal, first hand responsibility, control, or supervision of the operation of a public water system.

- *Disinfectant Contact Time* - the time, in minutes, it takes for water to move from the point of disinfectant application or the previous point of disinfection residual measurement to a point before or at the point where residual disinfectant concentration is measured.

- *Disinfection* - a process that inactivates pathogenic organisms in water by chemical oxidants or other equivalent agents.

- *Distributed Water* - water leaving the treatment facility and entering the distribution system.

- *Distribution System* - the network of pipes and other facilities used to distribute water from a source, treatment, transmission, or storage facility to the user.

- *Division* - the Division of Water.

- *Domestic or Other Nondistribution System Plumbing Problem* - coliform contamination in a public water system with more than one service connection that is limited to the specific service connection from which the coliform-positive sample was taken.

- *Dose Equivalent* - the product of the absorbed dose from ionizing radiation and such factors as account for differences in biological effectiveness due to the type of radiation and its distribution in the body as specified by the International Commission on Radiological Units and Measurements.

- *Effective Corrosion Inhibitor Residual* - a concentration sufficient to form a passive film in the interior walls of a pipe.

- *Filtration* - a process for removing particulates from water through porous media:
  1. conventional filtration treatment - a series of processes including coagulation (requiring the use of a primary coagulant and rapid mix), flocculation, sedimentation, and filtration resulting in substantial particulate removal
  2. direct filtration treatment - a series of processes including coagulation (requiring the use of a primary coagulant and rapid mix) and filtration but excluding sedimentation resulting in substantial particulate removal
  3. slow sand filtration - a treatment process involving passage of raw water through a bed of sand at low velocity (generally less than 235 gal/ ft^2/day) resulting in substantial particulate removal by physical and biological mechanisms
  4. diatomaceous earth filtration - a process resulting in substantial particulate removal in which:
     a. a precoat cake of diatomaceous earth filter media is deposited on a support membrane
     b. while the water is filtered by passing through the cake on the septum, additional filter media known as body feed is continuously added to the feed water in order to maintain the permeability of the filter cake.

- *First Customer* - the initial service connection or tap on a public water supply after any treatment process.

- *First Draw Sample* - a 1-L sample of water that has been standing in plumbing pipes at least 6 h and is collected without flushing the tap.

- *Flocculation* - a process to enhance agglomeration or collection of smaller particles into larger, more easily settleable particles through gentle stirring by hydraulic or mechanical means.

- *Free Flowing Tap or Outlet* - a tap or outlet that is flowing freely when turned on. It does not mean a continuously flowing tap.

- *Gross Alpha Particle Activity* - the total radioactivity due to alpha particle emission as inferred from measurement on a dry sample.

- *Gross Beta Particle Activity* - the total radioactivity due to a beta particle emission as inferred from measurement on a dry sample.

- *Groundwater Source* - a source of water for a public or semipublic water supply that does not have a free water surface exposed to the atmosphere, or a turbidity content which exceeds acceptable levels.

- *Groundwater Under the Direct Influence of Surface Water* - any water beneath the surface of the ground with:
  1. significant occurrences of insects or other macroorganisms, algae, or large-diameter pathogens such as *Giardia lamblia*
  2. significant and relatively rapid shifts in water characteristics such as turbidity, temperature, conductivity, or pH which closely correlates to surface water conditions.

- *Lead Free* - when used with respect to solders and flux, means solders and flux containing not more than 0.2 percent lead, and when used with respect to pipes and fittings, means pipes and fittings containing not more than 8.0 percent lead.

- *Legionella* - a genus of bacteria, some species of which have caused a type of pneumonia called legionnaires disease.

- *Major Additions or Modifications* - changes of considerable extent or complexity including, but not limited to, projects involving water sources, treatment facilities, facilities for continuous disinfection, finished water storage, pumping facilities, transmission mains, distribution mains, and main replacement of same length and diameter.

- *Manmade Beta Particle and Photon Emitters* - all radionuclides emitting beta particles and/or photons listed in *Maximum Permissible Body Burdens and Maximum Permissible Concentration of Radionuclides in Air or Water for Occupational Exposure*, NBS Handbook 69, except the daughter products of thorium-232, uranium-235, and uranium-238.

- *Maximum Contamination Level (MCL)* - the maximum allowable level of a contaminant in water delivered to users of a public water system, except for turbidity in which the maximum allowable level is measured at the point of entry into a distribution system. Contaminants occurring in the water resulting from circumstances controlled by the water user, except those resulting from corrosion of piping and plumbing caused by water, are excluded from this definition.

- *Maximum Total Trihalomethane Potential* - the maximum trihalomethane concentration of total trihalomethanes produced in a given water containing excess free chlorine residuals after 7 days retention at a temperature of 25 °C (77 °F) or above.

- *Mineral Water* - bottled water that contains no less than 500 ppm total dissolved solids.

- *Near the First Service Connection* - at one of the 20 percent of service connections in the entire system that are near the water supply treatment system, as measured by the water transport time within the distribution system.

- *Operator* - a person with onsite responsibility and authority to conduct the procedures and practices to ensure that the water supply system is operated in accordance with the laws and regulations of the Commonwealth.

- *Pathogenic* - a specific agent (bacterium, virus, or parasite) causing or capable of causing disease.

- *Peak Daily Demand* - the maximum rate of water use, expressed in gallons per day, over the 24-h period of heaviest consumption.

- *Permit* - official permission granted by the Division for a public water system that exceeds maximum contaminant levels to delay, because of economic or other compelling factors, the installation of water treatment facilities necessary to produce water that does not exceed maximum contamination levels.

- *Person* - any individual, corporation, association, firm or partnership, municipal, state or Federal agency, or joint stock company and includes any receiver, special master, trustee, assignee, or other similar representative thereof.

- *PicoCurie (pCi)* - the quantity of radioactive material producing 2.22 nuclear transformations per minute.

- *Plug Flow* - movement of water in a pipe so particles pass through the pipe and are discharged in the same sequence in which they entered.

- *Point of Disinfection Application* - the point at which the disinfectant is added; water downstream of this point is not subject to recontamination by surface water runoff.

- *Point-of-Entry Treatment Device* - a device applied to the drinking water entering a house or building to reduce contaminants in the drinking water distributed throughout the house or building.

- *Point-of-Use Treatment Device* - a device applied to a single tap used to reduce contaminants in drinking water at that one tap.

- *Public Health Hazard* - a condition, device, or practice conducive to the introduction of waterborne disease organisms or harmful chemical, physical, or radioactive substances into a public water system that presents an unreasonable risk to health.

- *Public Water System* - a water system operated to provide water for human consumption, if the system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days of the year, and includes a collection, treatment, storage, or distribution facility used primarily in connection with the system. A public water system is either a community water system or a noncommunity water system:
  1. Community Water System - a public water system which has 15 or more service connections used by year-round residents or which regularly serves 25 or more year-round residents

2. Noncommunity Water System - a public water system that is not a community water system
   a. Transient Noncommunity Water System - a water system which serves a transient group of people and does not meet the definition for nontransient, noncommunity water system
   b. Nontransient Noncommunity Water System - a public water system that regularly serves at least 25 of the same persons over 6 mo per year.

- *Purchasing Water System* - a public water system that obtains its water in whole or in part from another public water system.

- *rem* - the unit or dose equivalent from ionizing radiation to the total body or any internal organ or organ system. A millirem (mrem) is 1/1000 of a rem.

- *Residual Disinfectant Concentration* - the concentration of disinfectant measured in milligrams per liter in a representative sample of water.

- *Safe Drinking Water* - water with sufficiently low concentrations of microbiological, inorganic chemical, organic chemical, radiological, or physical substances so individuals drinking the water at normal levels of consumption will not be exposed to disease organisms or other substance that may produce harmful physiological effects.

- *Sanitary Survey* - an onsite review of the water source, watershed, facilities, equipment, operation, and maintenance of the water system to produce and distribute safe drinking water.

- *Secondary Contaminant* - those contaminants which, at levels generally found in drinking water, do not represent an unreasonable risk to health but do:
  1. have adverse effects on the taste, odor, and color of water
  2. produce undesirable staining on plumbing fixtures
  3. interfere with treatment processes applied by water suppliers.

- *Secondary Maximum Contaminant Level (SMCL)* - the amount of a secondary contaminant that, when exceeded, may adversely effect the aesthetic quality of the drinking water and thereby may deter public acceptance of the drinking water provided by public water systems or that may interfere with water treatment methods.

- *Secondary Standards* - the maximum contaminant levels for secondary contaminants.

- *Secretary* - the secretary for the Natural Resources and Environmental Protection Cabinet.

- *Sedimentation* - a process for removal of solids before filtration by gravity or separation.

- *Semipublic Water System* - a water system made available for drinking or domestic use that serves more than three families but does not qualify as a public water system.

- *Service Connection* - the piping connection by means of which water is conveyed from a distribution main of a public water system to a user's premises. For a community water system, the portion of a service connection that conveys water from the distribution main to the users property line, or to the service meter, where provided, is under the jurisdiction of the water supplier.

- *Slow Sand Filtration* - a treatment process involving passage of raw water through a bed of sand at low velocity (generally less than 235 gal/ ft^2/day) resulting in substantial particulate removal by physical and biological mechanisms.

- *Specific Analysis* - a laboratory analysis accessible to the Cabinet in determining the amount of a specific constituent of a type of contaminant.

- *Spring* - a naturally occurring discharge of flowing water at the ground surface or in surface water. Springs can be derived from groundwater or they can be surface water influenced.

- *Standard Method* - The 16th edition of *Standard Methods for the Elimination of Water and Wastewater* prepared and jointly published by the American Public Health Association and the American Water Works Association.

- *Standard Sample* - the aliquot of finished drinking water that is examined for the presence of coliform bacteria.

- *Supplier of Water* - a person who owns or operates a public water system.

- *Surface Water* - all water which is open to the atmosphere and subject to surface water runoff.

- *Surface Water Source* - includes, but is not limited to, ponds, reservoirs, streams of all sizes, free flowing springs, wells with variable turbidity due to the characteristics of the raw water, or a source of water supply for a public water system that has free surface exposed to the atmosphere, or groundwater under the influence of surface water.

- *System with a Single Service Connection* - a system that supplies drinking water to a consumer via a single service line.

- *Total Trihalomethane (TTHM)* - the arithmetic sum of the concentrations per liter of trihalomethane (THM) compounds (trichloromethane, dibromochloromethane, bromodichloromethane, and tribromomethane) rounded to two significant figures.

- *Too Numerous to Count* - when the total number of bacterial colonies exceeds 200 on a 47 mm diameter membrane filter used for coliform bacteria detection.

- *Trihalomethanes* - the family of organic halogen compounds resulting from the displacement of three of the four hydrogen atoms in methane with chlorine, bromide, or iodine atoms in the molecular structure.

- *Turbidity* - a measure of the cloudiness of water caused by suspended particles. The unit of measure for turbidity is nephelometric turbidity units (NTU).

- *Variance* - official permission granted by the Division for public water systems to exceed maximum contamination levels because the quality of the raw water is such that the best available treatment techniques are not capable of treating the water so it complies with maximum contamination levels, and there is no unreasonable health risk.

- *Virus* - a virus of fecal origin which is infectious to humans by water borne transmission.

- *Waterborne Disease Outbreak* - the significant occurrence of acute infectious illness, epidemiologically associated with the ingestion of water from a public water system which is deficient in treatment, as determined by the Division.

- *Water Distribution System* - the portion of the water supply system in which water is conveyed from the water treatment plant to the premises of a consumer, or a system of piping and ancillary equipment owned and operated by an established water system independent of the water supply system from which potable water is purchased.

- *Water Supplier* - a person or group of persons, municipality, district, corporation, or other entity that owns or operates a public water system.

- *Water Supply Reservoir* - a lake or reservoir so designated by its developer; a public water system drawing raw water from the lake; a local government; and a property owner having an interest in the lake and the water shed upstream of the lake or downstream of the dam.

- *Water Supply System* - the source of supply and all structures and appurtenances used for the collection, treatment, storage and distribution of water for a public or semipublic water supply.

- *Water Treatment Plant* - the portion of the water supply system that is designed to alter the physical, chemical, or bacteriological quality of water.

SAFE DRINKING WATER ACT (SDWA)

GUIDANCE FOR KENTUCKY CHECKLIST USERS

Applicability	Refer to Checklist Items:
Operation, Maintenance, and Safety Requirements	3-1
Filtration	3-2
Disinfection	3-3
Public Notification	3-4
Microbiological Measurements	3-5
Inorganic Chemicals	3-6 and 3-7
Lead and Copper	None at this time
Corrosivity	3-8
Organic Chemicals	3-9
Volatile Organic Chemicals	3-10
Unregulated Synthetic Organic Chemicals	3-11
Disinfection Byproduct	3-12
Radionuclides	3-13
Secondary Standards	3-14
Fluoridation	3-15

COMPLIANCE CATEGORY: SAFE DRINKING WATER ACT Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
OPERATION, MAINTENANCE, AND SAFETY REQUIREMENTS **3-1.** Installations with water systems are required to follow all regulations regarding the operation and maintenance of a public water system (401 KAR 8:020, Section 2).	Verify that no bypass exists without the written approval of the Cabinet. Verify that no auxiliary intake is used in direct connection with the water system unless written approval is given by the Cabinet. Verify that monthly reports are submitted to the Cabinet within 10 days of the end of the month. Verify that the monthly reports to the Cabinet contain the following: - the turbidity measurement with maximum contaminant levels (MCL) - the total number of filtered water turbidity measurements taken during the month - the number and percentage of filtered water turbidity measurements taken during the month which are less than or equal to 0.5 nephelometric turbidity units (NTU) - the date and value of any turbidity measurement taken during the month that exceed 5.0 NTU - for each day, the lowest measurement of residual disinfectant concentration in mg/ L in water entering the distribution system - the date and duration of each period for which the residual concentration fell below the residual requirements - information on the samples taken in the distribution system in conjunction with total coliform monitoring. Verify that any outbreak of waterborne disease is reported immediately to the Cabinet. Verify that the following records are maintained: - the date, place, and time of sampling, and the name of the person who collected the sample - whether the sample was a routine distribution sample, check sample, raw or processed water sample, or other special purpose sample - the date of analysis - the laboratory and person responsible for performing the analysis - the analytical technique or method used - the results of the analysis. Verify that bacteriological analysis results are maintained on record for at least 5 yr. Verify that all variances granted by the Cabinet are kept on record for at least 5 yr.

COMPLIANCE CATEGORY: SAFE DRINKING WATER ACT Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
3-1. (continued)	Verify that all water systems maintain an up-to-date map of the distribution system on the premises or readily accessible. Verify that an operation and maintenance manual is maintained on the premises; this manual must include a detailed design of the plant, daily operation and maintenance procedures, a schedule designating who is responsible for tests, and safety procedures for operation of the plant.
FILTRATION	
3-2. Facilities with public water systems supplied by a surface water source or a groundwater source must provide filtration of the source water (401 KAR 8:150, Section 2).	Verify that systems using conventional filtration meet the following standards: - at least 99.9 (3-log) removal and/or inactivation of *Giardia Lamblia* cysts between a point where the raw water is not subject to recontamination by surface water runoff and a point downstream before or at the first customer - at least 99.99 (4-log) removal and/or inactivation of viruses between a point where the raw water is not subject to recontamination by surface water runoff and a point downstream before or at the first customer - the turbidity level of representative samples of filtered water is less than 0.5 NTU in at least 95 percent of the measurements taken each month - at no time does the turbidity level of a representative sample exceed 5.0 NTU. (NOTE: Measurements are to be taken at representative entry points to the distribution system.) Verify that systems using diatomaceous earth filtration meet the following standards: - the turbidity level of representative samples of filtered water must be less than 1 NTU in at least 95 percent of the measurements taken each month - at least 99.9 (3-log) removal and/or inactivation of *Giardia Lamblia* cysts between a point where the raw water is not subject to recontamination by surface water runoff and a point downstream before or at the first customer - at least 99.99 (4-log) removal and/or inactivation of viruses between a point where the raw water is not subject to recontamination by surface water runoff and a point downstream before or at the first customer - at no time does the turbidity level of a representative sample exceed 5.0 NTU.

COMPLIANCE CATEGORY: SAFE DRINKING WATER ACT **Kentucky Supplement**	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
3-2. (continued)	Verify that systems using slow sand filtration meet the following standards: - at least 99.99 (4-log) removal and/or inactivation of viruses between a point where the raw water is not subject to recontamination by surface water runoff and a point downstream before or at the first customer - at least 99.9 (3-log) removal and/or inactivation of *Giardia Lamblia* cysts between a point where the raw water is not subject to recontamination by surface water runoff and a point downstream before or at the first customer - the turbidity level of representative samples of filtered water is less than 1 NTU in at least 95 percent of the measurements taken each month - at no time does the turbidity level of a representative sample exceed 5.0 NTU.
DISINFECTION	
3-3. All public and semipublic water systems must provide disinfection (401 KAR 8:150, Section 1).	Determine the method used for disinfection of water for public or semipublic water systems. Verify that systems using chlorine or chloramines as an oxidant for disinfection meet the following standards: - if chlorine is used as the disinfecting agent, the residual disinfectant is greater than or equal to 0.2 mg/ L of free chlorine - the contact time between the chlorine and the water is at least 30 min - the free chlorine residuals are checked daily at representative points in the distribution system - at least 99.9 (3-log) removal and/or inactivation of *Giardia Lamblia* cysts between a point where the raw water is not subject to recontamination by surface water runoff and a point downstream before or at the first customer - at least 99.99 (4-log) removal and/or inactivation of viruses between a point where the raw water is not subject to recontamination by surface water runoff and a point downstream before or at the first customer - if chlorination is used, a minimum combined residual of 0.5 mg/ L is provided throughout the distribution system. Verify that all water systems meet the following conditions: - at least 99.9 (3-log) removal and/or inactivation of *Giardia Lamblia* cysts between a point where the raw water is not subject to recontamination by surface water runoff and a point downstream before or at the first customer - at least 99.99 (4-log) removal and/or inactivation of viruses between a point where the raw water is not subject to recontamination by surface water runoff and a point downstream before or at the first customer.

COMPLIANCE CATEGORY: SAFE DRINKING WATER ACT Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
3-3. (continued)	Verify that the residual disinfectant concentration in the distribution system measured as free chlorine, total chlorine, combined chlorine, or chlorinedioxide is not less than 0.2 mg/ L in more than 5 percent of the samples each month for two consecutive months that the system serves water to the public.
PUBLIC NOTIFICATION	

3-4. Installations which operate a public water system that fails to comply with applicable MCL or treatment techniques must notify persons served by the system (401 KAR 8:070, Section 1).	Determine if a violation(s) was a Tier 1 or Tier 2 violation.
	
	(NOTE: A Tier 1 violation is a failure to comply with an applicable MCL or treatment technique or failure to comply with the requirements of a schedule prescribed in a variance or exemption. A Tier 1 violation may be designated by the Cabinet as ordinary or acute, with acute violations representing a class of violation which may represent an immediate threat to the public health, requiring consumers to take special precautions. A Tier 2 violation is a failure to perform required monitoring, failure to make a report, or failure to comply with a testing procedure.)
	
	Verify that the following notification of violation is made to water users:
	
	- for Tier 1 violations, notification must be conducted in one of the following methods:
	  - by publication in a daily newspaper (or weekly if no daily newspaper exists) of general circulation in the area served by the system as soon as possible, but in no case later than 14 days after the violation or failure has occurred
	  - by mail delivery (by direct mail or with the water bill) or by hand delivery no later than 45 days after the violation or failure
	  - for acute violations of Tier 1 standards, the installation must furnish copies of the public notification to radio and television stations serving the area served by the public water system as soon as possible, but in no case later than 72 h after notice of the violation is received from the laboratory
	  - for as long as the violation continues, the installation must give notice at least once every 3 mo by mail or hand delivery
	  - for noncommunity public or semipublic water systems, the installation may meet the notice requirement by continuous posting in conspicuous places within the area served by the system for as long as the violation continues.
	- for Tier 2 violations, notification must be conducted in one of the following methods:
	  - by publication in a daily newspaper (or weekly if no daily newspaper exists) of general circulation in the area served by the system within 3 mo of the violation or granting of a variance or exemption
	  - the installation must give notice at least once every 3 mo by mail delivery (by direct mail or with the water bill) or by hand delivery for as long as the violation exists

COMPLIANCE CATEGORY: SAFE DRINKING WATER ACT Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
3-4. (continued)	- if the area is not served by a daily or weekly newspaper, the installation may by hand delivery or by continuous posting in conspicuous places within the area notify the consumers within 14 days of the violation or failure - for noncommunity public or semipublic water systems, the installation may meet the notice requirement by continuous posting in conspicuous places within the area served by the system for as long as the violation continues. (NOTE: Semipublic water systems may be required by the Cabinet to follow the same notification requirements as required of noncommunity public water systems in the event of a violation or failure.) (NOTE: The Cabinet may reduce notification frequency for minor violations when criteria for the reduction have been approved as a program revision, as stipulated by the USEPA.)
MICROBIOLOGICAL MEASUREMENTS	
3-5. All suppliers of water operating a public or semipublic water system are required to monitor for microbiological contaminants and turbidity (401 KAR 8:200, Section 1).	Verify that routine monitoring for total coliform bacteria is conducted at the frequency as shown in Appendix 3-1. Verify that samples for total coliform are taken at representative points in the distribution system. Verify that water suppliers of semipublic water systems test for the presence of total coliform at least once a month. Verify that no more than half of the samples for total coliform are taken in 1 mo. Verify that the results of the samples are submitted to the Cabinet no later than 10 days after the end of the month for which they were taken. Verify that samples are collected in bottles prepared and sterilized in accordance with "Standard Methods." Verify that, if a sample is total coliform positive, a set of repeat samples is collected within 24 h of being notified of the positive result. Verify that, if a total coliform sample is positive, the repeat sample set is taken in the following way: - sample at the tap that resulted in the positive sample - at least one sample within five service connections upstream from the violation - at least one sample within five service connections downstream from the violation - all the repeat samples are collected in the same day.

COMPLIANCE CATEGORY: SAFE DRINKING WATER ACT Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
3-5. (continued)	Verify that water systems that are required to take fewer than five samples per month with one total coliform positive sample take at least five samples in the month following the month with the violation. (NOTE: Water systems required to take fewer than five samples per month must conduct an initial sanitary survey by 29 June 1999.) Verify that, if a routine or repeat sample is total coliform positive, the public water system conducts an analysis of that total coliform positive medium to determine if fecal coliform are present. Verify that, if fecal coliform are present, the water system notifies the Cabinet by the end of the day. Verify that the analysis for total coliforms is conducted within 30 h of the sample being taken. Verify that the sample taken for total coliform positive water is always 100 mL regardless of analytical method used.
INORGANIC CHEMICALS **3-6.** All producers of water for public systems must sample water for regulated inorganic chemicals (401 KAR 8:250, Sections 1 through 6).	Verify that surface water systems collect samples annually beginning at the compliance period starting 1 January 1993. (NOTE: The water systems must take each sample at the same sampling point unless conditions make another sampling point more representative of each source.) Verify that the following sampling frequencies for inorganic chemicals are followed: - sample annually for community water systems using surface water - sample once every 3 yr for community water systems using groundwater - sample every 3 yr for noncommunity water systems. Verify that the sampling point used for identifying the presence of inorganic chemicals is a free flowing outlet in the distribution system. Verify that the levels for inorganic chemical limits listed in Appendix 3-2 are not exceeded. (NOTE: The maximum level for fluoride in Appendix 3-2 is only applicable to community water systems.)

