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IN THIS ISSUE

Public Hearings Scheduled 335

Amended Regulations Now in Effect:
Board of Medical Licensure—Paramedics 335
Development Finance Authority—Loans 336
Department of Justice:
Bureau of State Police—Polygraph 337
Department for Human Resources:
Bureau for Health Services
Emergency Medical Technicians 338

Proposed Amendments:
Kentucky Employes Retirement System—General Rules 339
Board of Dentistry 342
Board of Physical Therapy 342
Department of Education:
Bureau of Administration and Finance
Buildings and Grounds 342
Department of Labor—Occupational Safety and Health 344
Department of Mines and Minerals:
Miner Training, Education and Certification 347
Department of Housing, Buildings and Construction:
Plumbing 349

Proposed Regulations Received Through November 15:
Board of Dentistry 351
Department for Natural Resources and Environmental Protection:
Bureau of Environmental Protection
Division of Air Pollution 352
Department of Education:
Bureau of Instruction—Instructional Services 514
Department of Alcoholic Beverage Control—Licensing 515
Department of Mines and Minerals:
Miner Training, Education and Certification 515
Department for Human Resources:
Bureau for Social Services—Child Welfare 516

Minutes of Administrative Regulation Review Subcommittee 522

CUMULATIVE SUPPLEMENT

Locator Table—Effective Dates ..... E 2
KRS Cross-Reference Table ..... E 6
Cumulative Index ..... E 9

This is an official publication of the Commonwealth of Kentucky, Legislative Research Commission, giving public notice of all proposed regulations filed by administrative agencies of the Commonwealth pursuant to the authority of Kentucky Revised Statutes Chapter 13.

Persons having an interest in the subject matter of a proposed regulation published herein may request a public hearing or submit comments within 30 days of the date of this issue to the official designated at the end of each proposed regulation.

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Title		Chapter		Regulation
806	KAR	50	:	155
Cabinet Department, Board or Agency		Bureau, Division or Major Function		Specific Area of Regulation

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Administrative Register of kentucky

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Public Hearings Scheduled

DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION

A public hearing regarding 109 proposed regulations from the Division of Air Pollution will be held from 10 a.m. to 5 p.m. EST January 9 and 10, 1979, and from 7 to 9 p.m. January 10, in the auditorium of the Human Resources Building, 275 East Main Street, Frankfort, Kentucky. For additional information or submission of comments contact: John T. Smither, Director, Division of Air Pollution, Capital Plaza Tower, Frankfort, Kentucky 40601.

Title 401, Chapters 50, 51, 53, 55, 57, 59, 61, 63, and 65 [5 Ky.R. 352-514]

DEPARTMENT OF MINES AND MINERALS

A public hearing will be held at 10 a.m. EST on December 12, 1978, at the University of Kentucky Law School Courtroom, Lexington, Kentucky on the following proposed regulations:

805 KAR 7:030. Annual retraining program. [5 Ky.R. 347]
805 KAR 7:040. Training of newly hired miners. [5 Ky.R. 347]
805 KAR 7:050. Training of miners for new work assignments. [5 Ky.R. 348]
805 KAR 7:060. Program approval. [5 Ky.R. 349]
805 KAR 7:070. Reporting procedures and record maintenance. [5 Ky.R. 515]

Amended Regulations Now In Effect

EXECUTIVE DEPARTMENT FOR FINANCE AND ADMINISTRATION
State Board of Medical Licensure
As Amended

201 KAR 9:101. Definitions relating to paramedics.

RELATES TO: KRS 311.650 to 311.658, 311.990(18)
PURSUANT TO: KRS 13.082, 311.654
NECESSITY AND FUNCTION: KRS 311.654 directs the State Board of Medical Licensure to adopt rules and regulations relating to paramedics. The function of this regulation is to define terms that are used in regulations promulgated by the Board relating to paramedics.

Section 1. Definitions. As used in board regulations relating to paramedics, the following terms shall have the meanings set forth below unless the context requires otherwise:

(1) "Advanced life support unit" means a motor vehicle, vessel, or aircraft designed and used primarily for on-the-scene care or transportation of critically ill or critically injured patients and is equipped with such equipment as specified by the board as being essential to the proper functioning of an advanced life support unit.

(2) "Applicant" means any person applying for training or certification as a paramedic under this regulation.

(3) "Board" means the State Board of Medical Licensure.

(4) "Certificate" means the certificate issued by the Board of Medical Licensure pursuant to this regulation to any individual qualifying pursuant to this regulation to perform the duties of a paramedic.

(5) "Certified" means one who holds a certificate issued pursuant to this regulation.

(6) "Committee" means the Paramedic Advisory Committee as appointed by the board to act in an advisory capacity.

(7) "Emergency situation" means an unforeseen circumstance or combination of circumstances, regardless of place of occurrence, requiring immediate and continued medical response and intervention to safeguard the life or physical well-being of any patient.

(8) "Emergency medical technician (EMT)" means a qualified individual currently certified by the Kentucky Department for Human Resources as an emergency medical technician, emergency medical technician-ambulance, emergency medical technician-instructor, or emergency medical technician instructor-trainer.

(9) "Equipment" means that equipment required by the board to be carried and maintained on an advanced support unit.

(10) "Graduate paramedic" means any person who has successfully completed a board-approved paramedic training course and who has not yet taken the board's certifying examination provided for in these regulations.

(11) "Medical advisor" means a licensed physician *selected to supervise paramedics by the provider with the*

approval of the regional emergency medical services system's clinical director. [whose responsibility and duty is to provide medical care in the emergency room of a hospital, and who shall be primarily responsible for the training and supervision of paramedics.]

"Paramedic" means a person who is primarily involved in the delivery of emergency medical services and is certified under KRS 311.652 to 311.658

(13) "Paramedic trainee" means a qualified person who is enrolled in a paramedic training course authorized and approved by the board pursuant to this regulation.

(14) "Patient" means an individual who is sick, injured, dead or otherwise incapacited or helpless.

(15) "Provider" means the operator of any advanced life suppport unith within the Commonwealth of Kentucky, or any person utilizing a paramedic, paramedic-trainee, or graduate paramedic, except a person utilizing a paramedic as an instrutor in a training course authorized and approved by the board.

(16) "Supervising physician" means a licensed physician selected by the medical advisor to supervise paramedics.

DR. JOHN C. QUERTERMOUS, President
Kentucky State Board of Medical Licensure
ADOPTED: May 25, 1978
RECEIVED BY LRC: October 19, 1978 at 3:30 p.m.

DEVELOPMENT CABINET
Development Finance Authority
As Amended

305 KAR 2:010. Tourism loans.

RELATES TO: KRS 154.001 to 154.060, KRS Chapter 154

PURSUANT TO: KRS 154.010(17), 154.060

NECESSITY AND FUNCTION: Tourism constitutes economic activity which can be assisted through the encouragement of businesses related to and supportive of such activity, and tourism can be assisted through the function of the development authority.

Section 1. Definitions. (1) "Applicant" means that person(s), partnership, corporation, co-operative or other legal entity in which ownership of the proposed tourist project will be vested.

(2) "Application" means a document or group of documents containing a business plan including a general description of the business, a market feasibility analysis, a three (3) year audited financial statement, and five (5) year pro forma cash flow analysis; a legal description of the project site; detailed cost estimates; site surveys; development plan; method of financing; plans for insurance during acquisition and completion of the project; and any other statements and documents required by these regulations or deemed to be necessary by the *authority.* [board.]

(3) "Loan agreement" means a contractual document delineating in detail the terms and conditions including and supplementing the provisions of the note, mortgage, chattel mortgage or other security agreement upon which the authority has made the subject loan.

(4) "Tourist project" means, in addition to its statutory definition, a commercial or business project, conforming with developmental qualities, that will provide services or have other special attributes that will directly stimulate a net increase in tourism in the area and thereby increase overall employment and stimulate economic activity; and shall be a project that is part of a larger area wide program expected to attract tourists and contributing to the fundamental growth of tourism in the area.

(5) "Tourist Project Loan Committee" means those *three (3)* members of the *authority* [board] who were appointed by the Governor as representatives of tourism interests, and such others as may be *temporarily* appointed by the Chairman of the Kentucky Development Finance Authority, *in the event that any of the three (3) permanent members are unable to serve.*

(6) "Tourist Project Technical Advisors" means a group of persons whose members are appointed by the *Chairman* [Secretary] of the *authority* [Development Cabinet] and whose duty is to advise the *authority* [board] concerning the technical and financial feasibility of a proposed tourist project.

Section 2. No tourist project loan shall be made by the authority until the applicant has furnished written proof of its inability to obtain the funds necessary to complete the project from conventional lending sources.

Section 3. Prior to extensive review by the authority, an applicant for a tourist project loan shall have contacted the Small Business Administration, Farmers Home Administration, or other similar federal loan or loan guarantee program, for financial assistance.

Section 4. No tourist project loan shall be made by the authority until the applicant has submitted, for comment or review, a proposal of the project to the area development district in which the proposed project is situated.

Section 5. No application for financial assistance shall be submitted without a project feasibility evaluation including a detailed description of the project; building, equipment and machinery cost estimates; income and expense projections; environmental impact statement; proposed additional sources of funding and repayments; and other economic projections and business plan information as will allow the Tourist Project Loan Committee to evaluate the project request.

Section 6. It shall be the function of the Tourist Project Loan Committee to review all tourist project loan applications to determine, with the assistance of the Tourist Project Technical Advisors, whether the project is technically and financially feasible and ready for submission to the *authority for a final decision.* [board.] It shall further be the function of the committee to approve a "loan agreement" to be submitted to the *authority* [board].

Section 7. If all statutory and regulatory requirements have been met, the *full authority* [KDFA Board] shall have the exclusive power to approve or disapprove, by majority vote, a loan of funds pursuant to the approved loan agreement, or a revision of the loan agreement as the *authority* [board] may deem reasonable. The decision of the *authority* [board] shall be final.

Section 8. Tourist project loan financing shall include the financing of the purchase and development of land, and the purchase, construction, conversion, acquisition,

and modernization of fixtures, equipment, machinery, facilities and other improvements.

Section 9. In no instance shall the authority finance any tourist project whose chief purpose is advertising.

Section 10. Priority will be given to projects on which the authority's loan can be federally guaranteed, or where the authority's financial participation is in conjunction with a federal grant, loan or loan guarantee program. The term of the loan and interest rate shall be, as determined by the authority, those rates which will enable the authority to receive a federal loan guarantee and which will enable the authority to sell the loans on the secondary money market.

Section 11. Should an unguaranteed loan be necessary from the tourist project development fund to make the project feasible, the authority's participation shall be limited to those projects in which:

(1) The borrower holds equity funds in an amount equal to or unencumbered property of an appraised fair market value, equal to a percentage (to be determined by the *authority* [board]) of the total estimated cost of the tourist project which funds or property are available for and shall be applied to the cost of such project; and

(2) The local development agency has obtained from other financial institutions a firm commitment for all other funds which are necessary for payment of all the estimated costs of the tourist project; and

(3) The sum of these funds is adequate to insure completion of the project.

Section 12. In no instance shall the authority's unguaranteed loan participation exceed fifty (50) percent of the total estimated cost of a tourist project.

HERB LIGON, JR., Chairman
ADOPTED: August 23, 1978
APPROVED: WILLIAM L. SHORT, Secretary
RECEIVED BY LRC: September 13, 1978 at 10 a.m.

DEPARTMENT OF JUSTICE
Bureau of State Police
As Amended

502 KAR 20:020. Examiners.

RELATES TO: KRS 329.030
PURSUANT TO: KRS 15A.160, 329.030
NECESSITY AND FUNCTION: KRS 15A.160 and 329.030(6) provide that the Secretary of the Department of Justice may establish such rules and regulations for detection of deception examiners during their period of licensure to insure the examiner maintains adequate professional standards. This regulation establishes the requirements for detection of deception examiners.

Section 1. Advertising, soliciting and discrimination are prohibited [except] as follows:

(1) An examiner shall not advertise in any manner which would tend to deceive or defraud the public.

(2) An examiner shall not publish directly or indirectly or circulate any fraudulent, false, or misleading statements as to the skill or method of practice of any person or examiner.

(3) An examiner shall not claim superiority over other examiners as to his skill or method of practice.

(4) An examiner shall not divide fees, or agree to split or divide the fees, received for detection of deception services with any person for bringing or referring a client.

(5) An examiner shall not attempt to solicit business as a result of information or statements obtained from an examinee relating to his past employment or employer.

(6) An examiner shall not refuse to render detection of deception services to or for any person solely on account of the race, color, creed, sex, or national origin of such person.

Section 2. (1) The examiner shall inform the prospective examinee that taking the detection of deception examination is a voluntary act and the examiner must obtain the written consent of the examinee to undergo such examination.

(2) The examiner shall not conduct an examination on any person whom he believes, through observation or any other credible evidence, to be physically or psychologically unfit for such an examination at that time.

(3) The examiner shall, immediately upon request of the examinee, terminate an examination in progress.

(4) The examiner shall not render a verbal or written opinion based on chart analysis, until the examinee has had a reasonable opportunity to explain any reactions to pertinent questions.

(5) The examiner shall not interrogate or conduct an examination of an examinee's sexual behavior, or ask any questions that can be construed as being sexually oriented or personally embarrassing to the examinee, regardless of marital status, unless the topic is a specific issue or unless it refers to the basic matter pertinent to the examination.

(6) The examiner shall not conduct an examination when he has reason to believe the examination is intended to circumvent or defy the law.

(7) The examiner shall not knowingly issue, or permit an employee to issue, a polygraph examination report which is misleading, biased or falsified in any way. Each report shall be a factual, impartial and objective account of the pertinent information developed during the examination and the examiner's professional conclusion, based on analysis of the polygraph charts.

(8) The examiner shall not conduct a polygraph examination without first reviewing the issues to be covered during the examination and the general content of the questions to be asked duirng the examination with the examinee.

(9) The examiner shall not render a conclusive verbal or written decision, based on chart analysis, as to the truthfulness or deception of the examinee without having administered two (2) or more polygraph charts covering the same relevant issue, unless after the examinee has submitted to one (1) test he refuses to submit to additional tests. The fact of the examinee's refusal shall be noted in the verbal and/or written report of the examination. This shall not preclude the examiner from terminating an examination in progress at his own discretion when, in his opinion, the examinee has become physically or psychologically unfit, or has become uncooperative to the point that it would be useless to continue the examination.

(10) All questions and answers asked during a polygraph examination shall be marked on the polygraph charts at the

appropriate place on the chart where the question was asked and the answer given. If a question sheet with numbered questions is used, the number of the asked question along with the answer given shall be noted and the question sheet shall be attached to the polygraph chart and made a part of the examinee's file. Each polygraph chart should be identified as to the person being examined, the examiner, time and date of the examination and the chart number.

(11) The examiner shall not, unless professionally qualified to do so, include in any written report any statement purporting to be a medical, legal, or psychiatric opinion or which would infringe upon areas under the cognizance of professionals in those fields. This shall not preclude the examiner from describing the appearance or behavior of the examinee, if this is pertinent to the examination, as long as the examiner refrains from offering any diagnosis which he is professionally unqualified to make.

(12) The examiner shall not offer testimony concerning the charts or conclusions presented by another examiner unless he is thoroughly familiar with the techniques and procedures used by the other examiner. This shall not prohibit an examiner from testifying concerning his independent examination of the same examinee.

(13) It shall be the duty of every examiner to report to the department any action or misconduct on the part of another examiner which would be in violation of the provisions of KRS Chapter 329 or the regulations promulgated thereof.

Section 3. (1) The examiner shall maintain on file for at least two (2) years all records, papers, polygraph charts, consent to examination forms, notes, question lists or sheets and reports of polygraph examinations conducted by him.

(2) An examiner who leaves the employment of another examiner, agency, firm, or company shall be allowed access, after showing reasonable cause, to the files of examinations conducted by him during the two (2) year period prior to the date of his request. However, without the approval of the employing examiner, agency, firm or company, the examiner may not remove any of the material contained in the file or make notes of any of the information contained therein.

(3) The department shall, at any time there is just cause, inspect the records, reports, polygraph charts and all paperwork connected with the examination to determine if an examiner is conducting examinations in accordance with the provisions of KRS Chapter 329 and regulations promulgated by the department.

JOHN L. SMITH, Secretary
ADOPTED: September 7, 1978
RECEIVED BY LRC: September 11, 1978 at 10 a.m.

DEPARTMENT FOR HUMAN RESOURCES
Bureau for Health Services
As Amended

902 KAR 13:020. Applicants' requirements; priority for training.

RELATES TO: KRS 211.960 to 211.968, 211.990(5)
PURSUANT TO: KRS 13.082, 211.964
NECESSITY AND FUNCTION: KRS 211.964 directs the Department for Human Resources to adopt rules and regulations relating to Emergency Medical Technicians. The function of this regulation is to establish requirements for applicants and priority of applicants for training.

Section 1. Requirements for Applicants. Each applicant shall:

(1) Be eighteen (18) years of age or older;
(2) Hold a valid motor vehicle operator's license;
(3) Be of good moral character;
(4) Not be habitually addicted to or an abuser of alcoholic beverages, drugs, or controlled substances;
(5) Understand and be able to read, speak, and write the English language;
(6) Submit a signed application on a form prescribed by the department.

Section 2. Priority of Applicants for Taining. (1) The priority of applicants for training in courses offered to the public by implementing agencies which are open to the public and not otherwise exempted by the department shall be according to the following priorities:

(a) First priority: Ambulance personnel;
(b) Second priority: Emergency room personnel;
(c) Third priority: Related *emergency medical service* [EMS] personnel, including but not limited to, public safety agencies, rescue and extrication, industrial safety, nursing personnel, and certified public school teachers designated as first aid personnel;
(d) Fourth priority: All others.

(2) Applications shall be filed with the implementing agency ten (10) working days prior to the beginning of the course. The final selection of applicants for each course shall be made by the regional *emergency medical service* [EMS] coordinator.

ROBERT STATON, Commissioner
PETER D. CONN, Secretary
ADOPTED: September 15, 1978
RECEIVED BY LRC: September 15, 1978 at 3:30 p.m.

DEPARTMENT FOR HUMAN RESOURCES
Bureau for Health Services
As Amended

902 KAR 13:030. Fees.

RELATES TO: KRS 211.960 to 211.968, 211.990(5)
PURSUANT TO: KRS 13.082, 211.964, 211.966
NECESSITY AND FUNCTION: KRS 211.964 directs the Department for Human Resources to adopt rules and regulations relating to Emergency Medical Technicians and 211.966 permits the Department for Human Resources to prescribe a schedule of fees and charges for services to Emergency Medical Technicians. The function of this regulation is to establish a fee schedule.

Section 1. Fees. The following schedule of fees is established pursuant to KRS 211.966:
(1) Examination fee: $10.00;
(2) Re-examination fee: 5.00;
(3) Renewal fee: 10.00;
(4) Fee for duplicate certificate: 5.00;
[(5)EMT state shoulder patch: 1.00.]

ROBERT SLATON, Commissioner
PETER D. CONN, Secretary
ADOPTED: September 15, 1978
RECEIVED BY LRC: September 15, 1978 at 3:30 p.m.

Proposed Amendments

SECRETARY OF CABINET
Kentucky Retirement Systems
(Proposed Amendment)

105 KAR 1:010. Contributions and interest rates.

RELATES TO: KRS 16.505 to 16.652, 61.510 to 61.702, 78.510 to 78.852
PURSUANT TO: KRS 13.082, 16.576, 16.640, 61.559, 61.645, 78.780
NECESSITY AND FUNCTION: KRS 16.645, 61.565 and 78.545, require the board to determine the employer contribution rate based on an actuarial valuation. KRS 61.552 requires the board to adopt a rate of interest payable on a recontribution of refund. KRS 16.560, 61.575 and 78.640 provide that the board may determine the rate of interest payable on the members' contribution account. KRS 61.670 provides that the board shall adopt such actuarial tables as are necessary for the administration of the system. This regulation sets the employer contribution rates, and rate of interest on a recontribution of refund and member contribution account and establishes the actuarial tables for computation of retirement allowances for members of the Kentucky Employes Retirement System (KERS), County Employes Retirement System (CERS) and State Police Retirement System (SPRS).

Section 1. The employer contribution rate payable by a participating agency applicable to creditable compensation earned on or after July 1, 1978 shall be as follows:

KRS 61.565 State Police Retirement System 16½%
KRS 61.656 Kentucky Employes Retirement System 7¼%
KRS 61.565 County Employes Retirement System 7¼%
KRS 61.592 Kentucky Employes Retirement System 19¼%
KRS 61.592 County Employes Retirement System 16%

Section 2. The interest rate on a recontribution of refund as provided under KRS 61.552 shall be six (6) percent compounded annually, except that the interest rate on recontribution of refund made by an employee who has been reinstated by order of the Personnel Board shall be at the rate of zero (0) percent, if the refund is recontributed within a reasonable period of time.

Section 3. Interest creditable on a member's accumulated contributions in accordance with KRS 16.560, 61.575, and 78.640 shall be at the rate of three (3) percent.

Section 4. Reduction factors to be applied to determine immediate annuity equivalent to annuity deferred to Normal Retirement age under KRS 16.577, 16.578, 61.595, 61.640 and 61.680 shall be as *provided in Table G, below,* [follows] except:
(1) A SPRS, *or* KERS [or CERS] hazardous duty *member* [employee] who *is age fifty (50) or older and* would attain thirty (30) years of service (fifteen (15) years of which would be current service) prior to age fifty-five (55), if his employment had continued shall have his retirement benefit computed based on the appropriate factor as follows:

TABLE A

Years Required to Complete 30 Years Service	Percentage Payable
1	94.5%
2	89.0%
3	83.5%
4	78.0%
5	72.5%

(2) A CERS hazardous duty member who is age fifty (50) or older and would attain twenty-five (25) years of service prior to age fifty-five (55), if his employment had continued shall have his retirement benefit computed based on the appropriate factor as follows:

TABLE B

Years Required to Complete 25 Years Service	*Percentage Payable*
1	*94.5%*
2	*89.0%*
3	*83.5%*
4	*78.0%*
5	*72.5%*

(3) [(2)] A KERS or CERS non-hazardous member who is age fifty-five (55) or older and would attain thirty (30) years of service (fifteen (15) years of which would be current service) prior to age sixty-five (65) if employment were continued shall have benefits computed using the appropriate factor as follows:

TABLE *C* [B]

Years Required to Complete 30 Years Service	Percentage Payable
1	95.0%
2	90.0%
3	85.0%
4	80.0%
5	75.0%
6	71.0%
7	67.0%
8	63.0%
9	59.0%
10	55.0%

(4) [(3)] A KERS or CERS non-hazardous member who dies prior to age fifty-five (55) or who retires prior to age fifty-five (55) based on SPRS or *KERS* hazardous early retirement eligibility, and would have attained thirty (30) or more years of service (fifteen (15) of which would be current service) on or before reaching his sixty-fifth (65th) birthday, if employment were continued, shall have benefits computed by first multiplying his deferred benefit by the percentage payable as determined from Table *C* [B] in subsection *(3)* [(2)] based on the number of years required to complete thirty (30) years of service and then multiply this result by the percentage payable as determined from Table *D* [C] below based on said member's age at the time of death *or early retirement.*

TABLE *D* [C]

Years Prior to Age 55	Percentage Payable
1	97.0%
2	94.0%
3	91.0%
4	88.0%
5	85.0%
6	82.0%
7	79.0%
8	76.0%
9	73.0%
10	70.0%

(5) A KERS or CERS non-hazardous member who dies prior to age fifty-five (55) or who retires prior to age fifty-five (55) based on CERS hazardous early retirement eligibility, and would have attained twenty-five (25) or more years of service on or before reaching his sixty-fifth (65th) birthday, if employment were continued, shall have benefits computed by first multiplying his deferred benefit by the percentage payable as determined from Table E based on the number of years required to complete twenty-five (25) years of service and then multiply this result by the percentage payable as determined from Table D based on said member's age at the time of death or early retirement.

TABLE E

Years Required to Complete 25 Years Service	*Percentage Payable*
1	*95.0%*
2	*90.0%*
3	*85.0%*
4	*80.0%*
5	*75.0%*
6	*71.0%*
7	*67.0%*
8	*63.0%*
9	*59.0%*
10	*55.0%*

(6) A SPRS or KERS hazardous member who dies prior to age fifty (50) and would have attained thirty (30) or more years of service (fifteen (15) or which would be current service) on or before reaching his fifty-fifth (55th) birthday, if employment were continued, shall have benefits payable as determined from Table C in subsection (3) based on the number of years required to complete thirty (30) years of service and then multiply this result by the percentage payable as determined from Table F based on said member's age at the time of death.

(7) A CERS hazardous member who dies prior to age fifty (50) and would have attained twenty-five (25) or more years of service on or before reaching his fifty-fifth (55th) birthday, if employment were continued, shall have benefits payable as determined from Table E in subsection (5) based on the number of years required to complete twenty-five (25) years of service and then multiply this result by the percentage payable as determined from Table F based on said member's age at the time death.

TABLE F

Years Prior to Age 50	*Percentage Payable*
1	*97.0%*
2	*94.0%*
3	*91.0%*
4	*88.0%*
5	*85.0%*
6	*82.0%*
7	*79.0%*
8	*76.0%*
9	*73.0%*
10	*70.0%*

TABLE *G* [D]

Early Age	Normal Retirement Age 65	55
64	95.0%	
63	90.0%	
62	85.0%	
61	80.0%	
60	75.0%	
59	71.0%	
58	67.0%	
57	63.0%	
56	59.0%	
55	55.0%	
54	51.3%	94.5%
53	47.9%	89.0%
52	44.9%	83.5%
51	42.1%	78.0%
50	39.5%	72.5%
49	37.1%	68.8%
48	34.9%	65.2%
47	33.0%	61.7%
46	31.3%	58.2%
45	29.9%	54.7%
44	28.7%	51.3%
43	27.6%	47.9%
42	26.7%	44.9%
41	25.8%	42.1%
40	25.1%	39.5%
39	24.4%	37.1%
38	23.8%	34.9%
37	23.2%	33.0%
36	22.5%	31.3%
35	21.9%	29.9%
34	21.2%	28.7%
33	20.6%	27.6%
32	20.0%	26.7%
31	19.5%	25.8%
30	19.0%	25.1%
29	18.5%	24.4%
28	18.0%	23.8%
27	17.5%	23.2%
26	17.0%	22.5%
25	16.5%	21.9%

The member's exact age in years and months shall be determined and the above factors shall be used to extrapolate in order to determine the appropriate factors.

Section 5. Conversion factors to be applied to determine immediate annuity which could be purchased by $1,000 of contributions and interest after doubling as provided in KRS 16.576 and 61.559.

TABLE *H* [E]

	Age	Male	Female
Non-Hazardous	65	$ 8.229	$ 7.432
	66	$ 8.423	$ 7.596
	67	$ 8.628	$ 7.767
	68	$ 8.848	$ 7.951
	69	$ 9.087	$ 8.147
	70	$ 9.332	$ 8.355
	71	$ 9.605	$ 8.565
	72	$ 9.882	$ 8.796
	73	$10.180	$ 9.042
	74	$10.468	$ 9.304
	75	$10.792	$ 9.567
	76	$11.139	$ 9.848
	77	$11.510	$10.149
	78	$11.908	$10.450
	79	$12.286	$10.775
	80	$12.684	$11.121
Hazardous	55	$ 6.809	$ 6.257
	56	$ 6.899	$ 6.349
	57	$ 7.020	$ 6.449
	58	$ 7.150	$ 6.546
	59	$ 7.281	$ 6.635
	60	$ 7.419	$ 6.745
	61	$ 7.561	$ 6.870
	62	$ 7.692	$ 7.002
	63	$ 7.860	$ 7.138
	64	$ 8.039	$ 7.279
	65	$ 8.229	$ 7.432
	66	$ 8.423	$ 7.596
	67	$ 8.628	$ 7.767
	68	$ 8.848	$ 7.951
	69	$ 9.087	$ 8.147
	70	$ 9.332	$ 8.355
	71	$ 9.605	$ 8.565
	72	$ 9.882	$ 8.796
	73	$10.180	$ 9.042
	74	$10.468	$ 9.304
	75	$10.792	$ 9.567
	76	$11.139	$ 9.848
	77	$11.510	$10.149
	78	$11.908	$10.450
	79	$12.286	$10.775
	80	$12.684	$11.121

MIM C. CLARK, General Manager
ADOPTED: May 17, 1978
APPROVED: JAMES E. GRAY, Secretary
RECEIVED BY LRC: October 16, 1978 at 9 a.m.
SUBMIT COMMENT OR REQUEST FOR HEARING TO: General Manager, Kentucky Retirement Systems, 226 West Second Street, Frankfort, Kentucky 40601.

DEPARTMENT OF FINANCE
Kentucky Board of Dentistry
(Proposed Amendment)

201 KAR 8:140. Continuing education compliance.

RELATES TO: KRS 313.080 *(1)*, (2)
PURSUANT TO: KRS 13.082, 313.080
NECESSITY AND FUNCTION: Sets forth guidelines and schedule of points to be accumulated by each licensed dentist for compliance with the continuing education requirement for relicensure.

Section 1. *Each* [Every] licensed dentist requesting renewal of license must show evidence which is satisfactory to the Kentucky Board of Dentistry that he or she has accumulated ten (10) points of continuing education. The evidence of ten (10) points of continuing education shall be *submitted on the "Continuing Education Credit Record" no later than December 31st of each year.* [by December 31, 1975, and December 31 every year thereafter, (i.e. December 31, 1976, December 31, 1977, et. seq.).] The Kentucky Board of Dentistry *may* [is to] be notified as each group of points is earned*; however,* [.] [T] *t*he final date *for filing the "Continuing Education Credit Record" shall be December 31st each year.* [of notification of the accumulation of the last group of points to bring the total to ten (10) or more, shall be December 31st each year.]

Section 2. The following schedule of points rating is adopted: (1) Local dental meetings, *1 point* [2 points].
(2) State dental meetings, *4* [5] points.
(3) Regional and national meetings, *4* [5] points. *Regional meetings shall be defined as a meeting held within a specific region of the United States, not within a specific region of an individual state.*
(4) Dental specialty meetings, *4* [5] points.
(5) Study club dental meetings, 2 points. Study clubs shall be defined as a meeting of no less than two (2) hours duration. They shall be chartered and adopt a constitution and bylaws [.] *,such constitution and bylaws to be filed with the Kentucky Board of Dentistry in order to be eligible to fulfill the continuing education requirement.* One-half (½) of the meeting time shall be devoted to matters of professional interest.
(6) Continuing education in formally enrolled classes or clinics under the sponsorship of a *recognized dental association, dental college or university* [dental college or university. Recognized dental associations] or specialty license certifying board, 5 points per day. *Such courses shall be of six (6) hours or more in duration in order to qualify. At least one-half (½) of the required ten (10) points shall be earned in any one (1) of the three (3) categories in this subsection.*
(7) Hospital staff meetings, *1 point* [2 points]. *(Applicable when a scientific session is held).*

Section 3. The Board of Dentistry or the Secretary-Treasurer of the Board may, at its/his discretion, approve for continuing education credit such other courses as may be deemed worthy of fulfilling the requirement as related to continuing education.

JAMES W. HOLLADAY, D.M.D.,
Secretary-Treasurer
ADOPTED: November 4, 1978
RECEIVED BY LRC: November 13, 1978 at 2 p.m.
SUBMIT COMMENT OR REQUEST FOR HEARING TO: Secretary-Treasurer, Kentucky Board of Dentistry, 2106 Bardstown Road, Louisville, Kentucky 40205

EXECUTIVE DEPARTMENT FOR FINANCE AND ADMINISTRATION
Kentucky State Board of Physical Therapy
(Proposed Amendment)

201 KAR 22:040. License renewal.

RELATES TO: KRS 327.050
PURSUANT TO: KRS 327.040
NECESSITY AND FUNCTION: Provides specific directions for the annual renewal of the physical therapy license. The billfold license is a means of identifying those persons holding themselves out as a licensed physical therapist. This mechanism may be beneficial upon the visitation of a board member to the clinic setting.

Section 1. Th*e* lincensed physical therapist will automatically receive renewal of licensure upon payment on or before January 31, of each year of a renewal fee of *twenty dollars ($20)* [ten dollars ($10)] by money order or certified check made payable to the Kentucky State Treasurer and send to the secretary of the board.

Section 2. Upon initial licensing and each subsequent renewal, all licensed physical therapists will be furnished a billfold license with a tear-out validation that must be posted to the original license certificate and kept at the business address. The billfold license must be in his possession when on duty and shall be exhibited by the holder upon request of any member of the board or its official representative.

PHILLIP A. CANTON, President
ADOPTED: October 19, 1978
APPROVED: ROY STEVENS, Secretary
RECEIVED BY LRC: November 1, 1978 at 11:30 a.m.
SUBMIT COMMENT OR REQUEST FOR HEARING TO: Nancy Brinly, Executive Secretary, 1614 Dunbarton Wynde, Louisville, Kentucky 40205.

EDUCATION AND ARTS CABINET
Department of Education
Bureau of Administration and Finance
(Proposed Amendment)

702 KAR 4:060. Construction criteria.

RELATES TO: KRS 162.060, 162.160*(1)*
PURSUANT TO: KRS 13.082, *156.030,* 156.070, 156.160(5)
NECESSITY AND FUNCTION: To insure functional operation, comfort and economical operation of the proposed educational facility.

Section 1. The structural design for construction of all new school buildings, building additions and remodeling shall be in conformance with applicable building codes and regulations and approved by authorities having jurisdiction. The following conditions shall be provided in the design of all new school buildings:
(1) The minimum width for elementary school main corridors shall be eight (8) feet in the clear.
(2) The minimum width for a middle school, junior high

school, or high school main corridors shall be nine (9) feet in the clear.

(3) A ramp up to one (1) to twelve (12) slope will be approved. All ramps shall have a non-slip surface. Changes in direction of ramps must have level landings.

(4) Corridors shall terminate at an approved egress or at a stairway which leads directly to an approved egress. A corridor extension of six (6) feet will be permitted. In no case shall more than two (2) classrooms empty into this corridor extension.

(5) The minimum width of secondary corridors shall be six (6) feet.

(6) The roof shall have a minimum slope of one-half (½) inch per foot.

Section 2. All exterior doors must swing out, and they shall be provided with panic hardware, except exit doors from individual classrooms not housing more than forty-five (45) people. No less than two (2) exits shall be provided for each building.

(1) All exit doors shall be either recessed or protected by a canopy, except exit doors from individual classrooms not housing more than forty-five (45) people. A landing of not less than four (4) feet shall be provided from the door threshold to the first step.

(2) All exterior exit doors and side lights, when glazed, shall have either safety laminated glass, tempered glass panels, or approved equals.

(3) Classroom doors shall be at least three (3) feet by six (6) feet and eight (8) inches.

(4) Any door swinging into a corridor shall swing through 180 degrees or be recessed.

(5) In any room where there is a chance of panic by explosion such as a chemistry room, shops, etc., and in any room that houses more than forty-five (45) students, library, cafeteria, etc., exit doors shall swing out.

(6) Each building shall be so designed as to minimize architectural barriers to the handicapped and shall include specific provisions for ramps and doorways to accommodate wheelchairs.

Section 3. No less than two (2) stairways shall be provided in multiple story buildings. The stairways shall be remote from each other.

(1) All required stairways shall *have doors that* open directly to the outside.

(2) Width of main stairways shall not be less than forty-four (44) inches between handrails. All stairways must be provided with a handrail on each side.

(3) Risers for main stairways shall not exceed seven (7) inches, and treads shall not be less than eleven (11) inches in width.

(4) No door shall open immediately upon a flight of stairs. A landing at least the width of the open door plus three (3) feet shall be provided.

(5) No storage space shall be located in or under any stairwell.

(6) Exterior stairways or ramps used as primary building exits shall be covered and shielded from weather.

Section 4. Standard elementary school classrooms shall be as follows:

(1) A minimum of 720 square feet of floor space.

(2) A minimum width of twenty-two (22) feet.

(3) A minimum of forty-eight (48) square feet of chalkboard.

(4) A minimum of forty-eight (48) square feet of tackboard.

(5) A storage space for children's clothing.

(6) A storage space for teaching materials and records.

(7) Ceiling height shall be a minimum of eight (8) feet and eight (8) inches with mechanical ventilation and a minimum of nine (9) feet and eight (8) inches with natural ventilation.

Section 5. Standards for middle school, junior high and high school classrooms shall be as follows:

(1) A minimum of 625 square feet of floor space.

(2) A minimum width of twenty-two (22) feet.

(3) A minimum of forty-eight (48) square feet of chalkboard.

(4) A minimum of forty-eight (48) square feet of tackboard.

(5) Ceiling height shall be a minimum of eight (8) feet and eight (8) inches with mechanical ventilation and a minimum of nine (9) feet and eight (8) inches with natural ventilation.

Section 6. A minimum window, twenty-four (24) by thirty (30) inches, shall be required in all exterior classrooms. Only interior rooms will be approved without a window.

(1) All windows installed in instructional areas shall have a minimum of fifty (50) percent of operable sash.

(2) All exterior windows shall insofar as practical be double glazed or insulated glass.

(3) [(2)] Operable sections of windows shall be within the reach of the classroom teacher.

(4) [(3)] Clerestory windows and skylights shall not be approved in classroom areas.

(5) [(4)] The height of a window sash or frame shall be a minimum of thirty (30) inches above the finished floor.

(6) [(5)] In classrooms approved without mechanical ventilation, the area of window ventilation shall be equal to ten (10) percent of the floor area.

Section 7. Toilet rooms, shower rooms and locker rooms in a school building shall be exhausted by means of an exhaust duct system. Exhaust registers shall be located at or in the ceiling of each area and exhausted directly to the outside. Exhaust ducts serving rooms for opposite sexes shall not be connected to a common exhaust duct unless adequate sound proofing is provided. There shall be a minimum of twenty (20) air changes per hour of air provided for all areas.

Section 8. (1) All exterior walls shall have a maximum composite U-factor of .20 BTUH per square foot per degree Fahrenheit.

(2) A maximum composite U-factor for roofs shall be .10 BTUH per square foot per degree Fahrenheit.

Section 9. Standards for auxiliary spaces shall be as follows:

(1) Auditoriums, gymnasiums, and multipurpose rooms shall be located on the ground level and regardless of size shall be provided with at least two (2) exits remote from each other.

(2) Noise producing areas shall be located remote and shielded from classroom areas.

(3) A principal's office, secretaries' space and reception area shall be provided in all school buildings.

(4) Records storage room shall be provided in all secondary schools. This shall be a fireproof room with a two (2) hour rating.

(5) Locker space, properly ventilated, shall be provided for each middle, junior high, and high school student.

(6) A guidance area shall be provided in all school plants.

(7) A first aid room with toilet shall be provided in all school buildings.

(8) A general storage area for equipment and material storage shall be provided in all school plants.

(9) Custodial storage and equipment rooms shall be provided in all school buildings.

(10) Ceiling heights of all special instructional areas shall be eight (8) feet and eight (8) inches or more relative to the area of the room. The corridor height shall be a minimum of eight (8) feet in the clear.

Section 10. Old buildings remodeled for instructional purposes shall insofar as practical, meet the requirements of new spaces that would be used for the same purposes. The plans and specifications shall be approved by the Superintendent of Public Instruction *prior to the advertisement for bids for the project.*

JAMES B. GRAHAM,
Superintendent of Public Instruction

ADOPTED: September 5, 1978

RECEIVED BY LRC: October 27, 1978 at 10:30 a.m.

SUBMIT COMMENT OR REQUEST FOR HEARING TO: Fred Schultz, Secretary, Kentucky State Board for Elementary and Secondary Education, 17th Floor, Capital Plaza Office Tower, Frankfort, Kentucky 40601.

PUBLIC PROTECTION AND REGULATION CABINET
Department of Labor
Occupational Safety and Health
(Proposed Amendment)

803 KAR 2:020. Adoption of 29 CFR Part 1910.

RELATES TO: KRS Chapter 338

PURSUANT TO: KRS 13.082

NECESSITY AND FUNCTION: KRS 338.051 and 338.061 authorize the Kentucky Occupational Safety and Health Standards Board to adopt and promulgate occupational safety and health rules and regulations, and standards. Express authority to adopt by reference established federal standards and national consensus standards is also given to the board. The following regulation contains those standards to be enforced by the Division of Occupational Safety and Health Compliance in the area of general industry.

Section 1. The Occupational Safety and Health Standards Board hereby adopts 29 CFR Part 1910, the Occupational Safety and Health Standards, published in the Federal Register, June 27, 1974 Edition, Volume 39, Number 125, Government Printing Office, Washington, D.C. 20402. These standards are hereby adopted by reference with the following additions, exceptions, and deletions.

(1) 29 CFR Part 1910.1 shall read as follows:

"The provisions of this regulation adopt and extend the applicability of established federal standards contained in 29 CFR Part 1910 to all employers, employees, and places of employment throughout the Commonwealth except those excluded in KRS 338.021."

(2) 29 CFR Part 1910.2 shall read as follows: As used ir this part, unless the context clearly requires otherwise:

(a) "Act" means KRS Chapter 338.

(b) "Assistant Secretary of Labor" means the Commissioner of Labor, Commonwealth of Kentucky.

(c) "Employer" means any entity for whom a person is employed except those employers excluded in KRS 338.021.

(d) "Employee" means any person employed except those employees excluded in KRS 338.021.

(e) "Standard" means a standard which requires conditions or the adoption or use of one or more practices, means, methods, operations, or processes, reasonably necessary or appropriate to provide safe and healthful employment. "Standard" has the same meaning as and includes the words "regulation" and "rule."

(f) "National Consensus Standard" means any occupational safety and health standard or modification thereof which has been adopted and promulgated by a nationally recognized standards-producing organization.

(g) "Established Federal Standard" means any operative occupational safety and health standard established by any agency of the United States Government.

(h) An employer, required under these standards to report information to the U.S. Department of Labor, or any subsidiary thereof, shall instead report such information to the Kentucky Department of Labor, U.S. 127 South, Frankfort, Kentucky 40601.

(3) 29 CFR 1910.13 through 1910.16 relating to ship repairing, shipbuilding, shipbreaking, and longshoring; and 1910.267a relating to pesticides, as well as paragraph (a)(6) in Section 1910.267 which refers to Section 1910.267a, are excluded and deleted in their entirety.

(4) 29 CFR 1910.141(c)(2)(i) shall read as follows:

"(i) Each water closet shall occupy a separate compartment with walls or partitions between fixtures sufficiently high to assure privacy."

(5) The changes which have been adopted by the U.S. Department of Labor relating to 29 CFR 1910.211, and 1910.217, mechanical power presses, and published in the Federal Register Volume 39, Number 233, December 3, 1974, a copy of which is attached hereto, are hereby adopted by reference.

(6) The changes and additions which have been adopted by the U.S. Department of Labor relating to Telecommunications which are contained in 29 CFR 1910.67, 1910.70, 1910.183, 1910.189, 1910.190, 1910.268, 1910.274, and 1910.275, published in the Federal Register, Volume 40, Number 59, March 26, 1975, a copy of which is attached hereto, are adopted by reference.

(7) 29 CFR 1910.93q, the Occupational Safety and Health Standard covering Vinyl Chloride which was published in the federal Register, Volume 39, Number 194, October 4, 1974, a copy of which is attached hereto, is hereby adopted by reference.

(8) 29 CFR 1910.106(d)(2)(iii) of the Federal Register, Volume 39, Number 125, June 27, 1974, shall be amended by adding Table H-12 of the Federal Register, Volume 40, Number 18, page 3982, January 27, 1975, a copy of which is attached hereto, is adopted by reference.

(9) 29 CFR 1910.151 relating to medical services and first aid shall be changed to read as follows:

"(a) The employer shall ensure the ready availability of medical personnel for advice and consultation on matters of occupational health."

"(b) Employers with eight (8) or more employees within the establishment shall have persons adequately trained to render first aid and first-aid supplies approved by a consulting physician, along with a signed list of these supplies, shall be readily available. Outside salesmen, truck drivers, seasonal labor, and others who while performing their duties, are away from the premises more than fifty (50) percent of the time are not to be included in determining the number of employees."

"(c) All other employers shall, in the absence of an infirmary, clinic, or hospital in near proximity to the workplace which is used for the treatment of all injured employees, have a person or persons adequately trained to render first aid. First-aid supplies approved by the consulting physician shall be readily available."

"(d) Where the eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body shall be provided within the work area for immediate emergency use."

(10) Recodification of 29 CFR 1910.93 through 1910.93q as 1910.1000 through 1910.1017 respectively, as published in the Federal Register, Volume 40, Number 103, May 29, 1975, a copy of which is attached hereto, is hereby adopted by reference.

(11) 29 CFR 1910.141(d)(2)(i) of the Federal Register, Volume 40, Number 82, April 28, 1975, amended by deleting the last half of Table J-2, a copy of which is attached hereto, is hereby adopted by reference.

(12) The new standard, adopted by the U.S. Department of Labor relating to Industrial Slings contained in 29 CFR 1910.184, published in the Federal Register, Volume 40, Number 125, June 27, 1975, a copy of which is attached hereto, is hereby adopted by reference.

(13) 29 CFR 1910.94 which was amended by revoking paragraphs (b)(2)(i) and (b)(2)(ii) and by revising paragraph (b)(2), as published in the Federal Register, Volume 40, Number 111, June 9, 1975, a copy of which is attached hereto is adopted by reference.

(14) 29 CFR 1910.217(b)(7)(xii) relating to machines using part revolution clutches shall be amended by adding the following:

"This provision will not prevent the employer from utilizing a reversing means of the drive motor with the clutch-brake control in the 'inch' position."

(15) 29 CFR 1910.94(d)(4)(i) Table G-14, Page 23594, published in the Federal Register, Volume 39, Number 125, Thursday, June 27, 1974, as adopted, contains a typographical error and is hereby revoked. The corrected version published in the Federal Register, Volume 37, No. 202, Wednesday, October 18, 1972, Table G-14, Page 22155, a copy of which is attached hereto, is hereby adopted by reference.

(16) 29 CFR 1910.1001(i)(l) which was revised by the U.S. Department of Labor, for retention of records of Asbestos Exposure Monitoring from three (3) years to twenty (20) years, as published in the Federal Register, Volume 41, No. 55, Friday, March 19, 1976, a copy of which is attached hereto, is hereby adopted by reference.

(17) 29 CFR 1910.184(f)(6) which was amended by the U.S. Department of Labor, to delete the paragraph which prohibits the use of knots or wire rope clips to form eyes in wire rope slings, as published in the Federal Register, Volume 41, No. 62, Tuesday, March 30, 1976, a copy of which is attached hereto is hereby adopted by reference.

(18) Paragraph 1910.1005(c)(7) of the 29 CFR 1910 General Industry Standards shall read as follows:

"Premixed Solutions: Where 4, 4' Methylene bis (2-Chloroaniline) is present only in a single solution at a temperature not exceeding 120 degrees Celsius, the establishment of a regulated area is not required; however, (i) only authorized employees shall be permitted to handle such materials."

(19) 29 CFR 1910.101(b) shall be amended by revocation of referenced pamphlet P-1-1965 and the adoption of P-1-1974, herein filed by reference.

(20) 29 CFR 1910.1029 Exposure to Coke Oven Emissions as printed in the Federal Register, Volume 41, Number 206, Friday, October 22, 1976, a copy of which is attached hereto, is adopted by reference.

(21) Corrections and omissions which have been adopted by the U.S. Department of Labor, relating to Coke Oven Emissions Standards, 29 CFR 1910.1029, published in the Federal Register, Volume 42, Number 12, Tuesday, January 18, 1977, a copy of which is attached hereto, is hereby adopted by reference.

(22) 29 CFR 1910.309 is hereby amended by revising Paragraph (c) to require either the use of Ground-fault Circuit Interrupters or the implementation of an assured equipment grounding conductor program on construction sites. This amendment, as published in the Federal Register, Volume 41, No. 246, Tuesday, December 21, 1976, a copy of which is attached hereto, is hereby adopted by reference with the following modification:

"Effective Date: Page 55704, 2nd paragraph is changed to read, 'These amendments of Part 29 CFR 1910 become effective August 22, 1977.'"

(23) The following corrections and omissions which have been adopted by the U.S. Department of Labor, copies of which are attached hereto, are hereby adopted by reference.

(a) Federal Register, Volume 39, No. 233, December 3, 1974, Standard for Exposure to Vinyl Chloride-corrections;

(b) Federal Register, Volume 40, No. 18, January 27, 1975;

1. Mechanical power presses-corrections
2. Correct error of omission-Table H-12

(c) Federal Register, Volume 40, No. 58, March 25, 1975, Standard for Exposure to Vinyl Chloride-effective date;

(d) Federal Register, Volume 40, No. 82, April 28, 1975, National Fire Protection Association mailing address change;

(e) Federal Register, Volume 40, No. 125, June 27, 1975, Overhead and Gantry Cranes, Paragraph 1910.179(j)(2)(iv)-corrections and (v) revoked; Paragraph 1910.190 Standards Organization-amended;

(f) Federal Register, Volume 40, No. 145, July 28, 1975, Industrial Slings-correction.

(24) 29 CFR 1910.410 through 1910.441, Subpart T, the Occupational Safety and Health Commerical Diving Standard, published in the Federal Register, Volume 42, No. 141, Friday, July 22, 1977, a copy of which is attached hereto, is hereby adopted by reference.

(25) 29 CFR 1910.1028 the permanent standard "Occupational Exposure to Benzene," printed in the Federal Register, Volume 43, No. 29, February 10, 1978, a copy of which is hereto, is hereby adopted by reference. Amend 29 CFR 1910.1028 by exempting:

(a) Employee exposure from liquid mixtures containing 0.5 percent (0.1 percent after June 27, 1981) or less Benzene by volume, or the vapors released from such liquids.

(b) The caution label requirements for liquid mixtures

containing 5.0 percent or less Benzene packaged before June 27, 1978.

(b) [(28)] The following corrections and omissions to the standard 29 CFR 1910.1028 "Occupational Exposure to Benzene," which appeared in the Federal Register, Volume 43, No. 63, March 31, 1978, are hereby adopted by reference.

(26) 29 CFR 1910.1044 "Occupational Exposure to 1, 2 Dibromo-3-Chloropropane (DBCP)," printed in the Federal Register, Volume 43, No. 53, March 17, 1978, a copy of which is attached hereto, is hereby adopted by reference.