COMPLIANCE CATEGORY: SAFE DRINKING WATER ACT Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
3-6. (continued)	Verify that, if any inorganic chemical MCL is violated, the following occur: - the Cabinet is notified within 7 days of the violation - public notice is given as described in Public Notification.
3-7. All producers of water for public water systems must meet the maximum contamination level requirements for nitrates (401 KAR 8:250, Sections 7 and 8).	Verify that, if the MCL for nitrate was exceeded, the following requirements are met: - when a nitrate level exceeds the MCL, a second test for nitrate is conducted within 24 h - the Cabinet is notified within 7 days of the violation - public notice is given in accordance with prescribed guidelines. (NOTE: Nitrate levels of 20 mg/ L will be allowed in a noncommunity water system if the water in the system is not available to children under 6 mo of age, and there is continuous posting that the nitrate level is over 10 mg/ L. Local and state officials must be notified of nitrate levels that exceed 10 mg/L, and no adverse health effects may result.) Verify that the following sampling frequencies for sodium are followed: - sample once during the wet season and once during the dry season for community water systems using surface water - sample once every year for community water systems using groundwater. Verify that the water system reports to the Cabinet within 10 days of the end of the month in which the samples were taken. (NOTE: The optimum level for sodium is 20 mg/ L. Variances to this level may be granted by the Cabinet.) Verify that the supplier of water notifies the appropriate local and state public health officials of the sodium levels, by written notice, within 3 mo of testing.
LEAD AND COPPER	At the time of publication of this manual, the State of Kentucky was in the process of adopting the Federal regulations concerning lead and copper.

COMPLIANCE CATEGORY: SAFE DRINKING WATER ACT Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
CORROSIVITY **3-8.** Each community water system which utilizes surface water sources or groundwater sources must identify specific types of corrosivity related characteristics within their distributed water (401 KAR 8:350, Section 1).	Verify that water systems collect at least two samples from each plant that utilizes surface water sources. (NOTE: One sample should be collected during midwinter and the other during midsummer.) Verify that water samples for corrosivity analysis are taken from a point representative of water entering the system. Verify that the following parameters are used for determination of corrosivity characteristics: - pH - alkalinity - calcium hardness - total dissolved solids - water temperature. Verify that the results of the corrosivity analysis are reported to the Cabinet within 10 days after the sample results are received. Verify that, if the Langlier Index indicates the water in the distribution system is aggressive, the water system reports to the Cabinet if any of the following materials are present in the distribution system: - lead from piping, solder, caulking, interior lining of distribution mains, alloys, or other sources - copper from piping, alloys, service lines, or other sources - galvanized piping in service lines - ferrous piping materials, such as cast iron - asbestos cement pipe.
ORGANIC CHEMICALS **3-9.** All community water systems that obtain all or part of their water from a surface water source must sample for organic chemicals (401 KAR 8:400, Sections 1 and 2).	Verify that the water system samples for organic chemicals no less than once every 3 yr at a period of the year specified by the Cabinet. Verify that water samples are taken at free-flowing outlets in the distribution system. (NOTE: The water system must take each sample at the same sampling point unless conditions make sampling at another point more representative of each source or treatment plant.) Verify that the maximum contaminant levels listed in Appendix 3-3 are not violated.

COMPLIANCE CATEGORY: SAFE DRINKING WATER ACT Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
3-9. (continued)	Verify that, if the results exceed the MCL listed in Appendix 3-3, the Cabinet is notified within 7 days and the water system initiates three additional samples within 1 mo. (NOTE: Variances to this regulation may be granted by the Cabinet.)
VOLATILE ORGANIC CHEMICALS	
3-10. All community and all nontransient water systems must monitor for volatile organic chemicals (401 KAR 8:420, Sections 1 through 6 and Section 9).	Verify that water systems using groundwater sources sample at points of entry into the distribution system representative of each well after any application of treatment. Verify that water systems using surface water sample at points in the distribution representative of each source or at entry points to the distribution system after any application of treatment. (NOTE: If a system draws from more than one source and the sources are combined, the sample is taken at the entry point into the distribution system.) Verify that this monitoring frequency is followed: - monitoring takes place no less than once every 4 yr for groundwater systems in which VOC were detected within the first year - monitoring occurs no less than once every 3 yr for groundwater systems that are vulnerable but VOC have not been detected - sampling for VOC is conducted no less than every 5 yr for surface water systems where VOC were detected in the first year. Verify that any system detecting VOC resumes monitoring on a quarterly basis. (NOTE: All systems are considered vulnerable until proven otherwise.) Verify that the maximum contaminant levels listed in Appendix 3-4 are not violated. Verify that analysis for VOC is conducted in accordance with guidelines set forth by the USEPA or by the Cabinet. (NOTE: The compositing of samples from five sampling sites is permitted. A variance to these regulations may be granted by the Cabinet.) Verify that, if the water system is in violation of any contaminant level, a plan to mitigate the violation on a short-term basis until best available technology can be put in place was submitted to the Cabinet.

COMPLIANCE CATEGORY: SAFE DRINKING WATER ACT **Kentucky Supplement**	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
3-10. (continued)	Verify that, if required, public water systems install the best available technology in the following time frame: - within 12 mo of violation for a public water system serving greater than 10,000 persons - within 18 mo of notification of violation for a public water system serving greater than 3000 persons but less than 10,000 persons - within 24 mo of notification of violation for a public water system serving less than 3000 persons.
UNREGULATED SYNTHETIC ORGANIC CHEMICALS	
3-11. All community and nontransient and non-community water systems are required to monitor for unregulated synthetic organic chemicals (401 KAR 8:440).	Verify that water systems completed initial monitoring by 1 January 1991. Verify that water systems using groundwater sources sample at points of entry into the distribution system representative of each well after any application of treatment. (NOTE: For groundwater sources, the minimum number of samples is one sample per entry point to the distribution system.) Verify that water systems using surface water sample at points in the distribution representative of each source or at entry points to the distribution system after any application of treatment. (NOTE: For surface water sources, the minimum number of samples is 1 year of quarterly samples per water source.) Verify that all water systems monitor for the contaminants listed in Appendix 3-5. (NOTE: A water system with less than 150 service connections may not be required to monitor for unregulated synthetic organic chemicals.) Verify that the sampling for unregulated synthetic organic chemicals is conducted at least every 5 yr from the initial sample. Verify that a copy of the results is forwarded to the Cabinet within 30 days of notification of results. Verify that water systems notify users that the testing has been conducted and that the results are available for examination for unregulated synthetic organic chemicals.

COMPLIANCE CATEGORY: SAFE DRINKING WATER ACT Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
3-11. (continued)	(NOTE: The users must be notified by notice in a daily or weekly newspaper of general circulation in the area or by mail either directly or in water bills to each customer. The Cabinet must be forwarded, within 14 days of publication, a copy of the newspaper ad or a copy of the mailing with an affidavit stating how and when the notice was delivered.) (NOTE: The notices must contain the name and address of the water system, an explanation of the monitoring that took place, the location and hours the results of the monitoring may be reviewed, and the name and telephone number of a person the customer may contact for information regarding the results.)
DISINFECTION BYPRODUCT	
3-12. All community water systems serving more than 10,000 persons that add a disinfectant as part of the treatment process are required to monitor for trihalomethanes (401 KAR 8:500, Sections 1 through 8).	Verify that the water system monitors quarterly for trihalomethanes. Verify that the samples are taken on the following basis: - one untreated or raw water sample to determine interference factors for raw water - three samples from free-flowing taps in the distribution system that reflect normal average daily usage or turnover - one sample from a free-flowing tap on the distribution system that reflects the longest time period of retention in the system but not taken from a dead end. Verify that all quarterly samples are taken in the same week and at the same designated sample points during each quarter. Verify that the water system collects at least four samples per quarter unless a variance or reduced monitoring has been granted by the Cabinet. Verify that the maximum contaminant level of 0.10 mg/ L for trihalomethanes is not violated. (NOTE: Upon written request to the Cabinet, the monitoring frequency may be reduced to one sample per quarter. If a minimum single sample per quarter exceeds the MCL for TTHM and is confirmed by at least one check sample, the water system must resume the four samples per quarter until the Cabinet determines that reduced monitoring can resume.) Verify that the public is notified if the MCL for THM is exceeded.

COMPLIANCE CATEGORY: SAFE DRINKING WATER ACT Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
RADIONUCLIDES **3-13.** All producers of water for community water systems must sample for radionuclides (401 KAR 8:550).	Verify that the installation samples for gross alpha activity every 4 yr for each source. Verify that samples are taken at points in the distribution system representative of the water consumed by the public. Verify that compliance for standards of gross alpha particle activity, radium-226 and radium-228, are based on an annual composite of four consecutive samples obtained at quarterly intervals. Verify that the combined radium-226 and radium-228 level does not exceed 5 pCi/ L. (NOTE: A gross alpha particle activity measurement may be substituted for the required radium-226 and radium-228 analysis if the measured gross alpha particle activity does not exceed 5 pCi/ L at a confidence level of 95 percent.) Verify that, when the gross alpha particle activity exceeds 5 pCi/ L, the same or an equivalent sample is analyzed for radium-226; the concentration of radium-226 exceeds 3 pCi/ L, the same or equivalent sample is analyzed for radium-228. Verify that suppliers of any community water system using waters contaminated by nuclear facilities initiate quarterly monitoring for gross beta particle and iodine-131 radioactivity and annual monitoring for strontium-90 and tritium. Verify that, when the gross beta particle activity exceeds 15 pCi/ L, the same or an equivalent sample is analyzed for strontium-89 and cesium-134. Verify that the average annual concentration of beta particle and photon activity from manmade radionuclides in the drinking water does not produce an annual dose equivalent to the total body or any internal organ greater than 4 mrem/yr. Verify that the public is notified if the maximum contaminant levels for radionuclides is exceeded.

COMPLIANCE CATEGORY: SAFE DRINKING WATER ACT Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
SECONDARY STANDARDS **3-14.** All suppliers of water for public and semipublic drinking water systems must sample for secondary contaminants (401 KAR 8:600, Section 1).	Determine if the water system has any specific instruction from the Cabinet regarding frequency of monitoring for secondary contaminants. Verify that samples are taken at the interval specified by the Cabinet. Verify that samples are taken from free flowing taps in the distribution system, except for hydrogen sulfide, which must be sampled at the entry point into the distribution system. Verify that the maximum contaminant levels listed in Appendix 3-6 are not exceeded. Verify that violations of secondary contaminant levels are reported to the Cabinet, and any specific instructions for a course of action are taken. Verify that violations of the MCL for fluoride are reported to the public.
FLUORIDATION **3-15.** Community water systems serving a population of 1500 or more, including consecutive water supplies, are required to adjust fluoride deficient waters (401 KAR 8:650, Sections 1 and 3).	(NOTE: For the purpose of this requirement, consecutive supply means a supply that purchases its water from another water system. The population served by a community water system includes its own population as well as the population served by all of its consecutive supplies. Water systems serving a population of 1500 to 3000 are required to provide supplemental fluoridation only if the equipment required is available from the Cabinet.) Determine if the water system is required to provide fluoridation. Verify that the fluoridation does not exceed 2.0 mg/ L in the finished water. Verify that the daily amount of fluoride added to the water, the quantity of water treated, and the fluoride levels of the water treated are recorded. Verify that the daily fluoride records are taken and submitted to the Cabinet monthly. Verify that the feeding equipment is accurate to within 5 percent. Verify that the rate of feed provides a fluoride content of 0.8 ppm to 1.3 ppm in the treated water. Verify that a corrosion resistant tank is used for solution feed mechanisms. Verify that the dry feed mechanisms are mounted on scales.

COMPLIANCE CATEGORY: SAFE DRINKING WATER ACT Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
3-15. (continued)	Verify that, at a minimum, the precautions taken to protect an operator from inhaling the fluoride include a respirator for each operator. Verify that adequate exhaust systems are provided for dry feeding equipment. Verify that locked and separate storage facilities are used for the fluoride chemical. Verify that the fluoride feeders are equipped with siphon breakers to prevent back siphonage. Verify that the Cabinet is notified of the date of startup of the fluoridization equipment and when fluoridization is interrupted.

Appendix 3 - 1

Total Coliform Sampling Requirements Based on Population Served

(Source: 401 KAR 8:200, Section 1(2))

Population Served	Minimum Number Samples	Population Served	Minimum Number Samples
25 - 2500	2	59,001 - 70,000	70
2501 - 3300	3	70,001 - 83,000	80
3301 - 4100	4	83,001 - 96,000	90
4101 - 4900	5	96,001 - 130,000	100
4901 - 5800	6	130,001 - 220,000	120
5801 - 6700	7	220,001 - 320,000	150
6701 - 7600	8	320,001 - 450,000	180
7601 - 8500	9	450,001 - 600,000	210
8501 - 12,900	10	600,001 - 780,000	240
12,901 - 17,200	15	780,001 - 970,000	270
17,201 - 21,500	20	970,001 - 1,230,000	300
21,501 - 25,000	25	1,230,001 - 1,520,000	330
25,001 - 33,000	30	1,520,001 - 1,850,000	360
33,001 - 41,000	40	1,850,001 - 2,270,000	390
41,001 - 50,000	50	2,270,001 - 3,020,000	420
50,001 - 59,000	60	3,020,001 - 3,960,000	450
		3,960,001 or more	480

Appendix 3 - 2

Maximum Inorganic Chemical Limits
(Source: 401 KAR 8:250, Section 4(1))

Contaminant	Level in mg/L
Arsenic	0.05
Barium	1.00
Cadmium	0.010
Chromium	0.05
Fluoride	4.00
Lead	0.05
Mercury	0.002
Nitrate (as N)	10.00
Selenium	0.01
Silver	0.05

Appendix 3 - 3

Maximum Organic Chemical Limits

(Source: 401 KAR 8:400, Section 1(4))

Organic Chemical	Level in mg/L
Chlorinated hydrocarbons:	
Endrin (1,2,3,4,10, 10-hexachloro-6,7-epoxy-1,4a,5,6,7,8,8a-octa hydro-1,4-endo, endo-5,8 - dimethano naphthalene)	0.0002
Lindane (1,2,3,4,5,6-hexachloro-cyclohexane, gamma isomer)	0.004
Methoxychlor (1,1,1-Trichloro-2, 2 - bis (p-methoxyphenyl) ethane)	0.1
Toxaphene ($C_{10}H_{10}Cl_8$-Technical Chlorinated Camphene, 67-69 percent chlorine)	0.005
Chlorophenoxys:	
2,4 - D, (2,4-Dichlorophenoxyacetic acid)	0.1
2,4,5-TP Silvex (2,4,5-Trichloro-phenoxypropionic acid)	0.01

Appendix 3 - 4

Maximum Contaminant Levels of Organic Contaminants
(Source: 401 KAR 8:420, Section 5(1))

Contaminant	Maximum Contaminant Level in mg/L
Benzene	0.005
Vinyl chloride	0.002
Carbon tetrachloride	0.005
1,2-Dichloroethane	0.005
Trichloroethylene	0.005
1,1-Dichloroethylene	0.007
1,1,1-Trichloroethane	0.200
para-Dichlorobenzene	0.075

Appendix 3 - 5

Required Monitoring for Contaminants
(Source: 401 KAR 8:440, Section 3(1))

All community and nontransient, noncommunity water systems must monitor for the following contaminants:

Chloroform
Bromodichloromethane
Chlorodibromomethane
Bromoform
trans-1,2-Dichloroethylene
Chlorobenzene
m-Dichlorobenzene
Dichloromethane
cis, 1,2-Dichloroethylene
o-Dichlorobenzene
Dibromomethane
1,1-Dichloropropene
Tetrachloroethylene
Toluene
p-Xylene
o-Xylene
m-Xylene
1,1-Dichloroethane
1,2-Dichloropropane
1,1,2,2-Tetrachloroethane
Ethylbenzene
1,3-Dichloropropane
Styrene
Chloromethane
Bromomethane
1,2,3-Trichloropropane
1,1,1,2-Trichloroethane
Chloroethane
1,1,2-Trichloroethane
2,2-Dichloropropane
o-Chlorotoluene
p-Chlorotoluene
Bromobenzene
1,3-Dichloropropene
Ethylene dibromide (EDB)
1,2-Dibromo-3-chloropropane (DBCP)

Appendix 3 - 6

Maximum Allowable Levels of Secondary Contaminants

(Source: 401 KAR 8:600, Section 1(5))

Chemical Symbol	Name	Unit[2]	Maximum Level
Cl	Chloride	mg/L	250.0
-	Color[1]	Platinum Cobalt	15.0
Cu	Copper	mg/L	1.0
-	Corrosivity	-	Noncorrosive
	Fluoride	mg/L	2.0
H_2S	Hydrogen sulfide	mg/L	0.05
Fe	Iron	mg/L	0.3
Mn	Manganese	mg/L	0.05
-	Odor[1]	Threshold Number	3.0
-	Phenols	mg/L	0.001
SO_4	Sulfate	mg/L	250.0
Zn	Zinc	mg/L	5.0
TDS	Total Dissolved Solids	mg/L	500.0

[1] Surface supplies only.
[2] mg/L is the same as ppm.

INSTALLATION:	COMPLIANCE CATEGORY: SAFE DRINKING WATER ACT (SDWA) Kentucky Supplement	DATE:	REVIEWER(S):

STATUS NA C RMA	REVIEWER COMMENTS:

SECTION 4

RESOURCE CONSERVATION AND RECOVERY ACT,

SUBTITLE C (RCRA-C)

Kentucky Supplement

SECTION 4

RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C (RCRA-C)

Kentucky Supplement

The State of Kentucky is responsible for the regulation of hazardous waste. Although Kentucky has not adopted the Federal hazardous waste regulations by reference, most of its requirements are identical. The list here details the Kentucky Hazardous Waste Management requirements and the applicable Federal requirements. See the U.S. ECAS Manual for the DOD and Federal requirements.

General Provisions

Title 401 Kentucky Administrative Regulations (KAR) 32:010 through 32:080 are identical, with minor exceptions, to the 40 CFR 262 standards applicable to generators of hazardous waste. This includes regulations regarding:

Testing to determine if waste is hazardous - Subpart A
U.S. Environmental Protection Agency (USEPA) identification numbers - Subpart A
Manifest requirements - Subpart B
Pretransport requirements (packaging, labeling, placarding) - Subpart C
Accumulation time - Subpart C
Recordkeeping - Subpart D, Except *Annual Report (401 KAR 32:040(2)).*
Exception reporting - Subpart D
Small quantity generators - Subpart D
Exports of hazardous waste - Subpart E
Imports of hazardous waste - Subpart E.

Standards applicable to transporters of hazardous waste - Title 401 KAR 33:010 to 33:030 are identical to 40 CFR 263 including:

EPA identification number - Subpart A
Compliance with manifest system - Subpart B
Recordkeeping - Subpart B
Hazardous waste discharges - Subpart C.

Standards applicable to owners and operators of hazardous waste storage, treatment, and disposal facilities - Title 401 KAR 34:010 through 34:360 are identical to 40 CFR 264 including:

General provisions - Subpart A
General facility standards - Subpart B
General waste analysis - Subpart B
Security - Subpart B
General inspection requirements - Subpart B
Personnel training - Subpart B
Location standards - Subpart B
Contingency plan - Subpart D

Manifest system, recordkeeping, and reporting - Subpart E
Groundwater protection - Subpart F
Closure and postclosure - Subpart G
Use and management of containers - Subpart I
Tank systems - Subpart J
Surface impoundments - Subpart K
Waste piles - Subpart L
Land treatment - Subpart M
Landfills - Subpart N
Incinerators - Subpart O
Miscellaneous units - Subpart X.

Standards applicable to owners and operators of interim status hazardous waste treatment, storage, and disposal facilities - Title 401 KAR 35:010 through 35:330 are identical to 40 CFR 265 including:

General requirements - Subpart A
General facility standards - Subpart B
Preparedness and prevention - Subpart C
Contingency plan and emergency procedures - Subpart D
Manifest system, recordkeeping, and reporting - Subpart E
Groundwater monitoring - Subpart F
Closure and postclosure - Subpart G
Use and management of containers - Subpart I
Tank systems - Subpart J
Surface impoundments - Subpart K
Waste piles - Subpart L
Land treatment - Subpart M
Landfills - Subpart N
Incinerators - Subpart O
Thermal treatment - Subpart P
Chemical, physical, and biological treatment - Subpart Q
Underground injection - Subpart R.

Standards applicable to the management of specific hazardous wastes and specific types of hazardous waste management facilities - Title 401 KAR 36:030 through 36:070 are identical to 40 CFR 266 including:

Recyclable materials used in a manner constituting disposal - Subpart C
Used oil burned for energy recovery - Subpart E
Recyclable materials used for precious metal recovery - Subpart F
Reclamation of spent lead-acid batteries - Subpart G.

Land disposal restrictions - Title 401 KAR 37:010 through 37:110 are identical to 40 CFR 268 including:

General provisions - Subpart A
Prohibitions on land disposal - Subpart C
Treatment standards - Subpart D
Prohibitions on storage - Subpart E.

Hazardous waste management permitting - Title 401 KAR 38:010 through 38:500 are identical to 40 CFR 270 including:

General provisions - Subpart A
Permit applications - Subpart B
Conditions applicable to all permits - Subpart C
Changes to permits - Subpart D
Expiration of permits - Subpart E
Special permits - Subpart F
Interim status permits - Subpart G.

Definitions

These definitions were obtained from the Kentucky Waste Management Regulations, Department for Environmental Protection, Division of Waste Management (401 KAR 30:010). This includes only terms that differ from the definitions found in the Federal regulations.

- *Cabinet* - the Natural Resources and Environmental Protection Cabinet.

- *Department* - the Department for Environmental Protection.

- *Existing Hazardous Waste Facility* - a facility in operation, or for which continuous construction had commenced, on or before 19 November 1980.

- *Existing Tank System* - a system or component used for the storage or treatment of hazardous waste and that is in operation, or for which installation had commenced, on or prior to 14 July 1986.

- *Limited Quantity Generator* - a hazardous waste generator that generates less than 100 kg of hazardous waste in a calendar month. This is the equivalent of the Federal definition of Conditionally Exempt Generator.

RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C (RCRA-C)

GUIDANCE FOR KENTUCKY CHECKLIST USERS

Applicability	Refer to Checklist Items:
Permits and Reports	4-1 and 4-2

COMPLIANCE CATEGORY: Resource Conservation and Recovery Act, Subtitle C (RCRA-C) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
PERMITS AND REPORTS	
4-1. Installations that treat, store, recycle, or dispose of hazardous waste must have a permit (401 KAR 38:010, Section 1).	Determine if the installation treats, stores, recycles, or disposes of hazardous waste. Verify that the installation operates in accordance with a valid permit issued by the Natural Resources and Environmental Protection Cabinet.
4-2. Installations that generate more than 100 kg in any 1 mo must file an annual report (401 KAR 35:050, Section 6).	Verify that any installation that generates more than 100 kg in any 1 mo submits an annual report to the Cabinet by 1 March of each year. (NOTE: Limited quantity generators, those that generate 100 kg of hazardous waste in a month, must meet the Federal requirements for Conditionally Exempt Small Quantity Generators. A limited quantity generator may accumulate up to 1000 kg of hazardous waste onsite. If the amount stored exceeds 1000 kg at any time, the generator is subject to the requirements of hazardous waste generators.)