(27) (a) 29 CFR 1910.1018 "Occupational Exposure to Inorganic Arsenic," printed in the Federal Register, Volume 43, No. 88, May 5, 1978, a copy of which is attached hereto, is hereby adopted by reference.

(b) The corrections and omissions, adopted by the U.S. Department of Labor, which appeared in Federal Register 28472, June 30, 1978, a copy attached hereto, are hereby adopted by reference.

(28) [(29)] Amend 29 CFR 1910.19 by properly placing air contaminants by paragraph under section heading. This amendment, as adopted by the U.S. Department of Labor, appeared in the Federal Register, page 28473, June 30, 1978, a copy of which is attached hereto, is adopted by reference.

(29) [(30)] 29 CFR 1910.1043 and 29 CFR 1910.1046 "Occupational Exposure to Cotton Dust," printed in the Federal Register, Volume 43, No. 122, June 23, 1978, and the corrections and omissions to this standard which appeared in the Federal Register *28473 through* 28474, June 30, 1978 and 35032 *through 35036*, August 8, 1978, copies of which are attached hereto, are hereby adopted by reference.

(30) Amend 29 CFR 1910 by adding a new Subpart C, "General Safety and Health Provisions" containing a new 1910.20 preservation of records. This amendment, as adopted by the U. S. Department of Labor, appeared in the Federal Register, Volume 43, No. 139, July 19, 1978, a copy of which is attached hereto, is adopted by reference with the following addition and revision: (Page 31020) 1910.20 (b) "Qualified Professional" means any person trained in the field of industrial hygiene, toxicology, epidemiology, nursing, medicine or health physics. (Page 31021) 1910.20 (d) Availability of records. See line 6 and line 10: delete the word designee and insert "A designated qualified professional."

(31) 29 CFR 1910.1045 "Occupational Exposure to Acrylonitrile (Vinyl Cyanide)," printed in the Federal Register, Volume 43, No. 192, October 3, 1978, a copy of which is attached hereto, is hereby adopted by reference.

JAMES R. YOCOM, Commissioner
ADOPTED: October 19, 1978
APPROVED: DONALD N. RHODY, Secretary
RECEIVED BY LRC: November 13, 1978 at 2 p.m.
SUBMIT COMMENT OR REQUEST FOR HEARING TO: Executive Director, Kentucky Department of Labor, Occupational Safety and Health, U.S. 127 South, Frankfort, Kentucky 40601.

PUBLIC PROTECTION AND REGULATION CABINET
Department of Labor
Occupational Safety and Health
(Proposed Amendment)

803 KAR 2:032. Adoption of 29 CFR Part 1928.

RELATES TO: KRS Chapter 338
PURSUANT TO: KRS 13.082
NECESSITY AND FUNCTION: KRS 338.051 and 338.061 authorize the Kentucky Occupational Safety and Health Standards Board to adopt and promulgate occupational safety and health rules, regulations, and standards. Express authority to adopt by reference established federal standards and national concensus standards is also given to the Board. The following regulations contain those standards to be enforced by the Division of Occupational Safety and Health Compliance in the area of agriculture.

Section 1. The Occupational Safety and Health Standards Board hereby adopts 29 CFR Part 1928, the Occupational Safety and Health Standards, published in the Federal Register April 25, 1975 Edition, Volume 40, Number 81, Government Printing Office, Washington, D. C. 20402. These standards are hereby adopted by reference with the following additions, exceptions and deletions.

(1) 29 CFR Part 1928.1 shall read as follows:

"This part contains Occupational Safety and Health Standards applicable to agriculture operations. The provisions of this regulation adopt and extend the applicability of established federal standards contained in 29 CFR Part 1928 to all employers, employees, and places of employment throughout the Commonwealth except those excluded in KRS 338.021."

(2) The additions which have been adopted by the U. S. Department of Labor, relating to Agricultural Standards, which are contained in 29 CFR 1928.57, Subpart D—Safety for Agricultural Equipment, published in the Federal Register, Volume 41, No. 47, Tuesday, March 9, 1976, and Volume 41, No. 109, Friday, June 4, 1976, copies of which are attached hereto, are hereby adopted by reference.

(3) Amendments which have been adopted by the U. S. Department of Labor by making several nonsubstantive editorial changes in 29 CFR Paragraph 1928.57, published in the Federal Register, Volume 41, No. 206, Friday, October 22, 1976, copies of which are attached hereto, are hereby adopted by reference.

(4) 29 CFR 1928.21 is hereby amended by revising Paragraph (b) as follows: Except to the extent specified in Paragraph (a) of this section, the standards contained in Subparts B through T and Subpart Z of 29 CFR 1910, as adopted by 803 KAR 2:020, do not apply to agriculture operations, *except as found in subsection (5) below.*

(5) A new Subpart I, Toxic and Hazardous Substances, is added to 29 CFR 1928. 29 CFR 1928.113 Occupational Exposure to Cotton Dust, which is identical to 29 CFR 1910.1046, printed in the Federal Register, Volume 43, No. 122, June 23, 1978, (43 F. R. 27434) and the corrections and omissions to this standard which appeared in the Federal Register, 43 F. R. 28474, June 30, 1978 and 43 F. R. 35035, August 8, 1978, copies of which are attached hereto, are hereby adopted by reference.

JAMES R. YOCOM, Commissioner
ADOPTED: August 24, 1978
APPROVED: MIKE HELTON, Secretary
RECEIVED BY LRC: October 25, 1978 at 3 p.m.

SUBMIT COMMENT OR REQUEST FOR HEARING TO: Executive Director, Kentucky Department of Labor, Occupational Safety and Health Program, US 127 South, Frankfort, Kentucky 40601.

PUBLIC PROTECTION AND REGULATION CABINET
Department of Mines and Minerals
Division of Miner Training, Education, and Certification
(Proposed Amendment)

805 KAR 7:030. Annual retraining program.

RELATES TO: KRS 351.105
PURSUANT TO: KRS 13.082, 351.106
NECESSITY AND FUNCTION: KRS 351.106 empowers the Commissioner of the Department of Mines and Minerals to promulgate such reasonable regulations as are necessary to establish a program for miner training and examination according to the criteria and standards established by the Board of Miner Training, Education and Certification. This regulation effects the provisions of that law.

Section 1. Annual Retraining Program. (1) All certified persons shall receive a minimum of sixteen (16) hours of annual retraining.

(2) The annual retraining program set forth in this regulation shall be administered to each certified person during the first full calendar year subsequent to the date on which the certified person received his certification and during every calendar year thereafter.

(3) The annual retraining program shall include but not be limited to the following courses of instructions:

(a) Transportation controls and communications systems: the course shall include instruction in procedures for riding on and in mine conveyances, the controls in effect for the transportation of miners and material, and the use of the mine communication system, warning signals and directional signs.

(b) Barricading: the course shall include instruction and review of the methods of barricading and locations of barricading materials.

(c) Roof control and ventilation plans: the course shall include instruction and review of the roof control plan in effect at the mine and the procedures for roof and rib control, and instruction and review of the ventilation plan in effect at the mine and the procedures for maintaining ventilation and control of ventilation.

(d) First-aid: the course shall include instruction and review of first-aid methods.

(e) Electrical hazards, moving equipment: the course shall include instruction on recognition and avoidance of electrical hazard and procedures for working on and near moving equipment throughout the mine.

(f) Accident prevention: the course shall include instruction and review of the prevention of accidents, both electrical and mechanical.

(g) Self-rescue devices: the course shall include instruction in the use, care and maintenance of self-rescue devices.

(h) Explosives: the course shall include review and instruction in procedures for the safe handling and use of explosives.

(i) Health and safety standards: instruction shall be given on health and safety standard requirements contained in KRS Chapters 351 and 352 and Part 75 of the Federal Coal Mine Health and Safety Act of 1969 which are related to the tasks and work assignments of each miner.

Section 2. Annual retraining programs for certified persons may be conducted at various times throughout the calendar year, but no session shall be less than thirty (30) minutes of actual instruction time and the persons to be instructed shall be notified that the session is part of the annual retraining.

[Section 3. The operator shall annually verify in the form of an affidavit to the department that each certified person in his employ has received the minimum sixteen (16) hours of annual retraining as required by this regulation. Such affidavit shall state the dates on which the annual training sessions were conducted and the names and corresponding social security numbers of those persons receiving the annual retraining; provided, however, that no person shall be required to disclose his social security number for purposes of this affidavit. In the event that a person who has received the annual retraining refuses to disclose his social security number, the operator shall make a notation to that effect in the affidavit in lieu of stating that person's social security number.]

Section *3.* [4.] Willful failure of a certified person to attend a minimum of sixteen (16) hours of annual retraining shall constitute grounds for revocation, suspension, or probation of the certificate.

H. N. KIRKPATRICK, Commissioner
ADOPTED: November 7, 1978
APPROVED: DONALD N. RHODY, Secretary
RECEIVED BY LRC: November 13, 1978 at 2 p.m.
PUBLIC HEARING: A hearing on this regulation will be held by the Department of Mines and Minerals at 10 a.m. Tuesday, December 12, 1978, at the University of Kentucky Law School Courtroom, Lexington, Kentucky. All interested persons are invited to attend and participate.

PUBLIC PROTECTION AND REGULATION CABINET
Department of Mines and Minerals
Division of Miner Training, Education and Certification
(Proposed Amendment)

805 KAR 7:040. Training of newly hired miners.

RELATES TO: KRS 351.105
PURSUANT TO: KRS 13.082, 351,106
NECESSITY AND FUNCTION: KRS 351.106 provides that the Commissioner of the Department of Mines and Minerals shall promulgate such reasonable regulations as are necessary to establish and implement a program of miner training and examination according to the criteria and standards established by the Board of Miner Training, Education, and Certification pursuant to KRS Chapter 351. This regulation effects the provisions of that law.

Section 1. Training of Newly Hired Miners. (1) Each newly hired miner, whether experienced or inexperienced, shall receive a minimum of eight (8) hours training provided by the mine operator in mine specifics as applied to the particular mine wherein the miner is to be employed.

(2) Such training shall include instruction in the courses set forth in 805 KAR 7:020, Section 2, subsections (2), (3), (4), (5), (6), (7), and (9), and shall be completed before the newly hired miner can be assigned any work duties.

[(3) The operator shall verify in the form of an affidavit to the Department that the newly hired miner has received the eight (8) hours training in mine specifics required by this regulation.]

(3) [(4)] Upon proof by an operator that a re-hired experienced miner has received the training set forth in this regulation within twelve (12) months preceding re-employment at the mine, such miner need not repeat the training set forth in this regulation.

H. N. KIRKPATRICK, Commissioner
ADOPTED: November 7, 1978
APPROVED: DONALD N. RHODY, Secretary
RECEIVED BY LRC: November 13, 1978 at 2 p.m.
PUBLIC HEARING: A hearing on this regulation will be held by the Department of Mines and Minerals at 10 a.m. Tuesday, December 12, 1978, at the University of Kentucky Law School Courtroom, Lexington, Kentucky. All interested persons are invited to attend and participate.

PUBLIC PROTECTION AND REGULATION CABINET
Department of Mines and Minerals
Division of Miner Training, Education and Certification
(Proposed Amendment)

805 KAR 7:050. Training of miners for new work assignments.

RELATES TO: KRS 351.105
PURSUANT TO: KRS 13.082, 351.106
NECESSITY AND FUNCTION: KRS 351.106 empowers the Commissioner of the Department of Mines and Minerals to promulgate such reasonable regulations as are necessary to establish a program for miner training and examination according to the criteria and standards established by the Board of Miner Training, Education and Certification. This regulation effects the provisions of that law.

Section 1. Training of Miners for New Work Assignments. (1) Each miner receiving new work assignments in mobile equipment operations, blasting and drilling operations, rail haulage and conveyor system operations, and roof control shall not perform such work duties until they have completed a program of training as provided in this regulation of a minimum of twenty (20) hours as specified in KRS 351.105.

(2) This minimum total of twenty (20) hours training shall be distributed into a minimum of eight (8) hours of observing the operation, eight (8) hours of a combination of instruction and practice, and four (4) hours in production under supervision.

(3) The training program shall include, but not be limited to the following:

(a) Safe operation procedures for existing, modified, or new equipment or machines: this training shall include instruction in the safe operating procedures related to the equipment or machine. Instruction shall be given by the immediate supervisor or experienced person in an on-the job environment, and shall be taught from a safe operating procedures checklist developed specifically for the equipment or machine. A copy of the checklist shall be given to each equipment or machine operator at the time of instruction.

(a) Safe operation procedures for existing, modified, or new equipment or machines: this training shall include instruction in the safe operating procedures related to the equipment or machine. Instruction shall be given by the immediate supervisor or experienced person on-the-job environment, and shall be taught from a safe operating procedures checklist developed specifically for the equipment or machine. A copy of the checklist shall be given to each equipment or machine operator at the time of instruction.

(b) Supervised practice during non-production: this training shall include supervised practice in operating equipment or a machine and performing work duties at mines or places where production is not the primary objective. The equipment or machine operator shall practice the operation of the equipment or machine under direct supervision of the immediate supervisor or experienced person until such time as sufficient practice has taken place to ensure the operation of the equipment or machine in a safe manner.

(c) Supervised practice during production: this training shall include supervised operation of the machine or equipment and performing work duties under the direct and immediate supervision of an experienced foreman or experienced equipment or machine operator while production is in progress. An equipment or machine operator shall not operate equipment or a machine without direction and immediate supervision until such operator has demonstrated knowledge of the safe operating procedures for the equipment or machine to the operator of the mine or to the mine foreman.

(d) Any person who controls or directs rail haulage operations at a mine shall before assignment to such duties receive and complete training in safe haulage procedures related to the haulage system, ventilation system, fire-fighting procedures, and the emergency evacuation procedures in effect at the mine. This training may be received as part of the training program provided for in paragraphs (a), (b), and (c) of this subsection.

Section 2. A miner shall not be required to undergo training for a new work assignment for the job to which he is regularly assigned on the effective date of the miner training program as determined by the board pursuant to KRS 351.104(1).

Section 3. A miner qualified under the provisions of this regulation to perform any work assignment shall remain so qualified for the duration of the calendar year wherein the miner became so qualified, and shall continue to be so qualified during any calendar year thereafter wherein the miner performed the work assignment for five (5) shifts under production during the preceding calendar year.

Section 4. Any miner who has acquired a total of six (6) months experience in performance of particular work duties shall not be required to undergo training for a new assignment to perform those duties; provided, however,

that this exemption from training shall not apply to work experience acquired on or before June 1, 1975.

[Section 5. Each operator shall annually submit to the department, in the form of an affidavit, a current list of the miners in his employ, the job assignments for which each miner is qualified and the basis for such qualification. This list shall be submitted to the Department within thirty (30) days of the effective date of the miner training program as established by the board pursuant to KRS 351.104(1) and shall thereafter be submitted to the department during the month of January in each succeeding calendar year. A copy of said list shall be posted in a conspicuous place upon the premises of the mine and shall be updated to reflect changes as they occur.]

H. N. KIRKPATRICK, Commissioner
ADOPTED: November 7, 1978
APPROVED: DONALD N. RHODY, Secretary
RECEIVED BY LRC:November 13, 1978 at 2 p.m.
PUBLIC HEARING: A hearing on this regulation will be held by the Department of Mines and Minerals at 10 a.m. Tuesday, December 12, 1978, at the University of Kentucky Law School Courtroom, Lexington, Kentucky. All interested persons are invited to attend and participate.

PUBLIC PROTECTION AND REGULATION CABINET
Department of Mines and Minerals
Division of Miner Training, Education and Certification
(Proposed Amendment)

805 KAR 7:060. Program approval.

RELATES TO: KRS 351.101, 351.102, 351.105
PURSUANT TO: KRS 351.020, 351.106
NECESSITY AND FUNCTION: KRS 351.102 and 351.105 provide for the establishment of a program of training and education of inexperienced underground coal miners. This regulation sets forth the manner in which private and public concerns desiring to train inexperienced miners in accordance with the above-cited statutes may submit such programs for approval by the Board of Miner Training, Education and Certification.

Section 1. No person shall be issued a permit as a trainee miner unless that person has completed a program of training approved by the board, *or that person has received a degree in mining engineering from an accredited institution of higher education or is enrolled in a course of mining technology approved by the board.*

Section 2. A program of training for inexperienced miners shall be approved by the board if such program, as a minimum, meets the criteria and objectives of 805 KAR 7:020, and the instructors teaching the program have been duly certified by the U. S. Department of Labor, Mine Safety and Health Administration or by the U. S. Department of the Interior, Mining Enforcement and Safety Administration.

Section 3. Approval of training programs for inexperienced miners may be obtained by sending to the Department of Mines and Minerals, Board of Miner Training, Education, and Certification, P. O. Box 680, Lexington, Kentucky 40586, the following information:

(1) The address and location of the training facility to be utilized;
(2) A description of the equipment and facilities to be utilized;
(3) A list of the participating instructors;
(4) The content areas in the training program for which each instructor shall be responsible;
(5) The approximate number of students per class;
(6) The dates on which the training program will be conducted;
(7) The name and address of the person responsible for the formulation and implementation of the training program;
(8) An outline of the proposed program showing how it meets the criteria and objectives of 805 KAR 7:020;
(9) A list of instructional material to be utilized (e.g. films, programmed material, etc.), noting where such material will be used within the instructional sequence; and
(10) A description of the instructional methods to be utilized throughout the program (e.g. lecture-demonstration, personalized instruction, team-teaching, etc.).

Section 4. (1) Any approval granted by the board in accordance with the provisions of this regulation shall be conditional upon the practical implementation of the training program in a manner consistent with the criteria and objectives of 805 KAR 7:020.
(2) The department shall have the authority to monitor any approved program without prior notice.
(3) The board shall revoke its approval of any program that does not meet the criteria and objectives of 805 KAR 7:020 as ascertained by a monitoring of that program by the department.
(4) The board may revoke its approval of any program or part thereof when a monitoring of that program reveals that the instructor has not conducted the program or part thereof in a manner consistent with the criteria and objectives of 805 KAR 7:020.

H. N. KIRKPATRICK, Commissioner
ADOPTED: November 7, 1978
APPROVED: DONALD N. RHODY, Secretary
RECEIVED BY LRC: November 13, 1978 at 2 p.m.
PUBLIC HEARING: A hearing on this regulation will be held by the Department of Mines and Minerals at 10 a.m. Tuesday, December 12, 1978, at the University of Kentucky Law School Courtroom, Lexington, Kentucky. All interested persons are invited to attend and participate.

DEPARTMENT OF HOUSING BUILDINGS AND CONSTRUCTION
Division of Plumbing
(Proposed Amendment)

815 KAR 20:100. Joints and connections.

RELATES TO: KRS Chapter 318
PURSUANT TO: KRS 13.082, 224.033, 318.130
NECESSITY AND FUNCTION: The department is directed by KRS 318.130 through the State Plumbing Code Committee to adopt and put into effect a State Plumbing Code. This regulation relates to the methods that must be

used in joining certain types of piping materials together as well as denoting the methods that must be used in securing plumbing fixtures to waste piping outlets.

Section 1. Water and Air-Tight Joints. All joints and connections shall be made permanently gas and water tight.

Section 2. Vitrified Pipe Joints; Concrete Pipe Joints; House Sewers-Combined Sewers. Joints in vitrified clay pipe shall conform to ASTM specification C-425. Joints in concrete pipe shall conform to commercial standard C-443. When it is necessary to use piping in other than standard lengths hot poured joints may be used. Joints between cast iron pipe and vitrified clay pipe or concrete pipe shall be made either of hot poured bitumastic compound or by a preformed elastomeric ring. The ring shall completely fill the annular space between the cast iron spigot and the vitrified clay or concrete pipe hub. Joints in pipe and fittings of not more than two (2) pipe sizes between vitrified clay, asbestos cement, acrylonitrile-butadiene-styrene or polyvinyl chloride to cast iron pipe and fittings or the joining of either material to the other may be made with proper fittings by the use of a dispersion grade polyvinyl chloride ring conforming to ASTM C-443, C-425, C-594, C-564 and D-1829 or elastomeric polyvinyl chloride coupling.

Section 3. Caulked Joints. All caulk joints shall be firmly packed with oakum or hemp and shall have at least one (1) inch of pure lead properly caulked. No paint, varnish or putty will be permitted until tests have been performed.

Section 4. (1) Screw Joints. All screw joints shall be American Standard screw joints and all burrs or cuttings shall be removed.

(2) Mechanical Joint Couplings for Hot and Cold Water. Mechanical joint couplings for hot and cold water may be used above ground provided the couplings are galvanized and the gaskets conform to ASTM D-735-61, grade N-R-615 BZ.

(3) Mechanical Joint Couplings for Storm Water Piping. Mechanical joint couplings for storm water piping may be used above ground provided the couplings are either black iron or galvanized and the gaskets conform to ASTM D-735-61, grade N-R-615 BZ.

(4) Joints in PVC and ABS Schedule 40 or 80 Pipe and Fittings. Joints in polyvinyl chloride schedule 40 or 80 pipe and fittings shall be solvent welded joints and shall conform to ASTM D-2665-69. Joints in acrylonitrile-butadiene-styrene pipe and fittings shall be solvent welded joints and shall conform to ASTM D-2661-69. Acrylonitrile-butadiene-styrene and polyvinyl chloride sewer piping that conforms to ASTM 3033 and 3034 shall be joined by solvent cement conforming to ASTM C-2665-69 for acrylonitrile-butadiene-styrene and ASTM D-2661-69 for polyvinyl chloride or with an elastomeric joint conforming to D-3212-73.

(5) Copper Pipe, Brass and Stainless Steel Tubing Joints. Copper pipe, brass and stainless steel tubing joints shall be soldered joints.

(6) Expansion. Every expansion joint shall be of approved type and its material shall conform with the type of piping in which it is installed.

(7) Brazed Joints. Brazed joints shall be made by first cleaning the surfaces to be joined down to the base metal, applying flux approved for such joints and for the filler metal to be used, and making the joint by heating to a temperature sufficient to melt the approved brazing filler metal on contact.

(8) Tapered Couplings. Every joint in bituminized fiber pipe shall be made with tapered type couplings of the same material as the pipe. Joints between bituminized fiber pipe and metal pipe shall be made by means of an approved adapter coupling properly caulked.

(9) Elastomeric Polyvinyl Chloride Coupling. Elastomeric polyvinyl chloride couplings may be used for connecting cast iron, vitrified clay, concrete, cement asbestos or plastic pipe or the combination of these pipe materials. This coupling shall be provided with # 305 stainless steel clamps.

(10) Joints in Corrugated Polyethylene Subsoil Drainage Tubing. Joints in corrugated polyethylene subsoil drainage tubing shall be made by slip joints using appropriate fittings.

Section 5. Cast Iron Soil Pipe Joints. Joints in cast iron shall either be caulked, screwed, or joints made with the use of neoprene gaskets. Neoprene gaskets shall conform to either ASTM C-564-70 or CS 301-72. Joints that conform to commercial standard 301-69T shall have a stainless steel clamp.

Section 6. Borosilicate Joints. Joints and gaskets used for borosilicate pipe shall be made in a manner approved by the department.

Section 7. (1) Steel, Brass and Copper Connections to Cast Iron Pipe. Steel, brass and copper joints when connected to cast iron pipe shall be either screwed or caulked joints. All caulked joints shall be made by the use of a caulking spigot.

(2) PVC and ABS Pipe and Fitting Connections to Steel, Brass, Copper and Cast Iron Pipe. Polyvinyl chloride and acrylonitrile-butadiene-styrene pipe and fitting connections to steel, brass, copper or cast iron pipe shall either be a screwed or caulk joint. Joints between Schedule 40 PVC or ABS pipe and cast iron pipe may be made by the use of a neoprene gasket conforming to ASTM C-564-70. All caulk joints shall be made with the use of either a polyvinyl chloride or acrylonitrile-butadiene-styrene or cast iron caulking spigot.

(3) Stainless Steel Tubing to Cast Iron Pipe to Galvanized Steel Pipe and to Copper Tubing. Stainless steel tubing to cast iron pipe shall be made by caulking spigot. Stainless steel tubing to galvanized steel pipe or copper pipe shall be made by the use of an adaptor.

(4) Joints in Acid Waste Piping. Joints in vitreous glazed piping shall be made in a manner and of a material approved by the department. Joints in polyethylene and polypropylene piping must be made by the heat fusion process. *Joints in polypropylene may also be made with a union joint.* Joints in borosilicate pipe may be a stainless steel mechanical joint. Joints between silicon iron pipe may be either caulk joint or stainless steel mechanical joint.

Section 8. Lead Pipe. Joints in lead pipe or between lead pipe and brass or copper pipes, ferrules, soldering nipples, or trap, shall be fullwiped joints, with an exposed surface of the solder at each side of the joint of not less than three-quarters (¾) of an inch. The minimum thickness of the thickest part of the joint shall be at least as thick as the material being used. In the event lead pipe is used for acid waste lines the pipe may be joined by burning.

Section 9. Lead Pipe to Cast Iron, Steel, or Wrought

Iron Pipe. The joints between lead to cast iron, steel or wrought iron shall be made by means of a caulking ferrule or a soldering nipple.

Section 10. Wall or Floor Flange Joints. Wall or floor flange joints shall be made by using a lead ring or brass flange and shall be properly soldered.

Section 11. Soil Pipe, Iron Pipe, Copper Pipe; Tubular Trap Joints. Joints between soil pipe, iron pipe, copper pipe and tubular traps shall be made by the use of a heavy red cast brass adaptor. Tubular traps shall be soldered to the adaptor in a manner approved by the department.

Section 12. Slip Joints. Slip joints shall be permitted only on the inlet side of a trap.

Section 13. Unions. Unions shall be ground faced and shall not be concealed or enclosed.

Section 14. Roof Joints. The joint of the roof shall be made water-tight by use of copper, lead or other approved flashing or flashing material. It shall extend not less than six (6) inches from the pipe in all directions and shall extend upward twelve (12) or more inches and turn down into the pipe. A hub flashing may be used provided it is constructed so it can be caulked into a hub above the roof.

Section 15. Increasers and Reducers. When different size pipes or pipes and fittings are to be concealed, the proper size increaser or reducer pitched at an angle of forty-five (45) degrees between the two (2) sizes, shall be used.

Section 16. Prohibited Joints and Connections. Any fitting or connection which has an enlargement chamber, or recess with a ledge shoulder, or reduction of the pipe area in the direction of the flow is prohibited.

Section 17. Hangers and Supports. All piping and fixtures shall be adequately supported by hangers or anchors securely attached to the building construction.

Section 18. Welded Pipe for Soil, Waste and Vent Systems. Mild steel pipe may be welded for a soil waste and vent system provided the welds are mechanically sound and the bore of the piping is smooth throughout its length. The welded piping shall be covered with a metallic continuous coating. Written permission shall be secured from the department for such a system.

JAMES S. BIRD, Commissioner
ADOPTED: October 30, 1978
RECEIVED BY LRC: November 10, 1978 at 10:15 a.m.
SUBMIT COMMENT OR REQUEST FOR HEARING TO: Eugene F. Perkins, Division of Plumbing, The 127 Building, U. S. 127 South, Frankfort, Kentucky 40601.

Proposed Regulations

EXECUTIVE DEPARTMENT FOR FINANCE AND ADMINISTRATION
Board of Dentistry

201 KAR 8:285. Hygienist's continuing education points for license renewal.

RELATES TO: KRS 313.270(2)
PURSUANT TO: KRS 313.220
NECESSITY AND FUNCTION: Sets forth guidelines and schedule of points to be accumulated by each licensed dental hygienist for compliance with the continuing education requirement for relicensure.

Section 1. Each licensed dental hygienist requesting renewal of his/her license must show evidence which is satisfactory to the Kentucky Board of Dentistry that he/she has accumulated continuing education in accordance with the schedule of points set forth in this regulation.

Section 2. Effective January 1, 1979, and ending December 31, 1979, a total of seven (7) points shall be required for renewal of license for 1980; effective January 1, 1980, and ending December 31, 1980, a total of eight (8) points shall be required for renewal of license for 1981; effective January 1, 1981, and ending December 31, 1981, a total of nine (9) points shall be required for renewal of license for 1982; effective January 1, 1982, and ending December 31, 1982, a total of ten (10) points shall be required for renewal of license for 1983. Each year thereafter a total of ten (10) points shall be required for each dental hygienist requesting renewal of his/her license. Evidence of continuing education earned shall be reported to the Kentucky Board of Dentistry on the form, "Dental Hygiene Continuing Education Credit Record" and filed with the Kentucky Board of Dentistry no later than December 31st each year for renewal of license for the following year.

Section 3. Continuing education units earned through the American Dental Hygienists Association may be recognized at unit value. Credits earned through the American Dental Hygienists Association shall be certified to the Kentucky Board of Dentistry by the American Dental Hygienists Association but must be recorded by the licensee on the "Dental Hygiene Continuing Education Credit Record" and shall be signed by the licensee prior to submitting to the Kentucky Board of Dentistry.

JAMES W. HOLLADAY, D.M.D., Secretary-Treasurer
ADOPTED: September 9, 1978
RECEIVED BY LRC: October 17, 1978 at 11:30 a.m.
SUBMIT COMMENT OR REQUEST FOR HEARING TO: Secretary-Treasurer, Kentucky Board of Dentistry, 2106 Bardstown Road, Louisville, Kentucky 40205.

DEPARTMENT FOR NATURAL RESOURCES
AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 50:005. General application.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides guidelines by which all regulations of Title 401, Chapters 50 to 65, are to be understood.

Section 1. General Application of Regulations and Standards. Regulations of the department shall be construed and applied in light of the considerations set forth hereinafter which shall guide the department in the issuance, modification, and revocation of permits.

(1) In the absence of any standard specified in these regulations, all air contaminant sources shall as a minimum apply such control procedures as are reasonable, available, and practical.

(2) Nothing in these regulations is intended to permit any practice which is in violation of any statute, ordinance, or regulation.

(3) These regulations shall be construed as complementary to each other, and to such other regulations as have been adopted or shall be adopted by the department. If any provision of these regulations or the application thereof to any person or circumstance is held to be invalid, such invalidity shall not affect other provisions or application of any other part of these regulations, and to this end each provision of these regulations, and the various applications thereof are declared to be severable.

EUGENE F. MOONEY, Secretary
ADOPTED: November 14, 1978
RECEIVED BY LRC: November 14, 1978 at 9 a.m.
PUBLIC HEARING: Information is on page 335.

DEPARTMENT FOR NATURAL RESOURCES
AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 50:010. Definitions and abbreviations.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the defining of terms to be used in Title 401, Chapters 50 to 65.

Section 1. Definitions. All terms not defined herein or in subsequent regulations, shall have the meaning given them in KRS 224.005 or by commonly accepted usage. As used in the regulations of the Division of Air Pollution unless the content clearly indicates otherwise, the following words shall have the following meaning:

(1) "Affected facility" means an apparatus, building, operation, road, or other entity or series of entities which emits or may emit any air contaminant into the outdoor atmosphere.

(2) "Air contaminant or air pollutant" includes smoke, dust, soot, grime, carbon, or any other particulate matter, radioactive matter, noxious acid, fumes, gases, odor, vapor, or any combination thereof.

(3) "Air pollution" means the presence in the outdoor atmosphere of one or more air contaminants in sufficient quantities and of such characteristics and duration as is or threatens to be injurious to human, plant, or animal life, or to property, or which unreasonably interferes with the comfortable enjoyment of life or property.

(4) "Alteration" means:

(a) The installation or replacement of air pollution control equipment at a source;

(b) Any physical change in, or change in the method of operation of any affected facility which increases the potential to emit of any pollutant (to which a standard applies) emitted by such facility or which results in the emission of any air pollutant (to which a standard applies) not previously emitted.

(5) "Alternative method" means any method of sampling and analyzing for an air pollutant which is not a reference or equivalent method but which has been demonstrated to the department's and the U. S. Environmental Protection Agency's satisfaction to, in specific cases, produce results adequate for its determination of compliance.

(6) "Ambient air" means that portion of the atmosphere, external to buildings, to which the general public has access.

(7) "Ambient air quality standard" means 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 and/or control measures.

(8) "Commence" means that an owner or operator has undertaken a continuous program of construction, modification, or reconstruction of an affected facility, or that an owner or operator 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.

(9) "Compliance schedule" means a schedule of remedial measures including an enforceable sequence of actions or operations leading to compliance with any limitation or standard.

(10) "Construction" means fabrication, erection, or installation of an air contaminant source.

(11) "Continuous monitoring system" means the total equipment, required under the applicable regulations used to sample, to condition (if applicable), to analyze and to provide a permanent record of emissions or process parameters.

(12) "Department" means the Department for Natural Resources and Environmental Protection.

(13) "Director" means Director of the Division of Air Pollution of the Department for Natural Resources and Environmental Protection.

(14) "District" means an air pollution control district as provided for in KRS Chapter 77.

(15) "Emission standard" means that numerical limit

which fixes the amount of an air contaminant or air contaminants that may be vented into the atmosphere (open air) from any affected facility or from air pollution control equipment installed in any affected facility.

(16) "Equivalent method" means any method of sampling and analyzing for an air pollutant which has been demonstrated to the department's and the U. S. Environmental Protection Agency's satisfaction to have a consistent and quantitatively known relationship to the reference method, under specified conditions.

(17) "Existing source" means any source which is not a new source.

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

(19) "Fuel" means natural gas, petroleum, coal, wood, and any form of solid, liquid, or gaseous fuel derived from such materials for the purpose of creating useful heat.

(20) "Hydrocarbon" means any organic compound consisting predominantly of carbon and hydrogen.

(21) "Incineration" means the process of igniting and burning solid, semi-solid, liquid, or gaseous combustible wastes.

(22) "Malfunction" means any failure of air pollution control equipment, or process equipment, or of a process to operate in a normal or usual manner.

(23) "Modification" means any physical change in, or change in the method of operation of an affected facility which increases the potential to emit of any air pollutant (to which a standard applies) emitted by such facility, or which results in the emission of any air pollutant (to which a standard applies) not previously emitted, except that:

(a) Routine maintenance, repair, and replacement of component parts shall not be considered physical changes;

(b) The following shall not be considered a change in the method of operation:

1. An increase in the production rate, if such increase does not exceed the operating design capacity of the affected facility, or the maximum operating capacity specified as a condition to a permit issued by the department;

2. An increase in hours of operation;

3. Use of an alternative fuel or raw material if, prior to the date any standard becomes applicable to such facility, the affected facility is designed to accommodate such alternative use.

(24) "Monitoring device" means the total equipment, required in applicable regulations, used to measure and record (if applicable) process parameters.

(25) "New source" means any source, the construction, reconstruction, or modification of which commenced on or after the classification date as defined in the applicable regulation. A source, upon reconstruction, becomes a new source, irrespective of any change in emission rate.

(26) "Nitrogen oxides" means all oxides of nitrogen except nitrous oxide, as measured by test methods specified by the department.

(27) "Opacity" means the degree to which emissions reduce the transmission of light and obscure the view of an object in the background.

(28) "Owner or operator" means any person who owns, leases, operates, controls, or supervises an affected facility or a source to which an affected facility is a part.

(29) "Particulate matter" means any material, except uncombined water, which exists in a finely divided form as a liquid or a solid as measured by the appropriate approved test method.

(30) "Person or persons" means any individual, public or private corporation, political subdivision, government agency, municipality, industry, co-partnership, association, firm, trust, estate, or other entity whatsoever.

(31) "Potential to emit" means the capability at maximum capacity to emit a pollutant in the absence of air pollution control equipment. Air pollution control equipment includes control equipment 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 operations. Annual potential shall be based on the maximum annual rated capacity of the source, unless the source is subject to enforceable permit conditions which limit the annual hours of operations. Enforceable permit conditions on the type or amount of materials conbusted or processed may be used in determining the potential emission rate of a source.

(32) "Reconstruction" means the replacement of components of an existing affected facility to such an extent that the fixed capital cost of the new components exceeds fifty (50) percent of the fixed capital cost that would be required to construct a comparable entirely new affected facility, and it is technologically and economically feasible to meet the applicable new source standards. Individual sections of these regulations may include specific provisions which refine and delimit the concept of reconstruction set forth in this subsection. The department's determination as to whether the proposed replacement constitutes reconstruction shall be based on:

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

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

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

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

(33) "Reference method" means any method of sampling and analyzing for an air pollutant as prescribed by Appendices A through F to 40 CFR 50, Appendices A and B to 40 CFR 60, and Appendix B to 40 CFR 61. This term may be more narrowly defined within a specific regulation or chapter.

(34) "Run" means 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.

(35) "Shutdown" means the cessation of an operation for any purpose.

(36) "Source" means 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.

(37) "Stack or chimney" means any flue, conduit, or duct arranged to conduct emissions to the atmosphere.

(38) "Standard" means an emission standard, a standard of performance, or an ambient air quality standard as promulgated under the regulations of the Division of Air Pollution or the emission control requirements necessary to comply with the provisions of Title 401, Chapter 51, of the regulations of the Division of Air Pollution.

(39) "Standard conditions:"

(a) For source measurements means 21.1 degrees Celsius (seventy (70) degrees Fahrenheit) and a pressure of 760 mm Hg (29.92 in. of Hg);

(b) For the purpose of air quality determinations means twenty-five (25) degrees Celsius and a reference pressure of 760 mm Hg.

(40) "Startup" means the setting in operation of an affected facility for any purpose.

(41) "Uncombined water" means water which can be separated from a compound by ordinary physical means and which is not bound to a compound by internal molecular forces.

(42) "Urban county" means any county which is a part of an urbanized area with a population of greater than 200,000 based upon the 1970 census. If any portion of a county is a part of such an urbanized area, then the entire county shall be classified as urban with respect to the regulations of the Division of Air Pollution.

(43) "Urbanized area" means any area defined as such by the U. S. Department of Commerce, Bureau of Census.

Section 2. Abbreviations. The abbreviations used in the regulations of Title 401, Chapters 50 to 65, shall have the following meanings:

AOAC—Association of Offical Analytical Chemists
ANSI—American National Standards Institute
ASTM—American Society for Testing and Materials
BOD—Biochemical oxidant demand
BTU—British Thermal Unit
°C—Degree Celsius (centigrade)
Cal—calorie
cfm—Cubic feet per minute
CFR—Code of Federal Regulations
CH_4—methane
CO—Carbon monoxide
CO_2—Carbon dioxide
COD—Chemical oxidant demand
dscf—dry cubic feet at standard conditions
dscm—dry cubic meter at standard conditions
°F—Degree Fahrenheit
ft—feet
g—gram(s)
gal—gallon(s)
gr—grain(s)
hr—hour(s)
HCl—Hydrochloric acid
Hg—mercury
HF—Hydrogen fluoride
H_2O—water
H_2S—Hydrogen sulfide
H_2SO_4—Sulfuric acid
in—inch(es)
J—joule
KAR—Kentucky Administrative Regulations
kg—kilogram(s)
KRS—Kentucky Revised Statutes
l—liter(s)
lb—pound(s)
m—meter(s)
min—minute(s)
mg—milligram(s)
MJ—megajoules
MM—million
mm—millimeter(s)
mo—month
Ng—nanograms
N_2—Nitrogen
NO—Nitric oxide
NO_2—Nitrogen dioxide
NO_x—Nitrogen oxides
oz—ounce
O_2—oxygen
O_3—ozone
ppb—parts per billion
ppm—parts per million
ppm (w/w)—parts per million (weight by weight)
ug—microgram
psia—pounds per square inch absolute
psig—pounds per square inch gage
S—at standard conditions
sec—second
TAPPI—Technical Association of the Pulp and Paper Industry
SO_2—Sulfur dioxide
sq—square
TSS—Total suspended solids
yd—yard

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 50:015. Documents incorporated by reference.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the incorporation by reference of documents referred to within these regulations.

Section 1. Code of Federal Regulations. (1) The following documents from the "Code of Federal Regulations" which are in effect at the time of the effective date of this regulation, are incorporated herein by reference:

(a) 40 CFR 50:

1. Appendix A: Reference Method for the Determination of Sulfur Dioxide in the Atmosphere (Pararosaniline Method).
2. Appendix B: Reference Method for the Determination of Suspended Particulates in the Atmosphere (High Volume Method).
3. Appendix C: Measurement Principle and Calibration Procedure for the Continuous Measurement of Carbon Monoxide in the Atmosphere (Non-Dispersive Infrared Spectrometry).
4. Appendix D: Measurement Principle and Calibration Procedure for the Measurement of Photochemical Oxidants Corrected for Interferences due to Nitrogen Oxides and Sulfur Dioxide.
5. Appendix E: Reference Method for the Determination of Hydrocarbons Corrected for Methane.
6. Appendix F: Measurement Principle and Calibration

Procedure for the Measurement of Nitrogen Dioxide in the Atmosphere (Gas Phase Chemiluminescence).

(b) 40 CFR 60:

1. Appendix A: Reference Methods:

a. Method 1—Sample and Velocity Traverses for Stationary Sources.

b. Method 2—Determination of Stack Gas Velocity and Volumetric Flow Rate (Type S Pitot Tube).

c. Method 3— Gas Analysis for Carbon Dioxide, Excess Air, and Dry Molecular Weight.

d. Method 4—Determination of Moisture in Stack Gases.

e. Method 5—Determination of Particulate Emissions from Stationary Sources.

f. Method 6—Determination of Sulfur Dioxide Emissions from Stationary Sources.

g. Method 7— Determination of Nitrogen Oxide Emissions from Stationary Sources.

h. Method 8—Determination of Sulfuric Acid Mist and Sulfur Dioxide Emissions from Stationary Sources.

i. Method 9—Visual Determination of the Opacity of Emissions from Stationary Sources.

j. Method 10—Determination of Carbon Monoxide Emissions from Stationary Sources.

k. Method 11—Determination of Hydrogen Sulfide Content of Fuel Gas Streams in Petroleum Refineries.

l. Method 13A—Determination of Total Fluoride Emissions from Stationary sources—SPADNS Zirconium Lake Method.

m. Method 13B—Determination of Total Fluoride Emissions from Stationary Sources—Specific Ion Electrode Method.

n. Method 14—Determination of Fluoride Emissions from Potroom Roof Monitors of Primary Aluminum Plants.

o. Method 15—Determination of Hydrogen Sulfide, Carbonyl Sulfide, and Carbon Disulfide Emissions from Stationary Sources.

p. Method 16—Semicontinuous Determination of Sulfur Emissions from Stationary Sources.

q. Method 17—Determination of Particulate Emissions from Stationary Sources (Instack Filtration Method).

2. Appendix B: Performance Specifications:

a. Performance Specification 1—Performance specifications and specification test procedures for transmissometer systems for continuous measurement of the opacity of stack emissions.

b. Performance Specification 2—Performance specifications and specification test procedures for monitors of sulfur dioxide and nitric oxides from stationary sources.

c. Performance Specification 3—Performance specifications and specification test procedures for monitors of carbon dioxide and oxygen from stationary sources.

(c) 40 CFR 61: Appendix B: Test Methods:

1. Method 101—Reference method for determination of particulate and gaseous mercury emissions from stationary sources (air streams).

2. Method 102—Reference method for determination of particulate and gaseous mercury emissions from stationary sources (hydrogen streams).

3. Method 103—Beryllium screening method.

4. Method 104—Reference method for determination of beryllium emissions from stationary sources.

5. Method 105—Method for determination of mercury in wastewater treatment plant sewage sludges.

6. Method 106—Determination of vinyl chloride from stationary sources.

7. Method 107—Determination of vinyl chloride of in-process wastewater samples, and vinyl chloride content of polyvinyl chloride resin, slurry, wet cake, and latex samples.

(2) Copies may be obtained from: Office of the Federal Register, National Archives and Records Service, 8th and Pennsylvania Avenue, NW, Washington, D.C. 20408; Phone (202) 523-5215.

Section 2. Association of Official Analytical Chemists. The following document from the Association of Official Analytical Chemists is incorporated herein by reference:

(1) Method 9—Spectrophotometric Molybdovanadophosphate from "Official Method of Analysis" of the Association of Official Analytical Chemists, 11th Edition.

(2) Copies may be obtained from: Association of Official Analytical Chemists, Box 540, Benjamin Franklin Station, Washington, D.C. 20014; Phone (202) 245-1191.

Section 3. American Society for Testing and Materials. The following documents from the appropriate annual "Book of ASTM Standards" from the American Society for Testing and Materials are incorporated herein by reference:

(1) ASTM Standards:

(a) A 99-66(71) Standard Specification for Ferromanganese.

(b) A 100-69(74) Standard Specification for Ferrosilicon.

(c) A 101-73 Standard Specification for Ferrochromium.

(d) A 482-66(71) Standard Specification for Ferrochrome-Silicon.

(e) A 483-64(74) Standard Specification for Silicomanganese.

(f) A 495-64(70) Standard Specification for Calcium-Silicon and Calcium-Manganese-Silicon.

(g) D 240-76 Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter.

(h) D 388-66(72) Standard Specification for Classification of Coals by Rank.

(i) D 1137-53(75) Standard Method for Analysis of Natural Gases and Related Types of Gaseous Mixtures by the Mass Spectrometer.

(j) D 1475-60(74) Standard Test Method for Density of Paint, Varnish, Lacquer, and Related Products.

(k) D 1644-75 Standard Test Methods for Nonvolatile Content of Varnishes.

(l) D 1826-64(75) Standard Test Method for Calorific Value of Gases in Natural Gas Range by Continuous Recording Calorimeter.

(m) D 1945-64(73) Standard Method for Analysis of Natural Gas by Gas Chromatography.

(n) D 1946-67(72) Standard Method for Analysis of Reformed Gas by Gas Chromatography.

(o) D 2015-66(72) Standard Test Method for Gross Calorific Value of Solid Fuel by the Adiabatic Bomb Calorimeter.

(p) D 2369-73 Standard Test Method for Volatile Content of Paints.

(q) D 3176-74 Standard Method for Ultimate Analysis of Coal and Coke.

(r) D 3178-73 Standard Test Methods for Carbon and

Hydrogen in the Analysis Sample of Coal and Coke.
(2) Copies may be obtained from: American Society for Testing Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103; Phone (215) 299-5400.

Section 4. Technical Association of the Pulp and Paper Industry. The following document from the Technical Association of the Pulp and Paper Industry (TAPPI) is incorporated herein by reference:
(1) T624 os-68—Analysis of Soda and Sulfate—White and Green Liquors. This reference is also numbered ANSI P3.6-1970 (American National Standards Institute).
(2) Copies may be obtained from: TAPPI, 1 Dunwood Park, Atlanta, Georgia 30341.

Section 5. Environmental Protection Agency. The following documents from the U. S. Environmental Protection Agency are incorporated herein by reference:
(1) (a) Guideline on Air Quality Models, EPA-450/2-78-027, OAQPS No. 1.2-080, April, 1978.
(b) Workbook for Comparison of Air Quality Models, EPA-450/2-78-028a, OAQPS No. 1.2-097, May, 1978.
(2) Copies may be obtained from: U. S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina 27711.

Section 6. American Association of State Highway and Transportation Officials. The following document from the American Association of State Highway and Transportation Officials (AASHTO) is incorporated herein by reference:
(1) AASHTO T 59-78 Standard Method of Test for Testing Emulsified Asphalt.
(2) Copies may be obtained from: American Association of State Highway and Transportation Officials, 444 N. Capitol Avenue, Washington, D.C. 20001.

Section 7. Federal Test Method Standard. The following document from the Federal Test Standard is incorporated herein by reference:
(1) Federal Test Method Standard No. 141a, Method 4082.1, "Water in Paints and Varnishes (Karl Fischer Titration Method)."
(2) Single copies may be obtained from:
(a) General Services Administration Regional Offices; or
(b) Superintendent of Documents, U. S. Government Printing Office, Washington, D.C. 20402.

Section 8. Kentucky Division of Air Pollution. The following documents from the Kentucky Division of Air Pollution are incorporated herein by reference:
(1) (a) Kentucky Method 50: Kentucky Division of Air Pollution Control Reference Method 50, "Determination of Total Particulate Emissions from Stationary Sources."
(b) Kentucky Method 95: Kentucky Division of Air Pollution Control Reference Method 95, "Determination of Gasoline Vapor Emissions from Bulk Terminals."
(2) Copies may be obtained from: Division of Air Pollution Control, Technical Services, Department for Natural Resources and Environmental Protection, 5th Floor, Capital Plaza Tower, Frankfort, Kentucky 40601.

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 50:020. Air quality control regions.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the designation and classification of air quality control regions.

Section 1. Designation of Air Quality Control Regions. Air quality control regions designated by the Administrator of the U. S. Environmental Protection Agency pursuant to Section 107 of the Clean Air Act as amended are listed in this section. The air quality control regions consist of the territorial area encompassed by the boundries of the designated jurisdictions herein geographically located within the outermost boundries of the area so delimited.
(1) Appalachian Intrastate Air Quality Control Region. In the Commonwealth of Kentucky the following counties: Bell, Breathitt, Clay, Floyd, Harlan, Jackson, Johnson, Knott, Knox, Laurel, Lee, Leslie, Letcher, Magoffin, Martin, Owsley, Perry, Pike, Rockcastle, Whitley, Wolfe.
(2) Bluegrass Intrastate Air Quality Control Region. In the Commonwealth of Kentucky the following counties: Anderson, Bourbon, Boyle, Clark, Estill, Fayette, Franklin, Garrard, Harrison, Jessamine, Lincoln, Madison, Mercer, Nicholas, Powell, Scott, Woodford.
(3) Evansville (Indiana) - Owensboro - Henderson (Kentucky) Interstate Air Quality Control Region. In the Commonwealth of Kentucky the following counties: Daviess, Hancock, Henderson, McLean, Ohio, Union, Webster.
(4) Huntington (West Virginia) - Ashland (Kentucky) - Portsmouth - Ironton (Ohio) Interstate Air Quality Control Region. In the Commonwealth of Kentucky the following counties: Bath, Boyd, Bracken, Carter, Elliott, Fleming, Greenup, Lawrence, Lewis, Mason, Menifee, Montgomery, Morgan, Robertson, Rowan.
(5) Louisville Interstate Air Quality Control Region. In the Commonwealth of Kentucky the following county: Jefferson.
(6) Metropolitan Cincinnati (Ohio) Interstate Air Quality Control Region. In the Commonwealth of Kentucky the following counties: Boone, Campbell, Carroll, Gallatin, Grant, Kenton, Owen, Pendleton.
(7) North Central Kentucky Intrastate Air Quality Control Region. In the Commonwealth of Kentucky the following counties: Breckinridge, Bullitt, Grayson, Hardin, Henry, Larue, Marion, Meade, Nelson, Oldham, Shelby, Spencer, Trimble, Washington.
(8) Paducah (Kentucky) - Cairo (Illinois) Interstate Air Quality Control Region. In the Commonwealth of Kentucky the following counties: Ballard, Caldwell, Calloway, Carlisle, Christian, Crittenden, Fulton, Graves, Hickman, Hopkins, Livingston, Lyon, Marshall, McCracken, Muhlenberg, Todd, Trigg.
(9) South Central Kentucky Intrastate Air Quality Control Region. In the Commonwealth of Kentucky the following counties: Adair, Allen, Barren, Butler, Casey, Clinton, Cumberland, Edmonson, Green, Hart, Logan,

McCreary, Metcalfe, Monroe, Pulaski, Russell, Simpson, Taylor, Warren, Wayne.

Section 2. Classification of Air Quality Control Regions. The priority classification of air quality control regions shall be as in Appendix A to this regulation. This priority system was established by the regulations of the United States Environmental Protection Agency.

APPENDIX A TO 401 KAR 50:020

Priority Classification to Air Quality Control Regions with Respect to Particulates, Sulfur Oxides *, Carbon Monoxide, Nitrogen Dioxide and Photochemical Oxidants (and Hydrocarbons).

Region (No.)	Particulate Matter	Sulfur * Oxides	Carbon Monoxide	Nitrogen Dioxide	Photochemical Oxidants (Hydrocarbons)
Louisville (078)	I	I	III	III	I
Cincinnati (079)	I	II	III	III	I
Paducah-Cairo (072)	I	II	III	III	III
Huntington-Ashland (103)	I	III	III	III	III
Evansville-Henderson (077)	I	II	III	III	III
Bluegrass (102)	II	III	III	III	III
Appalachian (101)	II	III	III	III	III
North Central (104)	II	III	III	III	III
South Central (105)	III	III	III	III	III

* Refer to 401 KAR 50:025 for the county classification system.

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Division of Air Pollution

401 KAR 50:025. Classification of counties.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the classification of counties with respect to various pollutants.

Section 1. Counties in the Commonwealth of Kentucky shall be classified with respect to sulfur dioxide as follows:
(1) Class I: Jefferson County, McCracken County;
(2) Class II: Bell County, Clark County, Woodford County;
(3) Class III: Pulaski County;
(4) Class IV: Webster County, Hancock County;
(5) Class IVA: Muhlenberg County;
(6) Class V: All other counties not specifically listed within this section;
(7) Class VA: Boyd County.

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
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401 KAR 50:030. Registration of sources.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the registration of sources.

Section 1. Persons engaged in the operation of sources shall, upon request by the department, register such sources or discharges which may result from their operation in accordance with the provisions of this regulation.

Section 2. The department may require from such persons reports containing information relating to said sources and air contaminants emitted by each into the atmosphere.

Section 3. Registration and reporting of air contaminant sources and their related discharges shall be upon forms provided by the department.

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
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401 KAR 50:035. Permits and compliance schedules.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the issuance of permits and compliance schedules.

Section 1. Prohibitions. (1) No person shall construct, recontruct, alter, or modify a source unless a construction permit to do so has been issued by the department.
(2) No person shall use, operate, or maintain a source in contravention of any regulations of the Division of Air Pollution unless an operating permit, conditioned by an approved compliance schedule, has been issued by the department and is currently in effect.
(3) No person shall use, operate, or maintain a source, which is in compliance with all regulations of the Division of Air Pollution unless a permit to so operate has been issued by the department and is currently in effect.

Section 2. Applications. (1) Applications for permits or compliance schedules required under Section 1 of this regulation shall be made on forms prepared by the department for such purpose and shall contain such information as the department shall deem necessary to determine whether the permit or compliance schedule should be issued.

(2) Applications for permits or compliance schedules shall be signed by the corporate president or by another duly authorized agent of the corporation; or by an equivalently responsible officer in the case of organizations other than corporations; or, in other cases, by the source owner or operator; or, in the case of political subdivisions, by the highest executive official of such subdivision. Such signature shall constitute personal affirmation that the statements made in the application are true and complete.

(3) The information submitted in the application shall, when specifically requested by the department, include an analysis of the characteristics, properties and volume of the air contaminants based upon source or stack samples of the air contaminants taken under normal operating conditions. Failure to supply information required or deemed necessary by the department to enable it to act upon the permit or compliance schedule the application shall result in denial of the permit or shall result in disapproval of the compliance schedule.

(4) An application for a permit or compliance schedule may include one or more affected facilities provided that all are contained within one (1) source. A person may apply for an amended permit to include new affected facilities provided that such new facilities are within the same source.

Section 3. Consideration of Applications. (1) (a) The department shall deny an application for a permit or compliance schedule if the department determines that emission standards, standards of performance, ambient air quality standards, and the provisions of Title 401, Chapter 51, are not met or will not be met upon completion of the compliance schedule.

(b) The department shall deny an application for a permit or compliance schedule if the applicant willfully makes material misstatements in the application or amendments thereto.

(c) The department shall base the determination of compliance with ambient air quality standards and prevention of significant air quality increments upon either:

1. Air quality models in accordance with 401 KAR 50:040; or

2. Ambient air quality monitoring in accordance with 401 KAR 53:010.

(d) In cases where no emission standards have been prescribed by regulation, the department shall require the use of all available, practical and reasonable methods to prevent and control air pollution.

(2) Compliance schedules herein shall be subject to approval of the department. If for any reason, the department and the source are unable to negotiate a mutually acceptable schedule, the department will propose a compliance schedule which will be subjected to a hearing pursuant to KRS 224.083. After considering the hearing report, the department shall issue an appropriate compliance schedule.

(3) Procedures for public participation. This subsection shall apply to the proposed construction, modification or reconstruction of a source whose uncontrolled emission potential will be 100 tons per year or more of any one (1) pollutant.

(a) Within twenty (20) days after receipt of an application to construct, reconstruct, or modify, or any addition to such application, the department shall advise the owner or operator of any deficiency in the information submitted in support of the application. In the event of such a deficiency, the date of receipt of the application for the purpose of paragraph (b) of this subsection shall be the date on which all required information is received by the department.

(b) Within thirty (30) days after the receipt of a complete application, or within one (1) year for source subject to 401 KAR 51:015, the department shall:

1. Make a preliminary determination whether the source should be approved, approved with conditions, or disapproved.

2. Make available in at least one (1) location in each region in which the proposed source would be constructed, reconstructed, or modified, a copy of all materials submitted by the owner or operator, a copy of the department's preliminary determination and a copy or summary of other materials, if any, considered by the department in making the preliminary determination; and

3. For sources subject to 401 KAR 51:015, notify the public, by prominent advertisement in newspapers of general circulation in each region in which the proposed source would be situated, of the application, the preliminary determination, the degree of increment consumption that is expected from the source or modification if applicable, and of the opportunity to comment in writing and of the opportunity to request a public hearing to receive written or oral comments. The cost of such advertisement shall be borne by the applicant.

4. For all other sources subject to this subsection, notify the public, by prominent advertisement in newspapers of general circulation in each region in which the proposed source would be situated, of the application, the preliminary determination, and of the opportunity to comment in writing.

(c) A copy of the notice required pursuant to this section shall be sent to the applicant and to officials and agencies having cognizance over the locations where the source will be situated as follows: the Administrator of the U. S. Environmental Protection Agency through the appropriate regional office; local air pollution control agencies; the chief executive of the city and county; any comprehensive regional land use planning agency; and any state, federal land manager or Indian governing body whose land may be affected by the emissions from the proposed source.

(d) Public comments submitted in writing within thirty (30) days after the date such information is made available shall be considered by the department in its final decision on the application. No later than ten (10) days after the close of the public comment period, the applicant may submit a written response to any comments submitted by the public. The department shall consider the applicant's response in making its final decision. All comments shall be made available for public inspection at the same location in the region at which the department made available preconstruction information relating to the proposed source.

(e) The department shall take final action on an application within thirty (30) days after the close of the public comment period. The department shall notify the applicant in writing of its approval, conditional approval, or denial of the application, and shall set forth its reasons for conditional approval or denial. Such notification shall be made available for public inspection at the location in the region at which the department made available preconstruction

information relating to the proposed source or modification.

(f) The department may extend each of the time periods specified in paragraphs (b), (d) or (e) of this subsection by no more than thirty (30) days or such other period as agreed to by the applicant and the department.

Section 4. Permits and Compliance Schedules. (1) Permits and compliance schedules issued hereunder shall be subject to such terms and conditions set forth and embodied in the permit or compliance schedule as the department shall deem necessary to insure compliance with its standards. Such terms and conditions may include maintenance and availability of records relating to operations which may cause or contribute to air pollution including periodic source or stack sampling of the affected facilities.

(2) In the case of transfer of ownership of a source, the new owner shall abide by any current compliance schedule or permit issued to the previous owner by the department. The new owner shall notify the department of the change in ownership within ten (10) days of the change in ownership.

Section 5. Exemptions. The provisions of this regulation shall not apply to the following affected facilities:

(1) Those affected facilities to which no standard is applicable or which emit an air pollutant to which no standard applies.

(2) Incinerator with a charging rate of less than 500 pounds per hours.

(3) Internal combustion engines whether fixed or mobile, and vehicles used for transport of passenger or freight.

(4) Direct fired sources used for heating and ventilating.

(5) Those sources as set forth in 401 KAR 63:005.

(6) Indirect heat exchangers at a source with a total capacity of less than fifty (50) million BTU per hour input which use natural gas, liquid petroleum gas, or distillate fuel oil as a main fuel or combinations of these as main and standby fuel.

Section 6. Source Obligation. (1) Any owner or operator who constructs or operates a source or modification not in accordance with the application submitted pursuant to this regulation or with the terms of any approval to construct, or any owner or operator of a source or modification subject to this regulation who commences construction after the effective date of these regulations without applying for and receiving approval hereunder, shall be subject to appropriate enforcement action as provided under KRS 224.994.

(2) Approval to construct shall become invalid if construction is not commenced within twelve (12) months after receipt of such approval, if construction is discontinued for a period of six (6) months or more, or if construction is not completed within a reasonable time. The department may extend the twelve (12) month period upon a satisfactory showing that an extension is justified. This provision does not apply to the time period between construction of the approved phases of a phased construction project; each phase must commence construction within twelve (12) months of the projected and approved commencement date.

(3) Approval to construct shall not relieve any owner or operator of the responsibility to comply fully with applicable provisions of the requirements of the department and any other requirements under local, state, or federal law.

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 50:040. Air quality models.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation specifies general provisions for the use of air quality models.

Section 1. Air Quality Models. (1) All estimates of ambient concentrations required under the regulations of the Division of Air Pollution shall be based on the applicable air quality models, data bases, and other requirements specified in the "Guidelines on Air Quality Models" (OAQPS 1.2-030, U. S. Environmental Protection Agency, Office of Air Quality Planning and Standards).

(2) Where an air quality impact model specified in the Guideline on Air Quality Models is inappropriate, the model may be modified or another model substituted subject to the approval of the department.

(3) If the source is subject to 401 KAR 51:015, a substitution or modification of a model shall be subject to public comment procedures in accordance with 401 KAR 50:035, Section 3(3), and such substitution or modification of a model must be approved in writing by the department and the U. S. Environmental Protection Agency.

(4) Methods like those outlined in the "Workbook for the Comparison of Air Quality Models" (U. S. Environmental Protection Agency, Office of Air Quality Planning and Standards) shall be used to determine the comparability of air quality models.

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 50:045. Performance tests.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation establishes requirements for performance tests.

Section 1. The department may require the owner or operator of any affected facility to sample emissions in accordance with such methods as the department shall prescribe. All tests shall be made under the direction of persons qualified by training and/or experience in the field of air pollution control.

Section 2. The department may conduct tests of emissions of air contaminants from any source.

Section 3. Test Methods and Exceptions. (1) Performance tests required hereunder or by any other regulation of the Division of Air Pollution for affected facilities which are subject to a standard of performance promulgated under 40 CFR 60 or 40 CFR 61, filed by reference in 401 KAR 50:015, shall be conducted, and data shall be reduced, in accordance with the reference methods and procedures contained in each applicable regulation unless:

(a) The department specifies or approves the use of a reference method with minor changes in methodology;

(b) The department and the U. S. Environmental Protection Agency approve the use of an equivalent method;

(c) The department and the U. S. Environmental Protection Agency approve the use of an alternative method the results of which it has determined to be adequate for indicating whether a specific source is in compliance; or

(d) The department and the U. S. Environmental Protection Agency waive the requirement for performance test for affected facilities for which a standard of performance has been promulgated under 40 CFR 60 or 40 CFR 61 because the owner or operator of such affected facility has demonstrated to the department's and the U. S. Environmental Protection Agency's satisfaction that the affected facility is in compliance with the applicable standard.

(2) Performance tests required hereunder or by any other regulation of the Division of Air Pollution for affected facilities which are not subject to a standard of performance promulgated under 40 CFR 60 or 40 CFR 61 shall be conducted, and data shall be reduced, in accordance with the methods and procedures contained in each applicable regulation unless:

(a) The department specifies or approves minor changes in methodology;

(b) The department specifies or approves the use of some other method the results of which it has determined to be adequate for indicating whether a specific source is in compliance; or

(c) The department waives the requirement for performance tests because the owner or operator of the affected facility has demonstrated to the department's satisfaction that:

1. The affected facility is in compliance with the applicable standard; or
2. In the case of an existing affected facility, the test cannot be performed by a source due to physical plant limitations or extreme economic burden. The burden of proof for an alleged "economic burden" is to be borne by the source.

Section 4. The owner or operator shall permit the department to conduct performance tests at any reasonable time, shall cause the affected facility to be operated for purposes of such tests under such conditions as the department may specify based on representative performance of the affected facility, and shall make available to the department such records as may be necessary to determine such performance.

Section 5. The owner or operator of an affected facility shall provide the department ten (10) working days prior notice of the performance test to afford the department the opportunity to have an observer present.

Section 6. The owner or operator of an affected facility shall provide, or cause to be provided, performance testing facilities as follows:

(1) Sampling ports adequate for test methods applicable to such facility.
(2) Safe sampling platform(s).
(3) Safe access of sampling platforms(s).
(4) Utilities for sampling and testing equipment.

Section 7. Each performance test shall consist of three (3) separate runs using the applicable test method. Each run shall be conducted for such time and under such conditions specified in the applicable regulation. For the purpose of determining compliance with an applicable standard, the arithmetic mean of the results of the three (3) runs shall apply. In the event that a sample is accidentally lost or conditions occur in which one (1) of the three (3) runs must be discontinued because of forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions, or other circumstances beyond the owner or operator's control, compliance may, upon the department's approval, be determined using the arithmetic mean of the results of the two (2) other runs.

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 50:050. Monitoring.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation

establishes requirements for stack gas monitoring, ambient air monitoring, and recording and reporting requirements as related to monitoring data.

Section 1. Monitoring, Records, and Reporting. The department may require the owner or operator of any affected facility to install, use, and maintain stack gas and ambient air monitoring equipment in accordance with such methods as the department shall prescribe, establish and maintain records of same and make periodic emission reports at intervals prescribed by the department. Requirements for specific affected facilities are contained in applicable regulations.

Section 2. Ambient Air Monitoring. Persons owning or operating any affected facility for which a standard is prescribed in the regulations of the Division of Air Pollution when required by the department shall install, use, and maintain ambient air monitoring equipment in accordance with the provisions of 401 KAR 53:010, Section 2, and shall make periodic ambient air monitoring reports at intervals prescribed by the department.

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 50:055. General compliance requirements.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation establishes requirements for compliance during shutdown and malfunctions; establishes requirements for demonstrating compliance with standards; establishes requirements for compliance when a source is relocated within the Commonwealth of Kentucky; and other general compliance requirements.

Section 1. Emissions During Shutdown and Malfunction. (1) Emissions which, due to shutdown or malfunctions, temporarily exceed the standard set forth by the department shall be deemed in violation of such standards unless the requirements of this section are satisfied and the determinations specified in subsection (4) of this section are made.

(2) When emissions during any planned shutdown and ensuing startup will exceed the standards, the owner or operator of the source shall notify the director or his designee no later than three (3) days before the planned shutdown. However, if the shutdown is necessitated by events which the owner or operator could not reasonably have foreseen three (3) days before the shutdown, then such notification shall be given immediately following the decision to shutdown. The notice shall be in writing and shall specify the name of the air contaminant source, its location, the address and telephone number of the person responsible for the source, the reasons for and duration of the proposed shutdown, the date and time for the action, the physical and chemical composition, rate and concentration of the emissions during such shutdown and ensuing startup, the basis for determination that such shutdown is necessary, and the measures which will be taken to minimize the extent and duration of the emissions during such shutdown and ensuing startup.

(3) When emissions due to malfunctions, unplanned shutdowns or ensuing startups are or may be in excess of the standards, the owner or operator shall notify the director by telephone as promptly as possible, and shall cause written notice when requested by the director to be sent to the director. Such notice shall specify the name of the source, its location, the address and telephone number of the person responsible for the source, the nature and cause of the malfunctions, or unplanned shutdown, the date and time when the malfunction was first observed, the expected duration, the nature of the action to be taken to correct the malfunction, and an estimate of the physical and chemical composition, rate and concentration of the emission.

(4) A source shall be relieved from compliance with the standards set forth by the department if the director determines, upon a showing by the owner or operator of the source, that:

(a) The malfunction or shutdown and ensuing startup did not result from the failure by the owner or operator of the source to operate and maintain properly the equipment;

(b) All reasonable steps were taken to correct, as expeditiously as practicable, the conditions causing the emissions to exceed the standards, including the use of off-shift labor and overtime if necessary;

(c) All reasonable steps were taken to minimize the emissions and their effect on air quality resulting from the occurrence;

(d) The excess emissions are not part of a recurring pattern indicative of inadequate design, operation, or maintenance; and

(e) The malfunction or shutdown and ensuing startup was not caused entirely or in part by poor maintenance, careless operation or any other preventable upset conditions or equipment breakdown.

(5) The director shall notify the owner or operator of the source of the determination made under this section no later than sixty (60) days after the date that all information required by this section has been submitted.

Section 2. Compliance with Standards and Maintenance Requirements. (1) An owner or operator of any affected facility subject to any standard within the regulations of the Division of Air Pollution shall:

(a) In the case of a new source, demonstrate compliance with the applicable standard(s) within sixty (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 such facility;

(b) In the case of any existing source, demonstrate compliance with the applicable standard before or on the date that final compliance is required by the applicable compliance schedule unless otherwise specified by regulation; and

(c) Maintain the affected facility in compliance with all applicable standards at all times subsequent to the date that compliance is demonstrated.

(2) Compliance with standards in the regulations of the

Divison of Air Pollution shall be demonstrated as follows:

(a) By performance tests as specified in the applicable regulation and according to the requirements and exceptions provided in 401 KAR 50:045.

(b) By methods other than performance tests as provided for by the applicable regulation.

(c) By methods acceptable to the department if the applicable regulation does not specify a performance test or other method of determining compliance.

(3) Compliance with opacity standards in the regulations of the Division of Air Pollution shall be determined by Method 9 of Appendix A of 40 CFR 60, filed by reference in 401 KAR 50:015, except as may be provided for by regulation for a specific category of sources. Opacity readings of portions of plumes which contain condensed, uncombined water vapor shall not be used for purposes of determining compliance with opacity standards. The results of continuous monitoring by transmissometer which indicate that the opacity at the time visual observations were made was not in excess of the standard are probative but not conclusive evidence of the actual opacity of an emission, provided that the source shall meet the burden of proving that the instrument used meets (at the time of the alleged violation), performance specification as required by the department, has been properly maintained and (at the time of the alleged violation) calibrated, and that the resulting data have not been tampered with in any way.

(4) The opacity standards set forth in this regulation shall apply at all times except during periods of startup, shutdown, and as otherwise provided in the applicable standard.

(5) At all times, including periods of startup, shutdown and malfunction, owners and operators shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the department which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source.

(6) Adjustment of opacity standards:

(a) An owner or operator of an affected facility may request the department to determine opacity of emissions from the affected facility during the initial performance tests.

(b) Upon receipt from such owner or operator of the written report of the results of the performance tests, the department will make a finding concerning compliance with opacity and other applicable standards. If the department finds that an affected facility is in compliance with all applicable standards for which performance tests are conducted, but during the time such performance tests are being conducted fails to meet any applicable opacity standard, the department shall notify the owner or operator and advise him that he may petition the department within ten (10) days of receipt of notification to make appropriate adjustment to the opacity standard for the affected facility.

(c) The department will grant such a petition upon a demonstration by the owner or operator that the affected facility and associated air pollution control equipment were operated and maintained in a manner to minimize the opacity of emissions during the performance tests; that the performance tests were performed under the conditions established by the department; and that the affected facility and associated air pollution control equipment were incapable of being adjusted or operated to meet the applicable opacity standard.

(d) The department will establish an opacity standard for the affected facility meeting the above requirements at a level at which the source will be able, as indicated by the performance and opacity tests, to meet the opacity standard at all times during which the source is meeting the mass or concentration emission standard.

Section 3. Shutdown and Relocation. (1) Any affected facility commencing operations after a shutdown for six (6) months shall demonstrate compliance with the applicable standard(s) within sixty (60) days after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after commencing operations.

(2) Any source located within the Commonwealth of Kentucky and moved to another location involving a change of address shall be subject to applicable regulations at the new location or to regulations which were applicable at the original location, whichever is the more stringent.

Section 4. Circumvention. No owner or operator subject to the provisions of the regulations of the Division of Air Pollution shall build, erect, install, or use any article, machine, equipment or process, the use of which conceals an emission which would otherwise constitute a violation of an applicable standard. Such concealment includes, but is not limited to, the use of gaseous diluents to achieve compliance with an opacity standard or with a standard which is based on the concentration of a pollutant in the gases discharged to the atmosphere.

Section 5. Prohibition of Air Pollution. No person shall permit or cause air pollution as defined in 401 KAR 50:010 in violation of regulations promulgated by the department.

Section 6. 401 KAR 3:010 is hereby repealed.

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 50:060. Enforcement.

RELATES TO: KRS 224.033(5), (18), (19), (22), (23), (26), 224.081, 224.083, 224.380
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement and control of air pollution. This regulation provides for enforcement of the terms and conditions of permits and compliance schedules.

Section 1. Permits and Compliance Schedules Subject to Conditions. Permits and compliance schedules issued

under these regulations shall be subject to such terms and conditions set forth in the permit or compliance schedule as the department may deem necessary to insure compliance with all applicable standards. Such terms and conditions may include, but shall not be limited to, the maintenance and production for inspection of records relating to operation which may cause or contribute to air pollution including periodic source or stack sampling, or periodic ambient air monitoring.

Section 2. Permit Revocation. The department may revoke any permit issued under these regulations if the permittee:

(1) Willfully makes material misstatements in the permit application or any amendments thereto;

(2) Fails to comply with the terms or conditions of the permit;

(3) Fails to comply with any emission standards applicable to an affected facility included in the permit;

(4) Causes emissions from the source which result in violations of, or interfere with the attainment and maintenance of, any ambient air quality standards contained in Title 401, Chapter 53, of these regulations or result in any allowable increase over baseline concentrations contained in Title 401, Chapter 51, of these regulations;

(5) Fails to report construction, modification, alteration, or reconstruction of an affected facility.

Section 3. Compliance Schedule Revocation. The department may revoke a compliance schedule issued under these regulations if the owner or operator of the source or any other person acting on his behalf:

(1) Willfully makes material misstatements in the application for the compliance schedule or in any communications relied upon by the department in issuing the compliance schedule;

(2) Fails to comply with the terms and conditions of the compliance schedule, including but not limited to any increment dates and any interim emission standards;

(3) Fails to report construction, modification, alteration or reconstruction of the affected facilities.

Section 4. Suspensions, Modifications, Violation of Regulations Subject to Penalties. (1) The grounds for revocation of permits and compliance schedules listed in Sections 2 and 3 are declared to be violations of these regulations and are subject to the penalties and all other relief contained in KRS 224.994.

(2) The department may order appropriate modifications to any permit or compliance schedule whenever it appears that the conditions of the permit or compliance schedule will not be sufficient to meet all of the standards and requirements contained in these regulations, including but not limited to Title 401, Chapters 51, 57, 59 and 61.

(3) The department may suspend under such conditions and for such period of time as the department may prescribe any permit or compliance schedule for any of the grounds for revocation contained in Sections 2 and 3 of this regulation or for any other violations of these regulations.

Section 5. Administrative Hearing Procedures. (1) Whenever the department has reason to believe that a violation of any of the provisions of KRS Chapter 224 or these regulations has occurred it shall issue and serve upon the person complained against a written notice of the provision of KRS Chapter 224 or the rule or regulation alleged to have been violated and the facts alleged to constitute the violation thereof and shall require the person so complained against to answer the charges set out in the notice at a hearing before the department. Nothing herein shall prevent the department from seeking all appropriate relief in circuit court.

(2) Any person not previously heard in connection with the issuance of any order or the making of any determination, including but not limited to the issuance, denial, modification, or revocation of any permit, by which he considers himself aggrieved may file with the department a petition alleging that such order or determination is contrary to law or fact and is injurious to him, alleging the grounds and reasons therefor, and demand a hearing. Unless the department considers that the petition is frivolous, it shall serve written notice of the petition on each person named therein and shall schedule a hearing before the department. The right to demand such a hearing shall be limited to a period of thirty (30) days after the petitioner has had actual notice of the order or determination, or could reasonably have had such notice.

(3) The department shall schedule a hearing before the department not less than twenty-one (21) days after notice of such a hearing is served upon the parties, unless the person complained against waives in writing the twenty-one (21) day period. The notice of hearing shall include a statement of the time, place, and nature of the hearing; the legal authority for the hearing; reference to the statutes and regulations involved; and a short statement of the reason for the granting of the hearing.

(4) Prior to the formal hearing, and upon seven (7) days written notice to all parties, delivered personally or by certified mail, return receipt requested, the hearing officer may hold a pre-hearing conference to consider simplification of the issues, admissions of fact and documents which will avoid unnecessary proof, limitations of the number of witnesses and such other matters as will aid in the disposition of the matter. Disposition of the matter may be made at the pre-hearing conference by stipulation, agreed settlement, consent order, or default for non-appearance.

(5) (a) Any party to a hearing may be represented by counsel, may make oral or written argument, offer testimony, cross-examine witnesses, or take any combination of such actions. A hearing officer shall preside at the hearing, shall keep order, and shall conduct the hearing in accordance with reasonable administrative practice.

(b) Irrelevant, immaterial, or unduly repetitious evidence shall be excluded. When necessary to ascertain facts not reasonably susceptible of proof under judicial rules of evidence, evidence not admissible thereunder may be admitted (except where precluded by statute) if it is of a type commonly relied upon by reasonably prudent men in the conduct of their affairs. Hearing officers shall give effect to the rules of privilege recognized by law. Objections to evidentiary offers may be made and shall be noted in the record. Subject to these requirements, when a hearing will be expedited and the interests of the parties will not be prejudiced substantially, any part of the evidence may be received in written form. Documentary evidence may be received in the form of copies or excerpts, if the original is not readily available. Upon request, parties shall be given an opportunity to compare the copy with the original. A party may conduct cross-examinations required for a full and true disclosure of the facts. Notice may be taken of generally recognized technical or scientific facts within the department's specialized knowledge. Parties shall be notified either before or during the hearing, or by reference in preliminary reports or otherwise, of the material noticed, including any staff memoranda or data and they shall

be afforded an opportunity to contest the material so noticed. The department's experience, technical competence, and specialized knowledge may be utilized in the evaluation of the evidence.

(c) It will be within the hearing officer's discretion to require official transcripts or to set up other procedures for taking evidence including but not limited to the use of mechanical recording devices for recording the testimony. The record of such hearing, consisting of all pleadings, motions, rulings, documentary and physical evidence received or considered, a statement of matters officially noticed, questions and offers of proof, objections and rulings thereon, proposed findings and recommended order, and legal briefs, shall be open to public inspection and copies thereof shall be made available to any person upon payment of the actual cost of reproducing the original except as provided in KRS 224.035. The department may cause the mechanical recording of the testimony to be transcribed. When certified as true and correct copy of the testimony by the hearing officer, the transcript shall constitute the official transcript of the evidence.

(d) The hearing officer shall within thirty (30) days of the closing of the hearing record make a report and a recommended order to the secretary. The order shall contain the appropriate findings of fact and conclusions of law. If the secretary finds upon written request of the hearing officer that additional time is needed, then the secretary may grant a reasonable extension. The hearing officer shall serve a copy of his report and recommended order upon all parties. The parties may file within seven (7) days of service of the hearing officer's report and recommended order exceptions to the recommended order. The secretary shall consider the report and recommended order and exceptions. The secretary may remand to the hearing officer the matter for further deliberation, adopt the opinion of the hearing officer as the department's or issue his own written order based on the report and recommended order. The secretary shall act within twenty (20) days of the deadline for filing exceptions, unless extensions of time have been granted to the hearing officer, pursuant to paragraph (e) of this subsection.

(e) After completion of the hearing and filing of exceptions, the department shall notify the parties in writing, certified mail, return receipt requested, of the final decision of the department. If any extension of time is granted by the secretary for a hearing officer to complete his report, the department shall notify all parties at the time of the granting of the extension. Parties shall have seven (7) days to file exceptions to the report and recommended order if such an extension is granted.

(f) The secretary shall not grant extensions of time to the hearing officer for more than thirty (30) days for any one extension, and no more than two (2) such extensions shall be granted.

(g) A final order of the department shall be based on the preponderance of the evidence appearing in the record as a whole and shall set forth the decision of the department and the facts and law upon which the decision is based.

(h) There shall be no ex-parte communications between a hearing officer and parties to the action.

(i) Any person aggrieved by a final order of the department may have recourse to the courts as set forth in KRS 224.085.

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 51:005. Purpose and general provisions.

RELATES TO: KRS 224.033
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation establishes the general provisions as related to new sources with respect to the prevention of significant deterioration of air quality and construction of stationary sources impacting on non-attainment areas.

Section 1. Purpose. The purpose of this chapter is: (1) To prevent the significant deterioration of air quality in areas of the Commonwealth of Kentucky where the air quality is better than the ambient air quality standards contained in 401 KAR 53:010; and

(2) To provide conditions for the construction of new or modified sources which would impact on non-attainment areas in order that major new or major modified sources will not exacerbate existing violations of the ambient air quality standards.

Section 2. General Provisions. (1) Performance tests. The owner or operator of an affected facility subject to this chapter shall be subject to the provisions of 401 KAR 59:005, Section 2.

(2) Notification and recordkeeping. The owner or operator of an affected facility subject to this chapter shall be subject to the provisions of 401 KAR 59:005, Section 3.

(3) Monitoring. The department may require the owner or operator of an affected facility subject to this chapter to install, calibrate, maintain and operate continuous emission monitoring systems. All such continuous emission monitoring systems shall be subject to the provisions of 401 KAR 59:005, Section 4, and other provisions as the department deems necessary.

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Division of Air Pollution

401 KAR 51:010. Attainment status designations.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement and control of air pollution. This regulation designates the status of all areas of the Commonwealth of

Kentucky with regard to attainment of the ambient air quality standards.

Section 1. Attainment Status Designations. The attainment status of areas of the Commonwealth of Kentucky with respect to the ambient air quality standards for particulates, sulfur dioxide, carbon monoxide, ozone and nitrogen oxides are as listed in Appendices A through E of this regulation.

Section 2. Attainment Timetable. Primary and secondary ambient air quality standards shall be achieved no later than December 31, 1982 in non-attainment areas with respect to the pollutants for which the area is non-attainment. The above date shall be extended to December 31, 1987 for ozone and carbon monoxide for those areas granted such an extension by the U. S. Environmental Protection Agency.

APPENDIX A TO 401 KAR 51:010

ATTAINMENT STATUS DESIGNATIONS FOR TOTAL SUSPENDED PARTICULATES

Designated Areas	Does Not Meet Primary Standards	Does Not Meet Secondary Standards	Better Than Standards
Bell County	X	X	
Boyd County	X	X	
That portion of Bullitt Co. In Shepherdsville	X	X	
That portion of Campbell Co. in Newport	X	X	
That portion of Daviess Co. in Owensboro	X	X	
That portion of Henderson Co. in Henderson	X	X	
Jefferson County	X	X	
That portion of Lawrence Co. in Louisa	X	X	
McCracken County	X	X	
Marshall County		X	
That portion of Madison Co. in Richmond	X	X	
Muhlenberg County	X	X	
That portion of Perry Co. in Hazard	X	X	
That portion of Pike Co. in Pikeville	X	X	
That portion of Whitley Co. in Corbin	X	X	
Rest of State			X

APPENDIX B TO 401 KAR 51:010

ATTAINMENT STATUS DESIGNATIONS FOR SULFUR DIOXIDE

Designated Areas	Does Not Meet Primary Standards	Does Not Meet Secondary Standards	Better Than Standards
Boyd County	X		
That portion of Daviess Co. in Owensboro	X	X	
Greenup County	X	X	
That portion of Henderson Co. in Henderson	X		
Jefferson County	X	X	
McCracken County	X		
Muhlenberg County	X	X	
Webster County	X	X	
Rest of State			X

APPENDIX C TO 401 KAR 51:010

ATTAINMENT STATUS DESIGNATIONS FOR CARBON MONOXIDE

Designated Area	Does Not Meet Primary Standards	Cannot Be Classified or Better Than Standards
Jefferson County	X	
Rest of State		X

APPENDIX D TO 401 KAR 51:010

ATTAINMENT STATUS DESIGNATIONS FOR OZONE

Designated Area	Does Not Meet Primary Standards	Cannot Be Classifed or Better Than Standards
Boone County	X	
Boyd County	X	
Campbell County	X	
Daviess County	X	
Fayette County	X	
Henderson County	X	
Jefferson County	X	
Kenton County	X	
McCracken County	X	
Boyd County	X	
Rest of State		X

APPENDIX E TO 401 KAR 51:010

ATTAINMENT STATUS DESIGNATIONS FOR NITROGEN OXIDES

Designated Area	Does Not Meet Primary Standards	Cannot Be Classifed or Better Than Standards
Statewide		X

EUGENE F. MOONEY, Secretary
ADOPTED: November 14, 1978
RECEIVED BY LRC: November 14, 1978 at 9 a.m.
PUBLIC HEARING: Information is on page 335.

DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 51:015. Prevention of significant deterioration of ambient air quality.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the prevention of significant deterioration of ambient air quality.

Section 1. Applicability. The provisions of this regulation are applicable to major stationary sources or major modifications which:

(1) Are constructed on or after the classification date defined below;

(2) Emit any air pollutant regulated under the Clean Air Act; and

(3) Impact on any area, including land owned by the federal government, which is an attainment or unclassified area according to 401 KAR 51:010 with respect to the pollutant emitted (or with respect to ozone for sources of VOC).

Section 2. Definitions. As used in this regulation all terms not defined herein shall have the meaning given them in 401 KAR 50:010.

(1) "Major stationary source" means:

(a) Any of the following stationary sources of air pollutants which emit, or have the potential to emit, 100 tons per year or more of any air pollutant specified in Section 1: Fossil fuel-fired steam electric plants of more than 250 million BTU per hour heat input, coal cleaning plants (with thermal dryers), kraft pulp mills, portland cement plants, primary zinc smelters, iron and steel mill plants, primary aluminum ore reduction plants, primary copper smelters, municipal incinerators capable of charging more than 250 tons of refuse per day, hydrofluoric, sulfuric, and nitric acid plants, petroleum refineries, lime plants, phosphate rock processing plants, coke oven batteries, sulfur recovery plants, carbon black plants (furnace process), primary lead smelters, fuel conversion plants, sintering plants, secondary metal production plants, chemical process plants, fossil fuel boilers (or combination thereof) totaling more than 250 million BTU per hour heat input, petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels, taconite ore processing plants, glass fiber processing plants, and charcoal production plants; and

(b) Notwithstanding the source sizes specified in paragraph (a) of this subsection, any source which emits, or has the potential to emit, 250 tons per year or more of any air pollutant specified in Section 1.

(2) "Major modification" means any physical change in, change in the method of operation of, or addition to a stationary source which increases the potential emission rate of any air pollutant regulated under Section 1 (including any not previously emitted and taking into account all accumulated increases in potential emissions occurring at the source since the classification date of this regulation, or since the time of the last construction approval issued for the source pursuant to regulations approved under this chapter, whichever time is more recent, regardless of any emission reductions achieved elsewhere in the source) by either 100 tons per year or more for any source category identified in subsection (1)(a) of this section, or by 250 tons per year or more for any stationary source.

(a) A physical change shall not include routine maintenance, repair and replacement of component parts.

(b) A change in the method of operation, unless previously limited by enforceable permit conditions, shall not include:

1. An increase in the production rate, if such increase does not exceed the operating design capacity of the source;
2. An increase in the hours of operation;
3. Use of an alternative fuel or raw material by reason of an order, rule or natural gas curtailment plan in effect under a federal statute or regulation;
4. Use of an alternative fuel or raw material, if prior to January 6, 1975, the source was capable of accommodating such fuel or material; or
5. Change in ownership of the source.

(3) "Potential to emit" means the capability at maximum capacity to emit a pollutant in the absence of air pollution control equipment. Air pollution control equipment includes control equipment 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. Annual potential shall be based on the maximum annual rated capacity of the source, unless the source is subject to enforceable permit conditions which limit the annual hours of operation. Enforceable permit conditions on the type or amount of materials combusted or processed may be used in determining the potential emission rate of a source.

(4) "Fugitive soil" means particulate matter composed of soil which is uncontaminated by pollutants resulting from industrial activity. Fugitive soil may include emissions from haul roads, wind erosion of exposed soil surfaces and soil storage piles, and other activities in which soil is either removed, stored, transported, or redistributed.

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

(a) Begun, or caused to begin, a continuous program of physical on-site construction of the source to be completed within a reasonable time; or

(b) Entered into binding agreements or contractual obligations, which cannot be cancelled or modified without substantial loss to the owner or operator, to undertake a program of construction of the source to be completed within a reasonable time.

(6) "Necessary preconstruction approvals or permits" means those permits or approvals required under federal air quality control laws and regulations, and those under the Kentucky Environmental Protection Law and the regulations duly promulgated pursuant to it that have been approved by the U. S. Environmental Protection Agency.

(7) "Best available control technology" means an emission limitation (including a visible emission standard) based on the maximum degree of reduction for each pollutant subject to regulation under Section 1 which would be emitted from any proposed major stationary source or major modification which the department, on a case-by-case

basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant. In no event shall application of the best available control technology result in emissions of any pollutant which would exceed the emissions allowed by federal new source performance standards, federal emissions standards for hazardous air pollutants, or standards of performance contained in Chapter 59 of these regulations. If the department determines that technological or economic limitations on the application of measurement methodology to a particular class of sources would make the imposition of an emission standard infeasible, it may instead prescribe a design, equipment, work practice or operational standard, or combination thereof, to require the application of best available control technology. Such standard shall, to the degree possible, set forth the emission reduction achievable by implementation of such design, equipment, work practice or operational standard and shall provide for compliance by means which achieve equivalent results.

(8) "Baseline concentration" means that ambient concentration level reflecting actual air quality as of the classification date of this regulation minus any contribution from major stationary sources and major modifications on which construction commenced on or after January 6, 1975. The baseline concentration shall include contributions from:

(a) The actual emissions of other sources in existence on the classification date of this regulation; and

(b) The allowable emissions of major stationary sources and major modifications which commenced construction before January 6, 1975, but were not in operation by the classification date of this regulation.

(9) "Federal land manager" means, with respect to any lands in the United States, the secretary of the department with authority over such lands.

(10) "High terrain" means any area having an elevation of 900 feet or more above the base of the stack of an affected facility.

(11) "Low terrain" means any area other than high terrain.

(12) "Allowable emissions" means the emission rate calculated using the maximum rated capacity of the source (unless the source is subject to enforceable permit conditions which limit the operating rate or hours of operation, or both) and the most stringent of the following:

(a) Applicable standards as set forth by the U.S. Environmental Protection Agency for new or modified sources and for hazardous air pollutants.

(b) The applicable emission limitation required by the department.

(c) The emission rate specified as a permit condition.

(13) "Reconstruction" shall be as defined in 401 KAR 50:010. A reconstructed source shall be treated as a new source for purposes of this regulation except that the use of an alternative fuel or raw material by reason of an order, rule or natural gas curtailment plan under a federal statute or regulation shall not result in the source being considered reconstructed.

(14) "Classification date" means August 7, 1977.

(15) "Volatile organic compounds (VOC)" means chemical compounds of carbon (excluding methane, ethane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides, and ammonium carbonate) which have a vapor pressure greater than one-tenth (0.1) mm of Hg at conditions of twenty (20) degrees Celsius and 760 mm of Hg.

Section 3. Ambient Air Increments. In areas designated as Class I, II, or III in Section 5, increases in pollutant concentration over the baseline concentration shall be limited to the levels specified in Appendix A to this regulation.

Section 4. Ambient Air Ceilings. No concentration of a pollutant specified in Section 1 shall exceed:

(1) The concentration permitted under the secondary ambient air quality standard; or

(2) The concentration permitted under the primary ambient air quality standard, whichever concentration is lower for the pollutant for a period of exposure.

Section 5. Area Designations. (1) Mammoth Cave National Park shall be a Class I area and may not be redesignated.

(2) All other areas, unless otherwise specified in the legislation creating such an area, are designated Class II but may be redesignated as provided in Section 7 subject to the restrictions of subsection (3) of this section.

(3) The following areas may be redesignated only as Class I or II:

(a) An area which as of the classification date of this regulation, exceeded 10,000 acres in size and was a national monument, a national primitive area, a national preserve, a national recreational area, a national wild and scenic river, a national wildlife refuge, a national lakeshore; and

(b) A national park or national wilderness area established after the classification date of this regulation, which exceeds 10,000 acres in size.

Section 6. Exclusions from Increment Consumption. (1) The department may, after notice and opportunity for at least one (1) public hearing in accordance with the procedures established in 401 KAR 50:035, Section 3, exclude the following concentrations in determining compliance with a maximum allowable increase:

(a) Concentrations attributable to the increase in emissions from stationary sources which have converted from the use of petroleum products, natural gas, or both by reason of an order or plan in effect under a federal statute or regulation over the emissions from such sources before the effective date of such an order or plan;

(b) Concentrations of particulate matter attributable to the increase in emissions from construction or other temporary emission-related activities; and

(2) No exclusion of such concentrations shall apply more than five (5) years after the effective date of the order or plan to which subsection (1)(a) of this section refers. If both such order and plan are applicable, no such exclusion shall apply more than five (5) years after the later of such effective dates.

Section 7. Redesignation. (1) Redesignation of an area (except as otherwise precluded by Section 5) may be proposed by the department, as provided below, subject to approval by the U.S. Environmental Protection Agency.

(2) The department may submit to the U.S. Environmental Protection Agency a proposal to redesignate areas of the Commonwealth of Kentucky Class I or Class II, provided, that:

(a) At least one (1) public hearing has been held in accordance with procedures established in 401 KAR 50:035, Section 3;

(b) Other states and federal land managers whose lands may be affected by the proposed redesignation were notified at least thirty (30) days prior to the public hearing;

(c) A discussion of the reasons for the proposed redesignation, including a satisfactory description and analysis of the health, environmental, economic, social, and energy effects of the proposed redesignation, was prepared and made available for public inspection at least thirty (30) days prior to the hearing and the notice announcing the hearing contained appropriate notification of the availability of such discussion;

(d) Prior to the issuance of notice respecting the redesignation of an area that includes any federal lands, the department has provided written notice to the appropriate federal land manager and afforded adequate opportunity (not in excess of sixty (60) days) to confer with the department respecting the redesignation and to submit written comments and recommendations. In redesignating any area with respect to which any federal land manager had submitted written comments and recommendations, the department shall have published a list of any inconsistency between such redesignation and such comments and recommendations (together with the reasons for making such redesignation against the recommendation of the federal land manager); and

(e) The department has proposed the redesignation after consultation with the elected leadership of local and other substate general purpose governments in the area covered by the proposed redesignation.

(3) Any area, except as restricted by Section 5, may be redesignated as Class III if:

(a) The redesignation would meet the requirements of provisions established in accordance with Section 7(2);

(b) The redesignation has been specifically approved by the Governor of the Commonwealth of Kentucky, after consultation with the appropriate committees of the legislature, if it is in session, or with the leadership of the legislature, if it is not in session, and if general purpose units of local government representing a majority of the residents of the area to be redesignated enact legislation (including resolutions where appropriate) concurring in the redesignation;

(c) The redesignation would not cause or contribute to, a concentration of any air pollutant which would exceed any maximum allowable increase permitted under the classification of any other area or any ambient air quality standard; and

(d) Any permit application for any new major stationary source or major modification subject to provisions established in accordance with Section 12 which could receive a permit only if the area in question were redesignated as Class III, and any material submitted as part of that application, were available, insofar as was practicable, for public inspection prior to any public hearing on redesignation of any area as Class III.

(4) The U. S. Environmental Protection Agency shall disapprove, within ninety (90) days of submission, a proposed redesignation of any area only if it finds, after notice and opportunity for public hearing, that such redesignation does not meet the procedural requirements of this regulation or is inconsistent with Section 5. If any such disapproval occurs, the classification of the area shall be that which was in effect prior to the redesignation which was disapproved.

(5) If the U. S. Environmental Protection Agency disapproves any proposed area designation, the department may resubmit the proposal after correcting the deficiencies noted by the U. S. Environmental Protection Agency.

Section 8. Stack Heights. (1) As a minimum, the degree of emission limitation required for control of any air pollutant shall not be affected in any manner by:

(a) So much of a stack height as exceeds good engineering practice; or

(b) Any other dispersion technique.

(2) Subsection (1) of this section shall not apply with respect to stack heights in existence before December 31, 1970 or to dispersion techniques implemented before then.

Section 9. Review of New Major Stationary Sources and Major Modifications; Source Applicability and General Exemptions. (1) No new major stationary source or major modification shall be constructed unless, as a minimum, requirements contained in Sections 10, 12, 14, 16 and 18 have been met. Such requirements shall apply to a proposed new source or modification only with respect to those pollutants for which the proposed construction would be a major stationary source or major modification.

(2) The requirements of Sections 10 to 18 shall not apply to a new major stationary source or major modification that was subject to the review requirements of federal regulations for the prevention of significant deterioration as in effect before March 1, 1978, if the owner or operator:

(a) Obtained under the federal regulations for the prevention of significant deterioration a final approval effective before March 1, 1978;

(b) Commenced construction before March 19, 1979; and

(c) Did not discontinue construction for a period of eighteen (18) months or more and completed construction within a reasonable time.

(3) The requirements of Sections 10 to 18 shall not apply to a new major stationary source or major modification that was not subject to federal regulations for the prevention of significant deterioration as in effect before March 1, 1978, if the owner or operator:

(a) Obtained all final preconstruction permits necessary under the requirements of the department before March 1, 1978;

(b) Commenced construction before March 19, 1979; and

(c) Did not discontinue construction for a period of eighteen (18) months or more and completed construction within a reasonable time.

(4) As a minimum, requirements contained in Sections 10, 12, 14 and 16 shall not apply to a new major stationary source or major modification with respect to a particular pollutant if the owner or operator demonstrates that:

(a) As to that pollutant, the source or modification is subject to 401 KAR 51:050; and

(b) The source or modification would impact no area attaining the ambient air quality standards (either internal or external to areas designated as non-attainment under 401 KAR 51:010).

(5) Requirements contained in Sections 10, 12, 14, 16 and 18 shall not apply to non-profit health or education institutions.

(6) A portable facility which has received construction approval under requirements contained in Sections 10, 12, 14, 16, 17 and 18 may relocate without being subject to such requirements if:

(a) Emissions from the facility would not exceed allowable emissions;

(b) Such relocation would impact no Class I area and no area where an applicable increment is known to be violated; and

(c) Notice is given to the department at least thirty (30) days prior to such relocation identifying the proposed new location and the probable duration of operation at such location.

Section 10. Control Technology Review. (1) A new major stationary source or major modification shall meet all applicable emission limitations required by the department and all applicable standards of performance required by the U. S. Environmental Protection Agency for new (or modified) sources or for emissions of hazardous air pollutants.

(2) A new major stationary source or major modification shall apply best available control technology for each applicable pollutant, unless the increase in allowable emissions of that pollutant from the source would be less than fifty (50) tons per year, 1,000 pounds per day, or 100 pounds per hour, whichever is most restrictive.

(a) The preceding hourly or daily rates shall apply only with respect to a pollutant for which an increment or ambient air quality standard, for a period less than twenty-four (24) hours or a period of twenty-four (24) hours as appropriate, has been established.

(b) In determining whether and to what extent a modification would increase allowable emissions, there shall be taken into account no emission reductions achieved elsewhere at the source at which the modification would occur.

(3) In the case of a modification, the requirement for best available control technology shall apply only to each new or modified affected facility which would increase the allowable emissions of an applicable pollutant.

(4) Where an affected facility within a source would be modified but not reconstructed, the requirement for best available control technology, notwithstanding subsection (2) of this section, shall not apply if no net increase in emissions of an applicable pollutant would occur at the source, taking into account all emission increases and decreases at the source which would accompany the modification, and no adverse air quality impact would occur.

(5) For phased construction projects the determination of best available control technology shall be reviewed, and modified as appropriate, at the latest reasonable time prior to commencement of construction of each independent phase of the proposed source or modification.

(6) In the case of a new major stationary source or major modification which the owner or operator proposes to construct in a Class III area, emissions from which would cause or contribute to air quality exceeding the maximum allowable increase that would be applicable if the area were a Class II area and where no standard of performance for new or modified sources has been promulgated for the source category by the U. S. Environmental Protection Agency, the department and the U. S. Environmental Protection Agency shall approve the determination of best available control technology.