INSTALLATION:	COMPLIANCE CATEGORY: Resource Conservation & Recovery Act - Subtitle C (RCRA-C) Kentucky Supplement	DATE:	REVIEWER(S):

STATUS NA C RMA	REVIEWER COMMENTS:

SECTION 5

RESOURCE CONSERVATION AND RECOVERY ACT,

SUBTITLE D (RCRA-D)

Kentucky Supplement

SECTION 5

RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE D (RCRA-D)

Kentucky Supplement

Definitions

These definitions were obtained from the Kentucky Solid Waste Management Regulations, Title 401 Kentucky Administrative Regulations (KAR), Chapters 30, 47, and 48.

- *Active Life* - the period from the initial receipt of hazardous waste or solid waste at the facility until the Cabinet receives certification of final closure.

- *Agricultural Waste* - any nonhazardous waste resulting from the production and processing of on-the-farm agricultural products, including manures, prunings, and crop residues.

- *Airport* - public-use airport open to the public without prior permission and without restrictions within the physical capacities of available facilities.

- *Application* - the forms approved by the Cabinet for applying for a permit, including any additions, revisions, or modifications and any narrative and drawings required by the waste management regulations for a permit type that are not on a form.

- *Base Flood* - a flood with a 1 percent or greater chance of recurring in any year, or a flood of a magnitude equaled or exceeded once in 100 yr on the average over a significantly long period.

- *Bird Hazard* - an increase in the likelihood of bird/aircraft collisions that may cause damage to the aircraft or injury to its occupants.

- *Cabinet* - the Natural Resources and Environmental Protection Cabinet.

- *Cell* - a portion of a landfill or a sanitary landfill that is isolated, usually by means of an approved barrier.

- *Certificate* - a written document issued by the Cabinet stating that the operator has met all requirements for certification.

- *Certification* - a statement of professional opinion based upon knowledge and belief.

- *Certified Operator* - a solid waste site or facility operator who holds a valid certificate.

- *Closure* - the time at which a waste treatment, storage, or disposal facility permanently ceases to accept wastes. This includes actions taken by the owner or operator of the facility to prepare the site for postclosure monitoring and maintenance or to make it suitable for other uses.

- *Closure Care* - the routine care, maintenance, monitoring, and any required corrective action of a solid waste disposal site following certification of closure until the applicable requirements are met.

- *Coal Mining Waste* - earth materials that are combustible, physically unstable, or acid-forming or toxic-forming generated during and incidental to the mining and extraction of coal and to the washing and crushing of coal. The term does not include used oil, paints, or flammable liquids. The term does include refuse which is waste material in the raw coal which is the object of cleaning to remove overburden which includes all of the earth and other geologic materials, excluding topsoil, which lie above a natural deposit of coal and also such earth and other material after removal from their natural state in the process of mining; and coal mining by-products which include any material that is not one of the primary products of a particular coal mining operation.

- *Construction/Demolition Debris Landfill* - a solid waste site or facility for the disposal of solid waste resulting from the construction, remodeling, repair, and demolition of structures and roads, and for the disposal of uncontaminated solid waste consisting of vegetation resulting from land clearing and grubbing, utility line maintenance, and seasonal and storm related cleanup. Such waste includes, but is not limited to, bricks, shredded or segmented tires, concrete and other masonry materials, soil, rock, weed, wall coverings, plaster, drywall, plumbing fixtures, tree stumps, limbs, sawdust, leaves, yard waste, paper, paper products, metals, furniture, insulation, roofing shingles, asphaltic pavement, glass, plastics that are not sealed in a manner to conceal other wastes, electrical wiring and components containing no liquids or hazardous metals that are incidental to any of the above, and other inert waste as approved by the Cabinet. Asbestos-containing materials may be accepted only if the permit application includes procedures approved by the Cabinet to handle these materials. Construction/demolition debris landfills are not for disposal of garbage, electrical fixtures containing hazardous liquids such as fluorescent light ballasts or transformers, Polychlorinated Biphenyls (PCB) containing waste, hazardous material spill residues, limited quantity generator hazardous waste, any waste regulated as a hazardous waste, whole tires, liquids, drums, fuel tanks, or other nonpermitted wastes.

- *Construction Materials* - nonhazardous, nonsoluble material including, but not limited to, steel, concrete, brick, asphalt roofing material, or lumber from a construction or demolition project.

- *Contained Landfill* - a solid waste site or facility that accepts solid waste for disposal including residential, commercial, institutional, industrial, municipal solid waste, shredded tires, household hazardous waste, limited quantity generator hazardous waste, and spill cleanup residues that are not hazardous waste.

- *Contaminate* - introduction of a substance that would cause the concentration of that substance in the groundwater to exceed the maximum contaminant level, or an increase in the concentration of that substance in the groundwater where the existing concentration of that substance exceeds the maximum contaminant level.

- *Convenience Center* - a facility that is manned during operating hours for the collection and subsequent transportation of municipal solid wastes from individual households.

- *Cover Material* - soil or other suitable material that is spread and compacted on the top and side slopes of disposed waste to: control disease vectors, gases, erosion, fires, and infiltration of precipitation or run-on; support vegetation; provide trafficability; or assure an aesthetic appearance.

- *Destruction or Adverse Modification* - a direct or indirect alteration of critical habitat that appreciably diminishes the likelihood of the survival and recovery of threatened or endangered species using that habitat.

- *Discharge* - includes, but is not limited to, spilling, leaking, pumping, pouring, emitting, emptying, or dumping.

- *Disease Vector* - all insects, birds, or gnawing animals such as rats, mice, or ground squirrels, that are capable of transmitting pathogens.

- *Disposal* - the discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid or hazardous waste into or on any land or water so the solid or hazardous waste or any constituent thereof may enter the environment, be emitted into the air, or be discharged into any water, including groundwaters.

- *Emergency Permit* - a permit issued by the Cabinet to temporarily manage, process, or dispose of a solid waste.

- *Endangered or Threatened Species* - any species listed as endangered or threatened pursuant to Section 4 of the *Endangered Species Act*, as amended, 16 U.S. Code 1536.

- *Ephemeral Stream* - a stream flowing only in direct response to a precipitation in the immediate watershed or in response to the melting of a cover of snow and ice and that has a channel bottom that is always above the local water table.

- *Equivalent Method* - any testing or analytical method approved jointly by the administrator and the secretary of the Cabinet.

- *Existing Facility* - a facility that was in operation, or for which continuous construction had commenced, on or before 19 November 1980.

- *Explosive Gas* - methane (CH_4).

- *Facility* - all contiguous land, structures, other appurtenances, and improvements on the land, used for treating, storing, or disposing of waste. A facility may consist of several treatment, storage, or disposal operational units.

- *Facility Structures* - any buildings and sheds or utility or drainage lines of the solid waste facility.

- *Final Closure* - the approved closure of a solid waste facility in accordance with the applicable requirements.

- *Flood Plain* - areas adjoining inland waters that are inundated by the base flood.

- *Food Chain Crops* - tobacco, crops grown for human consumption, and crops grown for feed for animals whose products are consumed by humans.

- *Free Liquids* - liquids that readily separate from the solid portion of a waste under ambient temperature and pressure.

- *Groundwater* - water in the zone of perennial saturation. It is differentiated from water held in the soil, from water in downward motion under the force of gravity in the perennially unsaturated zone, and from water held in chemical or electrostatic bondage. It is synonymous with the term "phreatic water."

- *Groundwater Table* - the upper boundary of the saturated zone in which the hydrostatic pressure of the groundwater is equal to the atmospheric pressure.

- *Hazardous Substance* - any substance or combination of substances including wastes of a solid, liquid, gaseous, or semisolid form which, because of its quantity, concentration, or physical, chemical or infectious characteristics, may cause or significantly contribute to an increase in mortality or an increase in serious irreversible or incapacitating reversible illness, or pose a substantial present or potential hazard to human health or the environment. Such substances may include, but are not limited to, those which are, according to criteria established by the Cabinet, toxic, corrosive, ignitable, irritants, strong sensitizers, or explosive.

- *Hazardous Waste* - any discarded material or material intended to be discarded, or substance or combination of such substances intended to be discarded, in any form which, because of its quantity, concentration, or physical, chemical, or infectious characteristics, may cause or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating, reversible illness, or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

- *Holocene* - the most recent epoch of the quaternary period extending from the end of the pleistocene to the present.

- *Incinerator* - any enclosed device using controlled flame combustion for burning solid waste.

- *Injection Well* - a well into which fluids are injected to achieve subsurface emplacement.

- *Intermittent Stream* - a stream or reach of stream that drains a watershed of 1 mi^2 or more but does not flow continuously during the calendar year.

- *Karst Terrain* - a type of topography where limestone, dolomite, or gypsum is present and is characterized by naturally occurring closed topographic depressions or sinkholes, caves, disrupted surface drainage, and well developed underground solution channels formed by dissolution of these rocks by water moving underground.

- *KPDES* - Kentucky Pollutant Discharge Elimination System.

- *Landfarming Facility* - a facility for land application of sludges or other solid waste by any method for purposes of disposal. It can be on any piece or pieces of land and may improve the physical and chemical qualities of the land for agricultural purposes, but it does not alter the topography of the application area as revealed by contours and will not disturb the soil below 3 ft from the surface.

- *Landfill Cell* - a discrete volume of a landfill that uses a liner to provide isolation of wastes from adjacent cells or wastes. Examples of landfill cells are trenches and pits.

- *Leachate* - any liquid, including any suspended components in the liquid, that has percolated through or drained from waste.

- *Liner* - a continuous layer of natural or manmade material beneath or on the sides of a solid waste facility including, but not limited to, a waste pile, surface impoundment, landfill, landfill cell, or beneath or on the sides of a waste pile, surface impoundment, landfill, or landfill cell, or beneath or on the sides of a waste facility which restricts the movement of the wastes, waste constituents, or leachate.

- *Lower Explosive Limit* - the lowest percent by volume of a mixture of explosive gases that will propagate a flame in air at 25 °C (77 °F) and atmospheric pressure.

- *Microbiology Laboratory Waste* - includes, but is not limited to, viral or bacterial cultures, contaminated swabs, specimen containers, and test tubes used for microbiologic purposes.

- *Mining Overburden Returned to the Mine Site* - any material overlying an economic mineral deposit removed to gain access to that deposit then is used for reclamation of a surface mine.

- *Monitoring* - the act of systematically inspecting and collecting data on operational parameters or on the quality of the air, soil, groundwater, or surface water.

- *Monitoring Well* - a well used to obtain water samples for water quality and quantity analysis and groundwater levels.

- *Municipal Solid Waste* - household solid waste and commercial solid waste.

- *New Facility*- any facility for which construction commenced after 19 November 1980.

- *Offsite* - properties noncontiguous to the generation site.

- *Onsite* - on the same or geographically contiguous property, which may be divided by public or private right-of-way, if the entrance and exit between the properties is at a crossroads intersection, and access is by crossing as opposed to going along the right-of-way. Noncontiguous properties owned by the same person but connected by a right-of-way that he/she controls and to which the public does not have access are also considered onsite property.

- *One Hundred-Year Flood* - a flood that has a 1 percent or one in 100 or greater chance of recurring in any year, or a flood of a magnitude equaled or exceeded once in 100 yr on the average over a significantly long period taking into consideration the present engineering aspect of the floodplain.

- *Open Burning* - the combustion of any material or solid waste without control or combustion air to maintain adequate temperature for efficient combustion; containment of the combustion reaction in an enclosed device to provide sufficient residence time and mixing for complete combustion; and control of emission of the gaseous combustion products.

- *Operator* - any person responsible for overall operation of an onsite or offsite waste facility, including any private contractor conducting operational activities at a Federal facility.

- *Perennial Stream* - a stream or the part of a stream that flows continuously during all of the calendar year as a result of groundwater discharge or surface runoff. The term does not include "intermittent stream" or "ephemeral stream."

- *Periodic Application of Cover Material* - the application and compaction of soil or other suitable material over disposed waste at a solid waste site or facility at the end of each operating day or at such frequencies and in such a manner as to reduce the risks of fire and to impede disease vectors' access to the waste.

- *Permit* - the authorization or other control document issued by the Cabinet to implement the requirements of the waste management regulations. The term permit includes also "permit-by-rule" and "emergency permit" but not "draft permit" or "proposed permit."

- *Permit-By-Rule* - the following disposal of certain solid wastes by a practice common to the industry are deemed to have permit-by-rule if the operation is not in violation of the applicable environmental performance standards, does not present a threat of imminent hazard to human health or substantial environmental impact, and if the following applicable conditions are met:

1. sawdust piles, if the pile is on the property of the generator and the pile does not cause nonpoint pollution of surface water above specified water quality standards
2. disposal of asphalt residue
3. oil production brine pits and gas and oil drilling mud pits, if the operator is in compliance with a valid KPDES or National Pollutant Discharge Elimination System (NPDES) permit
4. one time disposal of waste construction material, if disposal occurs at the point of generation, disposal occurs only during the period of construction, the wastes do not include any materials that contain leachable hazardous constituents or asbestos, and the wastes do not include packaging or putrescible wastes
5. disposal of demolition waste on the property where demolition occurs during the period of demolition, except for materials containing asbestos
6. disposal of land clearing debris on the property where clearing occurred
7. disposal of less than 100 tires, shredded tires in a single pile of less than one fourth acre, or tires actively used in agricultural operation
8. waste piles
9. automobile and truck recyclers and salvage yards
10. surface impoundments with a KPDES permit
11. beneficial reuse of solid waste.

- *Personnel* - all persons who work at or oversee the operations of a waste facility, and whose actions or failure to act may result in noncompliance with the requirements of the waste management regulations.

- *Pile or Waste Pile* - any noncontainerized accumulation of nonflowing solid waste that is used for processing or management.

- *Point Source* - any discernible, confined, and discrete conveyance including, but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, vessel, or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture.

- *Postclosure Care* - the manner in which a facility must be maintained when it no longer accepts waste for disposal.

- *Proposed Permit* - a document indicating the Cabinet's tentative decision to issue or deny, modify, revoke, or terminate a permit.

- *Publicly Owned Treatment Works* - any device or system used in the treatment (including recycling and recovery) of any municipal sewage or industrial waste of a liquid nature owned by the Commonwealth or a political subdivision of the Commonwealth.

- *Putrescible* - susceptible to rapid decomposition by bacteria, fungi, or oxidation sufficient to cause nuisances such as odors, gases, or other offensive conditions.

- *Recycling* - any treatment process for the reclamation of material or energy from waste.

- *Registered Permit-by-Rule* - a category of solid waste site or facility permit providing for the storage, treatment, and disposal of solid waste including: commercial recycling centers; transfer stations; construction/demolition debris landfills of 1 acre or less when the wastes are not disposed at the site of generation; solid waste incinerators that have a rated capacity of more than 1 ton/day including those using refuse derived fuel; sludge giveaway programs, composted sludge and other composted material programs; landfarming of Class 1 sludges (see Appendix 5-1); septic tank pumpings if in compliance with Cabinet regulations and the waste is not applied to within 3 ft of the surface of the

land unless a method to reduce pathogens has been utilized; and convenience centers. Owners and operators of a registered permit-by-rule site or facility are deemed to have a permit without further action by the Cabinet. Owners and operators of a registered permit-by-rule site or facility must prevent adverse effects on human health and the environment and implement any necessary corrective action.

- *Residual Landfill* - a facility for the disposal of specific solid waste(s), including special waste, that is located, designed, constructed, operated, maintained, and closed in conformance with Kentucky environmental performance standards and that receives a case-by-case review by the Cabinet.

- *Runoff* - any rainwater, leachate, or other liquid that drains overland from any part of a facility.

- *Run-On* - any rainwater, leachate, or other liquid that drains overland onto any part of a facility.

- *Salvaging* - the controlled removal of waste materials for utilization in a manner approved by the Cabinet.

- *Scavenging* - the removal of waste materials from a waste management site or facility in a manner deemed by the Cabinet to be dangerous to the health and safety of any person.

- *Sharp Wastes* - includes needles, scalpels, razors, or other sharp instruments used for patient care procedures.

- *Site* - the land or water area where any facility or activity is physically located or conducted, including adjacent land used in connection with the waste facility or activity.

- *Sludge* - any solid, semisolid, or liquid waste generated from a municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility exclusive of the treated effluent from a wastewater treatment plant or any other such waste having similar characteristics and effects.

- *Solid Waste* - any garbage, refuse, sludge, and other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining (excluding coal mining wastes, coal mining by-products, refuse, and overburden), and agricultural operations, and from community activities. Does not include solid or dissolved material in domestic sewage, or solid or dissolved material in irrigation return flows, or industrial discharges which are point sources subject to permits under the *Federal Water Pollution Control Act*, or source, special nuclear, or by-product material as defined by the *Atomic Energy Act* of 1954.

- *Solid Waste Site or Facility* - any place at which solid waste is managed, processed, or disposed of by landfilling, incineration, landfarming, or any other method.

- *Spill* - any accidental spilling, leaking, pumping, pouring, emitting, or dumping of hazardous wastes or materials which, when spilled, become hazardous wastes into or on any land or water.

- *State* - any of the 50 states, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, American Samoa, the Northern Mariana Islands, or Guam, but does not include any foreign country.

- *Surface Impoundment* - a facility or part of a facility that is a natural topographic depression, man-made excavation, or diked area formed primarily of earthen materials (although it may be lined with manmade materials) and designed to hold an accumulation of liquid wastes or wastes containing free liquids, and that is not an injection well. Examples of surface impoundments are holding, storage, settling, and aeration pits, ponds, and lagoons.

- *Tank* - a stationary device designed to contain an accumulation of leachate or liquid solid waste and is constructed primarily of nonearthen materials (e.g., wood, concrete, steel, plastic) to provide structural support.

- *Transfer Facility* - any transportation-related facility, including loading docks, parking areas, storage areas, and other similar areas, where shipments of hazardous or solid waste are held during the normal course of transportation.

- *Treatment* - any method, technique, or process, including neutralization, designed to change the physical, chemical, or biological character or composition of any waste to neutralize waste or to render the waste nonhazardous, safer for transport, amenable for recovery, amenable for storage, or reduced in volume. The term includes any activity or processing designed to change the physical form or chemical composition of hazardous waste to render it nonhazardous.

- *Underground Drinking Water Source* - an aquifer supplying drinking water for human consumption, or an aquifer in which the groundwater contains less than 10,000 mg/ L total dissolved solids.

- *Used Oil* - a petroleum based or synthetic oil such as engine lubricant, engine oil, motor oil, lubricating oil for use in an internal combustion engine, or a lubricant for motor transmissions, gears, or axles which through use, storage, or handling has become unsuitable for its original purpose due to the presence of impurities or loss of original properties.

- *Washout* - the carrying away of waste by waters of the base flood.

- *Waste Facility* - a solid waste site or facility.

- *Water or Waters of the Commonwealth* - includes any and all rivers, streams, creeks, lakes, ponds, impounding reservoirs, springs, wells, marshes, and all other bodies of surface or underground water, natural or artificial, situated wholly or partly within or bordering upon the Commonwealth or within its jurisdiction.

- *Well* - any shaft or pit dug or bored into the earth, generally of cylindrical form, and often walled with bricks or tubing to prevent the earth from caving in.

- *Wetlands* - land that has a predominance of hydric soils and is inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of hydrophytic vegetation typically adapted for life in saturated soil conditions.

RESOURCE CONSERVATION AND RECOVERY ACT,

SUBTITLE D (RCRA-D)

GUIDANCE FOR KENTUCKY CHECKLIST USERS

Applicability	Refer to Checklist Items:
All Installations	5-1 through 5-3
Solid Waste Facilities - Environmental Standards	5-4 through 5-11
Landfarming and Composting	5-12 through 5-24
Construction/Demolition Debris Landfills	5-25 through 5-31
Contained Landfills	5-32 through 5-46
Residual Landfills	5-47 and 5-48
Medical Waste	5-49 and 5-50
Lead Acid Batteries	5-51 and 5-52
Used Oil	5-53

COMPLIANCE CATEGORY: Resource Conservation and Recovery Act, Subtitle D (RCRA-D) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
ALL INSTALLATIONS	
5-1. Installations must obtain a permit in order to construct, operate, or maintain a solid waste facility (401 KAR Chapter 47:100).	Determine if the installation operates a solid waste facility. Determine if the installation meets any of the following exemptions from the solid waste permit requirement: - disposers of agricultural waste, including manures and crop residues returned to the soil as fertilizers or soil conditioners by practices common to soil conditioning, if the wastes are used on the same farm on which they are generated - disposers of mining overburden, coal mining wastes, refuse, and coal mining by-products returned to the mine site or the site of generation, including any nonhazardous solid waste generated directly as a result of the mining operation onsite - operators of injection wells that dispose of solid waste with an underground injection control permit issued by the U.S. Environmental Protection Agency (USEPA), if they comply with the conditions of the permit - users of septic tanks in compliance with applicable state regulations - operators of mining surface impoundments and other surface impoundments with KPDES permits - persons managing solid waste during immediate response to a spill of a solid waste or an imminent and substantial threat of a spill of solid waste - operators of surface impoundments receiving solid waste that treat domestic sewage that does not contain any industrial wastewater, or are publicly owned treatment works for the treatment of domestic sewage. Verify that the installation has a solid waste permit, including registered permits-by-rule, prior to constructing, operating, or maintaining a solid waste facility. Verify that the installation meets all permit and permit application plan conditions.
5-2. Installations operating a solid waste facility with a registered permit-by-rule must meet specific requirements (401 KAR 47:110, Section 2).	Determine if the installation has a registered permit-by-rule. Verify that the facility does not store, treat, or dispose of solid waste not specified in the registration form or exceed the design capacities specified in the registration form. Verify that records are maintained of the amount, sources, and types of municipal solid waste received, as well as other information as required by the Cabinet, and that a quarterly summary of this information is submitted to the Cabinet.

COMPLIANCE CATEGORY: Resource Conservation and Recovery Act, Subtitle D (RCRA-D) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
5-2. (continued)	Verify that convenience centers, transfer stations, solid waste incinerators, and commercial recyclers submit a report to the Cabinet annually, no later than 31 January, identifying the sources and quantities of waste handled for the previous year. Verify that solid waste incinerators report the volume of ash and the results of weekly extraction procedure tests on the ash.
5-3. Installations operating solid waste facilities must have plans for surface and groundwater monitoring and corrective action (401 KAR 48:300, Section 1).	(NOTE: This requirement applies to contained, construction/demolition debris, residual landfills, Class II and III landfarming facilities, and other solid waste sites determined by the Cabinet (see Appendix 5-1 for landfarming facility class definition).) Verify that solid waste facilities are operated in accordance with the plans for surface and groundwater monitoring and corrective action in the approved permit application.
SOLID WASTE FACILITIES - ENVIRONMENTAL STANDARDS	
5-4. Installations operating solid waste facilities must meet specific standards concerning endangered and threatened species (401 KAR 47:030, Section 3).	Verify that the facility does not cause or contribute to the taking of any endangered or threatened species or candidate species of the Endangered Species Act. Verify that the facility does not result in the destruction or adverse modification of the critical habitat of endangered or threatened species or candidate species as identified in the Endangered Species Act.
5-5. Solid waste facilities must meet specific regulations concerning floodplains (401 KAR 47:030, Section 2).	Verify that the facility does not restrict the flow of the 100-yr flood, reduce the temporary water storage capacity of the floodplain, or result in washout of waste.