Section 11. Exemptions from Impact Analysis. (1) With respect to a particular pollutant the requirements of Sections 12, 14 and 16 shall not apply to a proposed new major stationary source or major modification, if:

(a) The increase in allowable emissions of that pollutant from the source or modification would impact no Class I area and no area where an applicable increment is known to be violated; and

(b) The increase in allowable emissions of that pollutant from the source or modification would be less than fifty (50) tons per year, 1,000 pounds per day, or 100 pounds per hour, whichever is most restrictive; or

(c) The emissions of the pollutant are of a temporary nature including but not limited to those from a pilot plant, a portable facility, construction, or exploration; or

(d) A source is modified, but no increase in the net amount of emissions for any pollutant subject to an ambient air quality standard and no adverse air quality impact would occur.

(2) The hourly or daily rates set in subsection (1)(b) of this section shall apply only with respect to a pollutant for which an increment or ambient air quality standard, for a period of less than twenty-four (24) hours or for a period of twenty-four (24) hours as appropriate, has been established.

(3) For the purpose of subsection (1)(b) of this section in determining whether and to what extent a modification would increase allowable emissions, there shall be taken into account no emission reductions achieved elsewhere at the source at which the modification would occur.

(4) For the purpose of subsection (1)(d) of this section in determining whether and to what extent there would be an increase in the net amount of emissions of any pollutant subject to an ambient air quality standard from the source which is modified, there shall be taken into account all emission increases and decreases occurring at the source since the classification date of this regulation.

(5) The requirements of Sections 12, 14 and 16 shall not apply to a new major stationary source or major modification with respect to emissions from it which the owner or operator has shown to be fugitive soil.

Section 12. Air Quality Review. The owner or operator of the proposed new major source or modification must demonstrate that allowable emissions increases from the source or modification, in conjunction with all other applicable emissions increases or reductions, will not cause or contribute to air pollution in violation of:

(1) Any ambient air quality standard; or

(2) Any applicable maximum allowable increase over the baseline concentration in any area.

Section 13. Air Quality Models. All estimates of ambient concentrations required under Section 12 shall be subject to the provisions of 401 KAR 50:040.

Section 14. Monitoring. (1) The owner or operator of a proposed new major source or modification shall, after construction of the source or modification, conduct such ambient air quality monitoring as the department determines may be necessary to establish the effect which emissions from the source or modification may have, or is having, on air quality in any area which such emissions would affect.

(2) As necessary to determine whether emissions from the proposed new major source or modification would cause or contribute to a violation of an ambient air quality standard, any permit application submitted after August 7, 1978, shall include an analysis of continuous air quality monitoring data for any pollutant specified in Section 1 emitted by the source or modification for which an ambient air quality standard exists, except VOC. Sources emitting VOC shall include an analysis of continuous ozone air quality data. Such data shall relate to, and shall have been gathered over, the year preceding receipt of the complete application, unless the owner or operator demonstrates to the department's satisfaction that such data gathered over a portion or portions of that year or

another representative year would be adequate to determine that the source or modification would not cause or contribute to a violation of an ambient air quality standard.

Section 15. Source Information. (1) The owner or operator of a proposed new major source or modification shall submit all information necessary to perform any analysis or make any determination required under procedures established in accordance with this regulation.

(2) Such information shall include a complete application for a permit meeting the requirements of 401 KAR 50:035, Section 2.

(3) Upon request by the department, the owner or operator shall also provide information on:

(a) The air quality impact of the source of modification, including meteorological and topographical data necessary to estimate such impact; and

(b) The air quality impacts and the nature and extent of any or all general commercial, residential, industrial, and other growth which has occurred since the classification date, in the area the source or modification would affect.

Section 16. Additional Impact Analyses. (1) The owner or operator shall provide an analysis of the impairment to visibility, soils, and vegetation that would occur as a result of the new major source or modification and general commercial, residential, industrial, and other growth associated with the source or modification. The owner or operator need not provide an analysis of the impact on vegetation having no significant commercial or recreational value.

(2) The owner or operator shall provide an analysis of the air quality impact projected for the area as a result of general commerical, residential, industrial, and other growth associated with the new major source or modification.

Section 17. Sources Impacting Class I Areas; Additional Requirements: (1) Notice to the U. S. Environmental Protection Agency. The department shall transmit to the U. S. Environmental Protection Agency a copy of each permit application relating to a new major stationary source or major modification and provide notice to the U. S. Environmental Protection Agency of every action related to the consideration of such permit.

(2) Federal land manager. The federal land manager and the federal official charged with direct responsibility for management of Class I lands have an affirmative responsibility to protect the air quality related values (including visibility) of any such lands and to consider, in consultation with the U. S. Environmental Protection Agency whether a proposed new major source or modification would have an adverse impact on such values.

(3) Denial; impact on air quality related values. A federal land manager of any such lands may present to the department, after the department's preliminary determination required under procedures developed in accordance with Section 18, a demonstration that the emissions from the proposed new major source or modification would have an adverse impact on the air quality related values (including visibility) of any federal mandatory Class I lands, notwithstanding that the change in air quality resulting from emissions from such source or modification would not cause or contribute to concentrations which would exceed the maximum allowable increases for a Class I area. If the department concurs with such demonstration, the department shall not issue the permit.

(4) Class I variances. The owner or operator of a proposed new major source or modification may demonstrate to the federal land manager that the emissions from such source would have no adverse impact on the air quality related values of such lands (including visibility), notwithstanding that the change in air quality resulting from emissions from such source or modification would cause or contribute to concentrations which would exceed the maximum allowable increases for a Class I area. If the federal land manager concurs with such demonstration and so certifies to the department, the department may, provided that applicable requirements are otherwise met, issue the permit with such emission limitations as may be necessary to assure that emissions of sulfur dioxide and particulate matter would not exceed the maximum allowable increases over baseline concentration for such pollutants specified in Appendix B of this regulation.

(5) Sulfur dioxide variance:

(a) The owner or operator of a proposed new major source or modification which cannot be approved under procedures developed pursuant to subsection (4) of this section may demonstrate to the Governor of the Commonwealth of Kentucky that the source or modification cannot be constructed by reason of any maximum allowable increase for sulfur dioxide for periods of twenty-four (24) hours or less applicable to any Class I area and, in the case of federal mandatory Class I areas, that a variance under this clause would not adversely affect the air quality related values of the area (including visibility);

(b) The governor, after consideration of the federal land manager's recommendation (if any) and subject to his concurrence, may grant, after notice and an opportunity for a public hearing, a variance from such maximum allowable increase; and

(c) If such variance is granted, the department may issue a permit to such source or modification in accordance with provisions developed pursuant to subsection (7) of this section provided, that the applicable requirements of these regulations are otherwise met.

(6) Variance by the governor with the president's concurrence:

(a) The recommendations of the governor and the federal land manager shall be transferred to the president in any case where the governor recommends a variance in which the federal land manager does not concur;

(b) The president may approve the governor's recommendation if he finds that such variance is in the national interest; and

(c) If such a variance is approved, the department may issue a permit in accordance with provisions developed pursuant to the requirements of subsection (7) of this section provided, that the applicable requirements of these regulations are otherwise met.

(7) Emission limitations for presidential or gubernatorial variance. In the case of a permit issued under procedures developed pursuant to subsection (5) or (6) of this section, the new major source or modification shall comply with emission limitations as may be necessary to assure that emissions of sulfur dioxide from the source or modification would not (during any day on which the otherwise applicable maximum allowable increases are exceeded) cause or contribute to concentrations which would exceed the maximum allowable increases over the baseline concentration specified in Appendix C of this regulation and to assure that such emissions would not cause or contribute to concentrations which exceed the otherwise applicable maximum allowable increases for periods of ex-

posure of twenty-four (24) hours or less for more than eighteen (18) days, not necessarily consecutive, during any annual period.

Section 18. Consideration of Applications and Public Participation. Consideration of applications and public participation shall be in accordance with the procedures set forth in 401 KAR 50:035, Section 3.

Section 19. Prohibitions and Source Obligation. The prohibitions and source obligation set forth under 401 KAR 50:035, Sections 1 and 6, shall apply to any owner or operator of a new major source or modification subject to this regulation.

APPENDIX A TO 401 KAR 51:015

AMBIENT AIR INCREMENTS

Pollutant	Maximum Allowable Increase (micrograms per cubic meter)
CLASS I	
Particulate Matter:	
Annual geometric mean	5
24-hour maximum	10
Sulfur Dioxide:	
Annual arithmetic mean	2
24-hour maximum	5
3-hour maximum	25
CLASS II	
Particulate Matter:	
Annual geometric mean	19
24-hour maximum	37
Sulfur Dioxide:	
Annual arithmetic mean	20
24-hour maximum	91
3-hour maximum	512
CLASS III	
Particulate Matter:	
Annual geometric mean	37
24-hour maximum	75
Sulfur Dioxide:	
Annual arithmetic mean	40
24-hour maximum	182
3-hour maximum	700

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

APPENDIX B TO 401 KAR 51:015

AMBIENT AIR INCREMENTS FOR CLASS I VARIANCES

Pollutant	Maximum Allowable Increase (micrograms per cubic meter)
Particulate Matter:	
Annual geometric mean	19
24-hour maximum	37
Sulfur Dioxide:	
Annual arithmetic mean	20
24-hour maximum	91
3-hour maximum	325

APPENDIX C TO 401 KAR 51:015

AMBIENT AIR INCREMENTS FOR PRESIDENTIAL OR GUBERNATORIAL SO_2 VARIANCES

Maximum Allowable Increase
(Micrograms per cubic meter)

	Terrain areas	
Period of Exposure	Low	High
24-hour maximum	36	62
3-hour maximum	130	221

EUGENE F. MOONEY, Secretary
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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 51:050. Stationary sources; constructing in or impacting upon non-attainment areas.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement and control of air pollution. This regulation establishes requirements for the construction, modification and reconstruction of stationary sources within, or impacting upon, areas where the ambient air quality standards have not been attained.

Section 1. Applicability. The requirements of this regulation shall apply to new major sources or major modifications commenced on or after the classification date defined below that will cause or contribute to an exacerbation of any violation of the ambient air quality standards contained in 401 KAR 53:010 within any non-attainment area designated in 401 KAR 51:010 or areas otherwise shown to be exceeding applicable ambient standards.

Section 2. Definitions. As used in this regulation all terms not defined herein shall have the meaning given them in 401 KAR 50:010.

(1) "Potential to emit" means the maximum capacity to emit a pollutant in the absence of air pollution control equipment. Air pollution control equipment includes control equipment 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. Annual potential shall be based on the maximum annual rated capacity of the source, unless the source is subject to enforceable permit conditions which limit the annual hours of operation. Enforceable permit conditions on the type or amount of materials combusted or processed may be used in determining the potential emission rate of a source.

(2) "Major source" means any new or existing source for which the potential emission rate is equal to or greater than 100 tons per year of any of the following pollutants: particulate matter, sulfur oxides, nitrogen oxides, volatile organic compounds, or carbon monoxide.

(3) "Major modification" means any physical change in, change in the method of operation of, or addition to a stationary source which increases the potential emission rate of any air pollutant specified in subsection (2) of this section (including any not previously emitted and taking into account all accumulated increases in potential emissions occurring at the source since the classification date of this regulation or since the time of the last construction approval issued for the source pursuant to this regulation whichever time is more recent, and regardless of any emission reductions achieved elsewhere in the source) by 100 tons per year or more.

(a) A physical change shall not include routine maintenance, repair, and replacement of component parts.

(b) A change in the method of operation, unless limited by previous permit conditions, shall not include:

1. An increase in the production rate, if such increase does not exceed the operating design capacity of the source;
2. An increase in the hours of operation;
3. Use of an alternative fuel or raw material, if on December 21, 1976, the source was capable of accommodating such fuel or material;
4. Use of an alternative fuel or raw material by reason of an order, rule or natural gas curtailment plan under a federal statute or regulation; or
5. Change in ownership of a source.

(4) "Allowable emissions" means the emission rate calculated using the maximum rated capacity of the source (unless the source is subject to enforceable permit conditions which limit operating rate, or hours of operation, or both) and the most stringent of the following:

(a) Applicable new source performance standards set forth by the U. S. Environmental Protection Agency;

(b) Applicable emission limitations required by the department; or

(c) The emission rate specified as an enforceable permit condition.

(5) "Lowest achievable emission rate" means, for any source, that rate of emissions based on the following, whichever is more stringent:

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

(b) The most stringent emission limitation which is achieved in practice or can reasonably be expected to occur in practice by such class or category of source taking into consideration the pollutant which must be controlled.

(c) As applied to a modification, this term means the lowest achievable emission rate for the new or modified facilities within the source. In no event shall the application of this term permit a proposed new or modified source to emit any pollutant in excess of the amount allowable under applicable new source standards of performance as required by the department or the U. S. Environmental Protection Agency.

(6) "Fugitive soil" means particulate emissions composed of soil which is uncontaminated by pollutants resulting from industrial activity. Fugitive soil may include emissions from haul roads, wind erosion of exposed soil surfaces and soil storage piles and other activities in which soil is either removed, stored, transported or redistributed.

(7) "Reconstruction" shall be as defined in 401 KAR 50:010. A reconstructed source shall be treated as a new source for purposes of this regulation except that the use of an alternative fuel or raw material by reason of an order, rule or natural gas curtailment plan under a federal statute or regulation shall not result in the source being considered reconstructed.

(8) "VOC" means volatile organic compound(s).

(9) "Classification date" means the effective date of this regulation.

(10) "Urbanized area" means any area defined as such by the U. S. Department of Commerce, Bureau of Census.

(11) "Urban county" means any county which is a part of an urbanized area with a population of greater than 200,000 based upon the 1970 census. If any portion of a county is a part of such an urbanized area, then the entire county shall be classified as urban with respect to the regulations of the Division of Air Pollution.

(12) "Reasonable further progress" means annual incremental reductions in emissions of the applicable air pollutant which are sufficient, in the judgment of the department and the U. S. Environmental Protection Agency, to provide for attainment of the applicable ambient air quality standard by the date specified in 401 KAR 51:010, Section 2.

Section 3. Determination of Applicable Requirements. (1) Review of specified sources for air quality impact. For each proposed major new source or major modification with allowable emissions exceeding fifty (50) tons per year, 1,000 pounds per day, or 100 pounds per hour, whichever is the most restrictive, the department shall determine if the source will cause or contribute to an exacerbation of any violation of an ambient air quality standard for those pollutants for which the increased allowable emissions exceeds fifty (50) tons per year, 1,000 pounds per day, or 100 pounds per hour, although the review by the department may address other pollutants if it is deemed appropriate. The preceding hourly and daily rates shall apply only with respect to a pollutant for which an ambient air quality standard for a period less than twenty-four (24) hours or for a twenty-four (24) hour period, as appropriate, has been established.

(2) A proposed major source or major modification which would not exacerbate an existing violation of an ambient air quality standard may be approved without further analysis, provided such a source otherwise meets the requirements of the department.

(3) Where a source is constructed or modified in such manner that individually it does not emit more than the amounts specified in subsection (1) of this section and the increments have not been offset, the allowable emissions from all such construction or modifications granted a permit to construct after December 21, 1976, shall be added together and this regulation shall be applicable when a proposed construction or modification would cause the sum of the allowable emissions which have not been offset to equal or exceed fifty (50) tons per year, 1,000 pounds per day, or 100 pounds per hour. If the total increase in allowable emissions from the construction or modification would cause or contribute to a violation of an ambient air quality standard, all of the provisions of this regulation shall be applicable to each increment. If any of the increments have not previously been subject to Section 4(1) or any federal rule requiring the source to meet the lowest achievable emission rate, such determination shall consider the stage of construction of such construction or modifica-

tion and the ability of the source to install additional control equipment.

(4) For sources of sulfur dioxide, particulate matter, carbon monoxide and nitrogen oxides, the determination of whether a new major source or major modification will cause or contribute to a violation of an ambient air quality standard shall be made on a case-by-case basis using the source's allowable emissions in an approved atmospheric simulation model.

(5) For sources of nitrogen oxides, the initial determination of whether a new major source or major modification would cause or contribute to a violation of the ambient standard for nitrogen dioxide shall be made using an approved atmospheric simulation model assuming all the nitric oxide emitted is oxidized to nitrogen dioxide by the time the plume reaches ground level. The initial concentration estimates may be adjusted if adequate data are available to account for the expected oxidation rate.

(6) New major sources or major modification emitting volatile organic compounds (VOC) locating in areas classified as non-attainment for ozone pursuant to 401 KAR 51:010, or otherwise shown to be in violation of the ambient standard for ozone, shall be subject to the provisions of Section 4. In addition, such VOC sources located within a radius from the new source equivalent to thirty-six (36) hours VOC travel time (under wind conditions associated with high ozone concentrations) of a non-attainment ozone monitor shall also be subject to Section 4 if it would impact the monitor.

(7) The determination as to whether a new major source or major modification would cause or contribute to an exacerbation of any violation of an ambient air quality standard shall be made as of the start-up date.

(8) (a) A new major source or major modification locating in an attainment portion (or which will be in attainment as of the start-up date) of a designated non-attainment area pursuant to 401 KAR 51:010 may be exempt from the requirements of this regulation if the allowable emissions from the source or affected facility (non including any emission reductions achieved elsewhere in the source) would not cause the significance levels specified in Appendix A of this regulation to be exceeded in the actual area of non-attainment (as of the new source start-up date).

(b) If the new major source or modification would exceed the significance levels in the actual area of non-attainment, all requirements of this regulation shall be applicable except that the source may be exempt from the requirements of Section 4(3) if the requirements of Section 4(4) are otherwise fulfilled.

(c) It will be assumed initially that every locality in a designated non-attainment area will exceed the ambient standard (as of the new source start-up date), and that any new major source or modification locating in the area will significantly contribute to the violation. However, if the applicant or any other participant presents a substantial basis (including any necessary analysis or other demonstration) why that assumption is incorrect, then the department may reconsider the assumption.

(9) For areas designated as attaining the ambient standards or which cannot be classified as to their attainment status pursuant to 401 KAR 51:010, new major sources or major modifications locating in such areas which would exceed the significance levels contained in Appendix A of this regulation at any locality that does not meet the ambient air quality standard are subject to all the requirements of this regulation. Such sources may be exempt from the requirements of Section 4(3) if the requirements of Section 4(4) are otherwise fulfilled.

(10) Fugitive soil sources. Fugitive soil associated with new major sources or major modifications locating in an actual non-attainment area shall be subject to Section 4.

Section 4. Conditions for Approval of Sources. New major source or major modification which would contribute to concentrations which exceed an ambient air quality standard as of the source's proposed start-up date may be approved only if the following conditions are met:

(1) The new major source or major modification shall be required to meet an emission limitation which specifies the lowest achievable emission rate for such source.

(2) The applicant shall certify that all existing major sources owned or operated by the applicant (or any entity controlling, controlled by, or under common control with the applicant) in the Commonwealth of Kentucky are in compliance with all applicable emission limitations and standards (or are in compliance with an expeditious schedule which complies with the requirements of Section 6 or is contained in a court decree).

(3) Emissions from existing sources in the affected area of the proposed new major source or modifications (whether or not under the same ownership) shall be reduced such that there will be reasonable progress toward attainment of the applicable ambient air quality standard.

(4) The emission reductions shall be such as to provide a positive net air quality benefit in the affected area.

(5) Notwithstanding the size exemption in Section 3(1) for a new major source or major modification anywhere impacting upon an area designated as a non-attainment area under 401 KAR 51:010, permits applied for after June 30, 1979, shall specify that construction may not commence unless the U. S. Environmental Protection Agency has determined that the requirements of the department for the area meet the requirements of Part D, Title I, of the Clean Air Act.

(6) For a new major source or major modification of VOC or carbon monoxide proposed for construction or modification within any urban county which is designated non-attainment under 401 KAR 51:010 for ozone or carbon monoxide, the applicant shall provide an analysis for alternative sites, sizes, production processes and environmental control techniques for such proposed source which demonstrate that the benefits of the proposed source significantly outweigh the environmental and social costs imposed as a result of its location, construction or modification.

(7) The emission limitations for the new major source or major modification as well as any existing sources affected shall be enforceable in accordance with the mechanisms set forth in Section 6.

(8) The new major source or major modification may be exempt from some of the requirements of this section as provided under Section 5.

Section 5. Exemptions. (1) Exemptions from certain conditions. The department may exempt the following sources from Section 4(3) and (4):

(a) Resource recovery projects burning municipal solid waste;

(b) Sources which must switch fuels due to lack of adequate fuel supplies or a source which is required to be modified as a result of U. S. Environmental Protection Agency regulations or other federal statutes and no exemption from such regulation or statute is available to the

source. Such an exemption may be granted only if all the requirements of paragraph (c) of this subsection are met;

(c) The exemptions contained in this subsection for sources identified under paragraphs (a) and (b) shall be granted only if:

1. The applicant demonstrates that it made its best efforts to obtain sufficient emission reductions to comply with Section 4(3) and (4) and that such efforts were unsuccessful;

2. The applicant has secured all available emission offsets;

3. The applicant will continue to seek the necessary emissions offsets and apply them when they become available;

4. Such an exemption may result in the need to revise the applicable requirements of the department to provide additional control of existing sources so as to achieve reasonable progress towards attainment of the applicable ambient standards.

(2) Temporary emission sources, such as pilot plants, portable facilities which will be relocated after a short period of time, and emissions resulting from the construction phase of a new source, shall be exempt from Section 4(3) and (4).

(3) A new major source or major modification that emits volatile organic compounds may be exempt from Section 4(3) and (4) if the source owner can demonstrate that the emissions from the proposed source or modification will have virtually no effect upon any area within any urban county that exceeds the ambient standard for ozone. This exemption shall not apply to VOC sources located within a radius from the new source equivalent to thirty-six (36) hours VOC travel time (under wind conditions associated with high ozone concentrations) of an urban county which is designated non-attainment for ozone under 401 KAR 51:010.

(4) For sources of VOC or nitrogen oxides, fulfillment of the requirements of Section 4(3) will be considered adequate to meet the requirements of Section 4(4).

(5) Fugitive soil associated with major sources or major modifications locating in an actual non-attainment area shall be exempt from Section 4(4).

Section 6. Emission Offsets. (1) The baseline for determining credit for emission reductions or offsets will be the emission limitations required by the department which are in effect at the time the application to construct or modify a source is filed. Where the department requires certain hardware controls in lieu of an emission limitation, baseline allowable emissions shall be based on actual operating conditions for the previous two (2) year period in conjunction with the required hardware controls.

(2) Where the requirements of the department do not contain an emission limitation for a source or source category, the emission offset baseline involving such sources shall be the actual emissions determined under actual operating conditions for the previous two (2) year period. Where the emission limitations required by the department allow greater emissions than the potential emission rate of the source, emission offset credit will be allowed only for control below the potential emission rate.

(3) The emissions for determining emission offset credit involving an existing fuel combustion source will be the allowable emissions under the emission limitation requirements of the department for the type of fuel being burned at the time the new source or modification application is filed. If the existing source commits to switch to a different fuel at some future date, emission offset credit based on the allowable emissions for the fuels involved is not acceptable unless the permit is conditioned to require the use of a specified alternative control measure which would achieve the same degree of emission reduction should the source switch back to the original fuel at some later date.

(4) A source may be credited with emission reductions achieved by shutting down an existing source or permanently curtailing production or operating hours below baseline levels provided that the work force to be affected has been notified in writing of the proposed shutdown or curtailment, the environmental benefits accruing thereby and the economic benefits thereof. Source shutdowns and curtailments in production or operating hours occurring prior to the date the new source application is filed shall not be used for emission offset credit. However, where an applicant can establish that it shut down or curtailed production after August 7, 1977, or less than one (1) year prior to the date of permit application, whichever is earlier, and the proposed new source is a replacement for the shutdown or curtailment, credit for such shutdown or curtailment may be applied to offset emissions from the new source.

(5) (a) Offset credit shall be allowed for reduction in emissions for the same pollutant.

(b) No emission offset credit may be allowed for replacing one (1) volatile organic compound with another, unless the replacement compound is methane or ethane.

(6) For offsets approved after the classification date of this regulation, the department may allow offsets which exceed the reasonable further progress requirement of Section 4(3) to be "banked" for use in the future. The department, in allowing sources to retain control of banked emissions past June 30, 1979, shall exercise control of how and when such banked emissions are used. The department shall not approve the construction of a source using banked emissions if the new source would interfere with reasonable further progress of Section 4(3) toward attainment. To preserve banked emission reductions, the department shall identify them in a permit.

(7) Location of offsetting emissions. In the case of emission offsets involving volatile organic compounds (VOC), the offsets may be obtained from sources located anywhere which would impact upon the non-attainment area impacted by the proposed new source. For sulfur dioxide, particulate matter and carbon monoxide, the department shall require atmospheric simulation modeling to ensure that the emission offsets provide a positive net air quality benefit.

(8) Reasonable progress towards attainment. By the time of startup of operations of the major new source or major modification, the total allowable emissions from existing sources in the non-attainment area, from new or modified sources which are not major sources in the same area and from the proposed major source locating in the area taking into account all proposed offsets shall be sufficiently less than the total emissions from existing sources allowed in the area under the requirements of the department prior to the application for such permit to construct or modify so as to represent reasonable further progress towards attainment of the ambient air quality standards.

(9) Administrative procedures:

(a) The necessary emission offsets may be proposed either by the owner of the proposed source or the department. The emission reduction committed to must be enforceable by the department, and must be accomplished by the new source's start-up date. If emission reductions are to be obtained in a state that neighbors the Commonwealth of Kentucky for a new source to be located in the Com-

monwealth, the emission reductions committed to must be enforceable by the neighboring state and/or local agencies and the U. S. Environmental Protection Agency.

(b) Source initiated emission offsets. The owner and/or operator of a source may propose emission offsets which involve: reductions from sources controlled by the owner (internal emission offsets); and/or reductions from other sources (external emission offsets). As long as the emission offsets obtained represent reasonable progress toward attainment, they shall be acceptable. An internal emission offset will be considered enforceable if it is made a requirement of the department by inclusion as a condition of the new source permit. An external emission offset will not be accepted unless the affected source(s) is subject to a new emission limitation requirement of the department to ensure that its emissions will be reduced by a specified amount in a specified time. The form of the new emission limitation may be a department regulation, operating permit condition, consent or enforcement order, or any arrangement available to the department that is enforceable.

(c) Department initiated emission offsets. The department may commit to reducing emission from existing sources (including mobile sources) to provide a net air quality benefit in the impact area of the proposed new source so as to accommodate the proposed new source. The commitment must be in compliance with subsection (8) of this section and must be reflected in the emission limitation requirements of the department for the new and existing sources as required by paragraph (a) of this subsection.

APPENDIX A TO 401 KAR 51:050

POLLUTANT SIGNIFICANCE LEVELS

	Averaging Time				
Pollutant	Annual	24-Hour	8-Hour	3-Hour	1-Hour
SO_2	1.0ug/m^3	5.0ug/m^3		25.0ug/m^3	
TSP	1.0ug/m^3	5.0ug/m^3			
NO_2	1.0ug/m^3				
CO			0.5mg/m^3		2.0mg/m^3

No significance increments are applicable for VOC or ozone.

EUGENE F. MOONEY, Secretary
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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 53:005. General Provisions.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation is to provide for the establishment of general provisions, definitions and time schedules as they pertain to this chapter.

Section 1. Purpose and Intention. (1) The purpose of the primary ambient air quality standards is to define levels of air quality which the department judges are necessary, with an adequate margin of safety, to protect the public health. Secondary ambient air quality standards define levels of air quality which the department judges necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

(2) In the establishment of these standards, it is the intention of the department to prohibit further significant and avoidable deterioration of air quality in areas where air quality presently exists which is numerically equal to or less than the standards expressed herein.

(3) Except as provided in 401 KAR 51:010, no person shall violate, or interfere with the attainment or maintenance of, ambient air quality standards as specified in 401 KAR 53:010.

Section 2. Applicability. (1) The primary and secondary ambient air quality standards stated in 401 KAR 53:010 shall apply at any single point location.

(2) The secondary standard for odor shall be applicable only when the department receives a complaint with respect to odors from a source.

Section 3. Definitions. As used in this chapter, all terms not defined herein shall have the meaning given them in 401 KAR 50:010.

(1) "Ambient air" means that portion of the atmosphere, external to buildings, to which the general public has access.

(2) "Reference method" means a method of sampling and analyzing for an air pollutant as specified by Appendices A through F of 40 CFR 50, filed by reference in 401 KAR 50:015.

(3) "Equivalent method" means any method of sampling and analyzing of an air pollutant which can be demonstrated to the department's and the U. S. Environmental Protection Agency's satisfaction to have a consistent relationship to the reference method.

(4) "Ambient air quality standard" means 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 and/or control measures.

(5) "Annual mean" means an average determined on the basis of any consecutive twelve (12) month interval.

(6) "Three (3) hour average" means an average determined on the basis of any consecutive three (3) hour interval.

(7) "Eight (8) hour average" means an average determined on the basis of any consecutive eight (8) hour interval.

(8) "Twelve (12) hour average" means an average determined on the basis of any consecutive twelve (12) hour interval.

(9) "One (1) week average" means an average determined on the basis of any consecutive seven (7) day interval.

(10) "Maximum" means an ambient air quality standard which shall not be exceeded more than once per year providing that the averages exceeding the standard do not contain any common hourly data points.

(11) "Odor" means the property of an air contaminant that can be detected by the sense of smell.

(12) "Standard condition" means a reference temperature of twenty-five (25) degrees Celsius and a reference pressure of 760 millimeters of mercury.

(13) "Year" means any consecutive twelve (12) month period.

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 53:010. Ambient air quality standards.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 244.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation is to fix ambient air quality standards necessary for the protection of the public health, the general welfare, and the property and people in this Commonwealth.

Section 1. Ambient Air Quality Standards. The primary and secondary ambient air quality standards for sulfur oxides, particulate matter, carbon monoxide, photochemical oxidants, hydrocarbons, nitrogen dioxide, hydrogen sulfide, gaseous fluorides, total fluorides, and odors are specified in Appendix A of this regulation. Measurements will be by methods specified in Section 2.

Section 2. Methods of Measurement. For those air contaminants for which there are state ambient air quality standards that are the same as the national ambient air quality standards, measurements shall be made according to reference methods, or their equivalent methods. For other air contaminants for which there are state ambient air quality standards, measurements shall be made according to methods as prescribed by the department. The frequency of measurements for all air contaminants shall be prescribed by the department.

Section 3. 401 KAR 3:020 is hereby repealed.

(Appendix A on next page)

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APPENDIX A TO 401 KAR 53:010
AMBIENT AIR QUALITY STANDARDS

The following air contaminant concentrations shall apply at any single point location:

CONTAMINANT	PRIMARY STANDARD	SECONDARY STANDARD
Sulfur Oxides (Sulfur Dioxide) - $\mu g/m^3$		
Annual Arithmetic Mean, not to exceed	80 (0.03 ppm)	---
Maximum Twenty-Four-Hour Average	365 (0.14 ppm)*	---
Maximum Three-Hour Average	---	1300 (0.50 ppm)*
Particulate Matter - $\mu g/m^3$		
Annual Geometric Mean, not to exceed	75	60**
Maximum Twenty-Four-Hour Average	260*	150*
Carbon Monoxide - mg/m^3		
Maximum Eight-Hour Average	10 (9 ppm)*	Same as primary
Maximum One-Hour Average	40 (35 ppm)*	Same as primary
Photochemical Oxidants - $\mu g/m^3$* **		
(measured as ozone)		
Maximum One-Hour Average	160 (0.08 ppm)*	Same as primary
Hydrocarbons - $\mu g/m^3$**		
(measured as CH_4 and corrected for Methane)		
Maximum Three-Hour Morning Average (6-9 A.M.)	160 (0.24 ppm)*	Same as primary
Nitrogen Dioxide - $\mu g/m^3$		
Annual Arithmetic Mean, not to exceed	100 (0.05 ppm)	Same as primary
Hydrogen Sulfide - $\mu g/m^3$		
Maximum One-Hour Average	---	14 (0.01 ppm)*
Gaseous Fluorides - (expressed as HF) - $\mu g/m^3$		
Annual Arithmetic Mean, not to exceed	400 (0.5 ppm)	---
Maximum One-Month Average	---	0.50 (0.60 ppb)*
Maximum One-Week Average	---	0.80 (0.97 ppb)*
Maximum Twenty-Four-Hour Average	800 (1.0 ppm)*	2.86 (3.50 ppb)*
Maximum Twelve-Hour Average	---	3.68 (4.50 ppb)*
Total Fluorides - ppm		
Dry weight basis (as fluoride ion) in and on forage for consumption by grazing ruminants		
The following concentrations are not to be exceeded:		
Average concentration of monthly samples over growing season (not to exceed 6 consecutive months)	---	40 ppm (w/w)
Two-Month Average	---	60 ppm (w/w)
One-Month Average	---	80 ppm (w/w)
Odors:		At any time when 1 volume unit of ambient air is mixed with 7 volume units of odor-less air, the mixture must have no detectable odor.

Footnotes:

* This average is not to be exceeded more than once per year.

** This secondary annual standard is to be used as a guide in assessing implementation plans to achieve the twenty-four (24) hour standard.

*** The measurement of ozone must be corrected for interferences due to nitrogen oxides and sulfur dioxide.

**** This standard is to be used as a guide in devising implementation plans to achieve photochemical oxidant standards.

DEPARTMENT FOR NATURAL RESOURCES
AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 55:005. Significant harm criteria.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation defines those levels of pollutant concentration which must be prevented in order to avoid significant harm to the health of persons.

Section 1. Purpose. Notwithstanding any other provision of the regulations of the Division of Air Pollution, this chapter is designed to prevent ambient pollutant concentrations at any location from reaching the following levels which could cause significant harm to the health of persons.

(1) Sulfur dioxide: 2,620 micrograms per cubic meter (1.0 ppm), twenty-four (24) hour average.

(2) Particulate: 1,000 micrograms per cubic meter, twenty-four (24) hour average.

(3) Sulfur dioxide and particulate combined: product of sulfur dioxide micrograms per cubic meter (twenty-four (24) hour average) and the particulate micrograms per cubic meter (twenty-four (24) hour average) equal to 490,000.

(4) Carbon monoxide: 57.5 milligrams per cubic meter (fifty (50) ppm), eight (8) hour average. 86.3 milligrams per cubic meter (seventy-five (75) ppm), four (4) hour average. 144 milligrams per cubic meter (125 ppm), one (1) hour average.

(5) Ozone: 1,200 micrograms per cubic meter (0.6 ppm), one (1) hour average.

(6) Nitrogen dioxide: 3,750 micrograms per cubic meter (2.0 ppm), one (1) hour average. 938 micrograms per cubic meter (0.5 ppm), twenty-four (24) hour average.

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DEPARTMENT FOR NATURAL RESOURCES
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Division of Air Pollution

401 KAR 55:010. Episode criteria.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation defines those levels of pollutant concentrations which justify the proclamation of an air pollution alert, air pollution warning, and air pollution emergency.

Section 1. General. Conditions justifying the proclamation of an air pollution alert, air pollution warning, or air pollution emergency shall be deemed to exist whenever the department determines that the accumulation of air contaminants in any place is attaining or has attained levels which could, if such levels are sustained or exceeded, present a threat to the health of the public. In making this determination, the department shall be guided by the criteria specified in the following sections.

Section 2. Air Pollution Forecast. An internal watch by the department shall be activated by a national weather service advisory that an atmospheric stagnation advisory or special dispersion statement is in effect.

Section 3. Alert. An alert level is that concentration of pollutants at which first stage control actions are to begin. An alert will be declared when any one of the alert levels specified in Appendix A of this regulation is reached at any monitoring site and meteorological conditions are such that the pollutant concentrations can be expected to remain at these levels for twelve (12) or more hours or increase, or in the case of ozone the situation is likely to reoccur within the next twenty-four (24) hours, unless control actions are taken.

Section 4. Warning. A warning level indicates that air quality is continuing to degrade and that additional control actions are necessary. A warning will be declared when any one of the warning levels specified by Appendix A of this regulation is reached at any monitoring site and meteorological conditions are such that pollutant concentrations can be expected to remain at these levels for twelve (12) or more hours or increase, or in the case of ozone the situation is likely to reoccur within the next twenty-four (24) hours, unless control actions are taken.

Section 5. Emergency. An emergency level indicates that air quality is continuing to degrade to a level that should never be reached and that the most stringent control actions are necessary. An emergency will be declared when any one of the emergency levels specified in Appendix A of this regulation is reached at any monitoring site and meteorological conditions are such that this condition can be expected to continue for twelve (12) or more hours or increase, or in the case of ozone, the situation is likely to reoccur within the next twenty-four (24) hours, unless control actions are taken.

Section 6. Termination. Any status declared by the ap-

plication of these criteria will remain in effect until the criteria for that level are no longer met. At such time the next lower appropriate status will be assumed.

Section 7. An episode status based on the deterioration of air quality alone may be declared. An air stagnation advisory or special dispersion statement need not be in effect.

Section 8. An appropriate episode status shall be declared when any monitoring site records ambient air quality levels as designated in the episode criteria herein. The criteria shall be applied to individual monitoring sites and not to area wide air quality.

APPENDIX A

EPISODE CRITERIA

POLLUTANT	EPISODE STATUS ALERT	WARNING	EMERGENCY
Sulfur Dioxide			
24-Hour Average	800 ug/m^3 (0.3ppm)	1,600 ug/m^3 (0.6ppm)	2,100 ug/m^3 (0.8ppm)
Particulates			
24-Hour Average	375 ug/m^3	625 ug/m^3	875 ug/m^3
Sulfur Dioxide & Particulate Combined SO_2 ug/m^3 24-Hour Average x Particulate ug/m^3			
24-Hour Average	65,000	261,000	393,000
Carbon Monoxide			
8-Hour Average	17 ug/m^3 (15ppm)	34 ug/m^3 (30ppm)	46 ug/m^3 (40ppm)
Ozone			
1-Hour Average	300 ug/m^3 (0.15ppm)	800 ug/m^3 (0.4ppm)	1,000 ug/m^3 (0.5ppm)
Nitrogen Dioxide			
1-Hour Average	1,130 ug/m^3 (0.6ppm)	2,260 ug/m^3 (1.2ppm)	3,000 ug/m^3 (1.6ppm)
24-Hour Average	282 ug/m^3 (0.15ppm)	565 ug/m^3 (0.3ppm)	750 ug/m^3 (0.4ppm)

EUGENE F. MOONEY, Secretary
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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

405 KAR 55:015. Episode declaration.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation requires the owner or operator of an air contaminant source to take action to reduce air contaminant emissions whenever an air pollution alert, air pollution warning, or air pollution emergency is declared.

Section 1. General. (1) The intent of this regulation is to provide for the curtailment or reduction of processes or operations which emit an air contaminant or an air contaminant precursor whose criteria has been reached and are located in the affected area for which an episode level has been declared.

(2) Any person responsible for the operation of an air contaminant source as set forth in 401 KAR 55:020 shall take all actions required by this regulation irrespective of any economic hardship which may be incurred due to such actions.

(3) When the director determines that specified criteria are being approached and may be reached at one or more monitoring sites solely because of emissions from a limited number of sources or processes, he may act to prevent the attainment of the episode level by notifying such source(s) that the abatement strategies as described in 401 KAR 55:020 or the standby plans are required insofar as it applies to such source(s), and shall be put into effect until a satisfactory reduction in the ambient pollution concentration has been achieved.

Section 2. Air Pollution Alert. When the director declares an air pollution alert, any person responsible for the operation of a source of air contaminants as set forth in 401 KAR 55:020, Section 2, shall take all air pollution alert actions required for such sources of air contaminants and shall put into effect the preplanned strategy for an air pollution alert.

Section 3. Air Pollution Warning. When the secretary declares an air pollution warning, any person responsible for the operation of a source of air contaminants as set forth in 401 KAR 55:020, Section 3, shall take all air pollution warning actions required for such sources of air contaminants and shall put into effect the preplanned strategy for an air pollution warning.

Section 4. Air Pollution Emergency. When the Governor declares an air pollution emergency, any person responsible for the operation of a source of air contaminants described in 401 KAR 55:020, Section 4, shall take all air pollution emergency actions required for such sources of air contaminants and shall put into effect the preplanned strategy for an air pollution emergency.

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 55:020. Abatement strategies.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation sets forth in detail action that must be taken by air contaminant sources when an episode is declared.

Section 1. Standby Plans. (1) Any person responsible for the operation of a source of air pollutants as set forth in Sections 2 to 4, shall prepare standby plans for reducing the emission of air pollutants during episode periods (air pollution alert, warning, and emergency). Standby plans shall be designed to reduce or eliminate emission of air pollutants in accordance with the objectives set forth in Sections 2 to 4.

(2) Any person responsible for the operation of a source of air pollutants not set forth under subsection (1) of this section shall, when requested by the director in writing, prepare standby plans for reducing the emission of air pollutants during episode periods. Standby plans shall be designed to reduce or eliminate emissions of air pollutants in accordance with the objectives set forth in Sections 2 to 4.

(3) Standby plans as required under subsections (1) and (2) of this section shall be in writing and identify the source of air pollutants, the approximate amount of reduction of pollutants, and a brief description of the manner in which the reduction will be achieved during episode periods.

(4) During episode periods, standby plans required by this section shall be made available on the premises to any person authorized to enforce the provisions of the standby plan.

(5) Standby plans required by this section shall be submitted to the department upon request within thirty (30) days of the receipt of such request; such plans shall be subject to review and approval by the department. If in the opinion of the department, a plan does not effectively carry out the objectives as set forth in Sections 2 to 4, the department may disapprove it, state its reasons for disapproval and order the preparation of an amended plan within the time period specified in the order.

Section 2. Abatement Strategies; Alert Level. (1) General requirements:

(a) When an alert is declared on reaching the criteria level for particulates or sulfur dioxide, the following actions shall be taken:

1. There shall be no open burning by any person of tree waste, vegetation, refuse or debris.

2. The use of incinerators for the disposal of any form of solid waste shall be limited to the hours of 12 noon and 4 p.m., local time.

3. Persons operating fuel-burning equipment which requires boiler lancing or soot blowing shall perform such operations only between the hours of 12 noon and 4 p.m., local time.

(b) When an alert is declared based on reaching the criteria level for ozone, carbon monoxide or nitrogen dioxide, the following actions shall be taken:

1. Persons operating motor vehicles shall eliminate all unnecessary operations.

2. Persons operating petroleum loading and dry cleaning facilities shall reduce hydrocarbon emissions by twenty-five (25) percent.

3. Road repairs should be postponed to alleviate traffic congestion.

(2) Curtailment of particulate and/or sulfur dioxide sources. When an alert is declared based on reaching the criteria level for particulates and/or sulfur dioxide, control actions as described in paragraphs (a), (b), and (c) of this subsection shall be implemented.

(a) When the source of air contaminant is fuel fired electric power generating facilities: substantial reduction of emissions shall be accomplished by utilization of fuels having low ash and sulfur content; maximum utilization of mid-day (12 noon to 4 p.m.) atmospheric turbulence for boiler lancing and soot blowing; and diverting electric power generation to facilities outside of the alert area.

(b) When the source of air contaminant is fuel fired process steam generating facilities: substantial reduction of emissions shall be accomplished by utilization of fuels having low ash and sulfur content; maximum utilization of mid-day (12 noon to 4 p.m.) atmospheric turbulence for boiler lancing and soot blowing; and substantial reduction of steam load demands consistent with continuing plant operations.

(c) When the source of air contaminant is manufacturing industries including but not limited to the following classifications: primary metals industry, petroleum refining operations, chemical industries, mineral processing industries, paper and allied products and grain industry the following action shall be taken:

1. All operations that emit particulate or sulfur dioxide shall curtail, postpone, or defer production to the extent necessary to effect at least a twenty-five (25) percent reduction of the instantaneous particulate and/or sulfur dioxide emission levels existing at the time the alert is declared unless such reduction of the operation is demonstrated to the director's satisfaction to be impractical because of some physical limitation of the operation.

2. In addition, maximum reduction of emissions shall be accomplished by deferring trade waste disposal operations which emit solid particles, gas vapors, or malodorous substances; maximum reduction of heat load demands for processing consistent with subparagraph 1. of this paragraph; and maximum utilization of mid-day (12 noon to 4 p.m.) atmospheric turbulence for boiler lancing or soot blowing.

(3) Curtailment of sources of hydrocarbons and nitrogen oxides. When an alert is declared based on reaching the criteria level for ozone or nitrogen dioxide, control actions described in paragraphs (a), (b), and (c) of this subsection shall be implemented.

(a) When the source of air contaminant is fuel fired electric power generating facilities, substantial reduction of emissions shall be accomplished by diverting electric power generation to facilities outside of the alert area.

(b) When the source of air contaminant is fuel fired process steam generating facilities, substantial reduction of emissions shall be accomplished by substantial reduction of steam load demands consistent with continuing plant operation.

(c) When the source of air contaminant is manufacturing industry including but not limited to the following classifications: surface coating, degreasing, nitric acid production, fertilizer manufacturing and any other hydrocarbon or nitrogen oxide emitting sources; the following action shall be taken:

1. All operations that emit hydrocarbons and/or nitrogen oxides shall curtail, postpone, or defer production to the extent necessary to effect at least a twenty-five (25) percent reduction of the instantaneous hydrocarbon and/or nitrogen oxide emission levels existing at the time the alert is declared unless such reduction of the operation is demonstrated to the director's satisfaction to be impractical because of some physical limitation of the operation.

2. In addition, maximum reduction of emissions shall be accomplished by deferring trade waste disposal operations which emit solid particles, gas vapors or malodorous substances; and maximum reduction of heat load demand for processing consistent with subparagraph 1. of this paragraph.

(4) Curtailment of sources of carbon monoxide. When

an alert is declared based on reaching the criteria level for carbon monoxide, the control actions are: When the source of carbon monoxide is manufacturing industry including but not limited to the following classifications: primary metal industry, petroleum refining operations, and other carbon monoxide emitting sources; the following actions shall be taken: All operations that emit carbon monoxide shall curtail, postpone, or defer production to the extent necessary to effect at least a twenty-five (25) percent reduction of the instantaneous carbon monoxide emission levels existing at the time the alert is declared unless such reduction of the operation is demonstrated to the director's satisfaction to be impractical because of some physical limitations of the operation.

Section 3. Abatement Strategies: Warning Level. (1) General requirements:

(a) When a warning is declared on reaching the criteria level for particulates or sulfur dioxide the following actions shall be taken:

1. There shall be no open burning by any person of tree waste, vegetation, refuse or debris in any form.

2. The use of incinerators for the disposal of any form of solid waste or liquid waste shall be prohibited.

3. Persons operating fuel-burning equipment which requires boiler lancing or soot blowing shall perform such operations only between the hours of 12 noon and 4 p.m., local time.

(b) When a warning is declared based on reaching the criteria level for ozone, carbon monoxide or nitrogen dioxide the following actions shall be taken:

1. Persons operating motor vehicles must reduce operation by the use of car pools and increased use of public transportation and the elimination of unnecessary operation.

2. Persons operating petroleum loading and dry cleaning facilities shall reduce hydrocarbon emissions by fifty (50) percent.

3. Road repairs should be postponed to alleviate traffic congestion.

(2) Curtailment of particulate and/or sulfur dioxide sources. When a warning is declared based on reaching the criteria level for particulates and/or sulfur dioxide, control actions as described in paragraphs (a), (b), and (c) of this subsection shall be implemented.

(a) When the source of air contaminant is fuel fired electric power generating facilities: maximum reduction of emissions shall be accomplished by utilization of fuels having lowest ash and sulfur content; maximum utilization of mid-day (12 noon to 4 p.m.) atmospheric turbulence for boiler lancing and soot blowing; and diverting electric power generation to facilities outside of the warning area.

(b) When the source of air contaminant is fuel fired process steam generating facilities associated with manufacturing industries subject to paragraph (d) of this subsection: maximum reduction of emissions shall be accomplished by utilization of fuels having lowest available ash and sulfur content; maximum utilization of mid-day (12 noon to 4 p.m.) atmospheric turbulence for boiler lancing and soot blowing; making ready for use a plan of action to be taken if an emergency develops; and maximum reduction of steam load demands consistent with continuing plant operations.

(c) When the source of air contaminant is fuel fired process steam generating facilities not subject to paragraph (b) of this subsection: maximum reduction of emissions shall be accomplished by reducing heat and steam demands to absolute necessities consistent with preventing injury to persons or damage to equipment; and maximum utilization of mid-day (12 noon to 4 p.m.) atmospheric turbulence for boiler lancing and soot blowing.

(d) When the source of air comtaminant is manufacturing industries which may require considerable lead time for shutdown including but not limited to the following classifications: petroleum refining, chemical industries, primary metals industries, glass industries, paper and allied products; the source shall initiate action required to accomplish the following objectives:

1. Cease, curtail, postpone or defer production and all operations as is necessary to prepare for an immediate shutdown if an emergency is declared.

2. Effect a maximum reduction of emissions of air contaminants from manufacturing operations during the time period the warning is in effect by ceasing, curtailing, postponing, or deferring production and all operations.

3. Effect a maximum reduction of emissions by deferring trade waste disposal operations which emit solid particles, gases, vapors, or malodorous substances; maximum reduction of heat load demands for processing consistent with subparagraphs 1. and 2. of this paragraph; and maximum utilization of mid-day (12 noon to 4 p.m.) atmospheric turbulence for boiler lancing and soot blowing.

(e) When the source of air contaminant is manufacturing industries which may require relatively short lead times for shutdown including but not limited to the following classifications: primary metals industries, chemical industries, mineral processing industries and grain industry; the source shall initiate action required to accomplish the following objectives:

1. Elimination of air contaminants from manufacturing operations by ceasing, as expeditiously as possible, all operations which are not necessary for the prevention of injury to persons or damage to equipment; and by curtailing, as expeditiously as possible, all operations which are necessary for the prevention of injury to persons or damage to equipment to the maximum extent possible such that the curtailment does not cause injury to persons or damage to equipment.

2. Elimination of the emission of air contaminants by ceasing trade waste disposal processes which emit solid particles, gases, vapors, or malodorous substances; maximum reduction of heat load demands consistent with subparagraph 1. of this paragraph; and maximum utilization of mid-day (12 noon to 4 p.m.) atmospheric turbulence for boiler lancing or soot blowing.

(3) Curtailment of sources of hydrocarbons and nitrogen oxides. When a warning is declared based on reaching the criteria level for oxidants or nitrogen dioxide, control actions described in paragraphs (a) and (b) of this subsection shall be implemented.

(a) When the source of air contaminant is fuel fired electric power generating facilities or is fuel fired process steam generating facilities the provisions of subsection (2)(a) and (c) of this section shall apply.

(b) When the source of air contaminant is manufacturing industry including but not limited to the following classifications: surface coating, degreasing, nitric acid production, fertilizer manufacturing and any other hydrocarbon or nitrogen oxide emitting sources; the source shall initiate action required to accomplish the objectives specified in subsection (2)(e)1. and 2. of this section.

(4) Curtailment of sources of carbon monoxide. When a warning is declared based on reaching the criteria level for carbon monoxide, the control actions described as follows

shall be implemented: When the source of carbon monoxide is manufacturing industry including but not limited to the following classifications: primary metal industry, petroleum refining operations, and other carbon monoxide emitting sources, the source shall initiate action required to accomplish the objectives specified in subsection (2)(e)1. and 2. of this section.

Section 4. Abatement Strategies: Emergency Level. (1) General requirements. When an emergency is declared based on reaching the criteria level for any air contaminant the following shall apply:

(a) There shall be no open burning by any person of tree waste, vegetation, refuse, or debris in any form.

(b) The use of incinerators for the disposal of any form of solid or liquid waste shall be prohibited.

(c) All places of employment described below shall immediately cease operations:

1. Mining and quarrying of nonmetallic minerals.
2. All construction work except that which must proceed to avoid emergent physical harm.
3. All manufacturing establishments except those required to have in force an air pollution emergency plan.
4. Wholesale trade establishments: i.e., places of business primarily engaged in selling merchandise to retailers, to industrial, commercial, institutional or professional users, or to other wholesalers or acting as agents in buying merchandise for or selling merchandise to such persons or companies.
5. All offices of local, county, and state government including authorities, joint meetings, and other public bodies excepting such agencies which are determined by the chief administrative officer of local, county, or state government, authorities, joint meetings, and other public bodies to be vital for public safety and welfare and the enforcement of the provisions of this order.
6. All retail trade establishments except pharmacies and stores primarily engaged in the sale of food.
7. Banks; credit agencies other than banks; securities and commodities brokers, dealers, and exchanges and services; offices of insurance carriers, agents and brokers; real estate offices.
8. Wholesale and retail laundries, laundry services; photographic studios; beauty shops, barbershops, shoe repair shops.
9. Advertising offices; consumer credit reporting, adjustment and collection agencies; duplication, addressing, blueprinting; photocopying, mailing list and stenographic services; equipment rental services, commercial testing laboratories.
10. Automobile repair, automobile services, garages.
11. Establishments rendering amusement and recreation services including motion picture theaters.
12. Elementary and secondary schools, colleges, universities, professional schools, junior colleges, vocational schools, and public and private libraries.

(d) All commercial and manufacturing establishments not included in this order will institute such actions as will result in maximum reduction of air contaminants from their operations by ceasing, curtailing, or postponing operations which emit air contaminants, to the extent possible without causing injury to persons or damage to equipment.

(e) The use of motor vehicles is prohibited except in emergencies with the approval of local or state police.

(2) Source curtailment. When an emergency is declared based on reaching criteria level for any pollutant, any person responsible for the operation of a source of air contaminant listed below shall take all required control actions for this emergency level.

(a) When the source of air contaminant is fuel fired electric power generating facilities, maximum reduction of emissions shall be accomplished by utilization of fuels having lowest ash and sulfur content; maximum utilization of mid-day (12 noon to 4 p.m.) atmospheric turbulence for boiler lancing and soot blowing; and diverting electric power generation to facilities outside of emergency area.

(b) When the source of air contaminant is fuel fired process steam generating facilities; maximum reduction of emissions shall be accomplished by reducing heat and steam demands to absolute necessities consistent with preventing equipment damage or personal injury; maximum utilization of mid-day (12 noon to 4 p.m.) atmospheric turbulence for boiler lancing and soot blowing and taking the action called for in the emergency plan.

(c) When the source of air contaminant is manufacturing industries including but not limited to the following classifications: primary metal industries, petroleum refining, chemical industries, mineral processing industries, grain industry, paper and allied products, surface coating, degreasing, nitric acid production, and fertilizer manufacturing; the source shall initiate action required to accomplish the following objectives:

1. Elimination of air contaminants from manufacturing operations by ceasing, as expeditiously as possible, all operations which are not necessary for the prevention of injury to persons or damage to equipment; and curtailing, as expeditiously as possible all operations which are not necessary for the prevention of injury to persons or damage to equipment to the maximum extent possible without causing injury to persons or damage to equipment.
2. Elimination of the emission of air contaminants by ceasing trade waste disposal processes which emit solid particles, gases, vapors or malodorous substances; maximum utilization of mid-day (12 noon to 4 p.m.) atmospheric turbulence for boiler lancing or soot blowing; and maximum reduction of heat load demands consistent with subparagraph 1. of this paragraph.

Section 5. 401 KAR 3:030 is hereby repealed.

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 57:005. General provisions.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the defining of terms to be used in this chapter and the setting forth of prohibited activities, ad-

ministrative procedures, and other general provisions related to this chapter.

Section 1. Applicability. (1) The provisions of this chapter apply to the owner or operator of any stationary source as defined in Section 2.

(2) Any reports required to be submitted to the department under any regulation in this chapter which have been submitted by the owner or operator of a stationary source to the U. S. Environmental Protection Agency prior to the effective date of the applicable regulation will not be required to be submitted to the department unless specifically requested by the department.

Section 2. Definitions. As used in this chapter all terms not defined herein shall have the meaning given them in 401 KAR 50:010 or subsequent regulations within this chapter.

(1) "Alternative method" means any method of sampling and analyzing for an air pollutant which is not a reference method or an equivalent method but which has been demonstrated to the department's and the U. S. Environmental Protection Agency's satisfaction to produce, in specific cases, results adequate for its determination of compliance.

(2) "Commenced" means that an owner or operator has undertaken a continuous program of construction or modification or that an owner or operator has entered into a contractual obligation to undertake and complete, within a reasonable time, a continuous program of construction or modification.

(3) "Construction" means fabrication, erection, or installation of a stationary source.

(4) "Equivalent method" means any method of sampling and analyzing for an air pollutant which has been demonstrated to the department's and the U. S. Environmental Protection Agency's satisfaction to have a consistent and quantitatively known relationship to the reference method, under specified conditions.

(5) "Existing source" means any stationary source which is not a new source.

(6) "Modification" means any physical change in, or change in the method of operation of, a stationary source which increases the amount of any hazardous air pollutant emitted by such source or which results in the emission of any hazardous air pollutant not previously emitted, except that:

(a) Routine maintenance, repair, and replacement shall not be considered physical changes; and

(b) The following shall not be considered a change in the method of operation:

1. An increase in the production rate, if such increase does not exceed the operating design capacity of the stationary source or the maximum operating capacity specified as a condition to a permit issued by the department.

2. An increase in hours of operation provided that such increase does not violate a condition of a permit issued by the department.

(7) "New source" means any stationary source, the construction or modification of which is commenced on or after the classification date specified by the applicable standard.

(8) "Owner or operator" means any person who owns, leases, operates, controls, or supervises a stationary source.

(9) "Reference method" means any method of sampling and analyzing for an air pollutant, as specified in Appendix B to 40 CFR 61, filed by reference in 401 KAR 50:015.

(10) "Startup" means the setting in operation of a stationary source for any purpose.

(11) "Standard" means an emission standard for a hazardous air pollutant adopted under this chapter.

(12) "Stationary source" means any building, structure, facility, or installation which emits or may emit any air pollutant for which a standard has been prescribed under this chapter.

(13) "Compliance schedule" means the date or dates by which a source or category of sources is required to comply with the standards of this chapter and with any steps toward compliance which are set forth in a waiver of compliance under Section 9.

Section 3. Prohibited Activities. (1) After the classification date of any standard prescribed under this chapter, no owner or operator shall construct or modify any stationary source subject to such standard without first obtaining a construction permit in accordance with 401 KAR 50:035.

(2) After the classification date of any standard prescribed under this chapter, no owner or operator shall operate any new source without first obtaining an operating permit in accordance with 401 KAR 50:035.

(3) Ninety (90) days after the classification date of any standard prescribed under this chapter, no owner or operator shall operate any existing source without first obtaining an operating permit in accordance with 401 KAR 50:035, except under a waiver granted by the department in accordance with this regulation.

(4) No owner or operator subject to the provisions of this chapter shall fail to report, revise reports, or report source test results as required under this chapter.

Section 4. Determination of Construction or Modification. Upon written application by an owner or operator, the department will make a determination of whether actions taken or intended to be taken by such owner or operator constitute construction or modification or the commencement thereof within the meaning of this chapter. The department will within thirty (30) days of receipt of sufficient information to evaluate an application, notify the owner or operator of its determination.

Section 5. Application for a Permit for Construction or Modification. The owner or operator of any new source to which a standard prescribed under this chapter is applicable shall, prior to the date on which construction or modification is planned to commence, submit to the department an application for a permit for construction or modification of that source according to the provisions of 401 KAR 50:035.

Section 6. Approval by Department. (1) The department will, within ninety (90) days of receipt of sufficient information to evaluate an application under Section 5, notify the owner or operator of its intention to issue or deny the permit for construction or modification.

(2) If the department determines that a stationary source for which an application pursuant to Section 5 was submitted will, if properly operated, not cause emission in violation of a standard and will not be in violation of any air pollution regulation, the department will issue a permit for the construction or modification of such source.

(3) Prior to denying any application for a permit for construction or modification pursuant to this section, the department will notify the owner or operator making such

application of the department's intention to issue such denial, together with:

(a) Notice of the information and findings on which such intended denial is based; and

(b) Notice of opportunity for such owner or operator to present within such time limit as the department shall specify, additional information or arguments to the department prior to final action on such application.

(4) A final determination to deny any application for a permit will be in writing and will set forth the specific grounds on which such denial is based. Such final determination will be made within ninety (90) days after the final date specified for presentation, if no presentation is made.

(5) Neither the submission of an application for a permit nor the department's granting of a permit to construct or modify shall:

(a) Relieve an owner or operator of legal responsibility for compliance with any applicable provision of this chapter or of any other applicable federal, state, or local requirement; or

(b) Prevent the department from implementing or enforcing this chapter or taking any other action under Kentucky Revised Statutes.

Section 7. Notification of Startup. Any owner or operator of a source which has an initial startup after the classification date of a standard prescribed under this chapter shall furnish the department written notification as follows:

(1) A notification of the anticipated date of initial startup of the source not more than sixty (60) days nor less than thirty (30) days prior to such date.

(2) A notification of the actual date of initial startup of the source within fifteen (15) days after such date.

Section 8. Source Reporting and Waiver Request. The owner or operator of any existing source shall within ninety (90) days after the classification date of the applicable standard, provide in writing to the department the information specified in subsections (1) to (7) of this section. Changes in the information provided under this section shall be provided to the department within thirty (30) days after such change, except that if changes will result from modification of that source, as defined in Section 2(6), the provisions of Sections 5 and 6 are applicable. The format for reporting under this section is provided by the department. Advice on reporting the status of compliance may be obtained from the department.

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

(2) The location of the source.

(3) The types of hazardous pollutants emitted by the stationary source.

(4) A brief description of the nature, size, design, and method of operation of the stationary source including the operating design capacity of such source. Identify each point of emission for each hazardous pollutant.

(5) The average weight per month of the hazardous materials being processed by the source, over the last twelve (12) months preceding the date of the report.

(6) A description of the existing control equipment for each emission point:

(a) Primary control device(s) for each hazardous pollutant.

(b) Secondary control device(s) for each hazardous pollutant.

(c) Estimated control efficiency (percent) for each control device.

(7) A statement by the owner or operator of the source as to whether he can comply with the standards prescribed in this chapter within ninety (90) days of the classification date. The owner or operator of an existing source unable to operate in compliance with any standard prescribed under this chapter may request a waiver of compliance with such standard for a period not exceeding two (2) years from the classification date. Any request shall be in writing and shall include the following information:

(a) A description of the controls to be installed to comply with the standard.

(b) A compliance schedule, including the date each step toward compliance will be reached. Such list shall include as a minimum the following dates:

1. Date by which contracts for emission control systems or process modifications will be awarded, or date by which orders will be issued for the purchase of component parts to accomplish emission control or process modification;

2. Date of initiation of onsite construction or installation of emission control equipment or process change;

3. Date by which onsite construction or installation of emission control equipment or process modification is to be completed; and

4. Date by which final compliance is to be achieved.

(c) A description of interim emission control steps which will be taken during the waiver period.

Section 9. Waiver of Compliance. (1) Based on the information provided in any request under Section 8, or other information, the department and the U. S. Environmental Protection Agency may grant a waiver of compliance with a standard for a period not exceeding two (2) years from the classification date of such standard.

(2) Such waiver will be in writing and will:

(a) Identify the stationary source covered.

(b) Specify the termination date of the waiver. The waiver may be terminated at an earlier date if the conditions specified under paragraph (c) of this subsection are not met.

(c) Specify dates by which steps toward compliance are to be taken; and impose such additional conditions as the department and the U. S. Environmental Protection Agency determine to be necessary to assure protection of the health of persons during the waiver period.

(3) Prior to denying any request for a waiver pursuant to this regulation, the department and the U. S. Environmental Protection Agency will notify the owner or operator making such request of the department's and the agency's intention to issue such denial, together with:

(a) Notice of the information and findings on which the denial is based; and

(b) Notice of opportunity for such owner or operator to present, within such time limit as the deparment and the U. S. Environmental Protection Agency specify, additional information or arguments to the department and the agency prior to final action on such request.

(4) A final determination to deny any request for a waiver will be in writing and will set forth the specific grounds on which such denial is based. Such final determination will be made within ninety (90) days after presentation of additional information or arguments, or ninety (90) days after the final date specified for such presentation, if no presentation is made.

Section 10. Emission Tests and Monitoring. (1) Emission tests and monitoring shall be conducted and reported as set forth in this chapter and by Appendix B to 40 CFR 61.

(2) The owner or operator of a new source subject to this chapter and, at the request of the department, the owner or operator of an existing source subject to this chapter shall provide or cause to be provided emission testing facilities as follows:

(a) Sampling ports adequate for test methods applicable to such source.

(b) Safe sampling platform(s).

(c) Safe access to sampling platform(s).

(d) Utilities for sampling and testing equipment.

Section 11. Waiver of Emission Tests. (1) Emission tests may be waived upon written application to the department and the U. S. Environmental Protection Agency if, in their judgment, the source is meeting the standard, or if the source is operating under a waiver of compliance.

(2) If application for waiver of the emission test is made, such application shall accompany the information required by Section 8. The appropriate form is provided by the department.

(3) Approval of any waiver granted pursuant to this section shall not abrogate the department's authority or in any way prohibit the department from later canceling such waiver. Such cancellation will be made only after notice is given to the owner or operator of the source.

Section 12. Source Test and Analytical Methods. Methods 101, 102, 104, 106, and 107 in Appendix B to 40 CFR 61 shall be used for all source tests required under this chapter unless an equivalent method or an alternative method has been approved by the department and the U. S. Environmental Protection Agency. Where the test results using an alternative method do not adequately indicate whether a source is in compliance with a standard, the department may require the use of the reference method or its equivalent.

Section 13. Circumvention. No owner or operator subject to the provisions of this regulation shall build, erect, install, or use any article, machine, equipment, process or method, the use of which conceals an emission which would otherwise constitute a violation of an applicable standard. Such concealment includes, but is not limited to, the use of gaseous dilutants to achieve compliance with a visible emissions standard, the piecemeal carrying out of an operation to avoid coverage by a standard that applies only to operations larger than a specified size, and the failure to accurately and completely describe the stationary source as outlined in Section 8.

EUGENE F. MOONEY, Secretary
ADOPTED: November 14, 1978
RECEIVED BY LRC: November 14, 1978 at 9 a.m.
PUBLIC HEARING: Information is on page 335.

DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 57:010. Asbestos emissions.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of asbestos emissions.

Section 1. Applicability. The provisions of this regulation are applicable to those sources specified in Section 3.

Section 2. Definitions. Terms used in this section not defined herein shall have the meaning given to them in 401 KAR 57:005, or not defined therein shall have the meaning given to them in 401 KAR 50:010.

(1) "Asbestos" means actinolite, amosite, anthophylite, chrysotile, crocidolite, tremolite.

(2) "Asbestos material" means asbestos or any material containing asbestos.

(3) "Particulate asbestos material" means finely divided particles of asbestos material.

(4) "Asbestos tailings" means any solid waste product of asbestos mining or milling operations which contains asbestos.

(5) "Outside air" means the air outside buildings and structures.

(6) "Visible emissions" means any emissions which are visually detectable without the aid of instruments and which contain particulate asbestos material.

(7) "Asbestos mill" means any facility engaged in the conversion or any intermediate step in the conversion of asbestos ore into commercial asbestos. Outside storage of asbestos materials is not considered a part of such facility.

(8) "Commerical asbestos" means any variety of asbestos which is produced by extracting asbestos from asbestos ore.

(9) "Manufacturing" means the combining of commercial asbestos, or in the case of woven friction products the combining of textiles containing commercial asbestos, with any other material(s), including commercial asbestos, and the processing of this combination into a product as specified in Section 3.

(10) "Demolition" means the wrecking or removal of any load-supporting structural member and any related removing or stripping of friable asbestos materials.

(11) "Friable asbestos material" means any material that contains more than one (1) percent asbestos by weight and that can be reduced to powder, crumbled or pulverized, when dry, by hand pressure.

(12) "Control device asbestos waste" means any asbestos containing waste material that is collected in a pollution control device.

(13) "Renovation" means the removing or stripping of friable asbestos materials used on any pipe, duct, boiler, tank, reactor, turbine, furnace, or structural member. Operations in which load-supporting structural members are wrecked or taken out are excluded.

(14) "Planned renovation" means a renovation operation, or a number of such operations, in which the amount of friable asbestos material that will be removed or strip-

ped within a given period of time can be predicted. Operations that are individually non-scheduled are included, provided a number of such operations can be predicted to occur during a given period of time based on operating experience.

(15) "Emergency renovation" means a renovation operation that results from a sudden, unexpected event, and is not a planned renovation. Operations necessitated by non-routine failures of equiment are included.

(16) "Adequatcly wetted" means sufficiently mixed or coated with water or an aqueous solution to prevent dust emissions.

(17) "Removing" means taking out friable asbestos materials used on any pipe, duct, boiler, tank, reactor, turbine, furnace, or structural member from any building, structure, facility, or installation.

(18) "Stripping" means taking off friable asbestos materials from any pipe, duct, boiler, tank, reactor, turbine, furnace, or structural member.

(19) "Fabricating" means any processing of a manufactured product containing commercial asbestos, with the exception of processing at temporary sites for the construction or restoration of buildings, structures, facilities or installations.

(20) "Inactive waste disposal site" means any disposal site or portion thereof where additional asbestos-containing waste material will not be deposited and where the surface is not disturbed by vehicular traffic.

(21) "Active waste disposal site" means any disposal site other than an inactive site.

(22) "Roadways" means surfaces on which motor vehicles travel including, but not limited to, highways, roads, streets, parking areas, and driveways.

(23) "Asbestos-containing waste material" means any waste which contains commercial asbestos and is generated by a source subject to the provisions of this regulation, including asbestos mill tailings, control device asbestos waste, friable asbestos waste material, and bags or containers that previously contained commercial asbestos.

(24) "Classification date" means December 7, 1971.

Section 3. Emission Standard. (1) Asbestos mills: There shall be no visible emissions to the outside air from any asbestos mill except as provided in subsection (6) of this section.

(2) Roadways: The surfacing of roadways with asbestos tailings or with asbestos-containing waste that is generated by any source subject to subsections (3), (4), (5), or (8) of this section is prohibited, except for temporary roadways on an area of asbestos ore deposits. The deposition of asbestos tailings or asbestos containing waste on roadways covered with snow or ice is considered "surfacing."

(3) Manufacturing: There shall be no visible emissions to the outside air, except as provided in subsection (6) of this section, from any of the following operations if they use commercial asbestos or from any building or structure in which such operations are conducted:

(a) The manufacture of cloth, cord, wicks, tubing, tape, twine, rope, thread, yarn, roving, lap or other textile materials.

(b) The manufacture of cement products.

(c) The manufacture of fireproofing and insulating materials.

(d) The manufacture of friction products.

(e) The manufacture of paper, millboard, and felt.

(f) The manufacture of floor tile.

(g) The manufacture of paints, coatings, caulks, adhesives, sealants.

(h) The manufacture of plastics and rubber materials.

(i) The manufacture of chlorine.

(j) The manufacture of shotgun shells.

(k) The manufacture of asphalt concrete.

(4) Demolition and renovation: The requirements of this subsection shall apply to any owner or operator of a demolition or renovation operation who intends to demolish any institutional, commercial, or industrial building (including apartment buildings having more than four dwelling units), structure, facility, installation, or portion thereof which contains any pipe, duct, boiler, tank, reactor, turbine, furnace, or structural member that is covered or coated with friable asbestos materials, except as provided in paragraph (a) of this subsection; or who intends to renovate any institutional, commercial, or industrial building, structure, facility, installation, or portion thereof where more than eighty (80) linear meters (ca. 260 feet) of pipe covered or coated with friable asbestos material are stripped or removed, or more than fifteen (15) square meters (ca. 160 square feet) of friable asbestos materials used to cover or coat any duct, boiler, tank, reactor, turbine, furnace, or structural member are stripped or removed.

(a) The owner or operator of a demolition operation is exempted from the requirements of this subsection provided, the amount of friable asbestos materials in the building or portion thereof to be demolished is less than eighty (80) linear meters (ca. 260 feet) used on pipes, and less than fifteen (15) square meters (ca. 160 square feet) used on any duct, boiler, tank, reactor, turbine, furnace, or structural member, and the following notification requirements are met. Written notification shall be postmarked or delivered to the department at least twenty (20) days prior to commencement of demolition and shall include the information required by paragraph (b) of this subsection with the exception of the information required by subsection (4)(b)3,6,7,8 and 9 of this section, and shall state the measured or estimated amount of friable asbestos materials which is present. Techniques of estimation shall be explained.

(b) Written notice of intention to demolish or renovate shall be provideddemolition or renovation operation. Such notice shall be postmarked or delivered to the department at least ten (10) days prior to commencement of demolition, or as early as possible prior to commencement of emergency demolition subject to paragraph (g) of this subsection, and as early as possible prior to commencement of renovation. Such notice shall include the following information:

1. Name of owner or operator.
2. Address of owner or operator.
3. Description of the building, structure, facility, or installation to be demolished or renovated, including the size, age, and prior use of the structure, and the approximate amount of friable asbestos materials present.
4. Address or location of the building, structure, facility, or installation.
5. Scheduled starting and completion dates of demolition or renovation.
6. Nature of planned demolition or renovation and method(s) to be employed.
7. Procedures to be employed to meet the requirements of this paragraph and subsection (10) of this section.
8. The name and address or location of the waste disposal site where the friable asbestos waste will be deposited.
9. Name, title, and authority of the state or local governmental representative who has ordered a demolition

which is subject to paragraph (g) of this subsection.

(c) For purposes of determining whether a planned renovating operation constitutes a renovation within the meaning of this subsection, the amount of friable asbestos material to be removed or stripped shall be:

1. For planned renovating operations involving individually non-scheduled operations, the additive amount of friable asbestos material that can be predicted to be removed or stripped at a source over the maximum period of time for which a prediction can be made. The period shall be not less than thirty (30) days and not longer than one (1) year.

2. For each planned renovating operation not covered by subparagraph 1. of this paragraph, the total amount of friable asbestos material that can be predicted to be removed or stripped at a source.

(d) For purposes of determining whether an emegency renovating operation constitutes a renovation within the meaning of this subsection, the amount of friable asbestos material to be removed or stripped shall be the total amount of friable asbestos material that will be removed or stripped as a result of the sudden, unexpected event that necessitated the renovation.

(e) The following procedures shall be used to prevent emissions of particulate asbestos material to outside air:

1. Friable asbestos materials, used on any pipe, duct, boiler, tank, reactor, turbine, furnace, or structural member, shall be removed from any building, structure, facility or installation subject to this subsection. Such removal shall occur before wrecking or dismantling of any portion of such building, structure, facility, or installation that would break up the friable asbestos materials and before wrecking or dismantling of any other portion of such building, structure, facility, or installation that would preclude access to such materials for subsequent removal. Removal of friable asbestos materials used on any pipe, duct, or structural member which are encased in concrete or other similar structural material is not required prior to demolition, but such material shall be adequately wetted whenever exposed during demolition.

2. Friable asbestos materials used on pipes, ducts, boilers, tanks, reactors, turbines, furnaces, or structural members shall be adequately wetted during stripping, except as provided in subparagraphs 4. 6. or 7. of this paragraph.

3. Pipes, ducts, boilers, tanks, reactors, turbines, furnaces, or structural members that are covered or coated with friable asbestos materials may be taken out of any building, structure, facility, or installation subject to this subsection as units or in sections provided the friable asbestos materials exposed during cutting or disjointing are adequately wetted during the cutting or disjointing operation. Such units shall not be dropped or thrown to the ground, but shall be carefully lowered to ground level.

4. The stripping of friable asbestos materials used on any pipe, duct, boiler, tank, reactor, turbine, furnace, or structural member that has been removed as a unit or in sections as provided in subparagraph 3. of this paragraph shall be performed in accordance with subpargraph 2. of this paragraph. Rather than comply with the wetting requirement, a local exhaust ventilation and collection system may be used to prevent emissions to the outside air. Such local exhaust ventilation systems shall be designed and operated to capture the asbestos particulate matter produced by the stripping of friable asbestos materials. There shall be no visible emissions to the outside air from such local exhaust ventilation and collection systems except as provided in subsection (6) of this section.

5. All friable asbestos materials that have been removed or stripped shall be adequately wetted to ensure that such materials remain wet during all remaining stages of demolition or renovation and related handling operations. Such materials shall not be dropped or thrown to the ground or a lower floor. Such materials that have been removed or stripped more than fifty (50) feet above ground level, except those materials removed as units or in sections, shall be transported to the ground via dust-tight chutes or containers.

6. Except as specified below, the wetting requirements of this paragraph are suspended when the temperature at the point of wetting is below 0°C (32°F). When friable asbestos materials are not wetted due to freezing temperatures, such materials on pipes, ducts, boilers, tanks, reactors, turbines, furnaces, or structural members shall, to the maximum extent possible, be removed as units or in sections prior to wrecking. In no case shall the requirements of subparagraphs 4. or 5. of this paragraph be suspended due to freezing temperatures.

7. For renovation operations, local exhaust ventilation and collection systems may be used, instead of wetting as specified in subparagraph 2. of this paragraph to prevent emissions of particulate asbestos material to outside air when damage to equipment resulting from the wetting would be unavoidable. Upon request and supply of adequate information, the department will determine whether damage to equipment resulting from wetting to comply with the provisions of this subsection would be unavoidable. Such local exhaust ventilation systems shall be designed and operated to capture the asbestos particulate matter produced by the stripping removal of friable asbestos material. There shall be no visible emissions to the outside air from such local exhaust ventilation and collection systems except as provided in subsection (6) of this section.

(f) Sources subject to this subsection, demolition and renovation, are exempt from the requirements to obtain permits as set forth in 401 KAR 57:005.

(g) The demolition of a building, structure, facility, or installation, pursuant to an order of an authorized representative of a state or local government agency, issued because that building is structurally unsound and in danger of imminent collapse is exempt from all but the following requirements of subsection (4) of this section:

1. The notification requirements specified by subsection (4)(b) of this section.

2. The requirements on stripping of friable asbestos materials from previously removed units or sections as specified in subsection (4)(e)4. of this section.

3. The wetting, as specified by subsection (4)(e)5. of this section, of friable asbestos materials that have been removed or stripped.

4. The portion of the structure being demolished that contains friable asbestos materials shall be adequately wetted during the wrecking operation.

(5) Spraying: There shall be no visible emissions to the outside air from the spray-on application of materials containing more than one (1) percent asbestos, on a dry weight basis, used on equipment and machinery, except as provided in subsection (6) of this section. Materials sprayed on buildings, structures, structural members, pipes, and conduits shall contain less than one (1) percent asbestos on a dry weight basis.

(a) Sources subject to this subsection, spraying, are exempt from the requirements to obtain permits as set forth in 401 KAR 57:005.

(b) Any owner or operator who intends to spray asbestos

materials which contain more than one (1) percent asbestos on a dry weight basis on equipment and machinery shall report such intention to the department at least twenty (20) days prior to the commencement of the spraying operation. Such report shall include the following information:

1. Name of owner or operator.
2. Address of owner or operator.
3. Location of spraying operation.
4. Procedures to be followed to meet the requirements of this subsection.

(c) The spray-on application of materials in which the asbestos fibers are encapsulated with a bituminous or resinous binder during spraying and which are not friable after drying is exempted from the requirements of this subsection.

(6) Rather than meet the no-visible-emission requirements of subsections (1), (3), (4), (5), (8), (10), and (11) of this section, an owner or operator may elect to use the methods specified by Section 4 to clean emissions containing particulate asbestos material before such emissions escape to, or are vented to, the outside air.

(7) Where the presence of uncombined water is the sole reason for failure to meet the no-visible-emission requirement of subsections (1), (3), (4), (5), (8), (10), or (11) of this section, such failure shall not be a violation of such emission requirements.

(8) Fabricating: There shall be no visible emissions to the outside air, except as provided in subsection (6) of this section, from any of the following operations if they use commercial asbestos or from any building or structure in which such operations are conducted.

(a) The fabrication of cement building products.

(b) The fabrication of friction products, except those operations that primarily install asbestos friction materials on motor vehicles.

(c) The fabrication of cement or silicate board for ventilation hoods; ovens; electrical panels; laboratory furniture; bulkheads, partitions and ceilings for marine construction; and flow control devices for the molten metal industry.

(9) Insulating: Molded insulating materials which are friable and wet-applied insulating materials which are friable after drying, installed after the classification date of this regulation, shall contain no commercial asbestos. The provisions of this subsection do not apply to insulating materials which are spray applied; such materials are regulated under subsection (5) of this section.

(10) Waste disposal for manufacturing, fabricating, demolition, renovation and spraying operations: The owner or operator of any source covered under the provisions of subsections (3), (4), (5), or (8) of this section shall meet the following standards:

(a) There shall be no visible emissions to the outside air, except as provided in paragraph (c) of this subsection, during the collection; processing, including incineration; packaging; transporting; or deposition of any asbestos-containing waste material which is generated by such source.

(b) All asbestos-containing waste material shall be deposited at waste disposal sites which are operated in accordance with the provisions of Section 6.

(c) Rather than meet the requirement of paragraph (a) of this subsection, an owner or operator may elect to use either of the disposal methods specified under paragraphs (d) and (e) of this subsection, or an alternative disposal method which has received prior approval by the department.

(d) Treatment of asbestos-containing waste material with water.

1. Control device asbestos waste shall be thoroughly mixed with water into a slurry and other asbestos-containing waste material shall be adequately wetted. There shall be no visible emissions to the outside air from the collection, mixing and wetting operations, except as provided in subsection (6) of this section.

2. After wetting, all asbestos-containing waste material shall be sealed into leak-tight containers while wet, and such containers shall be deposited at waste disposal sites which are operated in accordance with the provisions of Section 6.

3. The containers specified under subparagraph 2. of this paragraph shall be labeled with a warning label that states:

Caution
Contains Asbestos
Avoid Opening or Breaking Container
Breathing Asbestos is Hazardous
to Your Health

Alternatively, warning labels specified by occupational safety and health standards of the Department of Labor, Occupational Safety and Health Administration (OSHA) may be used.

(e) Processing of asbestos-containing waste material into non-friable forms:

1. All asbestos-containing waste material shall be formed into non-friable pellets or other shapes and deposited at waste disposal sites which are operated in accordance with the provisions of Section 6.

2. There shall be no visible emissions to the outside air from the collection and processing of asbestos-containing waste material, except as specified in subsection (6) of this section.

(f) For the purposes of this subsection, the term "all asbestos-containing waste material" as applied to demolition and renovation operations covered by subsection (4) of this section includes only friable asbestos waste and control device asbestos waste.

(11) Waste disposal for asbestos mills. The owner or operator of any source covered under the provisions of subsection (1) of this section shall meet the following standards:

(a) There shall be no visible emissions to the outside air, except as provided in paragraph (c) of this subsection during the collection, processing, packaging, transporting or deposition of any asbestos-containing waste material which is generated by such source.

(b) All asbestos-containing waste material shall be deposited at waste disposal sites which are operated in accordance with the provisions of Section 6.

(c) Rather than meet the requirement of paragraph (a) of this subsection, an owner or operator may elect to meet the following requirements in paragraphs (d) and (e) of this subsection, or use an alternative disposal method which has received prior approval by the department.

(d) There shall be no visible emissions to the outside air from the transfer of control device asbestos waste to the tailings conveyor, except as provided in subsection (6) of this section. Such waste shall be subsequently processed either as specified in paragraph (e) of this subsection or as specified in subsection (10)(c) of this section.

(e) All asbestos-containing waste material shall be adequately mixed, with a wetting agent recommended by the manufacturer of the agent to effectively wet dust and tailings, prior to deposition at a waste disposal site. Such

agent shall be used as recommended for the particular dust by the manufacturer of the agent. There shall be no discharge of visible emissions to the outside air from the wetting operation except as specified in subsection (6) of this section. Wetting may be suspended when the ambient temperature at the waste disposal site is less than minus 9.5°C (ca. fifteen (15) °F). The ambient air temperature shall be determined by an appropriate measurement method with an accuracy of plus or minus one (1) °C (plus or minus two (2) °F) and recorded at least at hourly intervals during the period that the operation of the wetting system is suspended. Records of such temperature measurements shall be retained at the source for a minimum of two (2) years and made available for inspection by the department.

(12) The owner of any inactive waste disposal site, which was operated by sources covered under subsections (1), (3), or (8) of this section and where asbestos-containing waste material produced by such sources was deposited, shall meet the following standards:

(a) There shall be no visible emissions to the outside air from an inactive waste disposal site subject to this paragraph, except as provided in paragraph (e) of this subsection.

(b) Warning signs shall be displayed at all entrances, and along the property line of the site or along the perimeter of the sections of the site where asbestos-containing waste material was deposited, at intervals of 100 m (ca. 330 ft.) or less, except as specified in paragraph (d) of this subsection. Signs shall be posted in such a manner and location that a person may easily read the legend. The warning signs shall be twenty (20) inches by fourteen (14) inches upright format signs and conform to the requirements specified in this subsection. The signs shall display the following legend in the lower panel, with letter sizes and styles of a visibility at least equal to those specified in this paragraph.

LEGEND
ASBESTOS WASTE DISPOSAL SITE
Do Not Create Dust
Breathing Asbestos Is Hazardous
to Your Health
Notation
1″ Sans Serif, Gothic or Block
¾″ Sans Serif, Gothic or Block
14 Point Gothic

Spacing between lines shall be at least equal to the height of the upper of the two (2) lines.

(c) The perimeter of the site shall be fenced in a manner adequate to deter access by the general public, except as specified in paragraph (d) of this subsection.

(d) Warning signs and fencing are not required where the requirements of subsection (12)(e)1 or 2 of this section are met, or where a natural barrier adequately deters access by the general public. Upon request and supply of appropriate information, the department will determine whether a fence or a natural barrier adequately deters access to the general public.

(e) Rather than meet the requirement of paragraph (a) of this subsection, an owner may elect to meet the requirements of this paragraph or may use an alternative control method for emissions from inactive waste disposal sites which has received prior approval by the department.

1. The asbestos-containing waste material shall be covered with at least fifteen (15) centimeters (ca. six (6) inches) of compacted non-asbestos-containing material, and a cover of vegetation shall be grown and maintained on the area adequate to prevent exposure of the asbestos-containing waste material; or

2. The asbestos-containing waste material shall be covered with at least sixty (60) centimeters (ca. two (2) feet) of compacted non-asbestos-containing material and maintained to prevent exposure of the asbestos-containing waste; or

3. For inactive waste disposal sites for asbestos tailings, a resinous or petroleum-based dust suppression agent which effectively binds dust and controls wind erosions shall be applied. Such agent shall be used as recommended for the particular asbestos tailings by the dust suppression agent manufacturer. Other equally effective dust suppression agents may be used upon prior approval by the department. For purposes of this subparagraph, waste crankcase coil is not considered a dust suppression agent.

Section 4. Air Cleaning. If air cleaning is elected, as provided by Section 3(4)(e)4 and (6), the requirements of this section shall be met.

(1) Fabric filter collection devices shall be used, except as noted in subsections (2) and (3) of this section. Such devices shall be operated at a pressure drop of no more than four (4) inches water gauge, as measured across the filter fabric. The airflow permeability, as determined by a method specified by the department, must not exceed thirty (30) cubic feet/min/square foot for woven fabrics or thirty-five (35) cubic feet/min/square foot for felted fabrics except that forty (40) cubic feet/min/square foot for woven and forty-five (45) cubic feet/min/square foot for felted fabrics is allowed for filtering air from asbestos ore dryers. Each square yard of felted fabric shall weigh at least fourteen (14) ounces and be at least one-sixteenth (1/16) inch thick throughout. Synthetic fabrics shall not contain fill yarn other than that which is spun.

(2) If the use of fabric filters creates a fire or explosion hazard, the department may authorize the use of wet collectors designed to operate with a unit contacting energy of at least forty (40) inches water gauge pressure.

(3) The department may authorize the use of filtering equipment other than that described in subsections (1) and (2) of this section if the owner or operator demonstrates to the satisfaction of the department that the filtering of particulate asbestos material is equivalent to that described equipment.

(4) All air-cleaning equipment authorized by this section shall be properly installed, used, operated, and maintained. Bypass devices may be used only during upset or emergency conditions and then only for so long as it takes to shut down the operation generating the particulate asbestos material.

Section 5. Reporting. The owner or operator of any existing source to which this section is applicable shall, within ninety (90) days after the classification date of this regulation provide the following information to the department:

(1) A description of the emission control equipment used for each process.

(2) If a fabric filter device is used to control emissions, the pressure drop across the fabric filter in inches water gauge.

(a) If the fabric filter device utilizes a woven fabric, the airflow permeability in cubic feet/min/square foot; and if the fabric is synthetic, indicate whether the fill yarn is spun or not spun.

(b) If the fabric filter device utilizes a felted fabric the density in ounces/square yard, the minimum thickness in

inches, and the airflow permeability in cubic feet/min/square foot.

(3) For sources subject to Sections 3(10) and (11):

(a) A brief description of each process that generates asbestos-containing waste material.

(b) The average weight of asbestos-containing waste material disposed of, measured in kg/day.

(c) The emission control methods used in all stages of waste disposal.

(d) The type of disposal site or incineration site used for ultimate disposal, the name of the site operator and the name and location of the disposal site.

(4) For sources subject to Section 3(12):

(a) A brief description of the site.

(b) The method or methods used to comply with the standard, or alternative procedures to be used.

(5) Such information shall accompany the information required by 401 KAR 57:005, Section 8. The information described in this section shall be reported using a format provided by the department.

Section 6. Waste Disposal Sites. In order to be an acceptable site for disposal of asbestos containing waste material under Section 3(10) and (11), an active waste disposal site shall meet the requirements of this section.

(1) There shall be no visible emissions to the outside air from any active waste disposal site where asbestos-containing waste material has been deposited, except as provided in subsection (5) of this section.

(2) Warning signs shall be displayed at all entrances, and along the property line of the site or along the perimeter of the sections of the site where asbestos-containing waste material is deposited, at intervals of 100 m (ca. 330 ft.) or less except as specified in subsection (4) of this section. Signs shall be posted in such a manner and location that a person may easily read the legend. The warning signs shall be twenty (20) inches by fourteen (14) inches upright format signs and conform to the requirements specified in this subsection. The signs shall display the legend outlined in Section 3(12)(b).

(3) The perimeter of the disposal site shall be fenced in order to adequately deter access to the general public except as specified in subsection (4) of this section.

(4) Warning signs and fencing are not required where the requirements of subsection (5)(a) of this section are met, or where a natural barrier adequately deters access to the general public. Upon request and supply of appropriate information, the department will determine whether a fence or a natural barrier adequately deters access to the general public.

(5) Rather than meet the requirement of subsection (1) of this section, an owner or operator may elect to meet the requirements of Section 5(5)(a) or (b), or may use an alternative control method for emissions from active waste disposal sites which has received prior approval by the department.

(a) At the end of each operating day, or at least once every twenty-four (24) hour period while the site is in continuous operation, the asbestos-containing waste material which was deposited at the site during the operating day or previous twenty-four (24) hour period shall be covered with at least fifteen (15) centimeters (ca. six (6) inches) of compacted non-asbestos-containing material.

(b) At the end of each operating day, or at least once every twenty-four (24) hour period while the disposal site is in continuous operation, the asbestos-containing waste material which was deposited at the site during the operating day or previous twenty-four (24) hour period shall be covered with a resinous or petroleum-based dust suppression agent which effectively binds dust and controls wind erosion. Such agent shall be used as recommended for the particular dust by the dust suppression agent manufacturer. Other equally effective dust suppression agents may be used upon prior approval by the department. For purposes of this paragraph, waste crankcase oil is not considered a dust suppression agent.

EUGENE F. MOONEY, Secretary
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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 57:015. Beryllium emissions.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of beryllium emissions.

Section 1. Applicability. The provisions of this regulation are applicable to the following stationary sources:

(1) Extraction plants, ceramic plants, foundries, incinerators, and propellant plants which process beryllium ore, beryllium, beryllium oxide, beryllium alloys, or beryllium-containing waste.

(2) Machine shops which process beryllium, beryllium oxides, or any alloy when such alloy contains more than five (5) percent beryllium by weight.

Section 2. Definitions. Terms used in this section not defined herein shall have the meaning given to them in 401 KAR 57:005, or not defined therein shall have the meaning given to them in 401 KAR 50:010.

(1) "Beryllium" means the element beryllium. Where weights or concentrations are specified, such weights or concentrations apply to beryllium only, excluding the weight or concentration of any associated elements.

(2) "Extraction plant" means a facility chemically processing beryllium ore to beryllium metal alloy, or oxide, or performing any of the intermediate steps in these processes.

(3) "Beryllium ore" means any naturally occurring material mined or gathered for its beryllium content.

(4) "Machine shop" means a facility performing cutting, grinding, turning, honing, milling, deburring, lapping, electrochemical machining, etching, or other similar operations.

(5) "Ceramic plant" means a manufacturing plant producing ceramic items.

(6) "Foundry" means a facility engaged in the melting or casting of beryllium metal or alloy.

(7) "Beryllium-containing waste" means material contaminated with beryllium and/or beryllium compounds us-

ed or generated during any process or operation performed by a source subject to this regulation.

(8) "Incinerator" means any furnace used in the process of burning waste for the primary purpose of reducing the volume of the waste by removing combustible matter.

(9) "Propellant" means a fuel and oxidizer physically or chemically combined which undergoes combustion to provide rocket propulsion.

(10) "Beryllium alloy" means any metal to which beryllium has been added in order to increase its beryllium content and which contains more than 0.1 percent beryllium by weight.

(11) "Propellant plant" means any facility engaged in the mixing, casting or machining of propellants.

(12) "Classification date" means December 7, 1971.

Section 3. Emission Standard. (1) Emissions to the atmosphere from stationary sources subject to the provisions of this section shall not exceed ten (10) grams of beryllium over a twenty-four (24) hour period, except as provided in subsection (2) of this section.

(2) Rather than meet the requirements of subsection (1) of this section, an owner or operator may request approval from the department to meet an ambient concentration limit on beryllium in the vicinity of the stationary source of 0.01 micrograms per cubic meter, averaged over a thirty (30) day period. Approval of such requests may be granted by the department provided that:

(a) At least three (3) years of data is available which in the judgment of the department demonstrates that the future ambient concentrations of beryllium in the vicinity of the stationary source will not exceed 0.01 micrograms per cubic meter, averaged over a thirty (30) day period. Such three (3) year period shall be the three (3) years ending thirty (30) days before the classification date of this regulation.

(b) The owner or operator requests such approval in writing within thirty (30) days after the classification date of this regulation.

(c) The owner or operator submits a report to the department within forty-five (45) days after the classification date of this regulation which includes the following information:

1. Description of sampling method including the method and frequency of calibration.
2. Method of sample analysis.
3. Averaging technique for determining thirty (30) day average concentrations.
4. Number, identity, and location (address, coordinates, or distance and heading from plant) of sampling sites.
5. Ground elevations and height above ground of sampling inlets.
6. Plant and sampling area plots showing emission points and sampling sites. Topographic features significantly affecting dispersion including plant building heights and locations shall be included.
7. Information necessary for estimating dispersion including stack height, inside diameter, exit gas temperature, exit velocity or flow rate and beryllium concentrations.
8. A description of data and procedures (methods or models) used to design the air sampling network (i.e. number and location of sampling sites).
9. Air sampling data indicating beryllium concentrations in the vicinity of the stationary source for the three (3) year period specified in Section 3(2)(a). This data shall be presented chronologically and include the beryllium concentration and location of each individual sample taken by the network and the corresponding thirty (30) day average beryllium concentrations.

(d) Within sixty (60) days after receiving such report, the department shall notify the owner or operator in writing whether approval is granted or denied. Prior to denying approval to comply with the provisions of this subsection, the department will consult with representatives of the air contaminant source for which the demonstration report was submitted.

(3) The burning of beryllium and/or beryllium-containing waste, except propellants, is prohibited except in incinerators, emissions from which must comply with the standard specified in this regulation.

Section 4. Stack Sampling. (1) Each owner or operator required to comply with Section 3(1) shall test emissions from his source as set forth by the department and the U. S. Environmental Protection Agency as follows:

(a) Within ninety (90) days of the classification date of this regulation in the case of an existing source.

(b) Within ninety (90) days of startup in the case of a new source.

(2) The department shall be notified at least thirty (30) days prior to an emission test so that it may observe the tests.

(3) Samples shall be taken over such period or periods as are necessary to accurately determine the maximum emissions which will occur in any twenty-four (24) hour period. Where emissions depend upon the relative frequency of operation of different types of processes, operating hours, operating capacities, or other factors, the calculation of maximum twenty-four (24) hour period emissions shall be based on that combination of factors which are likely to occur during the subject period and which result in the maximum emissions. No changes in the operation shall be made, which would potentially increase emissions above that determined by the most recent source test, until a new emission level has been estimated by calculation and the results reported to the department.

(4) All samples shall be analyzed and beryllium emissions shall be determined within thirty (30) days after the source test. All determinations shall be reported to the department.

(5) Records of emission test results and other data needed to determine total emissions shall be retained at the source and made available, for inspection by the department, for a minimum of two (2) years.

Section 5. Air Sampling. (1) Stationary sources subject to Section 3(2) shall locate air sampling sites in accordance with a plan approved by the department. Such sites shall be located in such a manner calculated to detect maximum concentrations of beryllium in the ambient air.

(2) All monitoring sites shall be operated continuously except for a reasonable time allowance for instrument maintenance and calibration, for changing filters, or for replacement of equipment needing major repair.

(3) Filters shall be analyzed and concentrations calculated within thirty (30) days after filters are collected. Records of concentrations at all sampling sites and other data needed to determine such concentrations shall be retained at the source and made available, for inspection by the department, for a minimum of two (2) years.

(4) Concentrations measured at all sampling sites shall

be reported to the department every thirty (30) days.
(5) The department may at any time require changes in, or expansion of, the sampling network.

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 57:020. Mercury emissions.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of mercury emissions.

Section 1. Applicability. The provisions of this regulation are applicable to those stationary sources which process mercury ore to recover mercury, or use mercury chlor-alkali cells to produce chlorine gas and alkali metal hydroxide, or incinerate or dry wastewater treatment plant sludge.

Section 2. Definitions. Terms used in this section not defined herein shall have the meaning given to them in 401 KAR 57:005 or, not defined therein, shall have the meaning given to them in 401 KAR 50:010.
(1) "Mercury" means the element mercury, excluding any associated elements, and includes mercury in particulates, vapors, aerosols, and compounds.
(2) "Mercury ore" means a mineral mined specifically for its mercury content.
(3) "Mercury ore processing facility" means a facility processing mercury ore to obtain mercury.
(4) "Condenser stack gases" mean the gaseous effluent evolved from the stack of processes utilizing heat to extract mercury metal from mercury ore.
(5) "Mercury chlor-alkali cell" means a device which is basically composed of an electrolyzer section and a denuder (decomposer) section and utilizes mercury to produce chlorine gas, hydrogen gas, and alkali metal hydroxide.
(6) "Mercury chlor-alkali electrolyzer" means an electrolytic device which is part of a mercury chlor-alkali cell and utilizes a flowing mercury cathode to produce chlorine gas and alkali metal amalgam.
(7) "Denuder" means a container which is part of a mercury chlor-alkali cell and in which water and alkali metal amalgam are converted to alkali metal hydroxide, mercury, and hydrogen gas in a short-circuited, electrolytic reaction.
(8) "Hydrogen gas stream" means a hydrogen stream formed in the chlor-alkali cell denuder.
(9) "End box" means a container located on one or both ends of a mercury chlor-alkali electrolyzer which serves as a connection between the electrolyzer and denuder for rich and stripped amalgam.
(10) "End box ventilation system" means a ventilation system which collects mercury emissions from the end boxes, the mercury pump sumps, and their water collection systems.
(11) "Cell room" means a structure housing one or more mercury electrolytic chlor-alkali cells.
(12) "Sludge" means sludge produced by a treatment plant that processes municipal or industrial waste waters.
(13) "Sludge dryer" means a device used to reduce the moisture content of sludge by heating to temperatures above sixty-five (65)°C (ca. 150°F) directly with combustion gases.
(14) "Classification date" means:
(a) December 7, 1971 with respect to mercury ore processing facilities and mercury cell chlor-alkali plants;
(b) October 25, 1974 with respect to sludge incineration plants, sludge drying plants, or a combination of these that process wastewater treatment plant sludges.