COMPLIANCE CATEGORY: Resource Conservation and Recovery Act, Subtitle D (RCRA-D) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
5-6. Solid waste facilities must meet specific regulations concerning surface water and groundwater (401 KAR 47:030, Sections 4 through 6).	Verify that the facility does not cause discharges of pollutants into waters of the Commonwealth, including wetlands, that violate any requirements of the KPDES. Verify that the facility does not cause a discharge of dredged material or fill material to waters of the Commonwealth. Verify that the facility does not cause releases of nonpoint source pollution to waters of the Commonwealth, including wetlands, that violate any requirements of the Kentucky Nonpoint Source Pollution Program. Verify that the facility does not contaminate an underground drinking water source beyond the point of compliance with levels set by the Cabinet.
5-7. Solid waste facilities must meet specific requirements concerning the application of solid waste to land used for the production of food chain crops (401 KAR 47:030, Section 7).	Verify that solid waste is not applied within 3 ft of the surface of land used for the production of food chain crops unless pH and cadmium levels meet the levels set by the Cabinet.
5-8. Solid waste facilities must meet specific PCB requirements (401 KAR 47:030, Section 8).	Verify that the facility does not place solid waste containing concentrations of PCB equal to or greater than 1 mg/kg (dry weight) on the land. (NOTE: Residual landfills may dispose of PCB in accordance with their permit, and contained landfills may dispose of solid wastes containing PCB equal to 49 mg/kg (dry weight) or less.)
5-9. Solid waste facilities must meet requirements concerning disease vectors, air pollution, and public nuisances (401 KAR 47:030, Sections 9, 10, and 12).	Verify that the onsite population of disease vectors is prevented or controlled through the periodic application of cover material or other techniques as appropriate to protect human health and the environment. Verify that sewage sludge and septic tank pumpings are not applied within 3 ft of the surface of the land unless methods have been utilized to reduce pathogens. Verify that blowing litter, debris, and other waste or material do not become a public nuisance. Verify that the facility does not engage in open burning of solid or hazardous wastes. (NOTE: The open burning requirement does not apply to infrequent burning of agricultural wastes in the field, silvicultural wastes for forest management purposes, land-clearing debris, diseased trees, debris from emergency cleanup operations, or ordnance.)

COMPLIANCE CATEGORY: Resource Conservation and Recovery Act, Subtitle D (RCRA-D) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
5-10. Solid waste facilities must meet specific safety requirements (401 KAR 47:030, Section 11).	Verify that the concentration of explosive gases generated at the facility do not exceed the following concentrations: - 25 percent of the lower explosive limit for gases in facility structures (excluding gas control or recovery system components) - the lower explosive limit for gases at the facility boundary. Verify that the facility does not pose a fire hazard to the safety of persons or property. Verify that public access, unauthorized vehicular traffic, and illegal dumping of wastes are controlled through the use of artificial or natural barriers.
5-11. Solid waste facilities must not be located in wetlands (401 KAR 47:030, Section 13).	Verify that the solid waste facility is not located in a wetland.
LANDFARMING AND COMPOSTING	
5-12. Installations that dispose of solid waste by landfarming must have a landfarming permit or a registered permit-by-rule (401 KAR 48:200, Section 1).	Determine if the installation disposes of solid waste by landfarming. Determine if the solid waste being landfarmed or composted is classified as Class I, Class II, or Class III (see Appendix 5-1). Verify that the installation has obtained a landfarming permit or a registered permit-by-rule and operates under the conditions of the permit.
5-13. Landfarming facilities that compost sludge or solid waste must have a registered permit-by-rule (401 KAR 48:200, Sections 14 and 15).	Determine if the site composts sludge or solid waste. Verify that the landfarming facility has a registered permit-by-rule.

COMPLIANCE CATEGORY: Resource Conservation and Recovery Act, Subtitle D (RCRA-D) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
5-14. Installations that dispose of solid waste by landfarming or composting must meet specific siting requirements (401 KAR 48:200, Section 7).	Verify that solid waste is not applied in the 100-yr floodplain unless the waste is injected or incorporated. Verify that the land application unit has a minimum of 4 ft of soil between the soil surface and both the seasonal high water table and bedrock. Verify that solid waste applications are not located on soils with a permeability rate greater than 6 in./h or less than 0.2 in./h. Verify that land application units are not located on land with a slope greater than 15 percent.
5-15. Landfarming facilities must meet general operating requirements (401 KAR 48:200, Section 8(5), (6), (8), (13), (14), (16), and (17)).	Verify that no hazardous wastes or mixtures of hazardous and solid waste are disposed of, discharged to, or placed in a landfarming facility. Verify that no toxic wastes or mixtures of toxic and nontoxic wastes regulated under the Toxic Substances Control Act are disposed of, discharged to, or placed in a landfarming facility. Verify that the general public is restricted from the application zone for a period of 12 mo after each application. Verify that there is no high pressure spray irrigation of sludge that produces aerosols. Verify that subplots are staked or otherwise clearly marked in the field. Verify that there is no surface water or solid waste ponding within the application zone. Verify that surface run-on/runoff is controlled to minimize the possibility of applied solid waste contaminating nearby surface water or adjacent land areas.

COMPLIANCE CATEGORY: Resource Conservation and Recovery Act, Subtitle D (RCRA-D) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
5-16. Landfarming facilities must meet specific application requirements (401 KAR 48:200, Section 8(1) through (4) and (9) through (12)).	Verify that, prior to land application, all sludges are processed by one of the following methods to significantly reduce pathogens: - aerobic digestion - air drying - anaerobic digestion - composting - lime stabilization - another equivalent method. Verify that all sludge applications are accomplished under the direction of a certified landfarming operator. Verify that, when surface application is used in conjunction with soil incorporation methods, incorporation occurs within 48 h of sludge application. Verify that surface application without incorporation into the soil is not used on land without established vegetative cover or crop residue of at least 75 percent. Verify that solid waste is not land spread on frozen, snow covered, ice covered, or water saturated soil, or during any precipitation event. Verify that no solid waste is applied in excess of schedules and rates of waste application approved by the Cabinet. Verify that the amount of any single surface application is not greater than an average 1/2 in. in thickness. Verify that no raw or unstabilized solid waste is landfarmed.
5-17. Landfarming facilities must meet specific agricultural use requirements (401 KAR 48:200, Section 8(7)).	Verify that land spreading does not occur on land where leafy vegetables or root crops for human consumption will be harvested within 12 mo. Verify that land spreading does not occur on land where crops for direct human consumption, other than leafy vegetables or root crops, will be harvested within 2 mo. Verify that there is no dairy grazing for 6 mo after land spreading and no other livestock grazing for 3 mo. Verify that, when the annual application rate of cadmium exceeds 0.44 lb/acre, food chain crops are not utilized in the following cropping season. Verify that there is no solid waste spread where tobacco will be harvested within 5 yr of waste application if the annual application rate of cadmium from the sludge exceeds 0.44 lb/acre at any time during the life of the landfarming site.

COMPLIANCE CATEGORY: Resource Conservation and Recovery Act, Subtitle D (RCRA-D) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
5-18. Landfarming facilities must meet specific buffer zone requirements (401 KAR 48:200, Section 8(15)).	Verify that the landfarming site is maintained according to the buffer zone requirements found in Appendix 5-2.
5-19. Landfarming facilities must meet specific recordkeeping requirements (401 KAR 48:200, Section 8(18) and (19)).	Verify that, at a minimum, records contain the schedules and rates of waste application and all laboratory analyses. Verify that an annual report of landfarming activities is submitted to the Cabinet 60 days prior to the anniversary date of the permit or registered permit-by-rule issuance.
5-20. Landfarming facilities must conduct soil monitoring and solid waste sampling in accordance with the permit (401 KAR 48:200, Section 8(20)).	Verify that soil monitoring and solid waste sampling is conducted in accordance with the permit.
5-21. Landfarming facilities that landfarm Class I sludges must limit the annual application rate to a maximum of 15 dry tons of sludge per acre per year (401 KAR 48:200, Section 8(26)).	Determine if the site landfarms Class I sludges (see Appendix 5-1). Verify that the annual application rate is limited to a maximum of 15 dry tons of sludge per acre per year.
5-22. Landfarming facilities that landfarm Class II and Class III sludges must sample surface water quarterly (401 KAR 48:200, Section 8(27) and (28)).	Determine if the site landfarms Class II or Class III sludges (see Appendix 5-1). Verify that the site samples surface water quarterly.
5-23. Landfarming facilities must meet specific requirements to distribute Class I or Class II sludges as a soil conditioner (401 KAR 48:200, Section 13).	Determine if the site participates in the distribution of Class I or Class II sludge (see Appendix 5-1). Verify that the landfarming facility has a registered permit-by-rule for the distribution of sludge.

COMPLIANCE CATEGORY: Resource Conservation and Recovery Act, Subtitle D (RCRA-D) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
5-24. Landfarming facilities that are closing must submit a closure report to the Cabinet (401 KAR 48:200, Section 10).	Verify that a closure report including the following information is submitted to the Cabinet: - final soil samples - final surface water samples - a historical summary of all landfarming by subplot - final groundwater samples.
CONSTRUCTION/ DEMOLITION DEBRIS LANDFILLS	
5-25. Construction/ demolition, contained, and residual landfills must meet specific siting requirements (401 KAR 48:050).	Determine if the installation operates a construction/demolition debris, contained, or residual landfill. Verify that wastes are not placed: - within 250 ft of an intermittent or perennial stream unless a water quality certification has been issued - within the zone of collapse of deep-mine workings or within the critical angle of draw of such workings - within 250 ft of a feature of karst terrain - within 250 ft of a residence - within 50 ft of a gas, sewer, or water line - within 250 ft of an unplugged well, except monitoring wells. Verify that the lowest component of the bottom liner of new units of a landfill is at least 4 ft above the seasonal high groundwater table. Verify that wastes leaching heavy metals in concentrations exceeding the primary drinking water standards (analyzed using the toxicity characteristic leaching procedure test) are placed no closer than 5 ft above the seasonal high groundwater level. Verify that waste disposed in residual or construction/demolition debris landfill is not placed within the 100-yr floodplain of the waters of the Commonwealth unless requirements concerning the base flow restriction, temporary water storage capacity reduction, and waste washout are met. Verify that a new contained landfill is not located within 10,000 ft of any airport runway used by turbojet aircraft or within 5000 ft of any airport runway used by only piston-type aircraft and that no landfill poses a bird hazard to aircraft. Verify that waste cells of a solid waste landfill are not located within 200 ft of a fault that has had displacement in Holocene time.

COMPLIANCE CATEGORY: Resource Conservation and Recovery Act, Subtitle D (RCRA-D) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
5-26. Construction/ demolition debris landfills must meet specific operating requirements concerning signs and access (401 KAR 48:060, Section 2(5), (7), and (8)).	Verify that a sign is posted at the entrance to the construction/demolition debris landfill that states the following information: - name of the installation - emergency telephone number - operating hours of the facility - permit number. Verify that a certified operator is on duty when the site is open for use. Verify that uncontrolled access is not allowed. Verify that all-weather roads are provided at the site for vehicular movement.
5-27. Construction/ demolition debris landfills must meet specific operating requirements concerning nuisance conditions (401 KAR 48:060, Section 2(4)).	Verify that dust on haul roads and other areas is controlled. Verify that interior fences are used to prevent blowing litter, if necessary. Verify that scattered material in the permitted area is collected on a routine basis.
5-28. Construction/ demolition debris landfills must meet specific compaction, cover, and general landfill care requirements (401 KAR 48:060, Section 2(13), (14), (16), (17), and (23)).	Verify that construction and demolition debris waste is spread and compacted in thin layers sufficient to minimize void spaces during placement of lifts. Verify that lifts are less than 8 ft in depth or the depth approved in the application. Verify that a 12 in. soil cover is applied so the area of exposed waste does not exceed 10,000 ft^2. Verify that all exposed wastes are covered at least once a week. Verify that the entire site, including the actively worked area of the landfill, is maintained as necessary to prevent erosion or washing of the fill, to drain precipitation from the fill area, to prevent surface water run-on, and to prevent standing water. Verify that surfaces not receiving an additional depth of refuse or final cover within 90 days are temporarily revegetated or otherwise protected against erosion. Verify that ditches are kept free of waste and debris, and the sediment basin is dredged to maintain design capacity.

COMPLIANCE CATEGORY: Resource Conservation and Recovery Act, Subtitle D (RCRA-D) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
5-29. Construction/ demolition debris landfills must have a program at the facility for detecting and preventing the disposal of unauthorized wastes (401 KAR 48:060, Section 2(22)).	Verify that a program is implemented at the facility for detecting and preventing the disposal of unauthorized wastes, including the following: - observance by the operator of all loads during dumping and spreading - training of facility personnel to recognize unauthorized waste - procedures for notifying the proper authorities if an unauthorized waste is discovered at the facility.
5-30. The current or last permit issued must be displayed at the construction/ demolition debris landfill (401 KAR 48:060, Section 2(24)).	Verify that the current or last permit issued with all applicable conditions is displayed at the landfill, and a copy of the approved application including plans is reasonably available for use at the site.
5-31. The construction/ demolition debris landfill must be closed according to the approved closure plan and other closure care requirements (401 KAR 48:060, Section 3).	Determine if the installation has a construction/ demolition debris landfill that has closed or is preparing to close. Verify that the facility is closed according to the approved closure schedule. Verify that areas of the landfill receive final cover within 365 days of the last placement of waste. Verify that the final cover is graded and revegetated. Verify that a notice is placed in the deed of the property noting the location and time of operation of the facility, the nature of the waste placed in the site, and a caution against future disturbance of the area.
CONTAINED LANDFILLS	
5-32. Contained landfills must meet general operating requirements (401 KAR 48:090, Sections 10 and 11).	Verify that operating records and reports are maintained and submitted to the Cabinet. Verify that safe and sanitary employee buildings are provided for site personnel.

COMPLIANCE CATEGORY: Resource Conservation and Recovery Act, Subtitle D (RCRA-D) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
5-33. Contained landfills must implement a program for detecting and preventing the disposal of regulated hazardous wastes and PCB (401 KAR 48:090, Section 2).	Verify that the program for detecting and preventing the disposal of hazardous wastes and PCB includes the following: - random inspection of incoming loads - inspection of suspicious loads - records of any inspections - training of facility personnel to recognize regulated hazardous waste - procedures for notifying the proper authorities if a regulated hazardous waste is discovered at the facility - employee safety, health, training, and equipment to be used in inspection. Verify that the inspection program is approved by the Cabinet and includes random inspections in time, but uniformly distributed to all waste sources based on volume. Verify that the records of inspections include the following: - name of the driver - name of the hauler - address - source - volume - waste characteristics. Verify that, upon discovery of hazardous waste, the load is isolated and the Cabinet is immediately notified.
5-34. Contained landfills must meet specific requirements for daily cover (401 KAR 48:090, Section 3(1)).	Verify that the cover material is soil or properly weathered or crushed shales, siltstones, or another material approved by the Cabinet. Verify that a minimum of 6 in. of cover is placed over all exposed solid waste at the end of each working day, or for continuously operating landfills, once every 24 h. Verify that the daily cover has no protruding waste, except for the occasional litter embedded into the surface. Verify that the daily cover is compacted upon application.
5-35. Contained landfills must meet specific requirements for interim cover (401 KAR 48:090, Section 3(2)).	Verify that an additional 6 in. of interim cover is placed over any area that has not received additional solid waste within 30 days of the last waste placement. Verify that the interim cover is placed, compacted, and graded to effect proper drainage. Verify that temporary erosion controls are applied at the time of placing the interim cover. Verify that proper seeding is completed during the fall seeding season.

COMPLIANCE CATEGORY: Resource Conservation and Recovery Act, Subtitle D (RCRA-D) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
5-36. Contained landfills must meet specific requirements for long-term cover (401 KAR 48:090, Section 3(3)).	Verify that an additional 18 in. of long-term cover is applied over all areas that will have not received additional waste within 4 mo by 15 September of each year. Verify that the long-term cover is placed, compacted, and graded to effect proper drainage. Verify that erosion controls and proper seeding is completed during the fall seeding season.
5-37. Contained landfills must meet specific requirements for final cover (401 KAR 48:090, Section 3(4)).	Verify that final cover is applied within 30 days of filling a completed phase of the landfill to final design grade and annually so the final cap is in place by 15 September in all areas of the landfill that have reached final grade by 15 August of each year.
5-38. Contained landfills must complete a cover report (401 KAR 48:090, Section 3(5)).	Verify that a cover report is complete and contains the following information: - the daily cell locations - dates of cover application at the landfill - certification reports.
5-39. Contained landfills must control and monitor explosive gases (401 KAR 48:090, Section 4).	Verify that the concentration of methane gas generated by the facility does not exceed 25 percent of the lower explosive limit for methane in facility structures, and the concentration of methane gas does not exceed the lower explosive limit for methane at the facility property boundary. Verify that explosive gases are monitored quarterly at the following locations: - underneath or in the low area of each onsite building - at locations along the boundary as shown in the permit - at each gas passive vent installed under the final closure cap - at any potential gas problem areas, as revealed by dead vegetation or other indicators - at any other points required by the permit. Verify that the facility records the date, time, location, percent lower explosive limit, and any other pertinent information in the operating record. Verify that a gas detector with an alarm set at 25 percent of the lower explosive limit is installed and operated in each onsite building. Verify that, if methane gas levels exceeding the specified limits are detected, the following actions are taken:

COMPLIANCE CATEGORY: *Resource Conservation and Recovery Act, Subtitle D (RCRA-D)* Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
5-39. (continued)	- necessary steps to ensure immediate protection of human health - immediate notification of the Cabinet - within 14 days, submit a remediation plan for the release of methane gas to the Cabinet for approval.
5-40. Each access point of the contained landfill must be controlled by a lockable entrance way (401 KAR 48:090, Section 6(2)).	Verify that each access point of the contained landfill is controlled by a lockable entrance way.
5-41. Contained landfills must take specific water control measures (401 KAR 48:090, Section 7).	Verify that the site is maintained as necessary to prevent erosion or washing of the fill and is graded as necessary to drain rain water from the fill area and to prevent standing water. Verify that all run-on and runoff control systems are maintained, as necessary, to maintain original design capacity.
5-42. Contained landfills must meet specific waste restrictions (401 KAR 48:090, Section 8).	Verify that hazardous wastes are not disposed of in the contained landfill, except for a *limited quantity* and *exempt spill residues*. Verify that no wastes disposed of in the contained landfill include free liquids. Verify that any wastes disposed of in the contained landfill are specified in the approved permit application. Verify that records are maintained pertaining to the location of disposed *limited quantity* hazardous waste and exempt spill residues.
5-43. Contained landfills must meet specific working face requirements (401 KAR 48:090, Section 9).	Verify that, within 2 h of receipt, wastes are spread in loose layers not exceeding 24 in. in depth and compacted to the maximum practicable density with equipment specified in the permit for compaction. Verify that the lift height does not exceed the lift height specified in the permit. Verify that no objects are placed in the initial lift that may damage the bottom liner. Verify that the daily working face is restricted to the smallest area practical. Verify that there is no scavenging within 100 ft of the working face. Verify that there is only access to the landfill when operating personnel are on the site.

COMPLIANCE CATEGORY: Resource Conservation and Recovery Act, Subtitle D (RCRA-D) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
5-43. (continued)	Verify that solid waste is not accepted at a rate that exceeds the rated capability of the operational compaction and cover equipment available onsite. Verify that solid waste is only accepted when landfill personnel are present to supervise the unloading. Verify that all litter attributable to the site's operation is picked up within 48 h. Verify that, unless excluded from the site, large, bulky items and other nonresidential wastes are deposited in a manner approved by the Cabinet.
5-44. Contained landfills must have signs posted at all access and entrance points (401 KAR 48:090, Section 14).	Verify that warning signs with warnings of all site hazards are visible at all landfill access points. Verify that entrance signs with the landfill name, name of the installation, the hours for receiving wastes, the permit number, and an emergency telephone number are visible at all public entrances and at entrances used by waste hauling vehicles.
5-45. Contained landfills must meet specific closure and closure care requirements (401 KAR 48:090, Section 13).	Verify that the contained landfill is closed in accordance with the approved closure plan and closure care plan. Verify that a notice is placed in the deed of the property noting the location and time of operation of the facility, the nature of the waste placed in the site, and a caution against future disturbance of the area.
5-46. Contained landfills must meet specific liner and liner cap design requirements (401 KAR 48:080).	Verify that the contained landfill liner and liner system are operated according to the conditions specified in the approved permit application.

COMPLIANCE CATEGORY: Resource Conservation and Recovery Act, Subtitle D (RCRA-D) Kentucky Supplement	
REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
RESIDUAL LANDFILLS	
5-47. Residual landfills must meet general operating requirements (401 KAR 48:170, Sections 2 and 4).	Verify that a sign is located at the entrance of the facility with the following information: - landfill name - name of the installation - hours the landfill accepts waste - the permit number - the contact person - emergency phone number. Verify that records and reports are maintained and submitted to the Cabinet. Verify that all other requirements placed on the landfill are met. Verify that the approved permit with all applicable conditions is conspicuously displayed at the site, and a copy of the approved application, including plans, is available at the site.
5-48. Residual landfills must meet specific closure and closure care requirements (401 KAR 48:170, Section 3).	Verify that the residual landfill is closed in accordance with the approved closure plan and closure care plan. Verify that a notice is placed in the deed of the property noting the location and time of operation of the facility, the nature of the waste placed in the site, and a caution against future disturbance of the area.
MEDICAL WASTE	(NOTE: Medical waste standards apply at this time only to hospitals and nursing homes.)
5-49. Sharp wastes management must meet specific standards (401 KAR 20:016 (10)(g)).	Verify that sharp wastes are segregated from other wastes and placed in puncture resistant containers immediately after use. Verify that needles are not recapped, purposely bent or broken, or otherwise manipulated by hand. Verify that containers of sharp wastes are incinerated on or offsite or treated by a method approved by both the Cabinet for Human Resources and the Natural Resources and Environmental Protection Cabinet.