Section 3. Emissions Standard. (1) Emissions to the atmosphere from mercury ore processing facilities and mercury cell chlor-alkali plants shall not exceed 2,300 grams of mercury per twenty-four (24) hour period.
(2) Emissions to the atmosphere from sludge incineration plants, sludge drying plants, or a combination of these that process wastewater treatment plant sludges shall not exceed 3,200 grams of mercury per twenty-four (24) hour period.

Section 4. Stack Sampling. (1) Mercury ore processing facility.
(a) Each owner or operator processing mercury ore shall test emissions from his source as set forth by the U. S. Environmental Protection Agency as follows:
1. Within ninety (90) days of the classification date of this regulation in the case of an existing source.
2. Within ninety (90) days of startup in the case of a new source.
(b) The department shall be notified at least thirty (30) days prior to an emission test, so that it may observe the test.
(c) Samples shall be taken over such period or periods as are necessary to accurately determine the maximum emissions which will occur in a twenty-four (24) hour period. No changes in the operation shall be made, which would potentially increase emissions above that determined by the most recent source test, until the new emission level has been estimated by calculation and the results reported to and approved by the department.
(d) All samples shall be analyzed, and mercury emissions shall be determined within thirty (30) days after the source test. Each determination will be reported to the department.
(e) Records of emission test results and other data needed to determine total emissions shall be retained at the source and made available, for inspection by the department for a minimum of two (2) years.
(2) Mercury chlor-alkali plant hydrogen and end-box ventilation gas streams.
(a) Each owner or operator employing mercury chlor-alkali cell(s) shall test emissions from his source as follows:
1. Within ninety (90) days of the classification date of this regulation in the case of an existing source.
2. Within ninety (90) days of startup in the case of a new source.

(b) The department shall be notified at least thirty (30) days prior to an emission test, so that it may at its option observe the test.

(c) Samples shall be taken over such period or periods as are necessary to accurately determine the maximum emissions which will occur in a twenty-four (24) hour period. No changes in the operation shall be made, which would potentially increase emissions above that determined by the most recent source test, until the new emission has been estimated by calculation and the results reported to and approved by the department.

(d) All samples shall be analyzed and mercury emissions shall be determined within thirty (30) days after the source test. All the determinations will be reported to the department.

(e) Records of emission test results and other data needed to determine total emissions shall be retained at the source and made available, for inspection by the department, for a minimum of two (2) years.

(3) Mercury chlor-alkali plants; cell room ventilation system:

(a) Stationary sources using mercury chlor-alkali cells may test cell room emissions in accordance with paragraph (b) of this subsection or demonstrate compliance with paragraph (d) of this subsection and assume ventilation emissions of 1,300 g/day of mercury.

(b) Each owner or operator shall pass all cell room air in forced gas streams through stacks suitable for testing as set forth by the department and the U. S. Environmental Protection Agency as follows:

1. Within ninety (90) days of the classification date of this regulation in the case of an existing source.
2. Within ninety (90) days of startup in the case of a new source.

(c) The department shall be notified at least thirty (30) days prior to an emission test, so that it may at its option observe the test.

(d) An owner or operator may carry out approved design, maintenance and housekeeping practices.

(4) Sludge incineration and drying plants.

(a) Unless a waiver of emission testing is obtained under 401 KAR 57:005, Section 11, each owner or operator of a source subject to the standard in Section 3(2) of this regulation shall test emissions from that source. Such tests shall be conducted in accordance with the procedures set forth either in Sections 4(4) or 5.

(b) Method 101 in Appendix B to 40 CFR 61, filed by reference in 401 KAR 50:015, shall be used to test emissions as follows:

1. The test shall be performed within ninety (90) days of the classification date of this regulation in the case of an existing source.
2. The test shall be performed within ninety (90) days of startup in the case of a new source.

(c) The department shall be notified at least thrity (30) days prior to an emission test, so that it may at its option observe the test.

(d) Samples shall be taken over such a period or periods as are necessary to determine accurately the maximum emissions which will occur in a twenty-four (24) hour period. No changes shall be made in the operation which would potentially increase emissions above the level determined by the most recent stack test, until the new emission level has been estimated by calculation and the results reported to and approved by the department.

(e) All samples shall be analyzed, and mercury emissions shall be determined within thirty (30) days after the stack test. Each determination shall be reported to the department by a registered letter dispatched before the close of the next business day following such determination.

(f) Records of emission test results and other data needed to determine total emissions shall be retained at the source and shall be made available, for inspection by the department, for a minimum of two (2) years.

Section 5. Sludge Sampling. (1) As an alternative means for demonstrating compliance with Section 3(2), an owner or operator may use Method 105 of Appendix B to 40 CFR 61 and the procedures specified in this section.

(a) A sludge test shall be conducted within ninety (90) days of the classification date of this regulation in the case of an existing source.

(b) A sludge test shall be conducted within ninety (90) days of startup in the case of a new source.

(2) The department shall be notified at least thirty (30) days prior to a sludge sampling test, so that it may at its option observe the test.

(3) Sludge shall be sampled according to paragraph (a) of this subsection, sludge charging rate for the plant shall be determined according to paragraph (b) of this subsection, and the sludge analysis shall be performed according to paragraph (c) of this subsection.

(a) The sludge shall be sampled after dewatering and before incineration or drying, at a location that provides a representative sample of the sludge that is charged to the incinerator or dryer. Eight (8) consecutive grab samples shall be obtained at intervals of between forty-five (45) and sixty (60) minutes and thoroughly mixed into one sample. Each of the eight (8) grab samples shall have a volume of at least 200 ml but not more than 400 ml. A total of three (3) composite samples shall be obtained within an operating period of twenty-four (24) hours. When the twenty-four (24) hour operating period is not continuous, the total sampling period shall not exceed seventy-two (72) hours after the first grab sample is obtained. Samples shall not be exposed to any condition that may result in mercury contamination or loss.

(b) The maximum twenty-four (24) hour period sludge incineration or drying rate shall be determined by use of a flow rate measurement device that can measure the mass rate of sludge charged to the incinerator or dryer with an accuracy of plus or minus five (5) percent over its operating range. Other methods of measuring sludge mass charging rates may be used if they have received prior approval by the department.

(c) The handling, preparation, and analysis of sludge samples shall be accomplished according to Method 105 in Appendix B to 40 CFR 61.

(4) The mercury emissions shall be determined by use of the following equation:

$$E(Hg) = (0.001)(c)(Q)$$

where

E(Hg) = Mercury emissions, g/day.

c = Mercury concentration in the sludge on a dry solids basis, ug/g (ppm).

Q = Sludge charging rate, kg/day.

(5) No changes in the operation of a plant shall be made after a sludge test has been conducted which would potentially increase emissions above the level determined by the most recent sludge test, until the new emission level has been estimated by calculation and the results reported to and approved by the department.

(6) All sludge samples shall be analyzed for mercury content within thirty (30) days after the sludge sample is collected. Each determination shall be reported to the

department by a registered letter dispatched before the close of the next business day following such determination.

(7) Records of sludge sampling, charging rate determination and other data needed to determine mercury content of wastewater treatment plant sludges shall be retained at the source and made available for inspection by the department for a minimum of two (2) years.

Section 6. Emission Monitoring. Wastewater treatment plant sludge incineration and drying plants. All such sources for which mercury emissions exceed 1,600 g/day, demonstrated either by stack sampling according to Section 4, or sludge sampling according to Section 5, shall monitor mercury emissions at intervals of at least once per year by use of Method 105 of Appendix B to 40 CFR 61, or the procedures specified in Section 5(3) and (4). The results of monitoring shall be reported and retained according to Section 4(4)(e) and (f) or Section 5(6) and (7).

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 57:025. Beryllium rocket motor firing.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of beryllium emissions at rocket motor test sites.

Section 1. Applicability. The provisions of this regulation are applicable to rocket motor test sites.

Section 2. Definitions. Terms used in this regulation not defined herein shall have the meaning given to them in 401 KAR 57:005 or, not defined therein, shall have the meaning given to them in 401 KAR 50:010.

(1) "Rocket motor test site" means any building, structure, facility, or installation where the static test firing of a beryllium rocket motor and/or the disposal of beryllium propellant is conducted.

(2) "Beryllium propellant" means any propellant incorporating beryllium.

(3) "Classification date" means December 7, 1971.

Section 3. Emission Standard. (1) Emissions to the atmosphere from rocket-motor test sites shall not cause time-weighted atmospheric concentrations of beryllium to exceed seventy-five (75) microgram minutes per cubic meter of air within the limits of ten (10) to sixty (60) minutes, accumulated during any two (2) consecutive weeks, in any area in which an effect adverse to public health could occur.

(2) If combustion products from the firing of beryllium propellant are collected in a closed tank, emissions from such tank shall not exceed two (2) grams per hour and maximum of ten (10) grams per day.

Section 4. Emission Testing; Rocket Firing or Propellant Disposal. (1) Ambient air concentrations shall be measured during and after firing of a rocket motor or propellant disposal and in such a manner that the effect of these emissions can be compared with the standard. Such sampling techniques shall be approved by the department.

(2) All samples shall be analyzed and results shall be calculated within thirty (30) days after samples are taken and before any subsequent rocket motor firing or propellant disposal at the given site. All results shall be reported to the department by a registered letter dispatched before the close of the next business day following determination of such results.

(3) Records of air sampling test results and other data needed to determine integrated intermittent concentrations shall be retained at the source and made available, for inspection by the department, for a minimum of two (2) years.

(4) The department shall be notified at least thirty (30) days prior to an air sampling test, so that it may at its option observe the test.

Section 5. Stack Sampling. (1) Sources subject to Section 3(2) shall be continuously sampled, during release of combustion products from the tank, in such a manner that compliance with the standards can be determined.

(2) All samples shall be analyzed and beryllium emissions shall be determined within thirty (30) days after samples are taken and before any subsequent rocket motor firing or propellant disposal at the given site. All determinations shall be reported to the department by a registered letter dispatched before the close of the next business day following such determinations.

(3) Records of emission test results and other data needed to determine total emissions shall be retained at the source and made available, for inspection by the department, for a minimum of two (2) years.

(4) The department shall be notified at least thirty (30) days prior to an emission test, so that it may at its option observe the test.

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 57:030. Vinyl chloride emissions.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention,

abatement, and control of air pollution. This regulation provides for the control of vinyl chloride emissions.

Section 1. Applicability. (1) This regulation applies to plants which produce:

(a) Ethylene dichloride by reaction of oxygen and hydrogen chloride with ethylene;

(b) Vinyl chloride by any process; and/or

(c) One or more polymers containing any fraction of polymerized vinyl chloride.

(2) This regulation does not apply to equipment used in research and development if the reactor used to polymerize the vinyl chloride processed in the equipment has a capacity of no more than 0.19 cubic meters (fifty (50) gal).

(3) Other than Sections 2; 5(1)(a), (2), (3), (4); 8; 9; 10; 11; and 12; this regulation does not apply to equipment used in research and development if the reactor used to polymerize the vinyl chloride processed in the equipment has a capacity of greater than 0.19 cubic meter (fifty (50) gal) and no more than 4.07 cubic meters (1,100 gal).

Section 2. Definitions. Terms used in this section not defined herein shall have the meaning given to them in 401 KAR 57:005, or not defined therein shall have the meaning given to them in 401 KAR 50:010.

(1) "Ethylene dichloride plant" includes any plant which produces ethylene dichloride by reaction of oxygen and hydrogen chloride with ethylene.

(2) "Vinyl chloride plant" includes any plant which produces vinyl chloride by any process.

(3) "Polyvinyl chloride plant" includes any plant where vinyl chloride alone or in combination with other materials is polymerized.

(4) "Slip gauge" means a gauge which has a probe that moves through the gas/liquid interface in a storage or transfer vessel and indicates the level of vinyl chloride in the vessel by the physical state of the material the gauge discharges.

(5) "Type of resin" means the broad classification of resin referring to the basic manufacturing process for producing that resin, including, but not limited to, suspension, dispersion, latex, bulk, and solution processes.

(6) "Grade of resin" means the subdivision of resin classification which describes it as a unique resin, i.e., the most exact description of a resin with no further subdivision.

(7) "Dispersion resin" means a resin manufactured in such a way as to form fluid dispersions when dispersed in a plasticizer or plasticizer/diluent mixtures.

(8) "Latex resin" means a resin which is produced by a polymerization process which initiates from free radical catalyst sites and is sold undried.

(9) "Bulk resin" means a resin which is produced by a polymerization process in which no water is used.

(10) "Inprocess wastewater" means any water which, during manufacturing or processing, comes into direct contact with vinyl chloride or polyvinyl chloride or results from the production or use of any raw material, intermediate product, finished product, by-product, or waste product containing vinyl chloride or polyvinyl chloride but which has not been discharged to a wastewater treatment process or discharged untreated as wastewater.

(11) "Wastewater treatment process" includes any process which modifies characteristics such as BOD, COD, TSS, and pH, usually for the purpose of meeting effluent guidelines and standards; it does not include any process the purpose of which is to remove vinyl chloride from water to meet requirements of this regulation.

(12) "In vinyl chloride service" means that a piece of equipment contains or contacts either a liquid that is at least ten (10) percent by weight vinyl chloride or a gas that is at least ten (10) percent by volume vinyl chloride.

(13) "Standard operating procedure" means a formal written procedure officially adopted by the plant owner or operator and available on a routine basis to those persons responsible for carrying out the procedure.

(14) "Run" means the net period of time during which an emission sample is collected.

(15) "Ethylene dichloride purification" includes any part of the process of ethylene dichloride formation and in which finished ethylene dichloride is produced.

(16) "Vinyl chloride purification" includes any part of the process of vinyl chloride production which follows vinyl chloride formation and in which finished vinyl chloride is produced.

(17) "Reactor" includes any vessel in which vinyl chloride is partially or totally polymerized into polyvinyl chloride.

(18) "Reactor opening loss" means the emissions of vinyl chloride occurring when a reactor is vented to the atmosphere for any purpose other than an emergency relief discharge as defined in Section 6(1).

(19) "Stripper" includes any vessel in which residual vinyl chloride is removed from polyvinyl chloride resin, except bulk resin, in the slurry form by the use of heat and/or vacuum. In the case of bulk resin, "stripper" includes any vessel which is used to remove residual vinyl chloride from polyvinyl chloride resin immediately following the polymerization step in the plant process flow.

(20) "Classification date" means December 24, 1975.

(21) "Standard temperature" means a temperature of twenty (20) °C (sixty-nine (69) °F).

(22) "Standard pressure" means a pressure of 760 mm of Hg (29.92 in. of Hg).

Section 3. Emission Standard for Ethylene Dichloride Plants. An owner or operator of an ethylene dichloride plant shall comply with the requirements of this section and Section 6.

(1) Ethylene dichloride purification: The concentration of vinyl chloride in all exhaust gases discharged to the atmosphere from any equipment used in ethylene dichloride purification is not to exceed ten (10) ppm, except as provided in Section 6(1). This requirement does not apply to equipment that has been opened, is out of operation, and met the requirement in Section 6(2)(f)1 before being opened.

(2) Oxychlorination reactor: Except as provided in Section 6(1), emissions of vinyl chloride to the atmosphere from each oxychlorination reactor are not to exceed 0.1 g/kg (0.0002 lb/lb) of the 100 percent ethylene dichloride product from the oxychlorination process.

Section 4. Emission Standard for Vinyl Chloride Plants. An owner or operator of a vinyl chloride plant shall comply with the requirements of this section and Section 6. Vinyl chloride formation and purification: The concentration of vinyl chloride in all exhaust gases discharged to the atmosphere from any equipment used in vinyl chloride formation and/or purification is not to exceed ten (10) ppm, except as provided in Section 6(1). This requirement does not apply to equipment that has been opened, is out of operation, and met the requirement in Section 6(2)(b)1 before being opened.

Section 5. Emission Standard for Polyvinyl Chloride Plants. An owner or operator of a polyvinyl chloride plant shall comply with the requirements of this section and Section 6.

(1) Reactor: The following requirements apply to reactors:

(a) The concentration of vinyl chloride in all exhaust gases discharged to the atmosphere from each reactor is not to exceed ten (10) ppm, except as provided in paragraph (b) of this subsection and Section 6(1).

(b) The reactor opening loss from each reactor is not to exceed 0.02 g vinyl chloride/kg (0.0002 lb vinyl chloride/lb) of the polyvinyl chloride product, with the product determined on a dry solids basis. This requirement applies to any vessel which is used as a reactor or as both a reactor and a stripper. In the bulk process, the product means the gross product of prepolymerization and postpolymerization.

(c) Manual vent valve discharge: Except for an emergency manual vent valve discharge, there is to be no discharge to the atmosphere from any manual vent valve on a polyvinyl chloride reactor in vinyl chloride service. An emergency manual vent valve discharge means a discharge to the atmosphere which could not have been avoided by taking measures to prevent the discharge. Within ten (10) days of any discharge to the atmosphere from any manual vent valve, the owner or operator of the source from which the discharge occurs shall submit to the department a report in writing containing information on the source, nature and cause of the discharge, the date and time of the discharge, the approximate total vinyl chloride loss during the discharge, the method used for determining the vinyl chloride loss, the action that was taken to prevent the discharge, and measures adopted to prevent future discharges.

(2) Stripper: The concentration of vinyl chloride in all exhaust gases discharged to the atmosphere from each stripper is not to exceed ten (10) ppm, except as provided in Section 6(1). This requirement does not apply to equipment that has been opened, is out of operation, and met the requirement in Section 6(2)(b)1 before being opened.

(3) Mixing, weighing, and holding containers: The concentration of vinyl chloride in all exhaust gases discharged to the atmosphere from each mixing, weighing, or holding container in vinyl chloride service which precedes the stripper (or the reactor if the plant has no stripper) in the plant process flow is not to exceed ten (10) ppm except as provided in Section 6(1). This requirement does not apply to equipment that has been opened, is out of operation, and has met the requirement in Section 6(2)(f)1 before being opened.

(4) Monomer recovery system: The concentration of vinyl chloride in all exhaust gases discharged to the atmosphere from each monomer recovery system is not to exceed ten (10) ppm, except as provided in Section 6(1). This requirement does not apply to equipment that has been opened, is out of operation, and has met the requirement in Section 6(2)(f)1 before being opened.

(5) Sources following the stripper(s): The following requirements apply to emissions of vinyl chloride to the atmosphere from the combination of all sources following the stripper(s) (or the reactor(s) if the plant has no stripper(s)) in the plant process flow including but not limited to: centrifuges, concentrators, blend tanks, filters, dryers, conveyor air discharges, baggers, storage containers, and inprocess wastewater.

(a) In polyvinyl chloride plants using stripping technology to control vinyl chloride emissions, the weighted average residual vinyl chloride concentration in all grades of polyvinyl chloride resin processed through the stripping operation on each calendar day, measured immediately after the stripping operation is completed, may not exceed:

1. 2,000 ppm for polyvinyl chloride dispersion resin, excluding latex resins;

2. 400 ppm for all other polyvinyl chloride resins, including latex resins, averaged separately for each type of resin; or

(b) In polyvinyl chloride plants controlling vinyl chloride emissions with technology other than stripping or in addition to stripping, emissions of vinyl chloride to the atmosphere may not exceed:

1. Two (2) g/kg (0.002 lb/lb) product from the stripper(s) (or reactor(s) if the plant has no stripper(s)) for dispersion polyvinyl chloride resins, excluding latex resins, with the product determined on a dry solids basis;

2. 0.4 g/kg (0.0004 lb/lb) product from the stripper(s) (or reactor(s) if the plant has no stripper(s)) for all other polyvinyl chloride resins, including latex resins, with the product determined on a dry solids basis.

Section 6. Emission Standard for Ethylene Dichloride, Vinyl Chloride, and Polyvinyl Chloride Plants. An owner or operator of an ethylene dichloride, vinyl chloride, and/or polyvinyl chloride plant shall comply with the requirements of this section.

(1) Relief valve discharge: Except for an emergency relief discharge, there is to be no discharge to the atmosphere from any relief valve on any equipment in vinyl chloride service. An emergency relief discharge means a discharge which could not have been avoided by taking measures to prevent the discharge. Within ten (10) days of any relief valve discharge, the owner or operator of the source from which the relief valve discharge occurs shall submit to the department a report in writing containing information on the source, nature and cause of the discharge, the date and time of the discharge, the approximate total vinyl chloride loss during the discharge, the method used for determining the vinyl chloride loss, the action that was taken to prevent the discharge, and measures adopted to prevent future discharges.

(2) Fugitive emission sources:

(a) Loading and unloading lines: Vinyl chloride emissions from loading and unloading lines in vinyl chloride service which are opened to the atmosphere after each loading or unloading operation are to be minimized as follows:

1. After each loading or unloading operation and before opening a loading or unloading line to the atmosphere, the quantity of vinyl chloride in all parts of each loading or unloading line that are to be opened to the atmosphere is to be reduced so that the parts combined contain no greater than 0.0038 cubic meters (0.13 cubic feet) of vinyl chloride at standard temperature and pressure; and,

2. Any vinyl chloride removed from a loading or unloading line in accordance with subparagraph 1. of this paragraph is to be ducted through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed ten (10) ppm, or equivalent as provided in Section 7.

(b) Slip gauges: During loading or unloading operations, the vinyl chloride emissions from each slip gauge in vinyl chloride service are to be minimized by ducting any vinyl chloride discharged from the slip gauge through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed ten (10) ppm, or

equivalent as provided in Section 7.

(c) Leakage from pump, compressor, and agitator seals:

1. Rotating pumps: Vinyl chloride emissions from seals on all rotating pumps in vinyl chloride service are to be minimized by installing sealless pumps, pumps with double mechanical seals, or equivalent as provided in Section 7. If double mechanical seals are used, vinyl chloride emissions from the seals are to be minimized by maintaining the pressure between the two (2) seals so that any leak that occurs is into the pump by ducting any vinyl chloride between the two (2) seals through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed ten (10) ppm, or equivalent as provided in Section 7.

2. Reciprocating pumps: Vinyl chloride emissions from seals on all reciprocating pumps vinyl chloride service are to be minimized by installing double outboard seals, or equivalent as provided in Section 7. If double outboard seals are used, vinyl chloride emissions from the seals are to be minimized by maintaining the pressure between the two (2) seals so that any leak that occurs is into the pump, by ducting any vinyl chloride between the two seals through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed ten (10) ppm, or equivalent as provided in Section 7.

3. Rotating compressors: Vinyl chloride emissions from seals on all rotating compressors in vinyl chloride service are to be minimized by installing compressors with double mechanical seals, or equivalent as provided in Section 7. If double mechanical seals are used, vinyl chloride emissions from the seals are to be minimized by maintaining the pressure between the two (2) seals so that any leak that occurs is into the compressor by ducting any vinyl chloride between the two (2) seals through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed ten (10) ppm, or equivalent as provided in Section 7.

4. Reciprocating compressors: Vinyl chloride emissions from seals on all reciprocating compressors in vinyl chloride service are to be minimized by installing double outboard seals, or equivalent as provided in Section 7. If double outboard seals are used, vinyl chloride emissions from the seals are to be minimized by maintaining the pressure between the two (2) seals so that any leak that occurs is into the compressor by ducting any vinyl chloride between the two (2) seals through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed ten (10) ppm or equivalent as provided in Section 7.

5. Agitators: Vinyl chloride emissions from seals on all agitators in vinyl chloride service are to be minimized by installing agitators with double mechanical seals, or equivalent as provided in Section 7. If double mechanical seals are used, vinyl chloride emissions from the seals are to be minimized by maintaining the pressure between the two (2) seals so that any leak, that occurs is into the agitated vessel, by ducting any vinyl chloride between the two (2) seals through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed ten (10) ppm, or equivalent as provided in Section 7.

(d) Leakage from relief valves: Vinyl chloride emissions due to leakage from each relief valve on equipment in vinyl chloride service are to be minimized by installing a rupture disk between the equipment and the relief valve, by connecting the relief valve discharge to a process line or recovery system, or equivalent as provided in Section 7.

(e) Manual venting of gases: Except as provided in Section 5(1)(c), all gases which are manually vented from equipment in vinyl chloride service are to be ducted through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed ten (10) ppm, or equivalent as provided in Section 7.

(f) Opening of equipment: Vinyl chloride emissions from opening of equipment (including loading or unloading lines that are not opened to the atmosphere after each loading or unloading operation) are to be minimized as follows:

1. Before opening any equipment for any reason, the quantity of vinyl chloride is to be reduced so that the equipment contains no more than 2.0 percent by volume vinyl chloride or 0.0950 cubic meter (twenty-five (25) gallon) of vinyl chloride, whichever is larger, at standard temperature and pressure; and

2. Any vinyl chloride removed from the equipment in accordance with subparagraph 1 of this paragraph is to be ducted through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed ten (10) ppm, or equivalent as provided in Section 7.

(g) Samples: Unused portions of samples containing at least ten (10) percent by weight vinyl chloride are to be returned to the process and sampling techniques are to be such that sample containers in vinyl chloride service are purged into a closed process system.

(h) Leak detection and elimination: Vinyl chloride emissions due to leaks from equipment in vinyl chloride service are to minimized by instituting and implementing a formal leak detection and elimination program. The owner or operator shall submit a description of the program to the department for approval. The program is to be submitted within forty-five (45) days of the classification date of these regulations, unless a waiver of compliance is granted under 401 KAR 57:005, Section 9. If a waiver of compliance is granted, the program is to be submitted on a date scheduled by the department. Approval of a program will be granted by the department provided:

1. It includes a reliable and accurate vinyl chloride monitoring system for detection of major leaks and identification of the general area of the plant where a leak is located. A vinyl chloride monitoring system means a device which obtains air samples from one or more points on a continuous sequential basis and analyzes the samples with gas chromatography or, if the owner or operator assumes that all hydrocarbons measured are vinyl chloride, with infrared spectrophotometry flame ion detection, or an equivalent or alternative method.

2. It includes a reliable and accurate portable hydrocarbon detector to be used routinely to find small leaks and to pinpoint the major leaks indicated by the vinyl chloride monitoring system. A portable hydrocarbon detector means a device which measures hydrocarbons with a sensitivity of at least ten (10) ppm and is of such design and size that it can be used to measure emissions from localized points.

3. It provides for an acceptable calibration and maintenance schedule for the vinyl chloride monitoring system and portable hydrocarbon detector. For the vinyl chloride monitoring system, a daily span check is to be conducted with a concentration of vinyl chloride equal to the concentration defined as a leak according to Section 6(2)(h)6. The calibration is to be done with either a calibration gas mixture prepared from the gases specified in Sections 5.2.1 and 5.2.3 of Test Method 106 and in accordance with Section 7.1 of Test Method 106 in Appendix B to 40

CFR 61, filed by reference in 401 KAR 50:015, or a calibration gas cylinder containing the appropriate concentration of vinyl chloride. The gas composition of the calibration gas cylinder standard is to have been certified by the manufacturer. The manufacturer must have recommended a maximum shelf life for each cylinder so that the concentration does not change greater than plus or minus five (5) percent from the certified value. The date of gas cylinder preparation, certified vinyl chloride concentration and recommended maximum shelf life must have been affixed to the cylinder before shipment from the manufacturer to the buyer. If a gas chromatograph is used as the vinyl chloride monitoring system, these gas mixtures may be directly used to prepare a chromatograph calibration curve as described in Section 7.3 of Test Method 106. The requirements in Section 5.2.3.1 and 5.2.3.2 of Test Method 106 for certification of cylinder standards and for establishment and verification of calibration standards are to be followed.

4. The location and number of points to be monitored and the frequency of monitoring provided for in the program are acceptable when they are compared with the number of pieces of equipment in vinyl chloride service and the size and physical layout of the plant.

5. It contains an acceptable plan of action to be taken when a leak is detected.

6. It contains a definition of leak which is acceptable when compared with the background concentration of vinyl chloride in the areas of the plant to be monitored by the vinyl chloride monitoring system. Measurements of background concentrations of vinyl chloride in the areas of the plant to be monitored by the vinyl chloride monitoring system are to be included with the description of the program. The definition of leak for a given plant may vary among the different areas within the plant and is also to change over time as background concentrations in the plant are reduced.

(i) Inprocess wastewater: Vinyl chloride emissions to the atmosphere from inprocess wastewater are to be reduced as follows:

1. The concentration of vinyl chloride in each inprocess wastewater stream containing greater than ten (10) ppm vinyl chloride measured immediately as it leaves a piece of equipment and before being mixed with any other inprocess wastewater stream is to be reduced to no more than ten (10) ppm by weight before being mixed with any other inprocess wastewater stream which contains less than ten (10) ppm vinyl chloride; before being exposed to the atmosphere; before being discharged to a wastewater treatment process; or before being discharged untreated as a wastewater. This paragraph does apply to water which is used to displace vinyl chloride from equipment before it is opened to the atmosphere in accordance with Sections 5(1)(b) or 6(2)(f), but does not apply to water which is used to wash out equipment after the equipment has already been opened to the atmosphere in accordance with Sections 5(1)(b) or 6(2)(f).

2. Any vinyl chloride removed from the inprocess wastewater in accordance with subparagraph 1 of this paragraph is to be ducted through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed ten (10) ppm, or equivalent as provided in Section 7.

(3) The requirements in Section 6(2)(a), (b), (e), (f), (g) and (h) are to be incorporated into a standard operating procedure, and made available upon request for inspection by the department. The standard operating procedure is to include provisions for measuring the vinyl chloride in equipment greater than or equal to 4.75 cubic meters (1,250 gal) in volume for which an emission limit is prescribed in Section 6(2)(f)1; prior to opening the equipment and using Test Method 106, a portable hydrocarbon detector, or an equivalent or alternative method. The method of measurement is to meet the requirements in Section 8(6)(e)1 and 2.

Section 7. Equivalent Equipment and Procedures. Upon written application from an owner or operator, the department may approve use of equipment or procedures which have been demonstrated to its satisfaction to be equivalent in terms of reducing vinyl chloride emissions to the atmosphere to those prescribed for compliance with a specific section of this regulation. For an existing source, any request for using an equivalent method as the initial measure of control is to be submitted to the department within thirty (30) days of the classification date. For a new source, any request for using an equivalent method is to be submitted to the department with the application for approval of construction or modification required by 401 KAR 50:035.

Section 8. Emission Test. (1) Unless a waiver of emission testing is obtained under 401 KAR 57:005, Section 11, the owner or operator of a source to which this regulation applies shall test emissions from this source:

(a) Within ninety (90) days of the classification date in the case of an existing source.

(b) Within ninety (90) days of startup in the case of a new source.

(2) The owner or operator shall provide the department at least thirty (30) days prior to notice of an emission test to afford the department the opportunity to have an observer present during the test.

(3) Any emission test is to be conducted while the equipment being tested is operating at the maximum production rate at which the equipment will be operated and under other relevant conditions as may be specified by the department based on representative performance of the source.

(4) When at all possible, each sample is to be analyzed within twenty-four (24) hours but in no case in excess of seventy-two (72) hours of sample collection. Vinyl chloride emissions are to be determined within thirty (30) days after the emission test. The owner or operator shall report the determinations to the department by a registered letter dispatched before the close of the next business day following the determination.

(5) The owner or operator shall retain at the plant and make available, upon request, for inspection by the department for a minimum of two (2) years records of emission test results and other data needed to determine emissions.

(6) Unless otherwise specified, the owner or operator shall use the tests as approved by 401 KAR 57:005, Section 12, for each test as required by this subsection unless an equivalent method or an alternative method has been approved by the department and the U. S. Environmental Protection Agency. If the results of the reference and equivalent or alternative methods do not agree, the results obtained by the reference method prevail, and the department may notify the owner or operator that approval of the method previously considered to be equivalent or alternative is withdrawn.

(a) Test Method 106 is to be used to determine the vinyl chloride emissions from any source for which an emission limit is prescribed in Sections 3(1) or (2); 4; 5(1)(a), (2), (3) or (4); or from any control system to which reactor emissions are required to be ducted in Section 5(1)(b) or which

fugitive emissions are required to be ducted in Section 6(2)(a)2, (2)(b) and (e), (2)(f)2, and (2)(i)2.

1. For each run, one (1) sample is to be collected. The sampling site is to be at least two (2) stack or duct diameters downstream and one-half (½) diameter upstream from any flow disturbance such as a bend, expansion, contraction, or visible flame. For a rectangular cross section an equivalent diameter is to be determined from the following equation:

$$\text{equivalent diameter} = \frac{2\,(\text{length})\,(\text{width})}{\text{length} + \text{width}}$$

The sampling point in the duct is to be at the center of the cross section. The sample is to be extracted at a rate proportional to the gas velocity at the sampling point. The sample is to be taken over a minimum of one (1) hour, and is to contain a minimum volume of fifty (50) liters corrected to standard conditions.

2. Each emission test is to consist of three (3) runs. For the purpose of determining emissions, the average of results of all runs is to apply. The average is to be computed on a time weighted basis.

3. For gas streams containing more than ten (10) percent oxygen, the concentration of vinyl chloride as determined by Test Method 106 is to be corrected to ten (10) percent oxygen (dry basis) for determination of emissions by using the equation which is Appendix A to this regulation.

4. For those emission sources where the emission limit is prescribed in terms of mass rather than concentration, mass emissions in kg/100 kg product are to be determined by using the equation which is Appendix B to this regulation.

(b) Test Method 107 is to be used to determine the concentration of vinyl chloride in each inprocess wastewater stream for which an emission limit is prescribed in Section 6(2)(i)1.

(c) Where a stripping operation is used to attain the emission limit in Section 5(5), emissions are to be determined using Test Method 107 as follows:

1. The number of strippers and samples and the types and grades of resin to be sampled are to be determined by the department for each individual plant at the time of the test based on the plant's operation.

2. Each sample is to be taken immediately following the stripping operation.

3. The corresponding quantity of material processed by each stripper is to be determined on a dry solids basis and by a method submitted to and approved by the department.

4. At the prior request of the department the owner or operator shall provide duplicates of the samples required in subparagraph 1. of this paragraph.

(d) Where control technology other than or in addition to a stripping operation is used to attain the emission limit in Section 5(5), emissions are to be determined as follows:

1. Test Method 106 is to be used to determine atmospheric emissions from all of the process equipment simultaneously. The requirements of subsection (6)(a) are to be met.

2. Test Method 107 is to be used to determine the concentration of vinyl chloride in each inprocess wastewater stream subject to the emission limit prescribed in Section 5(5). The mass of vinyl chloride in kg/100 kg produce in each inprocess wasterwater stream is to be determined by using the equation which is Appendix C to this regulation.

(e) The reactor opening loss for which an emission limit is prescribed in Section 5(1)(b) is to be determined. The number of reactors for which the determination is to be made is to be specified by the department for each individual plant at the time of the determination based on the plant's operation. For a reactor that is also used as a stripper, the determination may be made immediately following the stripping operation. Except as provided in subparagraph 2 of this paragraph the reactor opening loss is to be determined using the equation which is Appendix D to this regulation.

1. If Method 106 is used to determine the concentration of vinyl chloride the sample is to be withdrawn at a constant rate with a probe of sufficient length to reach the vessel bottom from the manhole. Samples are to be taken for five (5) minutes within six (6) inches of the vessel bottom, five (5) minutes near the vessel center, and five (5) minutes near the vessel top.

2. If the portable hydrocarbon detector is used to determine the concentration of vinyl chloride (Cb), a probe of sufficient length to reach the vessel bottom from the manhole is to be used to make measurements. One (1) measurement will be made within six (6) inches of the vessel bottom, one (1) near the vessel center, and one (1) near the vessel top. Measurements are to be made at each location until the reading is stabilized. All hydrocarbons measured are to be assumed to be vinyl chloride.

3. The production rate of polyvinyl chloride (Z) is to be determined by a method submitted to and approved by the department.

Section 9. Emission Monitoring. (1) A vinyl chloride monitoring system is to be used to monitor on a continuous basis the emissions from the sources for which emission limits are prescribed in Sections 3(1) and (2); 4; 5(1)(a), (2), (3) and (4), and for any control system to which reactor emissions are required to be ducted in Section 5(1)(b) or to which fugitive emissions are required to be ducted in Section 6(2)(a)2, (2)(b) and (e), (2)(f)2 and (2)(i)2.

(2) The vinyl chloride monitoring system(s) used to meet the requirement in subsection (1) of this section is to be a device which obtains air samples from one or more points on a continuous sequential basis and analyses the samples with gas chromotography or, if the owner or operator assumes that all hydrocarbons measured are vinyl chloride, the infrared spectrophotometry, flame ion detection, or an equivalent or alternative method. The vinyl chloride monitoring system used to meet the requirements in Section (6)(2)(h)1 may be used to meet the requirements of this section.

(3) A daily span check is to be conducted for each vinyl chloride monitoring system used. For all of the emission sources listed in subsection (1) of this section, except the one for which an emissions limit is precribed in Section 3(2), the daily span check is to be conducted with a concentration of vinyl chloride equal to ten (10) ppm. For the emission source for which an emission limit is prescribed in Section 3(2) the daily span check is to be conducted with a concentration of vinyl chloride which is determined to be equivalent to the emission limit for that source based on the emission test required by Section 8. The calibration is to be done with either:

(a) A calibration gas mixture prepared from the gases specified in Sections 5.2.1 and 5.2.3 of Test Method 106 and in accordance with Section 7.1 of Test Method 106; or

(b) A calibration gas cylinder containing the appropriate concentration of vinyl chloride. The gas composition of the calibration gas cylinder standard is to have been certified by the manufacturer. The manufacturer must have

recommended a maximum shelf life for each cylinder so that the concentration does not change greater than plus or minus five (5) percent from the certified value. The date of gas cylinder preparation, certified vinyl chloride preparation, certified vinyl chloride concentration and recommended maximum shelf life must have been affixed to the cylinder before shipment from the manufacturer to the buyer. If a gas chromatograph is used as the vinyl chloride monitoring system, these gas mixtures may be directly used to prepare a chromatograph calibration curve as described in Section 7.3 of Test Method 106. The requirements in Sections 5.2.3.1 and 5.2.3.2 of Test Method 106 for certification of cylinder standards and for establishment and verification of calibration standards are to be followed.

Section 10. Initial Report. (1) An owner or operator of any source to which this regulation applies shall submit a statement in writing notifying the department that the equipment and procedural specifications in Section 6(2)(a), (b), (c), (d), (e), (f), (g) and (h) are being implemented.

(2) In the case of an existing source, the statement is to be submitted within ninety (90) days of the classification date, unless a waiver of compliance is granted under 401 KAR 57:005, Section 9, along with the information required under 401 KAR 57:005, Section 8. If a waiver of compliance is granted, the statement is to be submitted on a date scheduled by the department. In the case of a new source, the statement is to be submitted within ninety (90) days of the initial startup date.

(3) The statement is to contain the following information:

(a) A list of the equipment installed for compliance.

(b) A description of the physical and functional characteristics of each piece of equipment.

(c) A description of the methods which have been incorporated into the standard operating procedures for measuring or calculating the emissions for which emission limits are prescribed in Section 6(2)(a)1 and (f)1.

(d) A statement that each piece of equipment is installed and that each piece of equipment and each procedure is being used.

Section 11. Semiannual Report. (1) The owner or operator of any source to which this regulation applies shall submit to the department on September 15 and March 15 of each year a report in writing containing the information required by this section. The first semiannual report is to be submitted following the first full six (6) months reporting period after the initial report is submitted.

(2) In the case of an existing source, the first report is to be submitted within 180 days of the classification date, unless a waiver of compliance is granted under 401 KAR 57:005, Section 9. If a waiver of compliance is granted, the first report is to be submitted on a date scheduled by the department. In the case of a new source, the first report is to be submitted within 180 days of the initial startup date.

(3) Unless otherwise specified, the owner or operator shall use the test methods approved by 401 KAR 57:005, Section 12, to conduct emission tests as required by subsections (5) and (6) of this section, unless an equivalent or alternative method has been approved by the department and the U. S. Environmental Protection Agency. If the results of the reference and equivalent or alternative methods do not agree, the results obtained by the reference method prevail, and the department may notify the owner or operator that approval of the method previously considered to be equivalent or alternative is withdrawn.

(4) The owner or operator shall include in the report a record of any emissions which averaged over any hour period (commencing on the hour) are in excess of the emission limits prescribed in Sections 3(1) or (2); 4; or 5(1)(a), (2), (3) or (4), or for any control system to which reactor emissions are required to be ducted in Section 5(1)(b) or to which fugitive emissions are required to be ducted in Section 6(2)(a)2, (b) and (e), (f)2, and (i)2. The emissions are to be measured in accordance with Section 9.

(5) In polyvinyl chloride plants for which a stripping operation is used to attain the emission level prescribed in Section 5(5), the owner or operator shall include in the report a record of the vinyl chloride content in the polyvinyl chloride resin. Test Method 107 is to be used to determine vinyl chloride content as follows:

(a) If batch stripping is used, one (1) representative sample of polyvinyl chloride resin is to be taken from each batch of each grade of resin immediately following the completion of the stripping operation and identified by the resin type and grade and the date and time the batch is completed. The corresponding quantity of material processed in each stripper batch is to be recorded and identified by resin type and grade and the date and time the batch is completed.

(b) If continuous stripping is used, one (1) representative sample of polyvinyl chloride resin is to be taken for each grade of resin processed or at intervals of eight (8) hours for each grade of resin which is being processed, whichever is more frequent. The sample is to be taken as the resin flows out of the stripper and identified by the resin type and grade and the date and time the sample was taken. The corresponding quantity of material processed by each stripper over the time period represented by the sample during the eight (8) hour period, is to be recorded and identified by resin type and grade and the date and time it represents.

(c) The quantity of material processed by the stripper is to be determined on a dry solids basis and by a method submitted to and approved by the department.

(d) At the prior request of the department, the owner or operator shall provide duplicates of the samples required in paragraphs (a) and (b) of this subsection.

(e) The report to the department by the owner or operator is to include the vinyl chloride content found in each sample required in paragraphs (a) and (b) of this subsection, averaged separately for each type of resin, over each calendar day and weighted according to the quantity of each grade of resin processed by the stripper(s) that calendar day, according to the equation which is Appendix E to this regulation.

(f) The owner or operator shall retain at the source and make available for inspection by the department for a minimum of two (2) years, records of all data needed to furnish the information required in paragraph (e) of this subsection. The records are to contain the following information:

1. The vinyl chloride content found in all the samples required in paragraphs (a) and (b), identified by the resin type and grade and the time and date of the sample; and

2. The corresponding quantity of polyvinyl chloride resin processed by the stripper(s), identified by the resin type and grade and the time and date it represents.

(g) The owner or operator shall include in the report a record of the emissions from each reactor opening for which an emission limit is prescribed in Section 5(1)(b). Emissions are to be determined in accordance with Section 8(6)(e), except that emissions for each reactor are to be determined. For a reactor that is also used as a stripper, the

determination may be made immediately following the stripping operation.

Section 12. Recordkeeping. The owner or operator of any source to which this regulation applies shall retain the following information at the source and make it available for inspection by the department for a minimum of two (2) years:

(1) A record of the leaks detected by the vinyl chloride monitoring system, as required by Section 6(2)(h), including the concentrations of vinyl chloride as measured, analyzed, and recorded by the vinyl chloride detector, the location of each measurement and the date and approximate time of each measurement.

(2) A record of the leaks detected during the routine monitoring with the portable hydrocarbon detector and the action taken to repair the leaks, as required by Section 6(2)(h), including a brief statement explaining the location and cause of each leak detected with the portable hydrocarbon detector, the date and time of the leak and any action taken to eliminate that leak.

(3) A record of emissions measured in accordance with Section 9.

(4) A daily operating record for each polyvinyl chloride reactor, including pressures and temperatures.

Section 13. 401 KAR 3:040 is hereby repealed.

APPENDIX A TO 401 KAR 57:030 DETERMINATION OF OXYGEN CORRECTED VINYL CHLORIDE CONCENTRATIONS

$$C_{b(corrected)} = C_b \frac{10.9}{20.9 - \text{percent } O_2}$$

Where:

$C_{b(corrected)}$ = The concentration of vinyl chloride in the exhaust gases, corrected to 10 percent oxygen.

C_b = The concentration of vinyl chloride as measured by Test Method 106.

20.9 = Percent oxygen in the ambient air at standard conditions.

10.9 = Percent oxygen in the ambient air at standard conditions, minus the 10 percent oxygen to which the correction is being made.

Percent O_2 = Percent oxygen in the exhaust gas as measured by Reference Method 3 in Appendix A of 40 CFR 60.

APPENDIX B TO 401 KAR 57:030 CONVERSION OF VINYL CHLORIDE CONCENTRATION TO VINYL CHLORIDE MASS

$$C_{BX} = \frac{(C_b\ (2.60)\ Q\ 10^{-6})\ (100)}{Z}$$

Where:

C_{BX} = kg vinyl chloride/100 kg product.

C_b = The concentration of vinyl chloride as measured by Test Method 106.

2.60 = Density of vinyl chloride at one atmosphere and 20°C in kg/m³.

Q = Volumetric flow rate in m³/hr as determined by Reference Method 2 of Appendix A to 40 CFR 60.

10^{-6} = Conversion factor for ppm.

Z = Production rate (kg/hr).

APPENDIX C TO 401 KAR 57:030 DETERMINATION OF VINYL CHLORIDE MASS IN A WASTEWATER STREAM

$$C_{BX} = \frac{(C_d\ R\ 10^{-6})\ (100)}{Z}$$

Where:

C_{BX} = kg vinyl chloride/100 kg product.

C_d = the concentration of vinyl chloride as measured by Test Method 107.

R = water flow rate in lb/hour, determined in accordance with a method which has been submitted to and approved by the department.

10^{-6} = Conversion factor for ppm.

Z = production rate (kg/hr) determined in accordance with a method which has been submitted to and approved by the department.

APPENDIX D TO 401 KAR 57:030 DETERMINATION OF VINYL CHLORIDE REACTOR OPENING LOSS

$$C = \frac{W\ (2.60)\ (10^{-6})\ (C_b)}{YZ}$$

Where:

C = kg vinyl chloride emissions/kg product.

W = Capacity of the reactor in m³.

2.60 = Density of vinyl chloride at one atmosphere and 20°C in kg/m³.

10^{-6} = Conversion factor for ppm.

C_b = ppm by volume vinyl chloride as determined by Test Method 106 or portable hydrocarbon detector which measures hydrocarbons with a sensitivity of at least 10 ppm.

Y = Number of batches since the reactor was last opened to the atomosphere.

Z = Average kg of polyvinyl chloride produced per batch in the number of batches since the reactor was last opened to the atmosphere.

APPENDIX E TO 401 KAR 57:030 DETERMINATION OF VINYL CHLORIDE CONTENT

$$C_T = \frac{\sum_{G=1}^{n} P_G M_G}{Q_T}$$

Where:

C_T = 24-hour concentration of type T resin in ppm (dry weight basis).

Q_T = Total production of type T resin over the 24-hour period, in kg.

P_G = Production of Grade G resin in the sample, in kg.

M_G = Concentration of vinyl chloride in one sample of grade G resin in ppm.

n = Total number of grades of type T resin produced during the 24-hour period.

C_T is to be calculated and reported for each type of resin produced in the 24-hour period.

EUGENE F. MOONEY, Secretary
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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 59:005. General Provisions.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation is to provide for the establishment of monitoring requirements, performance testing requirements, and other general provisions as related to new sources.

Section 1. Applicability. The provisions of this chapter shall apply to the owner or operator of any new source for which a standard of performance has been promulgated under this chapter.

Section 2. Performance Tests. (1) Within sixty (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 such facility and at such other times as may be required by the department, the owner or operator of any affected facility except those affected facilities specified below shall conduct performance test(s) according to 401 KAR 50:045 and furnish the department a written report of the results of such performance test(s).

(a) Process operation with a process weight rate of less than 100 tons per hour;

(b) Indirect heat exchanger of 250 million BTU heat input per hour or less;

(c) Incinerator with a charging rate of forty-five (45) metric tons per day (fifty (50) tons/day) or less;

(d) Affected facilities specified in 401 KAR 59:046, 401 KAR 59:050, 401 KAR 59:075, 401 KAR 59:090, 401 KAR 59:095, 401 KAR 59:101, 401 KAR 59:175, and 401 KAR 59:195.

(2) The department may require the owner or operator of any affected facility including those specified in subsection (1) of this section to conduct performance test(s) according to 401 KAR 50:045 and furnish a written report of the results of such performance test(s).

Section 3. Notification and Recordkeeping. Nothing in this section shall relieve the owner or operator from the responsiblity of obtaining the appropriate permits required by 401 KAR 50:035.

(1) Any owner or operator subject to the provisions of this regulation shall furnish the department written notification as follows:

(a) A notification of the date of construction, reconstruction, or modification of an affected facility is commenced, postmarked not later than thirty (30) days after such date;

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

(c) A notification of the actual date of initial startup of an affected facility postmarked within fifteen (15) days after such date;

(d) A notification of any physical or operational change to an affected facility which may increase the emission rate of any air pollutant to which a standard applies. This notice shall be postmarked sixty (60) days or as soon as practicable before the change is commenced and shall include information describing the precise nature of the change, present and proposed emission control systems, productive capacity of the facility before and after the change, and the expected completion date of the change. The department may request additional relevant information subsequent to this notice;

(e) A notification of the date upon which demonstration of the continuous monitoring system performance commences in accordance with Section 4(3). Notifications shall be postmarked not less than thirty (30) days prior to such date.

(2) Any owner or operator subject to the provisions of this chapter shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative.

(3) Each owner or operator required to install a continuous monitoring system shall submit for every calendar quarter a written report of excess emissions (as defined in applicable sections) to the department. Both a printed report and computer tape or cards shall be furnished in the format specified by the department. All quarterly reports shall be postmarked by the thirtieth (30th) day following the end of each calendar quarter and shall include the following information:

(a) The magnitude of excess emissions computed in accordance with Section 4(8), any conversion factor(s) used, and the date and time of commencement and completion of each time period of excess emissions;

(b) All hourly averages shall be reported for sulfur dioxide and nitrogen oxides monitors. The hourly averages shall be made available on computer tape or cards;

(c) Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the affected facility. The nature and cause of any malfunction (if known), the corrective action taken or preventative measures adopted;

(d) The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments;

(e) When no excess emissions have occurred or the continuous monitoring system(s) have not been inoperative, repaired, or adjusted, such information shall be stated in the report.

(4) Any owner or operator subject to the provisions of this chapter shall maintain a file of all measurements, including continuous monitoring system, monitoring device, and performance testing measurement; all continuous monitoring system performance evaluations; all continuous monitoring system or monitoring device calibration checks; adjustments and maintenance peformed on these systems or devices; and all other information required by this chapter recorded in a permanent form suitable for inspection. The file shall be retained for at least two (2) years following the date of such measurements, maintenance, reports, and records.

Section 4. Monitoring Requirements. (1) All continuous monitoring systems required under the regulations of this chapter shall be subject to the provisions of this section upon promulgation of performance specifications for continuous monitoring system under Appendix B of 40 CFR 60, filed by reference in 401 KAR 50:015, unless:

(a) The continuous monitoring system is subject to the provisions of subsection (3)(b) and (c) of this section; or

(b) Otherwise specified in an applicable regulation or by the department.

(2) All continuous monitoring systems and monitoring devices shall be installed and operational prior to conducting performance tests under Section 2. Verification of operational status shall, as a minimum, consist of the following:

(a) For continuous monitoring systems referenced in subsection (3)(a) of this section, completion of the conditioning period specified by applicable requirements in Appendix B to 40 CFR 60;

(b) For continuous monitoring systems referenced in subsection (3)(b) of this section, completion of seven (7) days of operation;

(c) For monitoring devices referenced in applicable regulations, completion of the manufacturer's written requirements or recommendations for checking the operation or calibration of the device.

(3) During any performance tests required under Section 2 or within thirty (30) days thereafter and at such other times as may be required by the department, the owner or operator of any affected facility shall conduct continuous monitoring system performance evaluations and furnish the department within sixty (60) days thereof a copy of a written report of the results of such tests. These continuous monitoring system performance evaluations shall be conducted in accordance with the following specifications and procedures:

(a) Continuous monitoring systems listed within this paragraph except as provided in paragraph (b) of this subsection shall be evaluated in accordance with the requirements and procedures contained in the applicable performance specification of Appendix B to 40 CFR 60 as follows:

1. Continuous monitoring systems for measuring opacity of emissions shall comply with Performance Specification 1;

2. Continuous monitoring systems for measuring nitrogen oxides emissions shall comply with Performance Specification 2;

3. Continuous monitoring systems for measuring sulfur dioxide emissions shall comply with Performance Specifications 2;

4. Continuous monitoring systems for measuring the oxygen content or carbon dioxide content of effluent gases shall comply with Performance Specification 3.

(b) An owner or operator who, prior to September 11, 1974, entered into a binding contractual obligation to purchase specific continuous monitoring system components or who, prior to October 6, 1975, installed continuous monitoring equipment, shall comply with the following requirements:

1. Continuous monitoring systems for measuring opacity of emissions shall be capable of measuring emission levels within plus or minus twenty (20) percent with a confidence level of ninety-five (95) percent. The Calibration Error Test and associated calculation procedures set forth in Performance Specifiction 1 of Appendix B to 40 CFR 60 shall be used for demonstrating compliance with this specification;

2. Continuous monitoring systems for measurement of nitrogen oxides or sulfur dioxide shall be capable of measuring emission levels within plus or minus twenty (20) percent with a confidence level of ninety-five (95) percent. The Calibration Error Test, the Field Test for Accuracy (Relative), and associated operating and calculation procedures set forth in Appendix B to 40 CFR 60 shall be used for demonstrating compliance with this specification;

3. Owners or operators of all continuous monitoring systems installed on an affected facility prior to October 6, 1975, may be required to conduct tests under subparagraphs 1. and/or 2. of this paragraph if so requested by the department.

(c) All continuous monitoring systems referenced by paragraph (b) of this subsection shall be upgraded or replaced (if necessary) with new continuous monitoring systems, and the new or improved systems shall be demonstrated to comply with applicable performance specifications under paragraph (a) of this subsection on or before September 11, 1979.

(4) Owners or operators of all continuous monitoring systems installed in accordance with the provisions of this regulation shall check the zero and span drift at least once daily in accordance with the method prescribed by the manufacturer of such systems unless the manufacturer recommends adjustments at shorter intervals, in which case such recommendations shall be followed. The zero and span shall, as a minimum, be adjusted whenever the twenty-four (24) hour zero drift or twenty-four (24) hour calibration drift limits of the applicable performance specifications in Appendix B to 40 CFR 60 are exceeded. For continuous monitoring systems measuring opacity of emissions, the optical surfaces exposed to the effluent gases shall be cleaned prior to performing the zero or span drift adjustments except that, for systems using automatic zero adjustments, the optical surfaces shall be cleaned when the cumulative automatic zero compensation exceeds four (4) percent opacity. Unless otherwise approved by the department, the following procedures, as applicable, shall be followed:

(a) For extractive continuous monitoring systems measuring gases, minimum procedures shall include introducing applicable zero and span gas mixtures into the measurement system as near the probe as is practical. Span and zero gases certified by their manufacturer to be traceable to National Bureau of Standards reference gases shall be used whenever these reference gases are available. The span and zero gas mixtures shall be the same composition as specified in Appendix B to 40 CFR 60. Every six (6) months from date of manufacture, span and zero gases shall be reanalyzed by conducting triplicate analyses with Reference Method 6 for sulfur dioxide, Reference Method 7 for nitrogen oxides, and Reference Method 3 for oxygen and carbon dioxide;

(b) For non-extractive continuous monitoring systems measuring gases, minimum procedures shall include upscale check(s) using a certified calibration gas cell or test cell which is functionally equivalent to a known gas concentration. The zero check may be performed by computing the zero value from upscale measurements or by mechanically producing a zero condition;

(c) For continuous monitoring systems measuring opacity of emissions, minimum procedures shall include a method for producing a simulated zero opacity condition and an upscale (span) opacity condition using a certified neutral density filter or other related technique to produce a known obscuration of the light beam. Such procedures shall provide a system check of the analyzer internal optical surfaces and all electronic circuitry including the lamp and photodetector assembly.

(5) Except for system breakdowns, repairs, calibration checks, and zero and span adjustments required under

subsection (4) of this section, all continuous monitoring systems shall be in continuous operation and shall meet minimum frequency of operation requirements as follows:

(a) All continuous monitoring systems referenced by subsection (3)(a) and (b) for measuring opacity of emissions shall complete a minimum of one (1) cycle of sampling and analyzing for each successive ten (10) second period and one (1) cycle of data recording for each successive six (6) minute period;

(b) All continuous monitoring systems referenced by subsection (3)(a) of this section for measuring oxides of nitrogen sulfur dioxide, carbon dioxide, or oxygen shall complete a minimum of one (1) cycle of operation (sampling, analyzing, and data recording) for each successive fifteen (15) minute period;

(c) All continuous monitoring systems referenced by subsection (3)(b) of this section except opacity, shall complete a minimum of one (1) cycle of operation (sampling, analyzing, and data recording) for each successive one (1) hour period.

(6) All continuous monitoring systems or monitoring devices shall be installed such that representative measurements of emissions or process parameters from the affected facility are obtained. Additional procedures for location of continuous monitoring systems contained in the applicable Performance Specifications of Appendix B to 40 CFR 60 shall be used.

(7) When the effluents from a single affected facility or two or more affected facilities subject to the same emission standard are combined before being released to the atmosphere, the owner or operator may install applicable continuous monitoring systems on each effluent or on the combined effluent. When the affected facilities are not subject to the same emission standards, separate continuous monitoring systems shall be installed on each effluent. When the effluent from one (1) affected facility is released to the atmosphere through more than one (1) point, the owner or operator shall install applicable continuous monitoring systems on each separate effluent unless the installation of fewer systems is approved by the department.

(8) Owners or operators of all continuous monitoring systems for measurement of opacity shall reduce all data to six (6) minute averages and for systems other than opacity to one (1) hour averages. Six (6) minute opacity averages shall be calculated from twenty-four (24) or more data points equally spaced over each six (6) minute period. For systems other than opacity, one (1) hour averages shall be computed from four (4) or more data points equally spaced over each one (1) hour period. Data recorded during periods of system breakdowns, repairs, calibration checks, and zero and span adjustments shall not be included in the data averages computed under this subsection. An arithmetic or integrated average of all data may be used. The data output of all continuous monitoring systems may be recorded in reduced or nonreduced form (e.g. ppm pollutant and percent oxygen or lb/million BTU of pollutant). All excess emissions shall be converted into units of the standard using the applicable conversion procedures specified in regulations within this chapter. After conversion into units of the standard the data may be rounded to the same number of significant digits used in the regulation to specify the applicable standard (e.g. rounded to the nearest one (1) percent opacity).

(9) Upon written application by an owner or operator, the department may allow alternative monitoring procedures or requirements which have been approved by the U. S. Environmental Protection Agency including, but not limited to the following:

(a) Alternative monitoring requirements when installation of a continuous monitoring system or monitoring device specified by this chapter would not provide accurate measurements due to liquid water or other interferences caused by substances with the effluent gases;

(b) Alternative monitoring requirements when the affected facility is infrequently operated;

(c) Alternative monitoring requirements to accommodate continuous monitoring systems that require additional measurements to correct stack moisture conditions;

(d) Alternative locations for installing continuous monitoring systems or monitoring devices when the owner or operator can demonstrate that installation at alternate locations will enable accurate and representative measurements;

(e) Alternative methods of converting pollutant concentration measurements to units of the standards;

(f) Alternative procedures for performing daily checks of zero and span drift that do not involve use of span gases or test cells;

(g) Alternatives to the A.S.T.M. test methods, filed by reference in 401 KAR 50:015, or sampling procedures specified by any regulation;

(h) Alternative continuous monitoring systems that do not meet the design or performance requirements in Performance Specification 1, Appendix B to 40 CFR 60, but adequately demonstrate a definite and consistent relationship between its measurements and the measurements of opacity by a system complying with the requirements in Performance Specification 1. The department may require that such demonstration be performed for each affected facility;

(i) Alternative monitoring requirements when the effluent from a single affected facility or the combined effluent from two (2) or more affected facilities are released to the atmosphere through more than one (1) point.

EUGENE F. MOONEY, Secretary
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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 59:010. New process operations.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of emissions from new process operations which are not subject to another particulate standard within this chapter.

Section 1. Applicability. The provisions of this regulation shall apply to each affected facility, associated with a

process operation, which is not subject to another emission standard with respect to particulates in this chapter, commenced on or after the classification date defined below.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given them in 401 KAR 50:010.

(1) "Process operation" means any method, form, action, operation, or treatment of manufacturing or processing, and shall include any storage or handling of materials or products, before, during, or after manufacturing or processing.

(2) "Process weight" means the total weight of all materials introduced into any affected facility which may cause any emission of particulate matter, but does not include liquid and gaseous fuels charged, combustion air, or uncombined water.

(3) "Process weight rate" means a rate established as follows:

(a) 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.

(b) 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 such a period.

(c) Where the nature of any process operation or the design of any equipment is such as to permit more than one (1) interpretation of this definition, the interpretation which results in the minimum value for allowable emission shall apply.

(4) "Affected facility" as related to process operations means the last operation preceding the emission of air contaminants which results:

(a) In the separation of the air contaminant from the process materials; or

(b) In the conversion of the process materials into air contaminants, but does not include an air pollution abatement operation.

(5) "Classification date" means July 2, 1975.

Section 3. Standard for Particulate Matter. No person shall cause, suffer, allow, or permit the emission into the open air of particulate matter from any affected facility, or from all air pollution control equipment installed on any affected facility which:

(1) Is equal to or greater than twenty (20) percent opacity; or

(2) Is in excess of the quantity specified in Appendix A to this regulation.

Section 4. Test Methods and Procedures. Except as provided in 401 KAR 50:045, performance tests used to demonstrate compliance with Section 3 shall be conducted according to the following methods, filed by reference in 401 KAR 50:015:

(1) Kentucky Method 50 for the emission rates of particulate matter and the associated moisture content.

(2) Reference Method 1 for sample and velocity traverses.

(3) Reference Method 2 for velocity and volumetric flow rate.

(4) Reference Method 3 for gas analysis.

(5) Reference Method 9 for visible emissions.

(6) For Kentucky Method 50, Reference Method 1 shall be used to select the sampling site and the number of traverse sampling points. The sampling time for each run shall be at least sixty (60) minutes and the minimum sample volume shall be 0.85 dscm (thirty (30) dscf) except that smaller sampling time or volumes, when necessitated by process variables or other factors, may be approved by the department.

APPENDIX A TO 401 KAR 59:010
ALLOWABLE RATE OF PARTICULATE EMISSION BASED ON PROCESS WEIGHT RATE

Process Weight Rate		Maximum Allowable Emission Rate
Lb/Hr.	Ton/Hr.	Lb/Hr.
100 or less	0.05 or less	0.56
200	0.10	0.86
400	0.20	1.32
600	0.30	1.70
800	0.40	2.03
1,000	0.50	2.34
1,500	0.75	3.00
2,000	1.00	3.59
2,500	1.25	4.12
3,000	1.50	4.62
3,500	1.75	5.08
4,000	2.00	5.52
5,000	2.50	6.34
6,000	3.00	7.09
7,000	3.50	7.81
8,000	4.00	8.48
9,000	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	1,000.00	52.28
6,000,000	3,000.00	62.32

Interpolation of the data for process weight rates up to 60,000 lb/hr. shall be accomplished by use of the equation

$$E = 3.59P^{0.62}$$

and interpolation and extrapolation of the date for process weight rates in excess of 60,000 lb/hr. shall be accomplished by the use of the equation

$$E = 17.31P^{0.16}$$

where E = rate of emission in lb/hr and P = process weight rate in tons/hr.

EUGENE F. MOONEY, Secretary
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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 59:015. New indirect heat exchangers.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of emissions from new indirect heat exchangers.

Section 1. Applicability. The provisions of this regulation shall apply to each affected facility commenced on or after the applicable classification date defined below.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given them in 401 KAR 50:010 and 401 KAR 50:025.

(1) "Affected facility" means an indirect heat exchanger having a heat input capacity of more than one (1) million BTU per hour.

(2) "Indirect heat exchanger" means any piece of equipment, apparatus or contrivance 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.

(3) "Classification date" means:

(a) August 17, 1971 for affected facilities with a capacity of more than 250 million BTU per hour heat input with respect to particulate emissions, sulfur dioxide emissions and (if fuels other than lignite are burned) nitrogen oxide emissions;

(b) April 9, 1972 for affected facilities with a capacity of 250 million BTU per hour heat input or less with respect to particulate emissions and sulfur dioxide emissions;

(c) December 22, 1976 for affected facilities with a capacity of more than 250 million BTU per hour heat input with respect to nitrogen oxides if lignite is the fuel burned.

Section 3. Method for Determining Allowable Emission Rates. (1) Except as provided in subsection (3) of this section, the total rated heat input capacity of all affected facilities within a source, including those for which an application to construct, modify or reconstruct has been submitted to the department, shall be used as specified in Sections 4 and 5 to determine the allowable emission in terms of pounds of effluent per million BTU input.

(2) At such time as any affected facility is assigned an allowable emission rate by the department, at not time thereafter shall that rate be changed due to inclusion or shutdown of any affected facility at the source.

(3) (a) A source may petition the department to establish an allowable emission rate which may be apportioned without regard to individual heat input provided that the conditions specified in paragraphs (b), (c), (d), (e), and (f) of this subsection are met. Such allowable emission rate shall be determined according to the following equation:

$$F = (AB + DE)/C$$

Where:

A = the allowable emission rate (in pounds of effluent per million BTU input) as determined according to subsection (1) of this section;

B = the total rated heat input (in millions of BTU per hour) of all affected facilities commenced on or after the applicable classification date within a source, including those for which an application to construct, modify, or reconstruct has been submitted to the department;

C = the total rated heat input (in millions of BTU per hour) of all affected facilities within a source, including those for which an application to construct, modify, or reconstruct has been submitted to the department;

D = the allowable emission rate (in pounds of effluent per million BTU input) as determined according to 401 KAR 61:005, Section 3(1);

E = the total rated heat input (in millions of BTU per hour) of all affected facilities commenced before the applicable classification date;

F = the alternate allowable emission rate (in pounds of effluent per actual million BTU input).

(b) At no time shall the owner or operator of the source allow the total emissions (in pounds of effluent per hour) from all affected facilities within the source divided by the total actual heat input (in millions of BTU per hour) of all affected facilities within the source to exceed the alternate allowable emission rate as determined by paragraph (a) of this subsection.

(c) At no time shall the owner or operator of the source allow the emissions from any affected facility commenced on or after the applicable classification date to exceed the allowable emission rate determined by use of that affected facility's rated heat input (instead of the heat input as determined by subsection (1) of this section) as specified in this section and Section 5.

(d) The owner or operator of the source must demonstrate compliance with this subsection by conducting a performance test according to 401 KAR 50:045 on each affected facility under such conditions as may be specified by the department.

(e) Upon petition, the department will establish an alternate emission rate in accordance with this subsection if the owner or operator demonstrates to the department's satisfaction that the source will maintain compliance with this subsection on a continual basis.

Section 4. Standard for Particulate Matter. Except as provided in Section 3(3), no owner or operator of an affected facility subject to the provisions of this regulation shall cause to be discharged into the atmosphere from that affected facility, particulate matter in excess of that specified below:

(1) For sources having a total heat input capacity, as determined by Section 3(1), which is:

(a) Ten (10) million BTU per hour or less, the standard is 0.56 pounds per million BTU actual heat input;

(b) 250 million BTU per hour or more, the standard is 0.10 pounds per million BTU actual heat input;

(c) If the affected facility subject to this regulation commenced before the effective date of this regulation, for heat input values between those specified in paragraphs (a) and (b) of this subsection, the standard in pounds per million BTU actual heat input, is equal to: 0.9634 times that quantity obtained by raising the total heat input capacity (in millions of BTU per hour) to the -0.2356 power;

(d) If the affected facility subject to this regulation commenced on or after the effective date of this regulation, for heat input values between those specified in paragraphs (a) and (b) of this subsection, the standard in pounds per

million BTU actual heat input, is equal to: 1.919 times that quantity obtained by raising the total heat input capacity (in millions of BTU per hour) to the -0.535 power;

(2) Emissions which exhibit greater than twenty (20) percent opacity except:

(a) That, for cyclone or pulverized fired indirect heat exchangers, a maximum of twenty-seven (27) percent opacity shall be permissible for not more than one six-minute period in any sixty (60) consecutive minutes.

(b) That, for stoker fired indirect heat exchangers, a maximum of forty (40) percent opacity shall be permissible for not more than six (6) consecutive minutes in any sixty (60) consecutive minutes during cleaning the fire box or blowing soot.

(c) For emissions from an indirect heat exchanger during building a new fire for the period required to bring the boiler up to operating conditions provided the method used is that recommended by the manufacturer and the time does not exceed the manufacturer's recommendations.

Section 5. Standard for Sulfur Dioxide. Except as provided in Section 3(3), no owner or operator of an affected facility subject to the provisions of this regulation shall cause to be discharged into the atmosphere from that affected facility, any gases which contain sulfur dioxide in excess of that specified below:

(1) In counties classed other than VA (with respect to sulfur dioxide) for sources which have a total heat input capacity, as determined by Section 3(1), which is:

(a) Ten (10) million BTU per hour or less, the standard is three (3.0) pounds per million BTU actual heat input for combustion of liquid and gaseous fuels and five (5.0) pounds per million BTU actual heat input for combustion of solid fuels;

(b) 250 million BTU per hour or more, the standard is 0.8 pounds per million BTU actual heat input for combustion of liquid and gaseous fuels and 1.2 pounds per million BTU actual heat input for combustion of solid fuels;

(c) For heat input values between those specified in paragraphs (a) and (b) of this subsection, the standard in pounds per million BTU actual heat input, is equal to:

1. For combustion of liquid and gaseous fuels, 7.7223 times that quantity obtained by raising the total heat input capacity (in millions of BTU per hour) to the -0.4106 power;

2. For combustion of solid fuels, 13.8781 times that quantity obtained by raising the total heat input capacity (in millions of BTU per hour) to the -0.4434 power.

(2) In Class VA counties (with respect to sulfur dioxide) for sources which have a total heat input capacity, as determined by Section 3(1), which is:

(a) Ten (10) million BTU per hour or less, the standard is three (3.0) pounds per million BTU actual heat input for combustion of liquid and gaseous fuels and five (5.0) pounds per million BTU actual heat input for combustion of solid fuels;

(b) 250 million to 1500 million BTU per hour, the standard is 0.8 pounds per million BTU actual heat input for combustion of liquid and gaseous fuels and 1.2 pounds per million BTU actual heat input for combustion of solid fuels;

(c) For heat input values between those specified in paragraphs (a) and (b) of this subsection, the standard in pounds per million BTU actual heat input, is equal to:

1. For combustion of liquid and gaseous fuels, 7.7223 times that quantity obtained by raising the total heat input capacity (in millions of BTU per hour) to the -0.4106 power;

2. For combustion of solid fuels, 13.8781 times that quantity obtained by raising the total heat input capacity (in millions of BTU per hour) to the -0.4434 power.

(d) More than 1500 million BTU per hour, the standard is 0.4 pounds per million BTU actual heat input for combustion of liquid and gaseous fuels and 0.6 pounds per million BTU actual heat input for combustion of solid fuels.

(3) When different fuels are burned simultaneously in any combination the applicable standard shall be determined by proration using the equation given in Appendix A of this regulation.

(4) Compliance shall be based on the total heat input from all fuels burned, including gaseous fuels.

Section 6. Standard for Nitrogen Oxides. (1) No owner or operator of an affected facility with a heat input capacity of 250 million BTU per hour or more subject to the provisions of this regulation shall cause to be discharged into the atmosphere any gases which contain nitrogen oxides expressed as nitrogen dioxide in excess of:

(a) 0.20 lb. per million BTU heat input (0.36 g. per million cal) derived from gaseous fuel;

(b) 0.30 lb. per million BTU heat input (0.54 g. per million cal) derived from liquid fuel;

(c) 0.70 lb. per million BTU heat input (1.26 g. per million cal) derived from solid fuel (except lignite);

(d) 0.60 lb. per million BTU heat input (1.08 g. per million cal) derived from lignite or lignite and wood residue except as provided under paragraph (e) of this subsection;

(e) .80 lb. per million BTU derived from lignite which is mined in North Dakota, South Dakota, or Montana and which is burned in a cyclone-fired unit.

(2) Except as provided in subsections (3) and (4) of this section, when different fuels are burned simultaneously in any combination, the applicable standard shall be determined by proration using the equation given in Appendix B to this regulation.

(3) When a fossil fuel containing at least twenty-five (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.

(4) Cyclone-fired units which burn fuel containing at least twenty-five (25) percent of lignite that is mined in North Dakota, South Dakota, or Montana remain subject to subsection (1)(e) of this section regardless of the types of fuel combusted in combination with that lignite.

Section 7. Emission and Fuel Monitoring. The provisions of this section shall apply to any affected facility of more than 250 million BTU per hour rated heat input capacity.

(1) Each owner or operator shall install, calibrate, maintain, and operate continuous monitoring systems for measuring the opacity of emissions, sulfur dioxide emissions, nitrogen oxides emissions and either oxygen or carbon dioxide except as provided in subsection (2) of this section.

(2) Certain of the continuous monitoring system requirements under subsection (1) of this section do not apply to owners or operators under the following conditions:

(a) For an indirect heat exchanger that burns only gaseous fuel, continuous monitoring systems for measuring the opacity of emissions are not required;

(b) For an indirect heat exchanger that burns only natural gas, continuous monitoring systems for measuring sulfur dioxide emissions are not required;

(c) Notwithstanding 401 KAR 59:005, Section 4(2), installation of a continuous monitoring system for nitrogen oxides may be delayed until after the initial performance tests under 401 KAR 59:005, Section 2, have been conducted. If the owner or operator demonstrates during the performance test that emissions of nitrogen oxides are less than seventy (70) percent of the applicable standards in Section 6, a continuous monitoring system for measuring nitrogen oxides emissions is not required. If the initial performance test results show that nitrogen oxide emissions are greater than seventy (70) percent of the applicable standard, the owner or operator shall install a continuous monitoring system for nitrogen oxides within one (1) year after the date of the initial performance tests under 401 KAR 59:005, Section 2, and comply with all other applicable monitoring requirements under this chapter;

(d) If an owner or operator does not install any continuous monitoring systems for sulfur oxides and nitrogen oxides, as provided under paragraphs (a) and (c) or paragraphs (b) and (c) of this subsection, a continuous monitoring system for measuring either oxygen or carbon dioxide is not required.

(3) For performance evaluations under 401 KAR 59:005, Section 4(3), and calibration checks under 401 KAR 59:005, Section 4(4), the following procedures shall be used:

(a) Reference Methods 6 and 7, filed by reference in 401 KAR 50:015, as applicable, shall be used for conducting performance evaluations of sulfur dioxide and nitrogen oxides continuous monitoring systems;

(b) Sulfur dioxide or nitric oxide, as applicable, shall be used for preparing calibration gas mixtures under Performance Specification 2 of Appendix B to 40 CFR 60, filed by reference in 401 KAR 50:015;

(c) For affected facilities burning fossil fuel(s), the span value for a continuous monitoring system measuring the opacity of emissions shall be eighty (80), ninety (90), or 100 percent and for a continuous monitoring system measuring sulfur oxides or nitrogen oxides the span value shall be determined as shown in Appendix C of this regulation;

(d) All span values computed under subsection (3)(c) of this section for burning combinations of fuels shall be rounded to the nearest 500 ppm;

(e) For an indirect heat exchanger that simultaneously burns fossil fuel and nonfossil fuel, the span value of all continuous monitoring systems shall be subject to the department's approval.

(4) A continuous monitoring system for measuring either oxygen or carbon dioxide in the flue gases, shall be installed, calibrated, maintained and operated by the owner or operator.

(5) For any continuous monitoring system installed under subsection (1) of this section, the following conversion procedures shall be used to convert the continuous monitoring data into units of the applicable standards (ng/J, lb/million BTU):

(a) When a continuous monitoring system for measuring oxygen is selected, the measurement of the pollutant concentration and oxygen concentration shall each be on a consistent basis (wet or dry). Alternative procedures approved by the department and the U. S. Environmental Protection Agency shall be used when measurements are on a wet basis. When measurements are on a dry basis, the following conversion procedure shall be used:

$$E = (20.9CF)/(20.9 - \%\ \text{oxygen})$$

where:
E, C, F, and % oxygen are determined under subsection (6) of this section.

(b) When a continuous monitoring system for measuring carbon dioxide is selected, the measurement of a pollutant concentration and carbon dioxide concentration shall each be on a consistent basis (wet or dry) and the following conversion procedure shall be used:

$$E = (100\ CFc)/(\%\ \text{carbon dioxide})$$

where:
E, C, Fc and % carbon dioxide are determined under subsection (6) of this section.

(6) The values used in the equations under subsection (5)(a) and (b) of this section are derived as follows:

(a) E = Pollutant emission, g/million cal (lb/million BTU).

(b) C = Pollutant concentration, g/dscm (lb/dscf), determined by multiplying the average concentration (ppm) for each one-hour period by .0000415 M g/dscm per ppm (2.59 times ten (10) raised to the minus nine (9) power times M lb/dscf per ppm) where M = pollutant molecular weight, g/g-mole (lb/lb-mole). M = 64.07 for sulfur dioxide and 46.01 for nitrogen oxides.

(c) F, Fc = a factor representing a ratio of the volume of dry flue gases generated to the calorific value of the fuel combusted (F), and a factor representing a ratio of the volume of carbon dioxide generated to the calorific value of the fuel combusted (Fc), respectively, as folows (A.S.T.M. designations are filed by reference in 401 KAR 50:015.):

1. For anthracite coal as classified according to A.S.T.M. D388-66(72), F = 10,140 dscf/million BTU and Fc = 1980 scf CO2/million BTU.

2. For sub-bituminous and bituminous coal as classified according to A.S.T.M. D388-66(72), F = 9820 dscf/million BTU and Fc = 1810 scf CO2/million BTU.

3. For liquid fossil fuels including crude, residual, and distillate oils, F = 9220 dscf/million BTU and Fc = 1430 scf CO2/million BTU.

4. For gaseous fossil fuels, F = 8740 dscf/million BTU. For natural gas, propane and butane fuels, Fc = 1040 scf CO2/million BTU for natural gas, 1200 scf CO2/million BTU for propane, and 1260 scf CO2/million BTU for butane.

5. For bark, F = 9575 dscf/million BTU and Fc = 1927 scf CO2/million BTU. For wood residue other than bark, F = 9233 dscf/million BTU and Fc = 1842 scf CO2/million BTU.

6. For lignite coal is classified according to A. S. T. M. D388-66, F = 9900 dscf/mm BTU and Fc = 1920 scf CO2/mm BTU.

(d) The owner or operator may use the equation given in Appendix D of this regulation to determine an F factor (dscm/million cal, or dscf/million BTU) on a dry basis (if it is desired to calculate F on a wet basis, consult with the department) or Fc factor (scm CO2/million cal, or scf CO2/million BTU) on either basis in lieu of the F or Fc factors specified in paragraph (c) of this subsection.

1. H, C, S, N, and O are content by weight of hydrogen, carbon, sulfur, nitrogen, and oxygen (expressed as percent), respectively, as determined on the same basis as GCV by ultimate analysis of the fuel fired using A. S. T. M. method D3178-73 or D3176-74 (solid fuels) or computed from results using A. S. T. M. methods D1137-53(75), D1945-64(73), or D1946-67(72) (gaseous fuels) as applicable.

2. GCV is the gross calorific value (cal/g, BTU/lb) of the fuel combusted determined by A. S. T. M. test methods

D2015-66(72) for solid fuels and D1826-64(70) for gaseous fuels as applicable.

(e) For affected facilities firing combinations of fuels, the F or Fc factors determined by paragraphs (c) and (d) of this subsection shall be prorated in accordance with the applicable formula as given in Appendix E of this regulation.

(7) For the purpose of reports required under 401 KAR 59:005, Section 3(3), periods of excess emissions that shall be reported are defined as follows:

(a) Excess emissions are defined as any six (6) minute period during which the average opacity of emissions exceeds twenty (20) percent opacity, except that one six (6) minute average per hour of up to twenty-seven (27) percent opacity need not be reported.

(b) Sulfur dioxide. Excess emissions for affected facilities are defined as: Any three (3) hour period during which the average emissions (arithmetic average of three (3) contiguous one (1) hour periods) of sulfur dioxide as measured by a continuous monitoring system exceed the applicable standard under Section 5.

(c) Nitrogen oxides. Excess emissions for affected facilities using a continuous monitoring system for measuring nitrogen oxides are defined as any three (3) hour period during which the average emissions (arithmetic average of three (3) contiguous one (1) hour periods) exceed the applicable standards under Section 6.

(8) The department may require for any indirect heat exchanger unit of 250 million BTU per hour heat input or less any or all the emission and fuel monitoring required by this section.

Section 8. Test Methods and Procedures. (1) The reference methods in Appendix A of 40 CFR 60 except as provided in 401 KAR 50:045 shall be used to determine compliance with the standards as prescribed in Sections 4, 5, and 6 as follows:

(a) Reference Method 1 for the selection of sampling site and sample traverses;

(b) Reference Method 3 for gas analysis to be used when applying Reference Methods 5, 6, and 7;

(c) Reference Method 5 for concentration of particulate matter and the associated moisture content;

(d) Reference Method 6 for the concentration of sulfur dioxide; and

(e) Reference Method 7 for the concentration of nitrogen oxides.

(2) For Reference Method 5, Reference Method 1 shall be used to select the sampling site and the number of traverse sampling points. The sampling time for each run shall be at least sixty (60) minutes and the minimum sampling volume shall be 0.85 dscm (30 dscf) except that smaller sampling times or volumes, when necessitated by process variables or other factors, may be approved by the department. The probe and filter holder heating systems in the sampling train shall be set to provide a gas temperature no greater than 160°C (320°F).

(3) For Reference Methods 6 and 7, the sampling site shall be the same as that selected for Reference Method 5. The sampling point in the duct shall be at the centroid of the cross section or at a point no closer to the walls than one (1) m (3.28 ft). For Reference Method 6, the sample shall be extracted at a rate proportional to the gas velocity at the sampling point.

(4) For Reference Method 6, the minimum sampling time shall be twenty (20) minutes and the minimum sampling volume shall be 0.02 dscm (0.71 dscf) for each sample. The arithmetic mean of two (2) samples shall constitute one (1) run. Samples shall be taken at approximately thirty (30) minute intervals.

(5) For Reference Method 7, each run shall consist of at least four (4) grab samples taken at approximately fifteen (15) minute intervals. The arithmetic mean of the samples shall constitute the run value.

(6) For each run using the methods specified by Section 8(1)(a), (b) and (c) of this regulation, the emissions expressed in g/million cal (lb/million BTU) shall be determined by the following procedure: $E = (20.9\ CF)/(20.9 - \%\ \text{oxygen})$ where:

(a) E = pollutant emission g/million cal (lb/million BTU).

(b) C = pollutant concentration, g/dscm (lb/dscf), determined by Reference Methods 5, 6 or 7.

(c) % oxygen = oxygen content by volume (expressed as percent), dry basis. Percent oxygen shall be determined by using the integrated or grab sampling and analysis procedures of Reference Method 3 as applicable. The sample shall be obtained as follows:

1. For determination of sulfur dioxide and nitrogen oxides emissions, the oxygen sample shall be obtained simultaneously at the same point in the duct as used to obtain the samples for Reference Methods 6 and 7 determinations, respectively. For Reference Method 7, the oxygen sample shall be obtained using the grab sampling and analysis procedures of Reference Method 3.

2. For determination of particulate emissions, the oxygen sample shall be obtained simultaneously by traversing the duct at the same sampling location used for each run of Reference Method 5 under Section 8(2). Reference Method 1 shall be used for selection of the number of traverse points except that no more than twelve (12) sample points are required.

(d) F = a factor as determined in Section 7(6)(c), (d), or (e).

(7) When combination of fossil fuels are fired, the heat input, expressed in cal/hr (BTU/hr), shall be determined during each testing period by multiplying the gross calorific value of each fuel fired by the rate of each fuel burned. Gross calorific value shall be determined in accordance with A. S. T. M. methods D2015-66(72) (solid fuels), D240-76 (liquid fuels), or D1826-64(70) (gaseous fuels) as applicable. The rate of fuels burned during each testing period shall be determined by suitable methods and shall be confirmed by a material balance over the steam generation system.

APPENDIX A TO 401 KAR 59:015
DETERMINATION OF ALLOWABLE SULFUR DIOXIDE EMISSION

Allowable sulfur dioxide emission in pounds per million BTU per hour heat input =

$$\frac{y\,(a) + z\,(b)}{y + z}$$

Where:

y is the percent of total heat input derived from liquid or gaseous fuel,

z is the percent of total heat input derived from solid fuel,

a is the allowable sulfur dioxide emission in pounds per million BTU heat input derived from liquid or gaseous fuel, and

b is the allowable sulfur dioxide emission in pounds per million BTU heat input derived from solid fuel.

APPENDIX B TO 401 KAR 59:015 DETERMINATION OF ALLOWABLE NITROGEN DIOXIDE EMISSION

Allowable nitrogen dioxide emission in pounds per million BTU/hour heat input =

$$\frac{x(0.20) + y(0.30) + z(0.70) + w(0.60)}{x + y + z + w}$$

Where:
x is the percent of total heat input derived from gaseous fuel and,
y is the percent of total heat input derived from liquid fuel and,
z is the percent of total heat input derived from solid fuel (except lignite),
w is the percent of total heat input derived from lignite.

APPENDIX C TO 401 KAR 59:015 DETERMINATION OF SPAN VALUE (in parts per million)

Fossil Fuel	Span Value for Sulfur Dioxide	Span Value for Nitrogen Oxides
Gas	*	500
Liquid	1,000	500
Solid	1,500	500
Combinations	1,000y + 1,500z	500(x + y) + 1,000z

* Not applicable

Where:
x = the fraction of total heat input derived from gaseous fossil fuel, and
y = the fraction of total heat input derived from liquid fossil fuel, and
z = the fraction of total heat input derived from solid fossil fuel.

APPENDIX D TO 401 KAR 59:015 DETERMINATION OF F OR Fc FACTOR

(metric units)

$$F = \frac{277(\%H) + 95.7(\%C) + 35.4(\%S) + 8.6(\%N) - 28.5(\%O_2)}{GCV}$$

$$Fc = \frac{20.0\,(\%C)}{GCV}$$

(English units)

$$F = \frac{10^6[3.65(\%H) + 2.53(\%C) + .57(\%S) + .14(\%N) - .46(\%O)]}{GCV}$$

$$Fc = \frac{321 \times 10^3\,(\%C)}{GCV}$$

Where:
H, C, S, N, and O are content by weight of hydrogen, carbon, sulfur, nitrogen, and oxygen (expressed as percent) respectively, as determined on the same basis as GCV by untimate analysis of the fuel fire, using A.S.T.M. method D3178-73 or D3176-74 (solid fuels) or computed from results using A.S.T.M. methods D1137-53(75), D1945-64(73), or D1946-67(72) (gaseous fuels) as applicable.

GCV is the gross calorific value (cal/g, BTU/lb) of the fuel combusted, determined by A.S.T.M. test methods D2015-66(72) for solid fuels and D1826-64(70) for gaseous fuels as applicable.

APPENDIX E TO 401 KAR 59:015 DETERMINATION OF F OR Fc FACTOR FOR FIRING COMBINATIONS

$$F = xF_1 + yF_2 + zF_3$$

Where:
x, y, z = the fraction of total heat input derived from gaseous, liquid, and solid fuel, respectively.
F_1, F_2, F_3 = the value of F for gaseous liquid, and solid fuels respectively under Section 7(6)(c) and (d).

$$Fc = \sum_{i=1}^{n} X_i\,(Fc)i$$

Where:
X_i = the fraction of total heat input derived from each type fuel (e.g., natural gas, butane, crude bituminous coal, etc.)
(Fc)i = the applicable Fc factor for each fuel type determined in accordance with Section 7(6)(c) and (d).

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 59:020. New incinerators.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation is to provide standards of performance for new incinerators.

Section 1. Applicability. The provisions of this regulation shall apply to each affected facility which means each incinerator commenced on or after the applicable classification date defined below.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given them in 401 KAR 50:010.

(1) "Incinerator" means any furnace used in the process of burning waste for the purpose of reducing the volume of the waste by removing combustible matter.

(2) "Day" means twenty-four (24) hours.
(3) "Auxiliary fuel" means 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.
(4) "Classification date" means:
(a) August 17, 1971 for incinerators with a charging rate of more than fifty (50) tons/day,
(b) April 9, 1972 for incinerators with a charging rate of fifty (50) tons/day or less.

Section 3. Standards for Particulate Matter. (1) No owner or operator of any affected facility shall cause, suffer, allow, or permit the emission produced by the incineration of any substance to have greater than ten (10) percent opacity.
(2) No owner or operator of an affected facility of 500 lb/hr up to and including forty-five (45) metric tons per day charging rate (fifty (50) tons/day) shall cause to be discharged into the atmosphere from any affected facility any gases which contain particulate matter in excess of 0.23 g/dscm (0.1 gr/dscf) corrected to twelve (12) percent carbon dioxide excluding the contribution of carbon dioxide from auxiliary fuel.
(3) On and after the date on which the performance test required to be conducted by 401 KAR 59:005 is completed, no owner or operator of an affected facility of more than forty-five (45) metric tons per day charging rate (fifty (50) tons/day) shall cause to be discharged into the atmosphere from any affected facility any gases which contain particulate matter in excess of 0.18 g/dscm (0.08 gr/dscf) corrected to twelve (12) percent carbon dioxide excluding the contribution of carbon dioxide from auxiliary fuel.

Section 4. Monitoring of Operations. The owner or operator of an affected facility of more than forty-five (45) metric tons per day charging rate (fifty (50) tons per day) shall record the daily charging rates and hours of operation.

Section 5. Nameplate. All affected facilities shall have a nameplate installed in a conspicuous place on the unit giving the manufacturer's name, model number, rated capacity, and the types of waste material for which the unit is designed.

Section 6. Test Methods and Procedures. (1) The reference methods as defined in Appendix A of 40 CFR 60, filed by reference in 401 KAR 50:015, except as provided for in 401 KAR 50:045, shall be used to determine compliance with the standards prescribed in Section 3 as follows:
(a) Reference Method 5 for the concentration of particulate matter and the associated moisture content;
(b) Reference Method 1 for sample and velocity traverses;
(c) Reference Method 2 for velocity and volumetric flow rate; and
(d) Reference Method 3 for gas analysis and calculation of excess air, using the integrated sample technique.
(2) The sampling time for each run shall be at least sixty (60) minutes and the minimum sample volume shall be 0.85 dscm (30.0 dscf) except that smaller sampling times or sample volumes, when necessitated by process variables or other factors, may be approved by the department.
(3) If a wet scrubber is used, the gas analysis sample shall reflect flue gas conditions after the scrubber, allowing for carbon dioxide absorption by sampling the gas on the scrubber inlet and outlet sides according to either the procedure under paragraphs (a) through (f) of this subsection or the procedure under Section 7.
(a) The inlet site shall be selected according to Reference Method 1 or as specified by the department.
(b) The outlet sampling site shall be the same as for the particulate matter measurement.
(c) Randomly select nine (9) sampling points within the cross-section at both the inlet and outlet sampling sites. Use the first set of three (3) for the first run, the second set for the second run, and the third set for the third run.
(d) Simultaneously with each particulate matter run, extract and analyze for carbon dioxide an integrated gas sample traversing the three (3) sample points and sampling at each point for equal increments of time. Conduct the runs at both inlet and outlet sampling sites.
(e) Measure the volumetric flow rate at the inlet during each particulate matter run using the full number of traverse points. For the inlet make two (2) full velocity traverses approximately one (1) hour apart during each run and average the results. The outlet volumetric flow rate may be determined from the particulate matter run.
(f) Calculate the adjusted carbon dioxide percentage using the equation in Appendix A of this regulation.

Section 7. Alternatively, the following procedures may be substituted for the procedures under Section 6(3)(d), (e) and (f).
(1) Simultaneously with each particulate matter run, extract and analyze for carbon dioxide, oxygen, and nitrogen an integrated gas sample traversing the three (3) sample points and sampling for equal increments of time at each point. Conduct the runs at both the inlet and outlet sampling sites.
(2) After completing the analysis of the gas sample, calculate the percentage of excess air for both the inlet and outlet sampling sites.
(3) Calculate the adjusted carbon dioxide percentage using the equation in Appendix B of this regulation.
(4) Particulate matter emissions, expressed in g/dscm, shall be corrected to twelve (12) percent carbon dioxide by using the formula in Appendix C of this regulation.

Section 8. Emission Monitoring. A continuous monitoring system for the measurement of opacity of emissions discharged into the atmosphere from each incinerator with a charging capacity of more than forty-five (45) metric tons per day (fifty (50) tons/day) shall be installed, calibrated, maintained, and operated by the owner or operator subject to the provisions of this regulation.

APPENDIX A TO 401 KAR 59:020
CALCULATION FOR ADJUSTED CARBON DIOXIDE PERCENTAGE FOR INCINERATORS

$$\%\,CO_2A = \%\,CO_2D\,(Q_i/Q_o)$$

where:
$\%\,CO_2A$ is the adjusted carbon dioxide percentage which removes the effect of carbon dioxide absorption and dilution air.
$\%\,CO_2D$ is the percentage of carbon dioxide measured before the scrubber, dry basis.
Q_i is the volumetric flow rate before the scrubber average of two (2) runs, dscf/min, and
Q_o is the volumetric flow rate after the scrubber, dscf/min.

APPENDIX B TO 401 KAR 59:020
CALCULATION FOR ADJUSTED CARBON DIOXIDE PERCENTAGE INCINERATOR, ALTERNATE PROCEDURE

$$\%CO_2A = \%CO_2D \frac{100 + \%EA_i}{100 + \%EA_o}$$

where:
$\%CO_2A$ is the adjusted outlet carbon dioxide percentage,
$\%CO_2D$ is the percentage of carbon dioxide measured before the scrubber, dry basis,
$\%EA_i$ is the percentage of excess air at the inlet, and
$\%EA_o$ is the percentage of excess air at the outlet.

APPENDIX C TO 401 KAR 59:020
PARTICULATE EMISSIONS CORRECTION CALCULATION FOR INCINERATORS, ALTERNATE PROCEDURE

$$C_{12} = \frac{12C_p}{\%CO_2}$$

where:
C_{12} is the concentration of particulate matter corrected to twelve (12) percent carbon dioxide,
C_p is the concentration of particulate matter and,
$\%CO_2$ is the percentage of measured carbon dioxide or when applicable, the adjusted outlet carbon dioxide percentage as determined by Appendix B to this regulation.

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 59:025. New portland cement plants.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of emissions from new portland cement plants.

Section 1. Applicability. The provisions of the regulation shall apply to the following affected facilities in portland cement plants commenced on or after the classification date defined below: kiln, clinker cooler, raw mill system, finish mill system, raw mill dryer, raw material storage, clinker storage, finished product storage, conveyor transfer points, bagging and bulk loading and unloading systems.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given them in 401 KAR 50:010.
(1) "Portland cement plant" means any facility manufacturing portland cement by either the wet or dry process.
(2) "Classification date" means August 17, 1971.

Section 3. Standard for Particulate Matter. (1) On and after the date on which the performance test required to be conducted by 401 KAR 59:005 is completed, no owner or operator subject to the provisions of this regulation shall cause to be discharged into the atmosphere from any kiln any gases which:
(a) Contain particulate matter in excess of 0.15 kg per metric ton of feed (dry basis) to the kiln (0.30 lb per ton).
(b) Exhibit greater than twenty (20) percent opacity.
(2) On and after the date on which the performance test required to be conducted by 401 KAR 59:005 is completed, no owner or operator subject to the provisions of this regulation shall cause to be discharged into the atmosphere from any clinker cooler any gases which:
(a) Contain particulate matter in excess of 0.050 kg per metric ton of feed (dry basis) to the kiln (0.10 lb. per ton).
(b) Exhibit ten (10) percent opacity, or greater.
(3) On and after the date on which the performance test required to be conducted by 401 KAR 59:005 is completed, no owner or operator subject to the provisions of this regulation shall cause to be discharged into the atmosphere from any affected facility other than the kiln and clinker cooler any gases which exhibit ten (10) percent opacity, or greater.

Section 4. Monitoring of Operations. The owner or operator of any portland cement plant subject to the provisions of this regulation shall record the daily production rates and kiln feed rates.

Section 5. Test Methods and Procedures. (1) The reference methods as defined in Appendix A of 40 CFR 60, filed by reference in 401 KAR 50:015, except as provided in 401 KAR 50:045, shall be used to determine compliance with the standards prescribed in Section 3 as follows:
(a) Reference Method 5 for the concentration of particulate matter and the associated moisture content;
(b) Reference Method 1 for sample and velocity traverses;
(c) Reference Method 2 for velocity and volumetric flow rate; and
(d) Reference Method 3 for gas analysis.
(2) For determination of particulates, the minimum sampling time and minimum sample volume for each run (except when process variables or other factors justify otherwise to the satisfaction of the department) shall be as follows:
(a) Sixty (60) minutes and 0.85 dscm (30.0 dscf) for the kiln.
(b) Sixty (60) minutes and 1.15 dscm (40.0 dscf) for the clinker cooler.
(3) Total kiln feed rate (except fuels), expressed in metric tons per hour on a dry basis, shall be determined during each testing period by suitable methods; and shall be confirmed by a material balance over the production system.
(4) For each run, particulate matter emissions, expressed in g/metric ton of kiln feed, shall be determined by dividing the emission rate in g/hr by the kiln feed rate. The

emission rate shall be determined by the equation, g/hr = (Qs) (c), where Qs = volumetric flow rate of the total effluent in dscm/hr, and c = particulate concentration in g/dscm.

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 59:030. New nitric acid plants.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of emissions from new nitric acid plants.

Section 1. Applicability. The provisions of this regulation shall apply to each affected facility which means each nitric acid production unit commenced on or after the classification date defined below.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given them in 401 KAR 50:010.

(1) "Classification date" means August 17, 1971.

(2) "Nitric acid production unit" means any facility producing weak nitric acid by either the pressure or atmospheric pressure process.

(3) "Weak acid production unit" means acid which is thirty (30) to seventy (70) percent by weight in strength.

Section 3. Standard for Nitrogen Oxides. On and after the date on which the performance test required to be conducted by 401 KAR 59:005 is completed, no owner or operator subject to the provisions of this regulation shall cause to be discharged into the atmosphere from any affected facility any gases which:

(1) Contain nitrogen oxides, expressed as nitrogen dioxide, in excess of 1.5 kg per metric ton of acid produced (3.0 lb per ton), the production being expressed as 100 percent nitric acid.

(2) Exhibit ten (10) percent opacity, or greater.

Section 4. Emission Monitoring. (1) A continuous monitoring system for the measurement of nitrogen oxides shall be installed, calibrated, maintained and operated by the owner or operator. The pollutant gas used to prepare calibration gas mixtures under paragraph 2.1, Performance Specification 2 of Appendix B of 40 CFR 60, filed by reference in 401 KAR 50:015, and for calibration checks under 401 KAR 59:005, Section 4(4), shall be nitrogen dioxide. The span shall be set at 500 ppm of nitrogen dioxide. Reference Method 7 of Appendix A of 40 CFR 60 shall be used for conducting monitoring system performance evaluations under 401 KAR 59:005, Section 4(3).

(2) The owner or operator shall establish a conversion factor for the purpose of converting monitoring data into units of applicable standard (kg/metric ton, lb/ton). The conversion factor shall be established by measuring emissions with the continuous monitoring system concurrently with measuring emissions with the applicable reference method tests. Using only that portion of the continuous monitoring emission data that represents emission measurements concurrent with the reference method test periods, the conversion factor shall be determined by dividing the reference method test data averages by the monitoring data averages to obtain a ratio expressed in units of the applicable standard to units of the monitoring data, i.e., kg/metric ton per ppm (lb/ton per ppm). The conversion factor shall be re-established during any performance test under 401 KAR 59:005 or any continuous monitoring system performance evaluation under 401 KAR 59:005, Section 4(3).

(3) The owner or operator shall record the daily production rate and hours of operation.