COMPLIANCE CATEGORY: Resource Conservation and Recovery Act, Subtitle D (RCRA-D) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
5-50. Disposal of medical waste must meet specific standards (401 KAR 20:016, Section (10)(h)).	Verify that all disposable waste is placed in suitable bags or closed containers so as to prevent leakage or spillage and is handled, stored, and disposed of in such a way as to minimize direct exposure of personnel to waste materials. Verify that microbiology laboratory waste is either incinerated, autoclaved or rendered nonhazardous by technology approved by both the Cabinet for Human Resources and the Natural Resources and Environmental Protection Cabinet. Verify that pathological waste (including all tissue specimens from surgical or necropsy procedures) is incinerated. Verify that blood, blood specimens, used blood tubes, and blood products are disposed of by incineration, autoclaved before disposal, or carefully poured down a drain connected to a sanitary sewer. Verify that any wastes conveyed to a sanitary sewer meet applicable Federal, state, and local pretreatment regulations.
LEAD ACID BATTERIES	
5-51. Retail and wholesale sellers of new lead acid batteries are required to accept used lead acid batteries for recycling (Kentucky Revised Statues (KRS), Section 224.50-413).	Verify that retail sellers of new lead acid batteries accept used lead acid batteries. (NOTE: Retail sellers are required to accept only one used battery for each battery sold.) Verify that retail sellers post notice at the place of retail sale that they are required to accept used batteries. Verify that wholesale sellers accept used lead acid batteries equal to the quantity sold and of the same type as the new batteries sold. Verify that wholesale sellers remove the used lead acid batteries from the retailer's place of business no later than 90 days after the retailer notifies the wholesaler that there are used lead acid batteries ready for recycling.
5-52. Used lead acid batteries are banned from disposal in a landfill or an incinerator (KRS, Section 224.50-410).	Verify that used lead acid batteries are not placed in mixed solid waste. Verify that used lead acid batteries are not accepted for disposal in a landfill or an incinerator. Verify that used lead acid batteries are delivered to a wholesale or retail seller, a permitted secondary lead smelter, a recycling facility that extracts the lead and chemical components for reuse, or a collection center that delivers to a smelter or a recycling facility.

COMPLIANCE CATEGORY: Resource Conservation and Recovery Act, Subtitle D (RCRA-D) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
USED OIL **5-53.** The management of used oil must meet specific requirements (KRS, Section 224.50-545).	Verify that the management of used oil does not endanger the public health or welfare or violate any other law or regulation. Verify that used oil is not disposed of by discharge into sewers, drainage systems, surface or groundwaters, or incineration other than for energy-generating purposes. Verify that used oil is collected and recycled to the maximum extent possible by economically feasible and environmentally sound means. Verify that persons transporting more than 500 gal of used oil annually over public highways or maintaining any storage facility that receives more than 10,000 gal of used oil annually are registered as a used oil collector. Verify that persons recycling more than 500 gal of used oil annually are registered as a used oil recycler. (NOTE: Persons or facilities transporting, storing, or recycling used oil solely from sources owned or operated by that person or facility are not required to register.) Verify that registered transporters, storage facilities, or recyclers provide receipts to any person from whom used oil is received. (NOTE: Any receipts received from permitted used oil facilities or transporters should be maintained in the facility's records.)

Appendix 5 - 1

Heavy Metal Concentrations for Classification Sludge or Solid Waste Landfarming

(Source: 401 KAR 48:200, Section 1)

Parameters for Class I Concentration

Cadmium	Less than or equal to 10 mg/kg
Copper	Less than or equal to 450 mg/kg
Lead	Less than or equal to 250 mg/kg
Nickel	Less than or equal to 50 mg/kg
Zinc	Less than or equal to 900 mg/kg

Parameters for Class II Concentration

Cadmium	Greater than 10 mg/kg and less than or equal to 30 mg/kg
Copper	Greater than 450 mg/kg and less than or equal to 900 mg/kg
Lead	Greater than 250 mg/kg and less than or equal to 500 mg/kg
Nickel	Greater than 50 mg/kg and less than or equal to 100 mg/kg
Zinc	Greater than 900 mg/kg and less than or equal to 1800 mg/kg

Parameters for Class III Concentration

Cadmium	Greater than 30 mg/kg
Copper	Greater than 900 mg/kg
Lead	Greater than 500 mg/kg
Nickel	Greater than 100 mg/kg
Zinc	Greater than 1800 mg/kg

Appendix 5 - 2

Required Buffer Zones for Applying Sludges to Land

(Source: 401 KAR 48:200, Section 8)

Minimum Distance in Feet from the Boundary of the Application Zone

Structure or Object	Surface Injection	All Other Means of Application
Residences and occupied buildings	250	500
Drinking water well	250	500
Surface water body	250	500
Intermittent stream	250	500
Karst feature	250	500
Public road	30	50
Ephemeral stream	30	50
Property line	30	50

INSTALLATION:	COMPLIANCE CATEGORY: Resource Conservation & Recovery Act - Subtitle D (RCRA-D) Kentucky Supplement	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWER COMMENTS:		

SECTION 6

RESOURCE CONSERVATION AND RECOVERY ACT,

SUBTITLE I (RCRA-I)

Kentucky Supplement

SECTION 6

RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE I (RCRA-I)

Kentucky Supplement

Kentucky has adopted by reference Title 40 of the Code of Federal Regulations (CFR) Section 280, as amended through 12 June 1990. See the U.S. ECAS Manual for these requirements, and this Protocol for registration requirements.

RESOURCE CONSERVATION AND RECOVERY ACT,

SUBTITLE I (RCRA-I)

GUIDANCE FOR KENTUCKY CHECKLIST USERS

Applicability	Refer to Checklist Items:
Registration	6-1

COMPLIANCE CATEGORY: Resource Conservation and Recovery Act, Subtitle I (RCRA-I) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
REGISTRATION **6-1.** All underground storage tanks containing regulated substances must be registered with the state Underground Storage Tank (UST) Program (401 Kentucky Administrative Regulations (KAR) 42:020).	Verify that the installation registers underground storage tanks containing regulated substances. Verify that the installation meets the Federal requirements, as adopted, for underground storage tanks containing regulated substances. (NOTE: Regulated substances are defined under the Federal UST requirements.)

INSTALLATION:	COMPLIANCE CATEGORY: Resource Conservation & Recovery Act - Subtitle I (RCRA-I) Kentucky Supplement	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWER COMMENTS:		

SECTION 7

COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT (CERCLA) / SUPERFUND AMENDMENT AND REAUTHORIZATION ACT (SARA) AND RCRA CORRECTIVE ACTIONS

Kentucky Supplement

SECTION 7

COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT (CERCLA)/SUPERFUND AMENDMENT AND REAUTHORIZATION ACT (SARA) AND RCRA CORRECTIVE ACTIONS

Kentucky Supplement

Regulations promulgated under the authority of CERCLA/SARA are applicable to installations in Kentucky. Kentucky statutes require release reporting of any oil or hazardous materials. Refer to Protocol 7 in the U.S. ECAS Manual for Federal, Army, and DOD requirements.

INSTALLATION:	COMPLIANCE CATEGORY: Comprehensive Environmental Response Compensation & Liability Act / Superfund Amendment and Reauthorisation Act And RCRA Corrective Actions Kentucky Supplement	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWER COMMENTS:		

SECTION 8

TOXIC SUBSTANCES CONTROL ACT (TSCA)

Kentucky Supplement

SECTION 8

TOXIC SUBSTANCES CONTROL ACT (TSCA)

Kentucky Supplement

Regulations promulgated under the authority of the *TSCA* are applicable to installations in Kentucky. Refer to the U.S. ECAS Manual for Federal, Army, and DOD requirements for the management of polychlorinated biphenyls (PCBs). Kentucky does regulate PCBs under Environmental Performance Standards and Water Quality Criteria promulgated by the Natural Resources and Environmental Protection Cabinet.

INSTALLATION:	COMPLIANCE CATEGORY: TOXIC SUBSTANCES CONTROL ACT (TSCA) Kentucky Supplement	DATE:	REVIEWER(S):

STATUS NA C RMA	REVIEWER COMMENTS:

SECTION 9

FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT (FIFRA)

Kentucky Supplement

SECTION 9

FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT (FIFRA)

Kentucky Supplement

Definitions

The following definitions are taken from the Kentucky Department of Agriculture (KDA), Division of Pesticides, Title 302, Chapter 31 and the *Pesticide Use and Application Act*, Kentucky Revised Statutes (KRS) 217B.

- *Accident* - an unexpected, undesirable event caused by the use or presence of a pesticide that adversely affects man and/or the environment.

- *Carpenter Ants* - ants that damage wooden structures and are classified within the genus Camponotus.

- *Carpenter Bees* - bees that damage wooden structures and are classified in the genus Xylocopa.

- *Certification or Certified* - recognition by the Department that a person has demonstrated at least a minimum acceptable level of competence by examination or otherwise, and is authorized to use or supervise the use of restricted-use pesticides in the area of certification.

- *Competent* - properly qualified to perform functions associated with pesticide application, the degree of capability required being directly related to the nature of the activity and the associated responsibility.

- *Continuing Certification Unit* - ten contact instructional hours of 50 min each.

- *Defoliant* - any substance or mixture of substances intended to cause the leaves or foliage to drop from a plant with or without causing abscission.

- *Department* - Kentucky Department of Agriculture.

- *Desiccant* - any substance or mixture of substances intended to artificially accelerate the drying of plant tissues.

- *Distribute* - to offer for sale, hold for sale, sell, barter, ship, deliver for shipment, or receive, and, having received, deliver or offer to deliver any pesticides in this state except internal distribution within a company or organization.

- *Engage in Business* - any application of pesticide by any person upon the lands of another.

- *Environment* - water, air, land, plants, man, and other animals living in an area and the interrelationships that exist among them.

- *Equipment* - any type of ground, water, or aerial equipment, device, or contrivance using motorized, mechanical, or pressurized power and used to apply any pesticide on land, and anything that may be growing, habitating, or stored on or in such land; equipment does not include any pressurized, hand-sized household device used to apply any pesticide.

- *Full-Time Supervision* - the act or process whereby professional work or services are made by a competent person acting under the instruction and control of an applicator or manager who is responsible for the actions of that person and who is available if and when needed, even though such applicator or manager is not physically present at the time and place that professional work or services are performed.

- *Fumigation* - the use of poisonous gases for the control of pests in enclosed spaces including, but not restricted to, structures such as boxcars, warehouses, ships, barges, homes, garages, and granaries.

- *Fumigation (Exceptions)* - the following procedures are not considered fumigation operations where nonrestricted use pesticides are used according to label directions:
  1. aerosol dispersions
  2. any equipment or device that produces a fog, smoke, or mist.

- *Fumigants (Exceptions)* - the following pesticides are not considered fumigants: paradichlorobenzene, naphthalene, and calcium cyanide used as labeled to kill rodents in their burrows.

- *Fungi* - all nonchlorophyll-bearing thallophytes (all nonchlorophyll bearing plants of a lower order than mosses and liverworts); for example, rusts, smuts, mildews, molds, yeasts, bacteria, and viruses, except those on or in living man or other living animals, and except those in or on processed food, beverages, or pharmaceuticals.

- *General Pests* - any arthropods, mollusks, annelid worms, rodents, or other pestiferous vermin, vertebrate animals, or fungi, excluding termites, old house borer beetles, powder post beetles, carpenter ants, and carpenter bees.

- *Hazard* - a probability that a given pesticide will have an adverse effect on man or the environment in a given situation; the relative likelihood of danger or ill effect is dependent on a number of interrelated factors present at any given time.

- *Insect* - any of the numerous small invertebrate animals generally having the body more or less obviously segmented, and for the most part belonging to the class Insecta, which comprises six-legged, usually winged forms, as for example beetles, bugs, bees, wasps, flies, and to other allied classes of arthropods whose members are wingless and usually have more than six legs, as for example spiders, mites, ticks, centipedes, and wood lice, also nematodes and other worms, and any other invertebrates which are destructive, constitute a liability, and may be classed as pests.

- *Labeling* - the written, printed, or graphic matter on, physically attached to, included with, or referenced in any matter accompanying the pesticide, device, or any of its containers or wrappers.

- *Land* - all land and water area, including airspace, and all plants, animals, structures, building devices, and contrivances and machinery appurtenant thereto or situated thereon, fixed or mobile, including any used for transportation.

- *Lawn* - land covered with turf kept closely mowed except land areas used for agricultural production, golf courses, commercial production of turf, or land situated within 3 ft of the foundation of a structure when a pesticide is applied to this area as a preventive or control measure for structural pests.

- *Lawn Chemicals* - fertilizers, pesticides, or defoliants applied or intended for application to lawns.

- *Nematode* - any invertebrate animals of the phylum Nemathelminthes and class Nematoda, that is, unsegmented, round worms with elongated, fusiform, or sac-like bodies covered with cuticle and inhabiting soil, water, plants, or plant parts; these may also be called nemas or eelworms.

- *Old House Borer* - the cerambycid beetle *Hylotrupes bajalus* (L.).

- *Person* - any individual, partnership, association, or any organized group of persons whether incorporated or not.

- *Pest Control Consultant* - any person who, for a fee, offers or supplies technical advice, supervision, and aid or who recommends the use of specified pesticides for the purpose of controlling insect pests, plant diseases, weeds, and other pests.

- *Pesticide* - any substance or mixture of substances intended to prevent, destroy, control, repel, attract, or mitigate any pest; any substance or mixture of substances intended to be used as a plant regulator, defoliant, or desiccant; and any substance or mixture of substances intended to be used as a spray adjuvant.

- *Plant Regulator* - any substance or mixture of substances intended through physiological action to accelerate or retard the rate of growth or maturation or to otherwise alter the behavior of plants; plant regulator does not include substances intended to be used as plant nutrients, trace elements, nutritional chemicals, plant inoculants, or soil amendments.

- *Powder Post Beetle* - the beetles that damage wooden structures and are classified within the genus Camponotus.

- *Regulated Pest* - an organism for which restrictions, regulations, or control procedures are in effect to protect the host, man, or the environment.

- *Restricted-Use Pesticide* - a pesticide classified for restricted-use by the U.S. Environmental Protection Agency (USEPA) or by the Commissioner of Agriculture. (NOTE: Kentucky has no restricted-use pesticides other than those listed as restricted by the USEPA.)

- *Spot Fumigation* - fumigation operations performed in special rooms, vaults, chambers, tanks, railroad boxcars, aircraft, or other enclosed areas of limited size that are segregated so the fumigation crews and other persons remain outside and are not exposed to toxic concentrations of the fumigants used.

- *Spray Adjuvant* - any wetting agent, spreading agent, sticker, deposit builder, adhesive, emulsifying agent, deflocculating agent, water modifier, or similar agent intended to be used with any other pesticide as an aid to the application or to the effect thereof, and which is in a package or container separate from that of the other pesticide with which it is to be used.

- *Structural Pests* - a pest that commonly invades or attacks dwellings or structures.

- *Structural Pest Control* - the control of termites or pests, including the identification of infestations or infections; the making of inspections, inspection reports and recommendations; offering advice regarding control methods or sanitation procedures relative to termites and general pests; estimates or bids, whether oral or written, with respect to such infestations; issuing contracts or submitting bids for, advertising for, or performing services designated to prevent, control, repel, or eliminate such infestations by the use of pesticides, mechanical devices, or structural modifications under whatever name known, for the purpose of preventing, controlling and repelling wood destroying organisms and general pests in household structures (including those in all stages of construction) or the contents

thereof, with outside areas, including the treatment of railroad cars, trucks, ships and airplanes or any one or any combination thereof. Excluded under this definition are textile manufacturers, cleaners, or furriers who treat fabrics or furs in their place of business exclusively.

- *Substandard Structure* - structures with less than 14 in. of clearance between the soil and the bottom of the floor joists in the crawl area, structures with wood-to-soil contact, or any other structures that cannot be treated according to normal standards.

- *Termite* - the eastern subterranean termite, *Reticulotermes flavipes* (Kollar), the southeastern subterranean termite, *R. virginicus* Banks, or the light southeastern subterranean termite, *R. hageni* Banks.

- *Toxicity* - the property of a pesticide that causes any adverse physiological effects on a living organism.

- *Turf* - the upper stratum of soils bound by grass and plant roots into a thick mat.

- *Under the Direct Supervision of* - the act or process whereby purchase, use, or application of a pesticide is made by a competent person acting under the instructions and control of a certified applicator who is responsible for the actions of that person and who is available if and when needed, even though such certified applicator is not physically present at the time and place the pesticide is used or applied.

- *Weed* - any plant that grows where not wanted.

- *Wildlife* - all living things that are neither human, domesticated, nor, as defined herein, pests, including but not limited to, mammals, birds, and aquatic life.

- *Wood Destroying Organisms* - those organisms that cause damage to the wood used in the construction of commercial or residential establishments, includes termites, old house borer beetles, powder post beetles, carpenter ants, and carpenter bees.

FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT (FIFRA)

GUIDANCE FOR KENTUCKY CHECKLIST USERS

Applicability	Refer to Checklist Items:
All Installations	9-1 and 9-2
Certification	9-3 and 9-4
Structural Pest Control and Fumigation	9-5 through 9-7
Rodenticides	9-8
Fumigation	9-9
Pest Control on Lawns	9-10
Restricted Use Pesticides	9-11 and 9-12

COMPLIANCE CATEGORY: FEDERAL INSECTICIDE, FUNGICIDE, & RODENTICIDE ACT (FIFRA) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
ALL INSTALLATIONS	
9-1. Installation personnel who apply pesticides must be licensed by the Department (KRS 217B.090).	Verify that all personnel who apply pesticides are licensed. (NOTE: Any person in charge of any equipment used by the installation is eligible for a limited license which allows that person to operate equipment used by the installation.)
9-2. Installation personnel must not discard or store any pesticide or pesticide containers in such a manner as to cause injury or to pollute any waterway (KRS 217B.190).	Verify that pesticides and pesticide containers are not disposed of in such a way that may cause injury to humans, vegetation, crops, livestock, wildlife, or pollinating insects. Verify that pesticides and pesticide containers are not disposed of in such a way as to pollute any waterway in a way harmful to any wildlife.
CERTIFICATION	
9-3. Installation personnel and pesticide contractors who purchase, use, or apply restricted-use pesticides must be certified or act under the direct supervision of a certified person. (302 Kentucky Administrative Regulations (KAR) 31:005, Sections 7 and 8).	Verify that all personnel who purchase, use, or apply restricted-use pesticides are certified, or under the direct supervision of a certified person. (NOTE: Government personnel are exempt from this requirement when applying pesticides to experimental fields.) Verify that, when the person with certification is not physically present at the site of purchase, use, or application, the person with certification provides: - verifiable instruction to a competent person detailing guidance in the proper use and application of the pesticide, - provisions for contacting the person with certification in the event the person is needed. Verify that, in any 5-yr period, all certified personnel attend at least two training programs approved by the Department in the use and application of pesticides.
9-4. All licensed pesticide application equipment must be identified (KRS 217B.170 and KRS 217B.565).	Verify that all licensed equipment is identified by a license plate or decal furnished by the Department of Agriculture.

COMPLIANCE CATEGORY: FEDERAL INSECTICIDE, FUNGICIDE, & RODENTICIDE ACT (FIFRA) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
STRUCTURAL PEST CONTROL AND FUMIGATION	
9-5. Treatment of a structure for wood-destroying organisms must follow specific standards (302 KAR 31:025, Section 5).	(NOTE: Substandard structures are exempt from the following requirements.) Verify that treatment meets the following requirements: - remove cellulose debris from beneath structures - remove all accessible termite tubes from foundation walls, piers, and supports - in structures with crawl spaces, the applicator must trench, rod, or flood to apply approved termiticides to the soil adjacent to the inside and outside of foundation walls, piers, chimneys, and other supports in structures with a crawl space - drill and flood (at not more than 8 in. intervals) the cavities in hollow pillars, tile brick, concrete block, other building materials with cavities, chimneys, or any other structures likely to be penetrated by termites by injecting an approved termiticide in accordance with that pesticide's registered labeling - drill and flood above the top of the outside grade level, where possible - drill and flood rubble stone foundations at intervals of not more than 16 in., where possible - void, drill (at maximum of 18 in. intervals), or rod and treat structures, stoops, concrete slabs, patios or driveways that obstruct trenching or rodding of the soil adjacent to the foundation. (NOTE: Drilling and flooding from the top is acceptable when foundation walls are uncapped.) Verify that, when treating structures on a concrete slab on the ground, personnel saturate soil beneath plumbing, pipes passing through the slab, bath trap, expansion joints, and other like termite entry points with an approved termiticide by drilling, if necessary, and treating from above or by rodding beneath the slab at no more than 18 in. intervals. (NOTE: Selection and use of termiticides or any other chemicals used for control of wood-destroying organisms must be in accordance with label instructions approved by the USEPA and registered with the Department. Pretreatment of new construction will be carried out in accordance with the registered label instructions of the chemical used.)
9-6. Treatment for the control of powderpost beetle and old house borer beetle must follow specific procedures (302 KAR 31:025, Section 5(3)).	Verify that the Department is notified at least 3 days before treatment for the control of powderpost beetle or old house borer infestations. (NOTE: Treatment for the control of powderpost beetle and/or old house borer may be performed by spraying or painting infested areas with a pesticide labeled for their control. Fumigation by licensed fumigators may be used to control powderpost beetle and/or old house borer infestations where other control measures have failed or are inappropriate.)

COMPLIANCE CATEGORY: FEDERAL INSECTICIDE, FUNGICIDE, & RODENTICIDE ACT (FIFRA) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
9-7. The control of wood-destroying fungi in crawl space areas of buildings after the buildings have been constructed must follow specific minimum requirements (302 KAR 31:025, Section 5(4)).	Determine the moisture content of joists, stilts, and subfloor of at least six points in the building. Determine the source of moisture where moisture content readings are above 20 percent. (NOTE: Wood which has been discolored by stain or mold fungi must not be treated for decay fungi if its moisture content is less than 20 percent.) Verify that, where excess dampness from the soil under a building contributes to high moisture readings, one or more of the following measures is taken: - install a vapor barrier over approximately 70 percent of the soil - install additional ventilation so there is at least 1 ft^2 of vent space per 150 ft^2 of crawl space area without a vapor barrier - install vents to give cross ventilation with a vapor barrier - improve drainage - waterproof the foundation.
RODENTICIDES	
9-8. Use of rodenticides must follow management requirements (302 KAR 31:025, Section 8).	Verify that rodenticides are used only according to label directions. Verify that care is exercised and precautionary steps are taken to avoid accidental poisoning of humans and domestic animals when using rodenticides.
FUMIGATION	
9-9. Fumigation, other than spot fumigation, must follow specific guidelines (302 KAR 31:025, Section 9).	Verify that all fumigation crews contain at least two people. Verify that the fire department and police department are notified: - at least 3 h before performing general fumigation in any structure or enclosed space - prior to performing general fumigation of vessels, aircraft, box cars, trucks, and/or common carriers. (NOTE: If trucks, box cars, and/or other common carriers are in transit during the fumigation operation, the carrier and the receiver must be notified that fumigation has taken place.) Verify that the structure to be fumigated is not occupied by any humans or domestic animals. Verify that all structures physically joined or in contact with the structure to be fumigated are not occupied by any humans or domestic animals.

COMPLIANCE CATEGORY: FEDERAL INSECTICIDE, FUNGICIDE, & RODENTICIDE ACT (FIFRA) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
9-9. (continued)	(NOTE: It is the duty of the operator in charge to personally make a careful examination of all parts of the structure to be fumigated, and adjoining structures, to verify that all humans and domestic animals have vacated the premises, and that all necessary safety precautions have been taken.) Verify that notice of warning is served upon the occupants of the structure to be fumigated no later than 3 h in advance of fumigation. Verify that suitable warning signs are posted at the ground level on all doors or entrances prior to fumigating. Verify that, immediately prior to fumigation, the operator in charge verifies the following: - all preparations have been completed - no humans or domestic animals are present within the structure or any adjacent structure - no open fires, open flames, pilot lights, or oil lamps are burning - all personnel engaged in the fumigation operation are outside the structure, unless application requires personnel to be within the enclosed space - all doors, windows, and other means of access are locked, barred or guarded Verify that, during the period of fumigation and until the structure has been ventilated and declared safe, one or more capable, alert watchmen prevent unauthorized personnel from entering the fumigated structure. (NOTE: Watchmen are not required for spot fumigation. Watchmen are not required if a warning agent is used, unless specified by the label of the warning agent.) Verify that the operator in charge does not permit any unauthorized personnel to enter the structure until he/she has ascertained it is safe for human occupancy. (NOTE: Spot fumigation may be performed by persons under the full-time supervision of a person certified to apply fumigants. Spot fumigation may be performed without the posting of guards as required for general fumigation. This does not relieve the operator in charge of the duty of metting all other safety precautions and requirements.)

COMPLIANCE CATEGORY: FEDERAL INSECTICIDE, FUNGICIDE, & RODENTICIDE ACT (FIFRA) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
PEST CONTROL ON LAWNS	
9-10. Specific notices must be posted when lawn pesticides are applied (KRS 217B.300 (2)).	Verify that, immediately following application of chemicals to a lawn, a lawn marker is placed at a prominent location in the lawn. Verify that the lawn marker is a white sign at least 4 in. by 5 in. in size attached to the upper portion of a dowel or other supporting device of not less than 12 in. in length. Verify that the lettering on the lawn marker is in a contrasting color and reads LAWN CARE APPLICATION - PLEASE STAY OFF GRASS UNTIL DRY in letters easily readable and not less than 3/8 in. Verify that one lawn marker per property is placed for applications to residential properties of three families or less. Verify that lawn markers are placed at primary points of entry to properties other than residential properties of three families or less.
RESTRICTED-USE PESTICIDES	
9-11. All persons who store restricted-use pesticides must follow specific standards (302 KAR 31:005, Section 6).	Verify that restricted use-pesticide storage sites are: - of sufficient size to adequately and neatly store all stocks in designated and segregated areas - cool, dry, airy, or, if possible, have an exhaust installed to reduce concentrations of toxic fumes and to hold down temperatures (ventilation must not connect with offices or other areas frequented by people) - adequately lighted so labels and information can be easily read - equipped with fire fighting equipment such as fire extinguishers of Class 10 ABC minimum, sprinkler systems, or alarm systems - kept securely locked at all times other than when authorized personnel are in the area. Verify that entrances are plainly labeled on the outside with signs containing the words "danger" or "poison" and "pesticide storage area." Verify that a floor-sweep compound of adsorptive clay, sand, sawdust, hydrated lime, or similar materials are kept on hand to absorb spills or leaks. (NOTE: The contaminated material must be disposed of per label directions as an excess pesticide.)

COMPLIANCE CATEGORY: FEDERAL INSECTICIDE, FUNGICIDE, & RODENTICIDE ACT (FIFRA) Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
9-12. The management of restricted-use pesticides and their containers must meet specific requirements (KRS 217B.190(2) through (4) and 217B.555(1)).	Verify that pesticides and pesticide containers are not disposed of in such a way as to cause injury to humans, vegetation, crops, livestock, wildlife, and pollinating insects. Verify that pesticides and pesticide containers are not disposed of in such a way as to pollute any waterway in a way harmful to any wildlife. Verify that all registered pesticides are used according to the the directions and warnings on the container labels.

INSTALLATION:	COMPLIANCE CATEGORY: FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT (FIFRA) Kentucky Supplement	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWER COMMENTS:		

SECTION 10

NATIONAL HISTORIC PRESERVATION ACT (NHPA) AND CULTURAL RESOURCES

Kentucky Supplement

SECTION 10

NATIONAL HISTORIC PRESERVATION ACT (NHPA) AND CULTURAL RESOURCES

Kentucky Supplement

Definitions

These definitions were obtained from the Kentucky Revised Statutes (KRS) Chapters 381.697, 433.870, and 525.100 and the Specifications for Archaeological Fieldwork and Assessment Reports.

- *Archaeological Site* - any location where human behavior has resulted in the deposition of artifacts or other evidence of purposive behavior at least 50 yr of age.

- *Cave* - any naturally occurring void, cavity, recess, or system of interconnecting passages beneath the surface of the earth containing a black zone with natural subterranean water and drainage systems, but not including any mine, tunnel, aqueduct, or other manmade excavation that is large enough to permit a person to enter. The term "cave" includes or is synonymous with "cavern."

- *Cave Life* - any life form that normally occurs in, uses, visits, or inhabits any cave or subterranean water system, excepting animals and species covered by any of the game laws of the Commonwealth of Kentucky.

- *Desecrate* - defacing, damaging, polluting or otherwise physically mistreating in a way that the actor knows will outrage the sensibilities of persons likely to observe or discover his/her action.

- *Gate* - any structure or device that limits or prohibits access or entry to any cave.

- *Material* - all or any part of any archaeological, paleontological, biological, or historical item found in any cave including, but not limited to, any petroglyph, pictograph, basketry, human remains, tool, beads, pottery, projectile point, remains of historical mining activity, or any other occupation.

- *Public* - affecting or likely to affect a substantial group of persons.

- *Public Place* - a site to which the public or a substantial group of persons has access including, but not limited to, highways, transportation facilities, schools, places of amusement, parks, places of business, playgrounds, and hallways, constituting rooms or apartments designed for actual residence. An act is deemed to occur in a public place if it produces its offensive or proscribed consequences in a public place.

- *SHPO* - Kentucky State Historic Preservation Office.

- *Transportation Facility* - any conveyance, premises, or place used for or in connection with public passenger transportation by air, railroad, motor vehicle, or any other method. It includes aircraft, watercraft, railroad cars, or buses and air, boat, railroad and bus terminals and stations, and all appurtenances thereto.

NATIONAL HISTORIC PRESERVATION ACT (NHPA) AND CULTURAL RESOURCES

GUIDANCE FOR KENTUCKY CHECKLIST USERS

Applicability	Refer to Checklist Items:
Archaeological Sites	10-1
Caves	10-2
Cemeteries	10-3
Venerated Objects	10-4

COMPLIANCE CATEGORY: NATIONAL HISTORIC PRESERVATION ACT AND CULTURAL RESOURCES Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
ARCHAEOLOGICAL SITES	
10-1. Installations are required to follow certain standards for the excavation, modification, adaptation, and alteration of archaeological sites (Specifications for Archaeological Fieldwork and Assessment Reports, March 1991).	Verify that principal investigators on archaeological sites are qualified professionals in accordance with Federal requirements (36 CFR 61). (NOTE: The SHPO recommends that 8 of the 12 mo of required professional field experience be in Kentucky or the eastern United States.)
CAVES	
10-2. Installations with caves must meet specific requirements (KRS 433.873, 433.875, and 433.877).	Verify that installations protect cave surfaces or material found therein from unauthorized disturbance, marking, or damage in any way. Verify that caves are not used for storing, dumping, or otherwise disposing of the following: - refuse - garbage - dead animals - sewage - toxic substances harmful to cave life or humans - other such material in any quantity. Verify that materials are not burned that produce any smoke or gas harmful to any naturally occurring organisms in the cave. (NOTE: Acetylene gas produced by carbide lamps may be burned in caves.) Verify that cave organisms are not removed for sale or any other use.
CEMETERIES	
10-3. Installations with cemeteries must meet specific requirements (KRS 381.697).	Verify that installations maintain cemeteries to avoid the following: - weed growth - accumulated debris - displaced tombstones - other signs of vandalism or gross neglect.

COMPLIANCE CATEGORY: NATIONAL HISTORIC PRESERVATION ACT AND CULTURAL RESOURCES Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
VENERATED OBJECTS **10-4.** Installations must meet specific requirements for the handling of venerated objects (KRS 525.105 and 525.110).	Verify that installations do not intentionally excavate or disinter human remains for the purpose of commercial sale or exploitation of the remains themselves or of objects buried contemporaneously with the remains. Verify that installations do not desecrate or allow the discretion of the following: - any public monument - object or place of worship or burial - the national or state flag or other venerated, patriotic, or religious symbol in a public place.

INSTALLATION:	COMPLIANCE CATEGORY: NATIONAL HISTORIC PRESERVATION ACT (NHPA) AND CULTURAL RESOURCES Kentucky Supplement	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWER COMMENTS:		

SECTION 11

NATURAL RESOURCES MANAGEMENT

Kentucky Supplement

SECTION 11

NATURAL RESOURCES MANAGEMENT

Kentucky Supplement

Definitions

These definitions were obtained from the Transactions of the Kentucky Academy of Science and 301 Kentucky Administrative Rules (KAR) 4:070.

- *Category One (C1)* - Status review taxa for which the United States Fish and Wildlife Service "...has substantial information on hand to support the biological appropriateness of proposing to list as endangered or threatened." Such designated species are identified in one of the following references:
  1. U.S. Fish and Wildlife Service, 1984, *Endangered and Threatened Species*, Federal Register 49:21664-21675.
  2. U.S. Fish and Wildlife Service, 1985, *Endangered and Threatened Wildlife and Plants*; review of vertebrate wildlife, Federal Register 50:37958-37967.
  3. U.S. Fish and Wildlife Service, 1985, *Endangered and Threatened Wildlife and Plants*; review of plant taxa for listing as endangered or threatened species; notice of review, Federal Register 50:39526-39527.

  All are effective 1 April 1988 and are hereby incorporated by reference.

- *Category Two (C2)* - Status review taxa for which information now in possession of the United States Fish and Wildlife Service "...indicates that proposing to list as endangered or threatened is possibly appropriate, but for which conclusive data on biological vulnerability and threat are not currently available to support proposed rules." Such designated species are identified in one of the following references:
  1. U.S. Fish and Wildlife Service, 1984, *Endangered and Threatened Wildlife and Plants*; review of invertebrate wildlife for listing as endangered or threatened species, Federal Register 49:21664-21675.
  2. U.S. Fish and Wildlife Service, 1985, *Endangered and Threatened Wildlife and Plants*; review of vertebrate wildlife, Federal Register 50:37958-37967.
  3. U.S. Fish and Wildlife Service, 1985, *Endangered and Threatened Wildlife and Plants*; review of plant taxa for listing as endangered or threatened species, notice of review, Federal Register 50:39526-39527.

  All are effective 1 April 1988 and hereby incorporated by reference.

- *Commercial Nuisance Wildlife Control* - the capture, transportation, and release of native wildlife specimens for the purpose of removing problem wildlife from private or public abodes or property and for which a remuneration is received.

- *Department* - the Department of Fish and Wildlife Resources.

- *Educational Wildlife Collecting* - the taking by specified means and subsequent possession of native wildlife specimens for the purpose of conducting educational studies, scientific investigations, or evaluations or for use in the bona fide instruction of students.

- *Endangered* - a species that is in danger of extirpation and/or extinction throughout all or a significant part of its range in Kentucky.

- *Protected Wildlife* - any wildlife species for which an open or closed season for taking has been designated and, in effect, includes all wildlife except those specifically identified as unprotected.

- *Scientific Wildlife Collecting* - the taking by specified means and subsequent possession of native wildlife specimens for the purpose of conducting scientific investigations or evaluations and for which a remuneration is received.

- *Special Concern* - a species that should be monitored because of any of the following:
  1. it exists in a limited geographic area
  2. it may become threatened or endangered due to modification or destruction of habitat
  3. certain characteristics or requirements make it especially vulnerable to specific pressures
  4. experienced researchers have identified other factors that may jeopardize it
  5. it is thought to be rare or declining, but insufficient information exists for assignment to the threatened or endangered status categories.

- *Threatened* - a species which is likely to become endangered within the foreseeable future throughout all or a significant part of its range in Kentucky.

- *Unprotected Wildlife* - wild hog, woodchuck, coyote, starling, crow, house sparrow, all species of moles, mice, rats, shrews, all insects, spiders, and terrestrial invertebrates that are not listed as Federal endangered, Federal threatened, Category One or Category Two, or as Kentucky endangered or Kentucky threatened.

- *Wildlife* - any undomesticated animal, alive or dead, including without limitations any wild mammal, bird, fish, reptile, amphibian, or other terrestrial or aquatic life, whether or not possessed in a controlled environment, bred, hatched, or born in captivity and including any part, product, egg, or offspring thereof.

NATURAL RESOURCES MANAGEMENT

GUIDANCE FOR KENTUCKY CHECKLIST USERS

Applicability	Refer to Checklist Items:
Endangered and Threatened Species	11-1 and 11-2
Collection Permits	11-3 and 11-4

COMPLIANCE CATEGORY: NATURAL RESOURCES MANAGEMENT Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
ENDANGERED AND THREATENED SPECIES	
11-1. Installations are required to follow specific directions concerning interaction with endangered wildlife (Transactions of the Kentucky Academy of Science, Vol. 47, Nos. 3-4, November 1986).	Verify that the endangered, threatened, and rare species in Appendix 11-1 are not harmed or disturbed in any way.
11-2. Installations are required to follow specific directions concerning interaction with protected plants (Transactions of the Kentucky Academy of Science, Vol. 47, Nos. 3-4, November 1986).	Verify that the endangered, threatened, and rare plants in Appendix 11-2 are not harmed or disturbed in any way.
COLLECTION PERMITS	
11-3. Installations must meet permit requirements for the collection or control of wildlife (301 KAR 4:070, Sections 2, 5 and 7).	Verify that all persons involved in scientific wildlife collecting, educational wildlife collecting, or commercial nuisance wildlife control activities involving protected or unprotected wildlife have a permit for the activity. (NOTE: Collecting permits may not be used in lieu of standard hunting or fishing licenses.) Verify that a written report of the collecting activities carried out during the year for which a permit was issued is submitted to the Kentucky Department of Fish and Wildlife Resources by no later than 31 January of the following year. Verify that permittees promptly report the discovery of any Federal Endangered, Federal Threatened, Category One, Category Two, Kentucky Endangered, or Kentucky Threatened wildlife to the Department of Fish and Wildlife Resources. Verify that toxicants are not used to take bats of any species.
11-4. Installations with a valid permit to collect or control wildlife must meet specific disposal and release requirements (301 KAR 4:070, Section 6(3)).	Verify that all captured wildlife that are not killed are immediately released in a habitat suitable to that species. Verify that all collected wildlife that are dead are appropriately preserved or disposed of as specified in the collection permit.

Appendix 11-1

Endangered, Threatened, and Rare Wildlife

(Source: Transactions of the Kentucky Academy of Science, Vol. 47, Nos. 3-4, November 1986)

Scientific Name	Common Name	Status
CRUSTACEANS:		
Cambarellus puer	Crayfish	e
Cambarellus shufeldtii	Crayfish	s
Cambarus batchi	Crayfish	e
Cambarus bouchardi	Big South Fork Crayfish	e
Cambarus cornutus	Crayfish	s
Cambarus ornatus	Crayfish	s
Cambarus parvoculus	Crayfish	e
Cambarus sciotensis	Crayfish	e
Gammarus bousfieldi	Bousfield's Amphipod	e
Orconectes australis	Crayfish	t
Orconectes bisectus	Crayfish	e
Orconectes inermis	Crayfish	t
Orconectes jeffersoni	Louisville Crayfish	e
Orconectes lancifer	Crayfish	e
Orconectes palmeri	Crayfish	e
Orconectes pellucidus	Crayfish	s
Palaemonias ganteri	Kentucky Cave Shrimp	e
Procambarus viaeviridis	Crayfish	t
PELECYPODS:		
Alasmidonta atropurpurea	Cumberland Elktoe	e
Alasmidonta marginata	Elktoe	t
Cumberlandia monodonta	Spectacle Case	e
Cyprogenia stegaria	Fanshell	t
Dromus dromas	Dromedary Mussel	e
Epioblasma arcaeformis	Sugarspoon	e
Epioblasma biemarginata	Angled Riffleshell	e
Epioblasma brevidens	Cumberland Combshell	e
Epioblasma capsaeformis	Oyster Mussel	e
Epioblasma florentina	Yellow-blossom Pearlymussel	e
Epioblasma florentina walkeri	Tan Riffleshell	e
Epioblasma haysiana	Acornshell	e
Epioblasma lewisi	Forkshell	e
Epioblasma obliquata	Catspaw	e
Epioblasma stewardsoni	Cumberland Leafshell	e
Epioblasma torulosa rangiana	Northern Riffleshell	e
Epioblasma torulosa torulosa	Tubercled Blossom	e
Epioblasma triquetra	Snuffbox	s

(continued)

Scientific Name	Common Name	Status
PELECYPODS (continued):		
Fusconaia subrotunda	Long-solid	t
Hemistena lata	Crackling Pearlymussel	e
Lampsilis orbiculata	Pink Mucket	e
Lampsilis ovata	Pocketbook	e
Lasmigona compressa	Creek Heelsplitter	t
Lasmigona subviridis	Green Floater	t
Leptodea leptodon	Scaleshell	e
Obvaria retusa	Ring Pink	e
Pegias fabula	Little-winged Pearlymussel	e
Plethobasus cicatricosus	White Wartyback	e
Plethobasus cooperianus	Orange-footed Pimpleback	e
Plethobasus cyphyus	Bullhead	s
Plethobasus clava	Clubshell	e
Pleurobema oviforme	Tennessee Clubshell	e
Pleurobema plenum	Rough Pigtoe	e
Pleurobema pyramidatum	Pyramid Pigtoe	e
Potamilus capax	Fat Pocketbook	e
Ptychobranchus subtentum	Fluted Kidneyshell	t
Quadrula cylindrica	Rabbitsfoot	e
Quadrula fragosa	Winged Mapleleaf	e
Quadrula sparsa	Appalachian Monkeyface	e
Simpsonaias ambigua	Salamander Mussel	t
Toxolasma lividus	Purple Lilliput	e
Villosa fabalis	Bean Villosa	e
Villosa lienosa	Little Spectacle Case	s
Villosa ortmanni	Kentucky Creekshell	e
Villosa trabalis	Cumberland Bean Mussel	e
Villosa vanuxemensis	Mountain Creekshell	t
FISHES:		
Acipenser fulvescens	Lake Sturgeon	e
Alosa alabamae	Alabama Shad	s
Amblyopsis spelaea	Northern Cavefish	s
Ammocrypta asprella	Crystal Darter	e
Ammocrypta clara	Western Sand Darter	e
Ammocrypta pellucida	Eastern Sand Darter	s
Ammocrypta vivax	Scaly Sand Darter	e
Clinostomus elongatus	Redside Dace	s
Clinostomus funduloides	Rosyside Dace	s
Erimyzon sucetta	Lake Chubsucker	t
Esox niger	Chain Pickerel	s
Etheostoma cinereum	Ashy Darter	t
Etheostoma fusiforme	Swamp Darter	e
Etheostoma maculatum	Spotted Darter	t
Etheostoma microlepidum	Smallscale Darter	e

(continued)

Scientific Name	Common Name	Status
FISHES (continued):		
Etheostoma microperca	Least Darter	e
Etheostoma nigrum susanae	Johnny Darter	e
Etheostoma parvipinne	Goldstripe Darter	s
Etheostoma proeliare	Cypress Darter	t
Etheostoma sagitta spilotum	Arrow Darter	s
Etheostoma swaini	Gulf Darter	s
Etheostoma tippecanoe	Tippecanoe Darter	s
Etheostoma lynceum	Brighteye Darter	s
Etheostoma (Nanostoma) sp.	Firebelly Darter	s
Fundulus chrysotus	Golden Topminnow	e
Fundulus notti	Starhead Topminnow	e
Hemitremia flammea	Flame Chub	e
Hybognathus hayi	Cypress Minnow	t
Hybognathus placitus	Plains Minnow	s
Hybopsis gelida	Sturgeon Chub	s
Hybopsis gracilis	Flathead Chub	s
Hybopsis insignis	Blotched Chub	e
Hybopsis meeki	Sicklefin Chub	s
Hybopsis x-punctata	Gravel Chub	e
Ichthyomyzon castaneus	Chestnut Lamprey	s
Ichthyomyzon fossor	Northern Brook Lamprey	t
Ichthyomyzon gagei	Southern Brook Lamprey	e
Ichthyomyzon greeleyi	Mountain Brook Lamprey	t
Ictiobus niger	Black Buffalo	s
Lampetra appendix	American Brook Lamprey	t
Lepisosteus spatula	Alligator Gar	e
Lepomis marginatus	Dollar Sunfish	e
Lepomis puctatus	Spotted Sunfish	t
Lota lota	Burbot	s
Menidia beryllina	Inland Silverside	t
Moxostoma atripinne	Blackfin Sucker	s
Moxosotma poecilurum	Blacktail Redhorse	s
Nocomis biguttatus	Hornyhead Chub	s
Notropis amnis	Pallid Shiner	e
Notropis camurus	Bluntface Shiner	s
Notropis hudsonius	Spottail Shiner	s
Notropis maculatus	Taillight Shiner	t
Notropis venustus	Blacktail Shiner	s
Notropis sp.	Palezone Shiner	e
Notropis sp.	Sawfin Shiner	e
Noturus exilis	Slender Madtom	e
Noturus hildebrandi	Least Madtom	s
Noturus phaeus	Brown Madtom	s
Noturus stigmosus	Northern Madtom	s
Percina burtoni	Blotchside Logperch	e
Percina evides	Gilt Darter	s

(continued)

Scientific Name	Common Name	Status
FISHES (continued):		
Percina macrocephala	Longhead Darter	t
Percina squamata	Olive Darter	e
Percopsis omiscomaycus	Trout-perch	s
Phenacobius uranops	Stargazing Minnow	s
Phoxinus cumberlandensis	Blackside Dace	e
Rhinichthys cataractae	Longnose Dace	s
Scaphirhynchus albus	Pallid Sturgeon	e
Typhlichthys subterraneus	Southern Cavefish	s
Umbra limi	Central Mudminnow	t
AMPHIBIANS:		
Ambystoma platineum	Silvery Salamander	e
Amphiuma tridactylum	Three-toed Amphiuma	e
Eurycea longicauda guttolineata	Three-lined Salamander	t
Hyla avivoca	Bird-voiced Treefrog	t
Hyla cinerea	Green Treefrog	s
Hyla versicolor	Gray Treefrog	s
Plethodon cinereus	Redback Salamander	s
Plethodon wehrlei	Wehrle's Salamander	e
Rana pipiens	Northern Leopard Frog	s
REPTILES:		
Chrysemys picta dorsalis	Southern Painted Turtle	s
Clonophis kirtlandii	Kirtland's Snake	e
Elaphe guttata	Corn Snake	s
Eumeces anthracinus anthracinus	Northern Coal Skink	s
Eumeces anthracinus pluvialis	Southern Coal Skink	e
Farancia abacura	Mud Snake	s
Lampropeltis triangulum elapsoides	Scarlet Kingsnake	s
Macroclemys temminckii	Alligator Snapping Turtle	t
Masticophis flagellum	Coachwhip	e
Nerodia cyclopion	Green Water Snake	e
Nerodia erythrogaster neglecta	Copperbelly Water Snake	s
Nerodia fasciata	Southern Water Snake	e
Ophisaurus attenuatus	Slender Glass Lizard	s
Pituophis melanoleucus	Pine Snake	s
Sistrurus milliarius	Pigmy Rattlesnake	t
Thamnophis proximus	Western Ribbon Snake	t
Thamnophis sauritus	Eastern Ribbon Snake	s
Trionyx muticus	Smooth Softshell	s
BIRDS:		
Accipiter cooperii	Cooper's Hawk	s
Accipiter striatus	Sharp-shinned Hawk	s
Actitis macularia	Spotted Sandpiper	e
Aimophila aestivalis	Bachman's Sparrow	t

(continued)

Appendix 11-1 (continued)

Scientific Name	Common Name	Status
BIRDS (continued):		
Ammodramus henslowii	Henslow's Sparrow	s
Anas discors	Blue-winged Teal	e
Anhinga anhinga	Anhinga	e
Ardea herodias	Great Blue Heron	s
Bartramia longicauda	Upland Sandpiper	e
Botaurus lentiginosus	American Bittern	e
Bublcus ibis	Cattle Egret	s
Casmerodius albus	Great Egret	e
Chondestes grammacus	Lark Sparrow	t
Cistothorus platensis	Sedge Wren	s
Corvus corax	Common Raven	e
Corvus ossifragus	Fish Crow	s
Dendroica fusca	Blackburnian Warbler	t
Dolichonyx oryzivorus	Bobolink	s
Egretta caerulea	Little Blue Heron	e
Empidonax minimus	Least Flycatcher	t
Falco peregrinus	Peregrine Falcon	e
Fulica americana	American Coot	e
Gallinula chloropus	Common Moorhen	e
Haliaeetus leucocephalus	Bald Eagle	e
Ictinia mississippiensis	Mississippi Kite	s
Ixobrychus exilis	Least Bittern	e
Junco hyemalis	Dark-eyed Junco	s
Lophodytes cucullatus	Hooded Merganser	e
Nycticorax nycticorax	Black-crowned Night-heron	e
Nycticorax violaceus	Yellow-crowned Night-heron	t
Pandion haliaetus	Osprey	e
Passerculus sandwichensis	Savannah Sparrow	s
Phalacrocorax auritus	Double-crested Cormorant	e
Pheucticus ludovicianus	Rose-breasted Grosbeak	s
Picoides borealis	Red-cockaded Woodpecker	e
Podilymbus podiceps	Pied-billed Grebe	e
Pooecetes gramineus	Vesper Sparrow	s
Rallus elegans	King Rail	e
Riparia riparia	Bank Swallow	s
Sterna antillarum athalassos	Interior Least Tern	e
Thryomanes bewickii	Bewick's Wren	s
Tyto alba	Common Barn-owl	s
Vermivora bachmanii	Bachman's Warbler	e
Vermivora chrysoptera	Golden-winged Warbler	s
Vireo bellii	Bell's Vireo	s
Wilsonia canadensis	Canada Warbler	s
MAMMALS:		
Clethrionomys gapperi maurus	Gapper's Red-backed Mouse	s
Felis concolor couguar	Mountain Lion	e

(continued)

Appendix 11-1 (continued)

Scientific Name	Common Name	Status
MAMMALS (continued):		
Lutra canadensis	River Otter	s
Mustela nivalis	Least Weasel	s
Myotis austroriparius	Southeastern Myotis	e
Myotis grisescens	Gray Myotis	e
Myotis keenii	Keen's Myotis	s
Myotis sodalis	Indiana Myotis	e
Myotis subulatus leibii	Small-footed Myotis	e
Nycticelus humeralis	Evening Bat	t
Peromyscus gossypinus	Cotton Mouse	s
Plecotus rafinesquii	Rafinesque's Big-eared Bat	t
Plecotus townsendii virginianus	Virginia Big-eared Bat	e
Sorex cinereus	Masked Shrew	s
Sorex dispar	Long-tailed Shrew	e
Spilogale putorius	Spotted Skunk	s
Sylvilagus aquaticus	Swamp Rabbit	s
Sylvilagus transitionalis	New England Cottontail	e
Ursus americanus	Black Bear	e

e = endangered
t = threatened
s = species of special concern

Appendix 11-2

Endangered, Threatened, and Rare Plants

(Source: Transactions of the Kentucky Academy of Science, Vol. 47 nos. 3-4, November 1986)

Scientific Name	Common Name	Status
Acer spicatum	Mountain Maple	t
Aconitum uncinatum	Monkshood	t
Adiantum capillus-veneris	Venus Hair Fern	e
Adlumia fungosa	Allegheny Vine	e
Agalinis decemloba	Purple False Foxglove	e
Agalinis obtusifolia	Purple False Foxglove	s
Agalinis skinneriana	Purple False Foxglove	t
Agrimonia gryposepala	Agrimony	s
Allium burdickii	Narrow-leaved Wild Leek	e
Amianthium muscaetoxicum	Fly Poison	t
Angelica triquinata	Filmy Angelica	e
Apios priceana	Price's Groundnut	e
Arabis glabra	Tower Mustard	s
Arabis missouriensis	Missouri Rock Cress	e
Arabis perstellata var. *perstellata*	Rock Cress	e
Arenaria cumberlandensis	Sandwort	e
Arenaria fontinalis	Water Stitchwort	t
Armoracia aquatica	Lake Cress	t
Aster concolor	Aster	e
Aster pilosus var. *priceae*	White Heath Aster	s
Aster sericeus	Silky Aster	t
Aster texanus	Texas Aster	e
Aureolaria patula	False Foxglove	e
Baptisia leucophaea	Creme Wild Indigo	s
Baptisia tinctoria	Yellow Wild Indigo	t
Bartonia virginica	Screwstem	e
Berchemia scandens	Rattan Vine	e
Botrychium matricariifolium	Matricary Grape Fern	e
Botrychium oneidense	Blunt-lobed Grape Fern	e
Bouteloua curtipendula	Side-oats Grama	s
Boykinia aconitifolia	Brook Saxifrage	t
Cabomba caroliniana	Fanwort	s
Calamagrostis canadensis	Blue Joint Grass	e
Calamagrostis cinnoides	Cinna-like Reed Grass	s
Calamagrostis porteri	Porter's Reed Grass	e
Calopogon tuberosus	Grass Pink	e
Caltha palustris	Marsh Marigold	e
Calycanthus floridus	Sweet Shrub	t

(continued)

Appendix 11-2 (continued)

Scientific Name	Common Name	Status
Calylophus serrulatus	Evening Primrose	s
Carex austrina	Sedge	e
Carex buxbaumii	Sedge	e
Carex crawei	Sedge	s
Carex decomposita	Sedge	t
Carex gigantea	Sedge	t
Carex hystricina	Sedge	s
Carex joorii	Sedge	e
Carex lanuginosa	Sedge	s
Carex leptalea	Sedge	s
Carex leptonervia	Sedge	s
Carex picta	Sedge	e
Carex socialis	Sedge	s
Carex stricta	Sedge	e
Carex tenera	Sedge	s
Carex triangularis	Sedge	s
Carya aquatica	Water Hickory	s
Carya ovata var. *australis*	Hickory	s
Castanea pumila	Chinquapin	e
Castilleja coccinea	Indian Paintbrush	e
Cayaponia grandifolia	Cayaponia	s
Ceanothus herbaceus	Redroot	e
Cheilanthes alabamensis	Smooth Lip Fern	e
Cheilanthes feei	Slender Lip Fern	e
Chelone obliqua var. *obliqua*	Pink Turtlehead	t
Chelone obliqua var. *speciosa*	Pink Turtlehead	s
Chrysogonum virginianum	Green and Gold	e
Chrysosplenium americanum	Golden Saxifrage	e
Cicuta bulbifera	Bublet-bearing Water Hemlock	s
Cimicifuga rubifolia	Bugbane	t
Circaea alpina	Small Enchanter's Nightshade	e
Cleistes divaricata	Spreading Pogonia	s
Clematis crispa	Leather Flower	t
Clematis glaucophylla	Leather Flower	e
Clematis viorna var. *flaccida*	Leather Flower	e
Comptonia peregrina	Sweet Fern	e
Conradina verticillata	Cumberland Rosemary	e
Convallaria montana	Lily-of-the-Valley	e
Corallorhiza maculata	Spotted Coral-root	e
Coreopsis pubescens	Downy Coreopsis	s
Corydalis sempervirens	Pale Corydalis	s
Cotinus obovatus	Smoke Tree	e
Crotonopsis linearis	Linear Rushfoil	e
Cymophyllus fraseri	Fraser's Sedge	t
Cyperus diandrus	Umbrella Sedge	s
Cyperus retrorsus	Umbrella Sedge	s
Cypripedium candidum	White Lady's-slipper	e

(continued)

Appendix 11-2 (continued)

Scientific Name	Common Name	Status
Cypripedium kentuckiense	Kentucky Lady's-slipper	s
Cypripedium parviflorum	Small yellow Lady-slipper	e
Cystopteris fragilis var. *mackayi*	Mackay's Fragile Fern	s
Decodon verticillatus	Swamp Loosestrife	t
Delphinium carolinianum	Carolina Larkspur	t
Deschampsia flexuosa	Hair Grass	s
Dichanthelium acuminatum var. *villosum*	Panic Grass	s
Dichanthelium boreale	Panic Grass	s
Dichanthelium sabulorum	Panic Grass	s
Didiplis diandra	Water Purslane	s
Diplachne panicoides	Feather Grass	e
Dodecatheon frenchii	French's Shooting Star	s
Draba aprica	Whitlow Grass	e
Draba cuneifolia	Whitlow Grass	e
Drosera brevifolia	Dwarf Sundew	e
Drosera intermedia	Sundew	e
Dryopteris ludoviciana	Southern Wood Fern	e
Dryopteris spinulosa	Spinulose Wood Fern	s
Echinodorus rostratus	Burhead	t
Echinodorus tenellus	Burhead	e
Erigeron pulchellus var. *brauniae*	Lucy Braun's Robin Plantain	s
Eriogonum longifolium var. *harperi*	Umbrella Plant	e
Eryngium integrifolium	Button Snakeroot	e
Eupatorium luciae-brauniae	Lucy Braun's White Snakeroot	e
Eupatorium maculatum	Joe Pye Weed	e
Eupatorium rugosum var. *roanense*	Roan Mountain White Snakeroot	e
Euphorbia mercurialina	Spurge	e
Fimbristylis puberula	Sedge	e
Floerkea proserpinacoides	False Mermaid	s
Forestiera ligustrina	Upland Privet	t
Fuirena squarrosa	Umbrella Grass	e
Gaylussacia brachycera	Box Huckleberry	s
Gentiana alba	Yellowish Gentian	e
Gentiana decora	Showy Gentian	t
Gentiana puberulenta	Prairie Gentian	e
Glyceria acutiflora	Manna Grass	s
Glyceria melicaria	Manna Grass	s
Gratiola pilosa	Hedge Hyssop	e
Gratiola viscidula	Hedge Hyssop	t
Gymnopogon ambiguus	Beardgrass	s
Gymnopogon brevifolius	Beardgrass	e
Halesia carolina	Silverbell Tree	t

(continued)

Scientific Name	Common Name	Status
Hedeoma hispidum	Hairy Pennyroyal	e
Hedyotis michauxii	Thyme-leaved Bluets	t
Hedyotis uniflora	Oldenlandia	e
Helianthus atrorubens	Sunflower	e
Helianthus eggertii	Eggert's Sunflower	e
Helianthus silphioides	Silphium-like Sunflower	s
Heracleum lanatum	Cow Parsnip	e
Heteranthera dubia	Water Star Grass	t
Heteranthera limosa	Mud Plantain	t
Heterotheca latifolia	Golden Aster	s
Hexastylis contracta	Heart-leaf	e
Hexastylis heterophylla	Heart-leaf	s
Hexastylis shuttleworthii	Shuttleworth's Wild Ginger	s
Hieracium longipilum	Long-haired Hawkweed	t
Hierochloe odorata	Sweet Grass	s
Hydrocotyle americana	Water Pennywort	s
Hydrolea ovata	Hydrolea	e
Hydrophyllum virginianum	Virginia Waterleaf	s
Hypericum adpressum	St. Johns-wort	e
Hypericum stans	St. Johns-wort	s
Iris fulva	Copper Iris	e
Isoetes butleri	Butler's Quillwort	e
Isoetes melanopoda	Midland Quillwort	e
Juncus articulatus	Rush	s
Juncus elliottii	Rush	s
Juncus longistylis	Rush	s
Koeleria cristata	June Grass	e
Lathyrus palustris	Marsh Pea	s
Lathyrus venosus	Bushy Vetch	s
Leavenworthia exigua var. *laciniata*	Glade Cress	e
Leavenworthia torulosa	Glade Cress	e
Leiophyllum buxifolium	Sand Myrtle	e
Lesquerella globosa	Bladder-pod	t
Lesquerella lescurii	Bladder-pod	e
Leucothoe recurva	Fetterbush	e
Liatris microcephala	Blazing-star	s
Liatris pycnostachya	Prairie Blazing-star	e
Lilium philadelphicum	Wood Lily	s
Lilium superbum	Turk's-cap Lily	t
Limnobium spongia	Frog's Bit	t
Linum sulcatum	Grooved Yellow Flax	e
Listera australis	Southern Twayblade	e
Listera smallii	Small's Twayblade	t
Lobelia appendiculata var. *gattingeri*	Gattinger's Lobelia	e
Lobelia nuttallii	Nuttall's Lobelia	t

(continued)

Appendix 11-2 (continued)

Scientific Name	Common Name	Status
Lonicera prolifera	Grape Honeysuckle	s
Ludwigia hirtella	False Loosestrife	e
Lycopodium appressum	Southern Bog Clubmoss	e
Lysimachia fraseri	Fringed Loosestrife	e
Lysimachia radicans	Creeping Fringed Loosestrife	e
Lysimachia terrestris	Swamp Candles	s
Maianthemum canadense	Canada Mayflower	t
Malus angustifolia	Crab Apple	s
Malus ioensis	Crab Apple	s
Marshallia grandiflora	Barbara's Buttons	e
Matelea carolinensis	Carolina Anglepod	e
Mecardonia acuminata	Mecardonia	t
Melampyrum lineare	Cow Wheat	e
Melanthium virginicum	Bunch Flower	e
Minuartia glabra	Sandwort	e
Mirabilis albida	Four-o'clock	s
Monarda punctata	Dotted Monarda	e
Monarda russeliana	Russell's Horsemint	s
Monotropsis odorata	Sweet Pinesap	t
Muhlenbergia bushii	Bush's Satin Grass	s
Muhlenbergia cuspidata	Prairie Satin Grass	e
Muhlenbergia expansa	Hair Grass	e
Muhlenbergia glabriflora	Hair Grass	s
Myriophyllum heterophyllum	Water Milfoil	s
Myriophyllum pinnatum	Water Milfoil	s
Najas gracillima	Slender Naiad	s
Nemophila aphylla	Nemophila	s
Oenothera linifolia	Three-leaved Sundrops	t
Oenothera perennis	Small Sundrops	e
Oenothera triloba	Sundrops	t
Onosmodium hispidissimum	Hairy False Gromwell	e
Onosmodium molle ssp. *molle*	Soft False Gromwell	e
Onosmodium molle ssp. *occidentale*	Western False Gromwell	e
Orontium aquaticum	Golden Club	t
Oryzopsis racemosa	Black-seeded Rice Grass	t
Oxalis priceae	Price's yellow Wood Sorrel	e
Pachistima canbyi	Mountain Lover	e
Parnassia asarifolia	Ginger-leaved Grass-of-Parnassus	e
Parnassia grandifolia	Grass-of-Parnassus	e
Paronychia argyrocoma	Silver Whitlow-wort	e
Paspalum boscianum	Lens Grass	s
Paspalum distichum	Lens Grass	s
Paspalum setaceum var. *psammophilum*	Lens Grass	s
Pedicularis lanceolata	Swamp Wood Betony	e

(continued)

Scientific Name	Common Name	Status
Perideridia americana	Perideridia	t
Phacelia ranunculacea	Phacelia	s
Philadelphus hirsutus	Mock Orange	e
Philadelphus inodorus	Mock Orange	e
Philadelphus pubescens	Mock Orange	t
Phlos bifida ssp. *stellaria*	Cleft Phlox	t
Physostegia intermedia	False Dragonhead	e
Plantago cordata	Heart-leaved Plantain	e
Platanthera cristata	Crested Fringed Orchid	e
Platanthera integrilabia	White Fringeless Orchid	e
Platanthera psycodes	Purple Fringed Orchid	e
Poa languida	Weak Bluegrass	e
Podostemon ceratophyllum	Riverweed	t
Pogonia ophioglossoides	Rose Pogonia	e
Polemonium reptans var. *villosum*	Hairy Jacob's Ladder	s
Polygala cruciata	Cross Milkwort	e
Polygala nuttallii	Nuttall's Milkwort	e
Polygala polygama	Purple Milkwort	e
Polymnia laevigata	Leaf Cup	e
Pontederia cordata	Pickerel Weed	s
Potamogeton praelongus	Pond Weed	s
Potamogeton pulcher	Spotted Pondweed	s
Prenanthes alba	Lion's Foot	e
Prenanthes aspera	Rough White Lettuce	e
Psoralea stipulata	Scurf Pea	e
Psoralea tenuiflora	Scurf Pea	e
Ptilimnium capillaceum	Mock Bishop's-weed	t
Ptilimnium nuttallii	Mock Bishop's-weed	e
Pycnanthemum albescens	Mountain Mint	e
Pyrola americana	Wintergreen	e
Ranunculus allegheniensis	Allegheny Crowfoot	t
Ranunculus ambigens	Water Spearwort	s
Rhododendron canescens	Honeysuckle Bush	e
Rhynchosia tomentosa	Erect Rhynchosia	e
Rhynchospora globularis	Grass Beak Rush	e
Rhynchospora macrostachya	Horned Rush	e
Rubus whartoniae	Wharton's Bramble	s
Rudbeckia subtomentosa	Sweet Coneflower	t
Sabatia campanulata	Rose Pink	e
Sagittaria brevirostra	Arrowhead	s
Sagittaria graminea	Grass-leaved Arrowhead	t
Salvia urticifolia	Sage	e
Sambucus racemosa	Red-berried Elder	t

(continued)

Appendix 11-2 (continued)

Scientific Name	Common Name	Status
Sanguisorba canadensis	American Burnet	e
Saxifraga michauxii	Michaux's Saxifrage	e
Saxifraga micranthidifolia	Brook Lettuce	e
Schizachne purpurascens	False Melic	e
Schwalbea americana	Chaffseed	e
Scirpus expansus	Bulrush	s
Scirpus fluviatilis	Bulrush	t
Scirpus hallii	Bulrush	e
Scirpus heterochaetus	Bulrush	e
Scirpus microcarpus	Bulrush	e
Scleria ciliata	Bulrush	e
Scutellaria leonardii	Small Skullcap	s
Sedum telephioides	Live Forever	t
Sida hermaphrodita	Virginia Mallow	e
Silene ovata	Catchfly	t
Silene regia	Royal Catchfly	e
Silphium laciniatum	Compass Plant	s
Silphium terebinthinaceum var. *lucy-brauniae*	Lucy Braun's Prairie Dock	s
Smilacina strellata	Starry-flowered False Solomon's Seal	e
Solidago albopilosa	White-haired Goldenrod	e
Solidago buckleyi	Buckley's Goldenrod	s
Solidago curtisii	Curtis' Goldenrod	s
Solidago puberula	Puberulent Goldenrod	t
Solidago radula	Rough Goldenrod	e
Solidago roanensis	Roan Mountain Goldenrod	t
Solidago rupestris	Goldenrod	e
Solidago shortii	Short's Goldenrod	e
Solidago spathulata	Goldenrod	s
Solidago squarrosa	Squarrose Goldenrod	e
Sparganium eurycarpum	Common Bur Reed	e
Sphenopholis pensylvanica	Swamp Oats	e
Spiraea alba	Meadow Sweet	e
Spiranthes lucida	Shining Ladies' Tresses	t
Spiranthes magnicamporum	Ladies' Tresses	e
Spiranthes odorata	Sweet Lady's Tresses	e
Sporobolus clandestinus	Dropseed	e
Sporobolus heterolepis	Prairie Dropseed	e
Stachys eplingii	Hedge-nettle	s
Stellaria longifolia	Switchwort	s
Streptopus roseus	Twisted Stalk	e
Styrax grandifolia	Storax	s
Sullivantia sullivantii	Sullivant's Sullivantia	e
Symphoricarpos albus	Snowberry	e
Taxus canadensis	Canadian Yew	s
Tephrosia spicata	Goat's-rue	e

(continued)

Appendix 11-2 (continued)

Scientific Name	Common Name	Status
Thalictrum coriaceum	Maid-of-the-Mist	e
Thalictrum mirabile	Meadow Rue	s
Thaspium pinnatifidum	Cutleaf Meadow Parsnip	s
Thermopsis mollis	Bush Pea	e
Thuja occidentalis	Northern White Cedar	s
Torreyochloa pallida	Pale Manna Grass	e
Trepocarpus aethusae	Trepocarpus	e
Trichomanes boschianum	Filmy Fern	s
Trichostema setaceum	Blue Curls	s
Trifolium reflexum	Buffalo Clover	e
Trifolium stoloniferum	Running Buffalo Clover	e
Trillium nivale	Snow Trillium	e
Trillium pusillum var. *ozarkanum*	Ozark Wake Robin	e
Trillium undulatum	Painted Trillium	t
Ulmus serotina	September Elm	s
Utricularia vulgaris	Bladderwort	e
Vallisneria americana	Tape Grass	s
Veratrum parviflorum	False Hellebore	t
Veratrum woodii	Wood's False Hellebore	t
Vernonia fasciculata	Fascicled Ironweed	s
Vernonia noveboracensis	New York Ironweed	e
Viburnum lentago	Nannyberry	e
Viburnum nudum	Possum Haw	e
Viola egglestonii	Glade Violet	t
Viola pedatifida	Prairie Violet	s
Viola tripartita	Yellow Violet	e
Viola walteri	Walter's Violet	e
Woodsia scopulina	Mountain Cliff Fern	e
Xerophyllum asphodeloides	Turkey Beard	s
Zizania aquatica	Wild Rice	e
Zizaniopsis miliacea	Southern Wild Rice	e

e = endangered
t = threatened
s = species of special concern

(NOTE: There is no official list of the endangered plant species in the state of Kentucky, however, this list has been compiled by the Endangered Species Committee of Kentucky Academy of Science and the Kentucky Nature Preserves Commission.)

INSTALLATION:	COMPLIANCE CATEGORY: NATURAL RESOURCES MANAGEMENT Kentucky Supplement	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWER COMMENTS:		

SECTION 12

NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)

Kentucky Supplement

SECTION 12

NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)

Kentucky Supplement

Regulations promulgated under the authority of *NEPA* are applicable to installations in Kentucky. Refer to Protocol 12 in the U.S. ECAS Manual for Federal, Army, and DOD requirements.

INSTALLATION:	COMPLIANCE CATEGORY: NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) Kentucky Supplement	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWER COMMENTS:		

SECTION 13

ASBESTOS MANAGEMENT PROGRAM

Kentucky Supplement

SECTION 13

ASBESTOS MANAGEMENT PROGRAM

Kentucky Supplement

Kentucky has adopted by reference 40 Code of Federal Regulations (CFR) 61, Subpart M, that provides standards for sources using commercial asbestos and standards for demolition, renovation, fabricating, and waste disposal. See the U.S. ECAS Manual for these requirements.

Kentucky has additional requirements that cover all organizations that remove friable asbestos-containing materials.

Definitions

These definitions were obtained from Kentucky Administrative Regulations (KAR), 401 KAR 63:042.

- *Airlock* - a system of enclosures within the containment area consisting of two doorways, curtained with polyethylene sheeting, at least 3 ft apart.

- *Asbestos Abatement Project* - any renovation or demolition activity at a facility that may cause a disturbance of friable asbestos material.

- *Asbestos Abatement Entity* - any partnership, firm, association, corporation, sole proprietorship, other business concern, any government agency, or other organization, composed of one or more employees or members, or any individual involved in any of the regulated asbestos-related activities.

- *Cabinet* - the Natural Resources and Environmental Protection Cabinet.

- *Certificate* - a permit issued by the Cabinet that allows an asbestos abatement entity to engage in asbestos abatement projects, including the use of equipment or practices to control the emissions of asbestos fibers into the outside air.

- *Clean Room* - an uncontaminated area or room that is part of the worker decontamination enclosure system with provisions for storage of workers' street clothes and clean, protective equipment.

- *Clearance Air Monitoring* - the monitoring of air conducted inside the work area after cleanup of an asbestos abatement project has been completed.

- *Containment Area* - the entire area in which an asbestos abatement project is conducted; this includes, but is not limited to, the work area, equipment room, shower room, clean room, and all associated airlocks.

- *Demolition* - the wrecking or taking out of any load-supporting structural member of a facility and any related handling operations.

- *Emergency Operation* - a renovation operation that was not planned but results from a sudden, unexpected event. This includes operations necessitated by nonroutine failures of equipment.

- *Equipment Room* - a contaminated area or room that is part of the worker decontamination enclosure system with provisions for storage of contaminated clothing and equipment.

- *Facility* - any institutional, commercial, or industrial structure, installation, or building, excluding apartment buildings having no more than four dwelling units.

- *Facility Component* - any pipe, duct, boiler, tank, reactor, turbine, or furnace at or in a facility, or any structural member of a facility.

- *Friable Asbestos Material* - any material containing more than 1 percent asbestos by weight that hand pressure can crumble, pulverize, or reduce to powder when dry.

- *Glovebag* - a manufactured device consisting of plastic with a thickness of 6 mils or more, two inward-projecting longsleeve rubber gloves, one inward-projecting waterwand sheet, an internal tool pouch, and an attached, labeled receptacle for asbestos waste. The glovebag is constructed and installed in such a manner that it surrounds the object or area from which the asbestos-containing material is to be removed, and contains all asbestos fibers released during the removal process.

- *Glovebag Technique* - a method of removing asbestos from pipes, ducts, valves, joints, and other nonplanar surfaces that uses one or more glovebags.

- *HEPA Filtration* - high efficiency particulate air filtration found in respirators and vacuum systems capable of filtering particles greater than or equal to 0.3 microns in size, with 99.97 percent efficiency.

- *HVAC* - a heating, ventilation, and air conditioning system.

- *Lockdown Agent* - a protective coating or sealant applied to a surface from which asbestos-containing material has been removed.

- *Polyethylene Sheeting or Polyethylene Bags* - sheeting or bags of polyethylene plastic with a thickness of 6 mils or more.

- *Renovation* - altering in any way one or more facility components. Operations in which load-supporting structural members are wrecked or taken out are excluded.

- *Shower Room* - a room between the clean room and the equipment room in the worker decontamination enclosure system with hot and cold running water controllable at the tap and suitably arranged for complete showering during decontamination.

- *Structure* - a whole facility, building, or a major portion thereof, such as a building wing.

- *Work Area* - the contaminated area within the containment area that contains the friable asbestos material to be abated.

ASBESTOS MANAGEMENT PROGRAM

GUIDANCE FOR KENTUCKY CHECKLIST USERS

Applicability	Refer to Checklist Items:
Certification	13-1
Records	13-2
Renovation Activities	13-3 through 13-6
Demolition Activities	13-7 through 13-10
Other Abatement Activities	13-11

COMPLIANCE CATEGORY: ASBESTOS MANAGEMENT PROGRAM Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
CERTIFICATION	
13-1. Any government agency or other organization involved in removal of friable asbestos material subject to the Federal requirements found in 40 CFR 61, Subpart M must be certified (401 KAR 63:042, Section 1).	Verify that any asbestos abatement entity involved in removal of friable asbestos material subject to the Federal requirements is certified to conduct asbestos abatement projects. (NOTE: Any government agency or any other organization involved in the removal of friable asbestos material that is not subject to the Federal requirements found in 40 CFR 61, Subpart M must meet the requirements detailed for Other Abatement Activities and Records.)
RECORDS	
13-2. Records must be maintained for all asbestos abatement projects performed (401 KAR 63:042, Section 12).	Verify that each asbestos abatement entity maintains the following records for 6 yr: - name and address of supervisor responsible - location and description of each project and the estimated amount of asbestos removed - starting and completion date, including any reasons for delay in scheduled dates - summary of the procedures used to meet all applicable requirements, including copies of notifications - name and address of the waste disposal site and disposal receipts, including the amount of asbestos-containing material disposed - results of all air sampling conducted during the asbestos abatement project, if applicable, including personal, area, and clearance samples.
RENOVATION ACTIVITIES	(NOTE: These requirements do not apply to abatement projects at the entity's own facilities when the projects are performed exclusively by employees of the industry or governmental agency.)
13-3. Renovation activities must meet specific work practice requirements for wall and floor sheeting (401 KAR 63:042, Section 4(1)(a) through (c)).	Verify that all objects and exposed surfaces in the work area are cleaned and removable objects are removed. Verify that objects in the work area that cannot be removed are covered with polyethylene sheeting secured in place. Verify that all openings within the containment area, including windows, doorways, elevator openings, corridor entrances, drains, ducts, grills, grates, diffusers, skylights, and openings created by the construction of any barriers, are sealed with polyethylene sheeting attached securely in place.

COMPLIANCE CATEGORY: ASBESTOS MANAGEMENT PROGRAM Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
13-3. (continued)	Verify that containment areas are established by permanent walls extending from the floor to the ceiling, or by barriers constructed of polyethylene sheeting attached securely in place. Verify that floor sheeting is installed within the containment area and meets the following standards: - consists of at least two layers of polyethylene sheeting - extends up sidewalls at least 12 in. - is sized to minimize seams - has *no* seams at wall-to-floor joints. Verify that wall sheeting within the containment area meets the following standards: - consists of polyethylene sheeting with each layer at least 4 mils thick - is securely installed to minimize seams - extends at least 12 in. beyond each wall-to-floor joint - has no seams located at wall-to-wall joints. Verify that, within the work area, wall sheeting consists of at least two layers on permanent walls and one layer on a barrier. Verify that, within all other areas of a containment wall, sheeting consists of at least one layer of polyethylene sheeting. (NOTE: If the glovebag technique is used, these requirements for work area protection may be disregarded. The Cabinet may approve other alternative methods on a case-by-case basis.)
13-4. Renovation activities must meet specific safety requirements (401 KAR 63:042, Section 4(1)(d) through (g)).	Verify that a worker decontamination enclosure system is provided, consisting of a clean room, shower room, and equipment room; each room is to be separated from the other rooms and from the work area by airlocks and accessible doorways protected with two overlapping polyethylene sheets. Verify that all HVAC equipment in or passing through the containment area is shut down, locked out, and tagged to advise personnel not to activate the equipment. Verify that all HVAC intake and exhaust openings and any seams in system components are sealed with polyethylene sheeting and waterproof tape. Verify that warnings signs meet the following standards: - are displayed at all approaches to any location where airborne fiber levels can be expected to exceed background levels - are in a vertical format and measure 20 in. in length and 14 in. in width

COMPLIANCE CATEGORY: ASBESTOS MANAGEMENT PROGRAM **Kentucky Supplement**	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
13-4. (continued)	- are readily visible and legible - contain the following: DANGER ASBESTOS CANCER AND LUNG DISEASE HAZARD AUTHORIZED PERSONNEL ONLY RESPIRATORS AND PROTECTIVE CLOTHING ARE REQUIRED IN THIS AREA. Verify that negative pressure ventilation units with HEPA filtration in sufficient number to provide one workplace air change every 15 min are operating continuously for the duration of the project.
13-5. Renovation activities must meet specific work practice requirements for asbestos management (401 KAR 63:042, Section 4(1)(h) through (l)).	Verify that all friable asbestos material is thoroughly wetted through to the substrate prior to removal. Verify that facility components are removed intact or in large sections whenever possible and carefully lowered to the floor. Verify that asbestos material other than components are removed in small sections. Verify that materials at heights greater than 15 ft but less than or equal to 50 ft above the floor are dropped into incline chutes or onto scaffolding or containerized at their elevated levels for eventual disposal. Verify that, for materials located at heights greater than 50 ft above the floor, a dust-tight, enclosed chute is constructed to transport removed material to containers on the floor. Verify that at no time the removed friable asbestos material is allowed to accumulate or become dry. Verify that porous surfaces stripped of friable asbestos materials are treated with a lockdown agent to securely seal any residual fibers that may be present.
13-6. Renovation activities must meet specific work practice requirements following abatement (401 KAR 63:042, Section 4(1)(m) through (v)).	Verify that wall and floor sheeting is removed and containerized for disposal. Verify that a sequence of HEPA filtration vacuuming, wet wiping all exposed surfaces, and surface drying is performed until no visible residue is observed in the work area (a minimum of 24 h). Verify that all asbestos-containing waste, except for large facility components, is thoroughly wetted before being placed into containers for disposal. Verify that, for disposal, large components are thoroughly wetted and wrapped in two layers of polyethylene sheeting secured with waterproof tape.

COMPLIANCE CATEGORY: ASBESTOS MANAGEMENT PROGRAM Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
13-6. (continued)	Verify that wet asbestos-containing waste is double bagged in polyethylene bags and placed in sealed, rigid containers for transport to an approved landfill. Verify that all polyethylene sheeting used in an asbestos abatement project is treated as asbestos-containing waste. Verify that all wrapping or containerizing of asbestos-containing waste is done in a manner that prevents the outside wrapping or container from being contaminated with asbestos fibers. Verify that all packaged asbestos-containing waste is labeled according to Federal regulations (40 CFR 61.152). Verify that the transport and disposal of asbestos-containing waste does not cause the release of asbestos fibers into the outside air. Verify that the disposal site is approved to accept asbestos-containing waste. Verify that clearance air monitoring is performed in accordance with the USEPA publication *Guidance for Controlling Asbestos-Containing Materials in Buildings.* Verify that copies of all clearance air monitoring results and all disposal receipts are submitted to the Cabinet.
DEMOLITION ACTIVITIES **13-7.** Demolition of a structure or portion of a structure that contains facility components composed or covered by friable asbestos material must meet specific requirements prior to demolition (401 KAR 63:042, Section 4(2)(a)).	(NOTE: These requirements apply to any asbestos abatement project subject to the adopted Federal regulations and involves demolition.) Verify that all components composed of or covered by friable asbestos material are removed prior to demolition. Verify that the management of components meets the applicable requirements for the management of components and asbestos-containing materials.

COMPLIANCE CATEGORY: ASBESTOS MANAGEMENT PROGRAM Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
13-8. Demolition activities must meet specific management and safety requirements (401 KAR 63:042, Section 4(2)(b) through (d)).	Verify that, before the demolition project begins, all doors, windows, floor drains, vents, and other openings to the outside of the building and to areas within the building that do not contain asbestos materials are sealed off with polyethylene sheeting and waterproof tape. Verify that, if a structure is to be partially demolished, all HVAC equipment in the demolition area or passing through it but servicing areas of the building that will remain are shut down, locked out, tagged to advise personnel not to activate the equipment, and thoroughly sealed with polyethylene sheeting and waterproof tape. Verify that a worker decontamination enclosure system is provided, consisting of a clean room, shower room, and equipment room; each room is to be separated from the other rooms and from the work area by airlocks and accessible doorways protected with two overlapping polyethylene sheets. Verify that warnings signs meet the following standards: - are displayed at all approaches to any location where airborne fiber levels can be expected to exceed background levels - are in a vertical format and measure 20 in. in length and 14 in. in width - are readily visible and legible - contain the following wording: DANGER ASBESTOS CANCER AND LUNG DISEASE HAZARD AUTHORIZED PERSONNEL ONLY RESPIRATORS AND PROTECTIVE CLOTHING ARE REQUIRED IN THIS AREA.
13-9. Demolition activities must meet specific work practice requirements for asbestos management (401 KAR 63:042, Section 4(2)(a)).	Verify that negative pressure ventilation units with HEPA filtration in sufficient number to provide one workplace air change every 15 min are operating continuously for the duration of the project. Verify that all friable asbestos material is thoroughly wetted through to the substrate prior to removal. Verify that asbestos materials, other than components, are removed in small sections. Verify that materials at heights greater than 15 ft but less than or equal to 50 ft above the floor are dropped into incline chutes or onto scaffolding or containerized at their elevated levels for eventual disposal. Verify that, for materials at heights greater than 50 ft above the floor, a dust-tight, enclosed chute is constructed to transport removed material to containers on the floor. Verify that at no time removed friable asbestos material is allowed to accumulate or become dry.

COMPLIANCE CATEGORY: ASBESTOS MANAGEMENT PROGRAM Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
13-10. Demolition activities must meet specific work practice requirements following abatement (401 KAR 63:042, Section 4(2)(a)).	Verify that any wall and floor sheeting is removed and containerized for disposal. Verify that a sequence of HEPA filtration vacuuming, wet wiping all exposed surfaces, and surface drying is performed until no visible residue is observed in the work area (a minimum of 24 h). Verify that all asbestos-containing waste, except for large facility components, is thoroughly wetted before being placed into containers for disposal. Verify that, for disposal, large components are thoroughly wet and wrapped in two layers of polyethylene sheeting secured with waterproof tape. Verify that wet asbestos-containing waste is double bagged in polyethylene bags and placed in sealed, rigid containers for transport to an approved landfill. Verify that all polyethylene sheeting used in an asbestos abatement project is treated as asbestos-containing waste. Verify that all wrapping or containerizing of asbestos-containing waste is done in a manner that prevents the outside wrapping or container from being contaminated with asbestos fibers. Verify that all packaged asbestos-containing waste is labeled according to Federal regulations (40 CFR 61.152). Verify that the transport and disposal of asbestos-containing waste does not cause the release of asbestos fibers into the outside air. Verify that the disposal site is approved to accept asbestos-containing waste. Verify that clearance air monitoring is performed in accordance with the USEPA publication *Guidance for Controlling Asbestos-Containing Materials in Buildings.* Verify that copies of all clearance air monitoring results and all disposal receipts are submitted to the Cabinet.

COMPLIANCE CATEGORY: ASBESTOS MANAGEMENT PROGRAM Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
OTHER ABATEMENT ACTIVITIES **13-11.** Any asbestos abatement activity, including emergency operations, is required to prevent the release of asbestos fibers to the outside air (401 KAR 63:042, Section 4(3)).	Verify that adequate barriers are constructed or wall and floor sheeting is used to contain asbestos fibers within the containment area. Verify that all friable asbestos materials are wetted prior to removal and are kept wet until they are containerized. Verify that HEPA filtration vacuum equipment and wet cleaning techniques are used to clean up the work area following the project until there is no visible residue. Verify that appropriate wrapping, containers, and labeling is used for packaged waste. Verify that the packaged waste is disposed of in an approved disposal site in compliance with all state and Federal requirements.

INSTALLATION:	COMPLIANCE CATEGORY: ASBESTOS MANAGEMENT PROGRAM Kentucky Supplement	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWER COMMENTS:		

SECTION 14

NOISE ABATEMENT

Kentucky Supplement

SECTION 14

NOISE ABATEMENT

Kentucky Supplement

According to the Kentucky Transportation Cabinet, Office of Aeronautics, there are no statewide regulations concerning airport and aircraft noise.

According to the Kentucky Department of Natural Resources and Environmental Protection, Division of Air Pollution Control, there are no statewide regulations concerning motor vehicle noise control. The Division of Air Pollution Control has issued a model noise control ordinance for Kentucky communities.

INSTALLATION:	COMPLIANCE CATEGORY: NOISE ABATEMENT Kentucky Supplement	DATE:	REVIEWER(S):

STATUS NA C RMA	REVIEWER COMMENTS:

SECTION 15

RADON PROGRAM

Kentucky Supplement

SECTION 15

RADON PROGRAM

Kentucky Supplement

Kentucky has not passed legislation regulating the certification of testing laboratories and radon mitigation workers. See the U.S. ECAS Manual for DOD and Army regulations.

INSTALLATION:	COMPLIANCE CATEGORY: RADON PROGRAM Kentucky Supplement	DATE:	REVIEWER(S):

STATUS NA C RMA	REVIEWER COMMENTS:

SECTION 16

ENVIRONMENTAL PROGRAM MANAGEMENT (EPM)

Kentucky Supplement

SECTION 16

ENVIRONMENTAL PROGRAM MANAGEMENT (EPM)

Kentucky Supplement

This protocol has no specific, applicable state regulations. Refer to the U.S. ECAS Manual for Army requirements.

INSTALLATION:	COMPLIANCE CATEGORY: ENVIRONMENTAL PROGRAM MANAGEMENT (EPM) Kentucky Supplement	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWER COMMENTS:		

SECTION 17

HAZARDOUS MATERIALS MANAGEMENT

Kentucky Supplement

SECTION 17

HAZARDOUS MATERIALS MANAGEMENT

Kentucky Supplement

Kentucky has adopted by reference the Federal regulations (49 CFR 171, 172, 173, 175, and 178) covering motor carrier safety and the transportation of hazardous materials. Although the military is exempt for national security purposes, state requirements for transportation permits and spill reporting are included in this Protocol.

See the U.S. ECAS Manual for DOD and Federal requirements covering other aspects of hazardous materials management.

HAZARDOUS MATERIALS MANAGEMENT

GUIDANCE FOR KENTUCKY CHECKLIST USERS

Applicability	Refer to Checklist Items:
Hazardous Materials Transportation	17-1
Aboveground Tanks - Permits	17-2
Aboveground Tanks - Installation and Operation	17-3 through 17-7
Aboveground Tanks at Service Stations	17-8 and 17-9

COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
HAZARDOUS MATERIALS TRANSPORTATION	
17-1. Transporters of hazardous materials are required to meet specific requirements (KRS 174.415 and 174.420).	Verify that intrastate transporters of hazardous materials have a permit from the Transportation Cabinet, Division of Motor Carriers. Verify that a copy of the required shipping papers and a copy of the certificate or permit is carried in the transporting vehicle. Verify that, in the event of an accident involving hazardous materials, these procedures are followed: - the Kentucky State Police are notified within 1 h of the accident - the shipping papers are provided to state and local emergency response authorities - attention is immediately called to emergency response authorities regarding the hazardous materials being transported.
ABOVEGROUND TANKS - PERMITS	
17-2. Aboveground tanks for petroleum and hazardous substances must be permitted and inspected by the State Fire Marshal's Office (KRS 198B).	Verify that aboveground tanks storing petroleum and hazardous substances are permitted and inspected by the State Fire Marshal's Office.
ABOVEGROUND TANKS - INSTALLATION AND OPERATION	(NOTE: This section is based on installation guidelines issued by the State Fire Marshal's Office.)
17-3. Aboveground tanks for petroleum and hazardous substances should meet spacing and separation guidelines (Good Management Practice (GMP)).	(NOTE: These are guidelines for the storage of stable liquids at atmospheric pressure. The distances from property lines and important buildings are doubled if the location is not within the jurisdiction of a fire department.) (NOTE: The term important building was not defined in the guidelines.) Verify that there is at least 3 ft of spacing (shell-to-shell) between any two tanks.

COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
17-3. (continued)	Verify that the distances from the tank to the nearest property line meet the following standards: Gallons — Distances 275 or less — 5 ft 276 to 750 — 10 ft 751 to 12,000 — 15 ft 12,001 to 30,000 — 20 ft 30,001 to 50,000 — 30 ft 50,001 to 100,000 — 50 ft Verify that the distances from the tank to the nearest important building meet the following standards: Gallons — Distances 30,000 or less — 5 ft 30,001 to 50,000 — 10 ft 50,001 to 100,000 — 15 ft Verify that tanks are separated from liquid petroleum gas containers by at least 20 ft.
17-4. Aboveground tanks for petroleum and hazardous substances should have dikes or catch basins to contain spills (GMP).	Verify that aboveground tanks for petroleum or hazardous substances have dikes or catch basins to contain spills. Verify that dikes are constructed of well tamped earth, steel, concrete, or solid masonry. Verify that catch basins are designed to provide a 1 percent slope away from the tank for at least 50 ft.
17-5. Aboveground tanks for petroleum and hazardous substances should meet specific requirements for piping, fill pipes, and valves (GMP).	Verify that all piping installed aboveground is steel. Verify that all steel piping installed underground is coated and cathodically protected. Verify that tanks have fill pipes (installed to minimize vibration) that terminate within 6 in. of the tank bottom. Verify that each connection to tanks through which liquid can flow is provided with a valve located as close as practical to the tank shell.

COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT Kentucky Supplement	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
17-6. Aboveground tanks for petroleum and hazardous substances should have working vents and emergency relief vents (GMP).	Verify that aboveground tanks have a working vent with a diameter equal to or greater than the diameter of the fill connection. Verify that emergency relief vents for horizontal tanks meet the following size standards: Gallons — Size 1000 or less — 4 in. 1001 to 4750 — 6 in. 4751 to 22,000 — 8 in. Verify that emergency relief vents for vertical tanks meet the following size standards: Gallons — Size 1000 or less — 4 in. 1001 to 6500 — 6 in. 6501 to 20,000 — 8 in. (NOTE: Vertical tanks designed to fail at the roof or shell seam need not meet this requirement.)
17-7. Aboveground tanks for petroleum and hazardous substances should meet safety requirements (GMP).	Verify that, at a minimum, the tank is clearly labeled and a NO SMOKING sign is posted in the tank area. Verify that, if the aggregate storage exceeds 1320 gal or if an individual storage tank exceeds 660 gal, the tank facility has a spill prevention control and counter measure plan.
ABOVEGROUND TANKS AT SERVICE STATIONS	(NOTE: This section applies to aboveground motor fuel storage tanks at public and private service stations.)
17-8. Aboveground tanks for motor fuel storage at public and private service stations should meet safety requirements (GMP).	Verify that a STOP MOTOR WHILE REFUELING sign is posted in the dispensing area. Verify that a clearly identified and easily accessible switch(es) or circuit breakers are provided at a remote location from the dispensing devices (more than 20 ft but less than 100 ft) to shutoff the power to all dispensing devices and remote pumps.

COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT **Kentucky Supplement**	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
17-9. Aboveground tanks for motor fuel storage at public and private service stations should meet size and distance standards (GMP).	Verify that tank sizes are limited to 12,000 gal individual capacity and 40,000 gal aggregate capacity. Verify that tanks are located 50 ft from the following: - the nearest important building on the same property - any fuel dispenser - the nearest side of a public way. (NOTE: The term important building was not defined in the guidelines.) Verify that tanks are located 100 ft from any property line that is or can be built upon, including the opposite side of a public way. (NOTE: These distances are reduced by half if the tanks are encapsulated in concrete vaults.) (NOTE: Tanks installed for refueling company owned vehicles, with an individual capacity not exceeding 12,000 gal for each class of liquid, can be located in accordance with general storage requirements.)

INSTALLATION:	COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT Kentucky Supplement	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWER COMMENTS:		