(4) For the purpose of reports required under 401 KAR 59:005, Section 3, periods of excess emissions that shall be reported are defined as any three (3) hour period during which the average nitrogen oxides emissions (arithmetic average of three (3) contiguous one (1) hour periods) as measured by a continuous monitoring system exceed the standard under Section 3.

Section 5. Test Methods and Procedures. (1) The reference methods as defined in Appendix A of 40 CFR 60, except as provided for in 401 KAR 50:045, shall be used to determine compliance with the standards prescribed in Section 3 as follows:

(a) Reference Method 7 for the concentration of NO_x;

(b) Reference Method 1 for sample and velocity traverses;

(c) Reference Method 2 for velocity and volumetric flow rate; and

(d) Reference Method 3 for gas analysis.

(2) The sampling point shall be the center of cross-sectional area of the stack or duct or at a point no closer to the walls than one (1) m (3.28 ft). Each run shall consist of at least four (4) grab samples taken at approximately fifteen (15) minute intervals. The arithmetic mean of the samples shall constitute the run value. A velocity traverse shall be performed once per run.

(3) Acid production rate, expressed in metric tons per hour of 100 percent nitric acid, shall be determined during each testing period by suitable methods and shall be confirmed by a material balance over the production system.

(4) For each run, nitrogen oxides, expressed in g/metric ton of 100 percent nitric acid, shall be determined by dividing the emission rate in g/hr by the acid production rate. The emission rate shall be determined by the equation:

$$g/hr = (Qs)(C)$$

where Qs = volumetric flow rate of the effluent in dscm/hr,

and c = nitrogen oxides (NO_x) concentration in g/dscm.

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 59:035. New sulfuric acid plants.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation is to provide standards of performance for new sulfuric acid plants.

Section 1. Applicability. The provisions of this regulation shall apply to each affected facility which is each sulfuric acid production unit commenced on or after the classification date defined below.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given them in 401 KAR 50:010.

(1) "Sulfuric acid production unit" means any facility producing sulfuric acid by the contact process by burning elemental sulfur, alkylation acid, hydrogen sulfide, organic sulfides and mercaptans, or acid sludge but does not include facilities where conversion to sulfuric acid is utilized primarily as a means of preventing emissions to the atmosphere of sulfur dioxide or other sulfur compounds.

(2) "Acid mist" means sulfuric acid mist, as measured by Method 8 of Appendix A of 40 CFR 60, filed by reference in 401 KAR 50:015, or an equivalent or alternative method.

(3) "Classification date" means August 17, 1971.

Section 3. Standard for Sulfur Dioxide. On and after the date on which the performance test required to be conducted by 401 KAR 59:005 is completed, no owner or operator subject to the provisions of this regulation shall cause to be discharged into the atmosphere from any affected facility any gases which contain sulfur dioxide in excess of two (2) kg per metric ton of acid produced (four (4) lb. per ton), the production being expressed as 100 percent sulfuric acid.

Section 4. Standard for Acid Mist. On and after the date on which the performance test required to be conducted by 401 KAR 59:005 is completed, no owner or operator of an affected facility shall allow to be discharged into the atmosphere from any affected facility any gases which:

(1) Contain acid mist in excess of 0.075 kg per metric ton of acid produced (0.15 lb per ton), the production being expressed as 100 percent sulfuric acid.

(2) Exhibit ten (10) percent opacity, or greater.

Section 5. Emission Monitoring. (1) A continuous monitoring system for the measurement of sulfur dioxide shall be installed, calibrated, maintained, and operated by the owner or operator. The pollutant gas used to prepare calibration gas mixture under paragraph 2.1, Performance Specification 2 of Appendix B to 40 CFR 60 and for calibration checks under 401 KAR 59:005, Section 4(3), shall be sulfur dioxide. Reference Method 8 shall be used for conducting monitoring system performance evaluations under 401 KAR 59:005, Section 4(3), except that only the sulfur dioxide portion of the Reference Method 8 results shall be used. The span shall be set at 1,000 ppm of sulfur dioxide.

(2) The owner or operator shall establish a conversion factor for the purpose of converting monitoring data into units of the applicable standard (kg/metric ton, lb/ton). The conversion factor shall be determined, as a minimum, three (3) times daily by measuring the concentration of sulfur dioxide entering the converter using suitable methods (e.g., the Reich test) and calculating the appropriate conversion factor for each eight (8) hour period as follows:

$$CF = k \frac{(1.000-0.015r)}{r-s}$$

where:

CF = conversion factor (kg/metric ton per ppm, lb/ton per ppm).

k = constant derived from material balance. For determining CF in metric units, k = 0.0653. For determining CF in English units, k = 0.1306.

r = percentage of sulfur dioxide by volume entering the gas converter. Appropriate corrections must be made for air injection plants subject to the department's approval.

s = percentage of sulfur dioxide by volume in the emissions to the atmosphere determined by the continuous monitoring system required under subsection (1) of this section.

(3) The owner or operator shall record all conversion factors and values under subsection (2) of this section from which they were computed (i.e., CF, r, and s).

(4) For the purpose of reports under 401 KAR 59:005, Section 3(3), periods of excess emissions shall be all three (3) hour periods (or the arithmetic average of three (3) consecutive one (1) hour periods) during which the integrated average sulfur dioxide emissions exceed the applicable standards under Section 3.

Section 6. Test Methods and Procedures. (1) The reference methods as defined in Appendix A of 40 CFR 60, except as provided for in 401 KAR 50:045, shall be used to determine compliance with the standards prescribed in Sections 3 and 4 as follows:

(a) Reference Method 8 for the concentrations of sulfur dioxide and acid mist;

(b) Reference Method 1 for sample and velocity traverses;

(c) Reference Method 2 for velocity and volumetric flow rate; and

(d) Reference Method 3 for gas analysis.

(2) The moisture content can be considered to be zero. For determination of sulfur dioxide and acid mist, the sampling time for each run shall be at least sixty (60) minutes and the minimum sample volume shall be 1.15 dscm (40.6 dscf) except that smaller sampling times or sample volumes, when necessitated by process variables or other factors, may be approved by the department.

(3) Acid production rate, expressed in metric tons per hour of 100 percent sulfuric acid, shall be determined during each testing period by suitable methods and shall be confirmed by a material balance over the production system.

(4) Acid mist and sulfur dioxide emissions, expressed in g/metric ton of 100 percent sulfuric acid shall be determined by dividing the emission rate in g/hr by the acid production rate. The emission rate shall be determined by the

equation, g/hr = (Qs)(c), where Qs = volumetric flow rate of the effluent in dscm/hr, and c = acid mist and sulfur dioxide concentrations in g/dscm as determined in accordance with subsection (1)(a) of this section.

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 59:040. New asphalt concrete plants.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of emissions from new asphalt concrete plants.

Section 1. Applicability. The provisions of this regulation shall apply to each affected facility which means each asphalt concrete plant commenced on or after the classification date defined below. For the purpose of this regulation, an asphalt concrete plant is comprised only of any combination of the following: Dryers; systems for screening, handling, storing, and weighing hot aggregate; systems for loading, transferring, and storing mineral filler; systems for mixing asphalt concrete; and the loading, transfer and storage systems associated with emission control systems.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given them in 401 KAR 50:010.
(1) "Asphalt concrete plant" means any facility, as described in Section 1, used to manufacture asphalt concrete by heating and drying aggregrate and mixing with asphalt cements.
(2) "Classification date" means June 11, 1973.

Section 3. Standard for Particulate Matter. On and after the date on which the performance test required to be conducted by 401 KAR 59:005 is completed, no owner or operator subject to the provisions of this regulation shall discharge or cause the discharge into the atmosphere from any affected facility any gases which:
(1) Contain particulate matter in excess of ninety (90) mg/dscm (0.04 gr/dscf).
(2) Exhibit twenty (20) percent opacity, or greater.

Section 4. Test Methods and Procedures. (1) The reference methods as defined in Appendix A of 40 CFR 60, filed by reference in 401 KAR 50:015, except as provided for in 401 KAR 50:045, shall be used to determine compliance with the standards prescribed in Section 3 as follows:

(a) Reference Method 5 for the concentration of particulate matter and the associated moisture content,
(b) Reference Method 1 for sample and velocity traverses,
(c) Reference Method 2 for velocity and volumetric flow rate, and
(d) Reference Method 3 for gas analysis.
(2) For determination of the concentration of particulate matter, the sampling time for each run shall be at least sixty (60) minutes and the sampling rate shall be at least 0.9 dscm/hr (0.53 dscf/min), except that shorter sampling times (when necessitated by process variables or other factors) may be approved by the department.

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
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401 KAR 59:045. New petroleum refineries.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation is to provide standards of performance for new petroleum refineries.

Section 1. Applicability. (1) The provisions of this regulation are applicable to the following affected facilities in petroleum refineries; fluid catalytic cracking unit catalyst regenerators, fuel gas combustion devices, and all Claus sulfur recovery plants except Claus plants of twenty (20) long tons per day (LTD) or less associated with a small petroleum refinery. The Claus sulfur recovery plant need not be physically located within the boundaries of a petroleum refinery to be an affected facility, provided it processes gases produced within a petroleum refinery.
(2) Any fluid catalytic cracking unit catalyst regenerator or fuel gas combustion device under subsection (1) of this section which commences on or after the classification date defined in Section 2(14) or any Claus sulfur recovery plant under subsection (1) of this section which commences on or after the classification date defined in Section 2(14) is subject to the requirements of this regulation.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given them in 401 KAR 50:010.
(1) "Petroleum refinery" means any facility engaged in producing gasoline, kerosene, distillate fuel oils, residual fuel oils, lubricants, or other products through distillation of petroleum or through redistillation, cracking or reforming of unfinished petroleum derivatives.
(2) "Petroleum" means the crude oil removed from the earth and the oils derived from tar sands, shale and coal.

(3) "Process gas" means any gas generated by a petroleum refinery process unit, except fuel gas and process upset gas as defined in this section.

(4) "Fuel gas" means any gas which is generated by a petroleum refinery process unit and which is combusted, including any gaseous mixture of natural gas and fuel gas which is combusted.

(5) "Process upset gas" means any gas generated by a petroleum refinery process unit as a result of startup, shutdown, upset or malfunction.

(6) "Refinery process unit" means any segment of the petroleum refinery in which a specific processing operation is conducted.

(7) "Fuel gas combustion device" means any equipment, such as process heaters, boilers and flares used to combust fuel gas, but does not include fluid coking unit and fluid catalytic cracking unit incinerator-waste heat boilers or facilities in which gases are combusted to produce sulfur or sulfuric acid.

(8) "Coke burn-off" means the coke removed from the surface of the fluid catalytic cracking unit catalyst by combustion in the catalyst regenerator. The rate of coke burn-off is calculated by the formula specified in Appendix A of this regulation.

(9) "Claus sulfur recovery plant" means a process unit which recovers sulfur from hydrogen sulfide by a vapor-phase catalytic reaction of sulfur dioxide and hydrogen sulfide.

(10) "Oxidation control system" means an emission control system which reduces emissions from sulfur recovery plants by converting these emissions to sulfur dioxide.

(11) "Reduction control system" means an emission control system which reduces emissions from sulfur recovery plants by converting these emissions to hydrogen sulfide.

(12) "Reduced sulfur compounds" means hydrogen sulfide, carbonyl sulfide and carbon disulfide.

(13) "Small petroleum refinery" means a petroleum refinery which has a crude oil processing capacity of 50,000 barrels per stream day or less, and which is owned or controlled by a refinery with a total combined crude oil processing capacity of 137,500 barrels per stream day or less.

(14) "Classification date" means June 11, 1973 for any fluid catalytic cracking unit catalyst regenerator or fuel gas combustion device and October 4, 1976 for any Claus recovery plant.

Section 3. Standard for Particulate Matter. (1) On and after the date on which the performance test required to be conducted by 401 KAR 59:005, Section 2, is completed, no owner or operator subject to the provisions of this regulation shall discharge or cause the discharge into the atmosphere from any fluid catalytic cracking unit catalyst regenerator:

(a) Particulate matter in excess of 1.0 kg/1000 kg (1.0 lb/1000 lb) of coke burn-off in the catalyst regenerator.

(b) Gases exhibiting greater than thirty (30) percent opacity, except for one six (6) minute average opacity reading in any one (1) hour period.

(2) Where the gases discharged by the fluid catalytic cracking unit catalyst regenerator pass through an incinerator or waste heat boiler in which auxiliary or supplemental liquid or solid fossil fuel is burned, particulate matter in excess of that permitted by subsection (1)(a) of this section may be emitted to the atmosphere, except that the incremental rate of particulate matter emissions shall not exceed 43.0 g/MJ (0.10 lb/million BTU) of heat input attributable to such liquid or solid fossil fuel.

Section 4. Standard for Carbon Monoxide. On and after the date on which the performance test required to be conducted by 401 KAR 59:005, Section 2, is completed, no owner or operator subject to the provisions of this regulation shall discharge or cause the discharge into the atmosphere from the fluid catalytic cracking unit catalyst regenerator any gases which contain carbon monoxide in excess of 0.050 percent by volume.

Section 5. Standard for Sulfur Dioxide. On and after the date on which the performance test required to be conducted by 401 KAR 59:005, Section 2, is completed, no owner or operator subject to the provisions of this regulation shall:

(1) Burn in any fuel gas combustion device any fuel gas which contains hydrogen sulfide in excess of 230 mg/dscm (0.10 gr/dscf), except that the gases resulting from the combustion of fuel gas may be treated to control sulfur dioxide emissions provided the owner or operator demonstrates to the satisfaction of the department that this is as effective in preventing sulfur dioxide emissions to the atmosphere as restricting the hydrogen sulfide concentration in the fuel gas to 230 mg/dscm or less. The combustion in a flare of process upset gas, or fuel gas which is released to the flare as a result of relief valve leakage, is exempt from this subsection.

(2) Discharge or cause the discharge of any gases into the atmosphere from any Claus sulfur recovery plant containing in excess of:

(a) 0.025 percent by volume of sulfur dioxide at zero percent oxygen on a dry basis if emissions are controlled by an oxidation control system, or a reduction control system followed by incineration; or

(b) 0.030 percent by volume of reduced sulfur compounds and 0.0010 percent by volume of hydrogen sulfide calculated as sulfur dioxide at zero percent oxygen on a dry basis if emissions are controlled by a reduction control system not followed by incineration.

Section 6. Emission Monitoring. (1) Continuous monitoring systems shall be installed, calibrated, maintained, and operated by the owner or operator as follows:

(a) A continuous monitoring system for the measurement of the opacity of emissions discharged into the atmosphere from the fluid catalytic cracking unit catalyst regenerators. The continuous monitoring system shall be spanned at sixty (60), seventy (70) or eighty (80) percent opacity.

(b) An instrument for continuously monitoring and recording the concentration of carbon monoxide in gases discharged into the atmosphere from fluid catalytic cracking unit catalyst regenerators. The span of this continuous monitoring system shall be 1,000 ppm.

(c) A continuous monitoring system for the measurement of sulfur dioxide in the gases discharged into the atmosphere from the combustion of fuel gases (except where a continuous monitoring system for the measurement of hydrogen sulfide is installed under paragraph (d) of this subsection). The pollutant gas used to prepare calibration gas mixtures under Performance Specification 2 of 40 CFR 60, filed by reference in 401 KAR 50:015, Paragragh 2.1, and for calibration checks under 401 KAR 59:005, Section 4(4), shall be sulfur dioxide. The span shall be set at 100 ppm. For conducting monitoring system performance evaluations under 401 KAR 59:005, Section 4(3), Reference Method 6 shall be used.

(d) An instrument for continuously monitoring and recording concentrations of hydrogen sulfide in fuel gases burned in any fuel gas combustion device, if compliance with Section 5(1) is achieved by removing hydrogen sulfide from the fuel gas before it is burned; fuel gas combustion devices having a common source of fuel gas may be monitored at one location, if monitoring at this location accurately represents the concentration of hydrogen sulfide in the fuel gas burned. The span of this continuous monitoring system shall be 300 ppm.

(e) An instrument for continuously monitoring and recording concentrations of sulfur dioxide in the gases discharged into the atmosphere from any Claus sulfur recovery plant if compliance with Section 5(2) is achieved through the use of an oxidation control system or a reduction control system followed by incineration. The span of this continuous monitoring system shall be set at 500 ppm.

(f) An instrument(s) for continuously monitoring and recording the concentration of hydrogen sulfide and reduced sulfur compounds in the gases discharged into the atmosphere from any Claus sulfur recovery plant if compliance with Section 5(2) is achieved through the use of a reduction control system not followed by incineration. The span(s) of this continuous monitoring system(s) shall be set at twenty (20) ppm for monitoring and recording the concentration of hydrogen sulfide and 600 ppm for monitoring and recording the concentration of reduce sulfur compounds.

(2) The average coke burn-off rate (thousands of kilogram/hr) and hours of operation for any fluid catalytic cracking unit catalyst regenerator subject to Sections 3 or 4 shall be recorded daily.

(3) For any fluid catalytic cracking unit catalyst regenerator which is subject to Section 3 and which utilizes an incinerator-waste heat boiler to combust the exhaust gases from the catalyst regenerator, the owner or operator shall record daily the rate of combustion of liquid or solid fossil fuels (liters/hr or kilograms/hr) and the hours of operation during which liquid or solid fossil fuels are combusted in the incinerator-waste heat boiler.

(4) For the purpose of reports under 401 KAR 59:005, Section 3, periods of excess emissions that shall be reported are defined as follows:

(a) Opacity. All one (1) hour periods which contain two (2) or more six (6) minute periods during which the average opacity as measured by the continuous monitoring system exceeds thirty (30) percent.

(b) Carbon monoxide. All hourly periods during which the average carbon monoxide concentration in the gases discharged into the atmosphere from any fluid catalytic cracking unit catalyst regenerator subject to Section 4 exceeds 0.050 percent by volume.

(c) Sulfur dioxide:

1. Any three (3) hour period during which the average concentration of hydrogen sulfide in any fuel gas combusted in any fuel gas combustion device subject to Section 5(1) exceeds 230 mg/dscm (0.10 gr/dscf), if compliance is achieved by removing hydrogen sulfide from the fuel gas before it is burned; or any three (3) hour period during which the average concentration of sulfur dioxide in the gases discharged into the atmosphere from any fuel gas combustion device subject to Section 5(1) exceeds the level specified in Section 5(1) if compliance is achieved by removing sulfur dioxide from the combusted fuel gases.

2. Any twelve (12) hour period during which the average concentration of sulfur dioxide in the gases discharged into the atmosphere from any Claus sulfur recovery plant subject to Section 5(2) exceeds 250 ppm at zero (0) percent oxygen on a dry basis if compliance with Section 5(2)(b) is achieved through the use of an oxidation control system or a reduction control system followed by incineration; or any twelve (12) hour period during which the average concentration of hydrogen sulfide or reduced sulfur compounds in the gases discharged into the atmosphere of any Claus sulfur plant subject to Section 5(2) exceeds ten (10) ppm or 300 ppm, respectively, at zero (0) percent oxygen and on a dry basis if compliance is achieved through the use of a reduction control system not followed by incineration.

(d) Any six (6) hour period during which the average emissions (arithmetic average of six (6) contiguous one (1) hour periods) of sulfur dioxide as measured by a continuous monitoring system exceed the standard under Section 5.

Section 7. Test Methods and Procedures. (1) The reference methods in Appendix A of 40 CFR 60, except as provided for in 401 KAR 50:045, shall be used to determine compliance with the provisions in Sections 3, 4 and 5 as follows:

(a) For gases released to the atmosphere from the fluid catalytic cracking unit catalyst regenerator:

1. Method 5 for the concentration of particulate matter and moisture content;
2. Method 1 for sample and velocity traverses; and
3. Method 2 for velocity and volumetric flow rate.

(b) For Method 5, the sampling time for each run shall be at least sixty (60) minutes and the sampling rate shall be at least 0.015 dscm/min (0.53 dscf/min), except that shorter sampling times may be approved by the department when process variables or other factors preclude sampling for at least sixty (60) minutes.

(c) For exhaust gases from the fluid catalytic cracking unit catalyst regenerator prior to the emission control system, the integrated sample techniques of Method 3 and Method 4 for gas analysis and moisture content, respectively; Method 1 for velocity traverses; and Method 2 for velocity and volumetric flow rate.

(d) Coke burn-off rate shall be determined by the formula in Appendix A of this regulation.

(e) Particulate emissions shall be determined by the equation in Appendix B of this regulation.

(f) For each run emissions expressed in kg/1000 kg (lb/1000 lb) of coke burn-off in the catalyst regenerator shall be determined by the equation in Appendix C of this regulation.

(g) In those instances in which auxiliary liquid or solid fossil fuels are burned in an incinerator-waste heat boiler, the rate of particulate matter emissions permitted under Section 3(2) must be determined. Auxiliary fuel heat input, expressed in millions of cal/hr (MM BTU/hr) shall be calculated for each run by fuel flow rate measurement and analysis of the liquid or solid auxiliary fossil fuels. For each run, the rate of particulate emissions permitted under Section 3(2) shall be calculated from the equation in Appendix D of this regulation.

(2) For the purpose of determining compliance with Section 4, the integrated sample technique of Method 10 shall be used. The sample shall be extracted at a rate proportional to the gas velocity at a sampling point near the centroid of the duct. The sampling time shall not be less than sixty (60) minutes.

(3) For the purpose of determining compliance with Section 5(1), Method 11 shall be used to determine the concentration of hydrogen sulfide and Method 6 shall be used to determine the concentration of sulfur dioxide.

(a) If Method 11 is used, the gases sampled shall be introduced into the sampling train at approximately atmospheric pressure. Where refinery fuel gas lines are operating at pressures substantially above atmosphere, this may be accomplished with a flow control valve. If the line pressure is high enough to operate the sampling train without a vacuum pump, the pump may be eliminated from the sampling train. The sample shall be drawn from a point near the centroid of the fuel gas line. The minimum sampling time shall be ten (10) minutes and the minimum sampling volume 0.01 dscm (0.35 dscf) for each sample. The arithmetic average of two (2) samples of equal sampling time shall contitute one (1) run. Samples shall be taken at approximately one (1) hour intervals. For most fuel gases, sample times exceeding twenty (20) minutes may result in depletion of the collecting solution, although fuel gases containing low concentrations of hydrogen sulfide may necessitate sampling for longer periods of time.

(b) If Method 6 is used, Method 1 shall be used for velocity traverses and Method 2 for determining velocity and volumetric flow rate. The sampling site for determining sulfur dioxide concentration by Method 6 shall be the same as for determining volumetric flow rate by Method 2. The sampling point in the duct for determining sulfur dioxide concentration by Method 6 shall be at the centroid of the cross section if the cross sectional area is less than five (5) square meters (fifty-four (54) ft. squared) or at a point no closer to the walls than one (1) meter (thirty-nine (39) inches) if the cross sectional area is five (5) square meters or more and the centroid is more than one (1) meter from the wall. The sample shall be extracted at a rate proportional to the gas velocity at the sampling point. The minimum sampling time shall be ten (10) minutes and the minimum sampling volume 0.01 dscm (0.35 dscf) for each sample. The arithmetic average of two (2) samples of equal sampling time shall constitute one (1) run. Samples shall be taken at approximately one (1) hour intervals.

(4) For the purpose of determining compliance with Section 5(2), Method 6 shall be used to determine the concentration of sulfur dioxide and Method 15 shall be used to determine the concentration of sulfur dioxide and reduced sulfur compounds.

(a) If Method 6 is used, the procedure outlined in subsection (3)(b) of this section shall be followed except that each run shall span a minimum of four (4) consecutive hours of continuous sampling. A number of separate samples may be taken for each run, provided the total sampling time of these samples adds up to a minimum of four (4) consecutive hours. Where more than one (1) sample is used, the average sulfur dioxide concentration for the run shall be calculated as the time weighted average of the sulfur dioxide concentration for each sample according to the formula in Appendix E of this regulation.

(b) If Method 15 is used, each run shall consist of sixteen (16) samples taken over a minimum of three (3) hours. The sampling point shall be at the centroid of the cross section of the duct if the cross sectional area is less than five (5) square meters (fifty-four (54) ft. squared) or at a point no closer to the walls than one (1) meter (39 inches) if the cross sectional area is five (5) square meters or more and the centroid is more than one (1) meter from the wall. To insure minimum residence time for the sample inside the sample lines, the sampling rate shall be at least three (3) liters/minute (0.1 cfm). The sulfur dioxide equivalent for each run shall be calculated as the arithmetic average of the sulfur dioxide equivalent of each sample during the run. Reference Method 4 shall be used to determine the moisture content of the gases. The sampling point for Method 4 shall be adjacent to the sampling point for Method 15. The sample shall be extracted at a rate proportional to the gas velocity at the sampling point. Each run shall span a minimum of four (4) consecutive hours of continuous sampling. A number of separate samples may be taken for each run provided the total sampling time of these samples adds up to a minimum of four (4) consecutive hours. Where more than one (1) sample is used, the average moisture content for the run shall be calculated as the time weighted average of the moisture content of each sample according to the formula in Appendix F of this regulation.

(5) An owner or operator of an affected facility may request the department to determine opacity of emissions from the affected facility during any performance test covered under 401 KAR 59:005, Section 2. In such event the provisions of 401 KAR 50:055, Section 2(6) shall apply.

APPENDIX A TO 401 KAR 59:045
Formula for Coke Burn-off Rate

$$R_c = 0.2982 Q_{RE}(\%CO_2 + \%CO) + 2.088 Q_{RA} - 0.0994 Q_{RE}(\%CO/2 + \%CO_2 + \%O_2)$$
(metric units)

or

$$R_c = 0.0186 Q_{RE}(\%CO_2 + \%CO) + 0.1303 Q_{RA} - 0.0062 Q_{RE}(\%CO/2 + \%CO_2 + \%O_2)$$
(English units)

Where:

R_c = coke burn-off rate, kg/hr (lb/hr)

0.2982 = metric units material balance factor divided by 100, kg-min/hr-m^3.

0.0186 = English units material balance factor divided by 100, lb-min/hr-ft^3.

Q_{RE} = fluid catalytic cracking unit catalyst regenerator exhaust gas flow rate before entering the emission control system, as determined by Method 2, dscm/min (dscf/min).

$\%CO_2$ = percent carbon dioxide by volume, dry basis, as determined by Method 3.

$\%CO$ = percent carbon monoxide by volume dry basis, as determined by Method 3.

$\%O_2$ = percent oxygen by volume, dry basis, as determined by Method 3.

2.088 = metric units material balance factor divided by 100, kg-min/hr-m^3.

0.1303 = English units material balance factor divided by 100, lb-min/hr-ft^3

Q_{RA} = air rate to fluid catalytic cracking unit catalyst regenerator, as determined from fluid catalytic cracking unit control room instrumentation, dscm/min (dscf/min).

0.0994 = metric units material balance factor divided by 100, kg-min/hr-m^3.

0.0062 = English units material balance factor divided by 100, lb-min/hr-ft^3.

APPENDIX B TO 401 KAR 59:045
Equation to Determine Particulate Emissions

$$RE = (60 \times 10^{-6}) Q_{RV} C_s \text{ (metric units)}$$

or

$$RE = (8.57 \times 10^{-3}) Q_{RV} C_s \text{ (English units)}$$

or

RE = particulate emission rate, kg/hr (lb/hr)

Where:

60×10^{-6} = metric units conversion factor, min-kg/hr-mg.

8.57×10^{-3} = English units conversion factor, min-lb/hr-gr.

Q_{RV} = volumetric flow rate of gases discharged into the atmosphere from the fluid catalytic cracking unit catalyst regenerator following the emission control system, as determined by Method 2, dscm/min (dscf/min).

C_s = particulate emission concentration discharged into the atmosphere, as determined by Method 5, mg/dscm (gr/dscf).

APPENDIX C TO 401 KAR 59:045

Equation to Determine Emissions (expressed in kg/1000 kg of coke burn-off) in the catalyst regenerator.

$$R_s = 100\ Re/Rc \quad \text{(metric or English units)}$$

Where:

R_s = particulate emission rate, kg/1000 kg (lb/1000 lb) of coke burn-off in the fluid catalytic cracking unit catalyst regenerator.

1000 = conversion factor, kg to 1000 kg (lb to 1000 lb).

Re = particulate emission rate, kg/hr (lb/hr).

Rc = coke burn-off rate, kg/hr (lb/hr)

APPENDIX D TO 401 KAR 59:045

Equation for particulate emissions of auxiliary heat input expressed in millions of cal/hr
(English units: millions of BTU/hr)

$$R_s = 1.0 + \frac{0.18\ H}{R_c} \quad \text{(metric units)}$$

or

$$R_s = 1.0 + \frac{0.10\ H}{Rc} \quad \text{(English units)}$$

Where:

R_s = allowable particulate emission rate, kg/1000 kg (lb/1000 lb) of coke burn-off in the fluid catalytic cracking unit catalyst regenerator.

1.0 = emission standard, 1.0 kg/1000 kg (1.0 lb/1000 lb) of coke burn-off in the fluid catalytic cracking unit catalyst regenerator.

0.18 = metric units maximum allowable incremental rate of particulate emissions, g/million cal.

0.10 = English units maximum allowable incremental rate of particulate emissions, lb/million BTU.

H = heat input from solid or liquid fossil fuel, million cal/hr (million BTU/hr).

R_c = coke burn-off rate, kg/hr (lb/hr).

APPENDIX E TO 401 KAR 59:045

Equation for time weighted average of SO_2 concentration

$$C_R = \sum_{i=1}^{N} C_{Si}\ \frac{t_{Si}}{T}$$

Where:

C_R = SO_2 concentration for the run.

N = Number of samples.

C_{Si} = SO_2 Concentration for sample i.

t_{si} = Continuous sampling time of sample i.

T = Total continuous sampling time of all N samples.

APPENDIX F TO 401 KAR 59:045

Equation for the time weighted average of the moisture content.

$$B_{WO} = \sum_{i=1}^{N} B_{Si}\ \frac{t_{Si}}{T}$$

Where:

B_{wo} = Proportion by volume of water vapor in the gas stream for the run.

N = Number of samples.

B_{si} = Proportion by volume of water vapor in the gas stream for the sample i.

t_{si} = Continuous sampling time for sample i.

T = Total continuous sampling time of all N samples.

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 59:046. Selected new petroleum refining processes and equipment.

RELATES TO: KRS Chapter 224

PURSUANT TO: KRS 13.082, 224.033

NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of hydrocarbon emissions from selected new petroleum refining processes and equipment.

Section 1. Applicability. The provisions of this regulation shall apply to each affected facility commenced on or after the classification date defined below.

Section 2. Definitions. (1) "Affected facility" means vacuum producing systems and process unit turnarounds associated with a petroleum refinery.

(2) "Vacuum producing systems" means equipment which produces a partial vacuum in a vessel.

(3) "Process unit turnaround" means the shutting down, depressurization and purging of a process unit or vessel.

(4) "Classification date" means the effective date of this regulation.

Section 3. Standard for Hydrocarbons. The owner or operator of an affected facility shall install, operate, and maintain all equipment necessary to accomplish the following:

(1) Vacuum producing systems. All gaseous hydrocarbons emitted from condensers, hot wells, vacuum pumps, and accumulators shall be collected and vented to a

firebox, flare or other control device of equivalent efficiency as determined by the department.

(2) Process unit turnaround. The gaseous hydrocarbons purged from a process unit or vessel shall be vented to a firebox, flare, or other control device of equivalent efficiency as determined by the department until the pressure in the process unit is less than five (5) psig.

Section 4. Monitoring and Reporting Requirements. (1) The owner or operator shall:

(a) Keep a record of each process unit turnaround;

(b) Record the approximate hydrocarbon concentration when the hydrocarbons were first discharged to the atmosphere;

(c) Record the approximate total quantity of hydrocarbons emitted to the atmosphere.

(2) The owner or operator shall retain these records for at least two (2) years and submit them to the department upon request.

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 59:050. New storage vessels for petroleum liquids.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of emissions from new storage vessels for petroleum liquid.

Section 1. Applicability. The provisions of this regulation shall apply to each affected facility which means each storage vessel for petroleum liquids commenced on or after the classification date defined below, which has a storage capacity greater than 500 gallons.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given them in 401 KAR 50:010.

(1) "Storage vessel" means any tank, reservoir, or container used for the storage of petroleum liquids, but does not include:

(a) Pressure vessels which are designed to operate in excess of fifteen (15) pounds per square inch gauge without emissions to the atmosphere except under emergency conditions;

(b) Subsurface caverns or porous rock reservoirs; or

(c) 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.

(2) "Petroleum liquids" means crude petroleum, condensate, and any finished or intermediate products manufactured in a petroleum refinery but does not mean Number 2 through Number 6 fuel oils, gas turbine fuel oil Numbers 2-GT through 4-GT, or diesel fuel oils Numbers 2-D and 4-D as specified by the department.

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

(4) "Crude petroleum" means a naturally occurring mixture which consists of hydrocarbons and/or sulfur, nitrogen and/or oxygen derivatives of hydrocarbons and which is a liquid at standard conditions.

(5) "Hydrocarbon" means any organic compound consisting predominantly of carbon and hydrogen.

(6) "Condensate" means hydrocarbon liquid separated from natural gas which condenses due to changes in the temperature and/or pressure and remains liquid at standard conditions.

(7) "True vapor pressure" means the equilibrium partial pressure exerted by a petroleum liquid as determined in accordance with methods specified by the department.

(8) "Floating roof" means 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 petroleum liquid being contained and is equipped with a closure seal or seals to close the space between the roof edge and tank wall.

(9) "Vapor recovery system" means a vapor gathering system capable of collecting all hydrocarbon vapors and gases discharged from the storage vessel and a vapor disposal system capable of processing such hydrocarbon vapors and gases so as to prevent their emission to the atmosphere.

(10) "Reid vapor pressure" is the absolute vapor pressure of volatile crude oil and volatile non-viscous petroleum liquids, except liquefied petroleum gases, as determined by methods specified by the department.

(11) "Submerged fill pipe" means any fill pipe the discharge of which is entirely submerged when the liquid level is six (6) inches above the bottom of the tank; or when applied to a tank which is loaded from the side, shall mean every fill pipe the discharge opening of which is entirely submerged when the liquid level is two (2) times the fill pipe diameter above the bottom of the tank.

(12) "Classification date" means April 9, 1972.

Section 3. Standard for hydrocarbons. The owner or operator of any storage vessel to which this regulation applies shall store petroleum liquids as follows:

(1) If the storage vessel has a storage capacity greater than 40,000 gallons and if the true vapor pressure of the petroleum liquid, as stored, is equal to or greater than seventy-eight (78) mm Hg (1.5 psia) but not greater than 570 mm Hg (11.1 psia) the storage vessel shall be equipped with a floating roof, a vapor recovery system, or their equivalents.

(2) If the storage vessel has a storage capacity greater than 40,000 gallons and if the true vapor pressure of the petroleum liquid as stored is greater than 570 mm Hg (11.1 psia), the storage vessel shall be equipped with a vapor recovery system or its equivalent.

(3) If the storage vessel has a storage capacity greater than 500 gallons, as a minimum it shall be equipped with a permanent submerged fill pipe.

Section 4. Operating Requirements. (1) There shall be no visible holes, tears, or other opening in the seal or any seal fabric; and

(2) All openings, except stub drains, shall be equipped with covers, lids, or seals such that:

(a) The cover, lid, or seal is in the closed position at all times except when in actual use; and

(b) Automatic bleeder vents are closed at all times except when the roof is floated off or landed on the roof leg supports; and

(c) Rim vents, if provided, are set to open when the roof is being floated off the roof leg supports or at the manufacturer's recommended setting.

Section 5. Monitoring of Operations. (1) The owner or operator of any storage vessel to which this regulation applies shall, for each such storage vessel, maintain a file of each type of petroleum liquid stored, of the typical Reid vapor pressure of each type of petroleum liquid stored, and of the dates of storage. Dates on which the storage vessel is empty shall be shown.

(2) The owner or operator of any storage vessel to which this regulation applies shall, for each such storage vessel, determine and record the average monthly storage temperature and true vapor pressure of the petroleum liquid stored at such temperature if:

(a) The petroleum liquid has a true vapor pressure, as stored, greater than twenty-six (26) mm Hg (0.5 psia) but less than seventy-eight (78) mm Hg (1.5 psia) and is stored in a storage vessel other than one equipped with a floating roof, a vapor recovery system or their equivalents; or

(b) The petroleum liquid has a true vapor pressure, as stored, greater than 470 mm Hg (9.1 psia) and is stored in a storage vessel other than one equipped with a vapor recovery system or its equivalent.

(3) The average monthly storage temperature is an arithmetic average calculated for each calendar month, or portion thereof if storage temperatures are determined at least once every seven (7) days.

(4) The true vapor pressure shall be determined by the procedures specified by the department. This procedure is dependent upon determination of the storage temperature and the Reid vapor pressure, which requires sampling of the petroleum liquids in the storage vessels. Unless the department requires in specific cases that the stored petroleum liquid be sampled, the true vapor pressure may be determined by using the average monthly storage temperature and the typical Reid vapor pressure. For those liquids for which certified specifications limiting the Reid vapor pressure exist, the Reid vapor pressure may be used. For other liquids, supporting analytical data must be made available on request to the department when typical Reid vapor pressure is used.

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
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401 KAR 59:055. New secondary lead smelters.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of emissions from new secondary lead smelters.

Section 1. Applicability. The provisions of this regulation shall apply to the following affected facilities (in secondary lead smelters) which commenced on or after the classification date defined below: Pot furnaces of more than 250 kg (550 lb) charging capacity, blast (cupola) furnaces, and reverberatory furnaces.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given them in 401 KAR 50:010.

(1) "Classification date" means June 11, 1973.

(2) "Reverberatory furnace" includes the following types of reverberatory furnaces: stationary, rotating, rocking and tilting.

(3) "Secondary lead smelter" means any facility producing lead from a lead-bearing scrap material by smelting to the metallic form.

(4) "Lead" means elemental lead or alloys in which the predominant component is lead.

Section 3. Standard for Particulate Matter. (1) On and after the date on which the performance test required to be conducted by 401 KAR 59:005 is completed, no owner or operator subject to the provisions of this regulation shall discharge or cause the discharge into the atmosphere from a blast (cupola) or reverberatory furnace any gases which:

(a) Contain particulate matter in excess of fifty (50) mg/dscm (0.022 gr/dscf).

(b) Exhibit twenty (20) percent opacity or greater.

(2) On and after the date on which the performance test required to be conducted by 401 KAR 59:005 is completed, no owner or operator subject to the provisions of this regulation shall discharge or cause the discharge into the atmosphere from any pot furnace any gases which exhibit ten (10) percent opacity or greater.

Section 4. Test Methods and Procedures. (1) The reference methods as defined in Appendix A of 40 CFR 60, filed by reference in 401 KAR 50:015, except as provided for in 401 KAR 50:045, shall be used to determine compliance with the standards prescribed in Section 3 as follows:

(a) Reference Method 5 for the concentration of particulate matter and the associated moisture content;

(b) Reference Method 1 for sample and velocity traverse;

(c) Reference Method 2 for velocity and volumetric flow rate; and

(d) Reference Method 3 for gas analysis.

(2) For determining the concentration of particulate matter and associated moisture content, the sampling time for each run shall be at least sixty (60) minutes and the sampling rate shall be at least 0.9 dscm/hr (0.53 dscf/min)

except that shorter sampling times, when necessitated by process variables or other factors, may be approved by the department. Particulate sampling shall be conducted during representative periods of furnace operation, including charging and tapping.

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
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401 KAR 59:060. New secondary brass and bronze ingot production plants.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of emissions of new secondary brass and bronze ingot production plants.

Section 1. Applicability. The provisions of this regulation shall apply to the following affected facilities (in secondary brass or bronze ingot production plants) which commenced on or after the classification date defined below: Reverberatory and electric furnaces of 1,000 kg (2,205 lb) or greater production capacity and blast (cupola) furnaces of 250 kg/hr (550 lb/hr) or greater production capacity.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given them in 401 KAR 50:010.

(1) "Brass or bronze" means any metal alloy containing copper as its predominant constituent, and lesser amounts of zinc, tin, lead, or other metals.

(2) "Reverberatory furnace" includes the following types of reverberatory furnaces: Stationary, rotating, rocking, and tilting.

(3) "Electric furnace" means any furnace which uses electricity to produce over fifty (50) percent of the heat required in the production of refined brass or bronze.

(4) "Blast furnace" means any furnace used to recover metal from slag.

(5) "Classification date" means June 11, 1973.

Section 3. Standard for Particulate Matter. (1) On and after the date on which the performance test required to be conducted by 401 KAR 59:005 is completed, no owner or operator subject to the provisions of this regulation shall discharge or cause the discharge into the atmosphere from a reverberatory furnace any gases which:

(a) Contain particulate matter in excess of fifty (50) mg/dscm (0.022 gr/dscf).

(b) Exhibit twenty (20) percent opacity or greater.

(2) On and after the date on which the performance test required to be conducted by 401 KAR 59:005 is completed, no owner or operator subject to the provisions of this regulation shall discharge or cause the discharge into the atmosphere from any blast (cupola) or electric furnace any gases which exhibit ten (10) percent opacity or greater.

Section 4. Test Methods and Procedures. (1) The reference methods as defined in Appendix A of 40 CFR 60, filed by reference in 401 KAR 50:015, except as provided for in 401 KAR 50:045, shall be used to determine compliance with the standards prescribed in Section 3 as follows:

(a) Reference Method 5 for the concentration of particulate matter and the associated moisture content;

(b) Reference Method 1 for sample and velocity traverses;

(c) Reference Method 2 for velocity and volumetric flow rate; and

(d) Reference Method 3 for gas analysis.

(2) For Reference Method 5, the sampling time for each run shall be at least 120 minutes and the sampling rate shall be at least 0.9 dscm/hr (0.53 dscf/min) except that shorter sampling times, when necessitated by process variables or other factors, may be approved by the department. Particulate matter sampling shall be conducted during representative periods of charging and refining, but not during pouring of the heat.

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
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401 KAR 59:065. Steel plants using new basic oxygen process furnaces.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of emissions from steel plants using new basic oxygen process furnaces.

Section 1. Applicability. Provisions of this regulation are applicable to the following affected facilities (associated with steel plants) commenced on or after the classification date defined below: basic oxygen process furnaces, associated metallurgical equipment, and dust-handling equipment.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given them in 401 KAR 50:010.

(1) "Basic oxygen process furnaces (BOPF)" means any furnace producing steel by charging scrap steel, hot metal

and flux materials into a vessel and introducing a high volume of an oxygen-rich gas.

(2) "Dust-handling equipment" means any equipment used to handle particulate matter collected by the control device and located at or near the control device for a BOPF and/or associated equipment subject to this regulation.

(3) "Control device" means the air pollution control equipment used to remove from the effluent gas stream, particulate matter generated by a BOPF and/or associated equipment.

(4) "Capture system" means the equipment (including ducts, hoods, fans, dampers, etc.) used to capture or transport particulate matter generated by a BOPF and associated equipment to the air pollution control device.

(5) "Combusted exhaust" means that the oxidizable constituents in the furnace effluent have been combusted in the exhaust system and then cooled and cleaned for discharge to the atmosphere, with or without recuperation of the heat removed.

(6) "Sealed exhaust" means that the furnace effluent is isolated from the atmosphere both upstream from and at the points of removal of particulates and heat. The cooled and cleaned furnace effluent containing oxidizable constituents flows in the sealed duct that delivers it either to combustion facilities or to chemical process facilities.

(7) "Steel production cycle" means the operations required to produce each batch of steel and includes the following major functions: scrap preheating, scrap charging, hot metal charging, oxygen blowing and tapping.

(8) "Startup" means the setting into the operation for the first steel production cycle of a relined BOPF or a BOPF which has been out of production for a minimum continuous time period of eight (8) hours.

(9) "Charge" means the addition of steel scrap or other materials into a BOPF followed by molten pig iron.

(10) "Charging period" means the time period commencing at the moment a BOPF starts to tilt to receive its charge and ending three (3) minutes after the BOPF returns to its upright position.

(11) "Tap" means the pouring of molten steel from a BOPF.

(12) "Tapping period" means the time period commencing at the moment a BOPF begins to tilt to pour and ending three (3) minutes after the BOPF returns to an upright position.

(13) "Heat time" means the period commencing when scrap is charged to an empty BOPF and terminating when the BOPF tap is completed.

(14) "Operations" refer to all metallurgical processes in the shop including but not limited to scrap pre-heating, transferring hot metal, charging, blowing, de-slagging, tapping, teeming, vacuum de-gassing, continuous casting, etc.

(15) "Shop" means the building or bay which houses one or more BOPFs and associated equipment.

(16) "Shop opacity" means the arithmetic average of twenty-four (24) or more opacity observations of emissions from the shop taken in accordance with Reference Method 9 of Appendix A of 40 CFR 60, filed by reference in 401 KAR 50:015, for the applicable time periods.

(17) "Concentrated discharge" means that the outlet from a control device consists of either stacks (one or more) or openings on the device's top or side which has/(have) a total area less than five (5) percent of the corresponding top or side and which has/(have) a length of not more than twice the width.

(18) "Dispersed discharge" means that the outlet from a control device consists of opening(s) on the device's top or side which has/(have) a total area exceeding five (5) percent of the corresponding top or side or which have a length more than twice the width. An affected facility may have both dispersed and concentrated discharges.

(19) "Classification date" means June 11, 1973.

Section 3. Standard for Particulate Matter. On and after the date on which the performance test required to be conducted by 401 KAR 59:005, Section 2, is completed, no owner or operator subject to the provisions of this regulation shall cause to be discharged into the atmosphere from a basic oxygen process furnace and/or associated metallurgical equipment located in the same shop any gases which:

(1) Exit from a control device and contain particulate matter in excess of:

(a) .010 gr/dscf from a combusted exhaust;

(b) .022 gr/dscf from a sealed (uncombusted) exhaust.

(2) Exit from a control device and exhibit opacity of:

(a) Five (5) percent or more from a combusted dispersed exhaust;

(b) Ten (10) percent or more from a combusted, concentrated exhaust or from a sealed, dispersed exhaust;

(c) Twenty (20) percent or more from a sealed, concentrated exhaust.

(3) Exit from a shop and, due to operations of a BOPF and/or associated metallurgical equipment exhibit shop opacity greater than ten (10) percent.

(4) On and after the date on which the performance test required to be conducted by 401 KAR 59:005, Section 2, is completed, no owner or operator subject to the provisions of this regulation shall cause to be discharged into the atmosphere from dust-handling equipment any gases which exhibit ten (10) percent opacity or greater.

Section 4. Standard for Carbon Monoxide. No owner or operator subject to the provisions of this regulation shall emit carbon monoxide gases generated during operation of a BOPF with sealed exhaust unless they are burned at 1,300°F for 0.5 seconds or longer in a direct flame afterburner or equivalent device equipped with a properly positioned indicating pyrometer.

Section 5. Emission Monitoring. (1) A continuous monitoring system for the measurement of the opacity of emissions discharged into the atmosphere from the control device(s) with a concentrated discharge shall be installed, calibrated, maintained and operated by the owner or operator subject to the provisions of this regulation.

(2) For the purpose of reports under 401 KAR 59:005, Section 3, periods of excess emissions that shall be reported are defined as all six (6) minute periods during which the average opacity is in excess of the appropriate opacity standard in Section 3(2).

Section 6. Monitoring of Operations. (1) The owner or operator subject to the provisions of this regulation shall maintain records daily of the following information:

(a) Time and duration of each charge;

(b) Time and duration of each tap;

(c) Time and duration of each diversion of exhaust gases from the main stack serving each BOPF;

(d) All data obtained under subsection (2) of this section, or equivalent obtained under subsection (5) of this section.

(2) Except as provided under subsection (5) of this section, the owner or operator subject to the provisions of this regulation shall:

(a) Install, calibrate, and maintain monitoring devices that continuously record:

1. The volumetric flow rate through each separately ducted BOPF hood. The monitoring device(s) may be installed in any appropriate location in the exhaust duct such that reproducible flow rate monitoring will result. The flow rate monitoring device(s) shall have an accuracy of plus or minus ten (10) percent over its normal operating range and shall be calibrated according to the manufacturer's instructions. The department may require the owner or operator to demonstrate the accuracy of the monitoring device(s) relative to Reference Methods 1 and 2 of Appendix A of 40 CFR 60.

2. The pressure loss through the control device. The monitoring device is to be certified by the manufacturer to be accurate within plus or minus five (5) percent of the device's rated pressure loss.

3. The water supply pressure to the control device if the device is of the wet type. The monitoring device is to be certified by the manufacturer to be accurate within plus or minus five (5) percent of the design water supply pressure. The monitoring device's pressure sensor or pressure tap must be located close to the water discharge point. The department may be consulted for approval of alternative locations for the pressure sensor or tap.

(b) Synchronize each day the monitoring devices required in paragraph (a) of this subsection with the single time measuring instrument that measures the times and duration that are required by the provisions of subsection (1) of this section. The chart recorder error directly after synchronization shall not exceed 0.08 cm (one-thirty-second of an inch).

(c) Operate the chart recorders on all monitoring devices at a minimum chart speed of 3.8 cm/hr (1.5 in/hr).

(d) Recalibrate annually all monitoring devices, and at other times as the department may require, in accordance with the manufacturer's recommended procedures.

(3) Any owner or operator subject to requirements under subsection (2) of this section shall report for each calendar quarter all measurements over any three-hour period that average more than ten (10) percent below the average levels maintained during the most recent performance test conducted under Section 7 in which the affected facility demonstrated compliance with the standard under Section 3. The accuracy of the respective measurements may be taken into consideration when determining the measurement results that must be reported.

(4) When the owner or operator of a BOPF is required to demonstrate compliance with the standard under Section 3(3), and at any other time the department may require, the volumetric flow rate through separately ducted BOPF hood shall be determined during all periods in which the hood is operated for the purpose of capturing emissions from the BOPF using the monitoring device under subsection (2) of this section. The owner or operator may petition the department for re-establishment of these flow rates whenever the owner or operator can demonstrate to the department's satisfaction that the BOPF operating conditions upon which the flow rates were previously established are no longer applicable. The flow rates determined during the most recent demonstration of compliance shall be maintained (or may be exceeded) at the appropriate level for each applicable period. Operation at lower flow rates may be considered by the department to be unacceptable operation and maintenance of the affected facility.

(5) The owner or operator may petition the department to approve any alternative method that will provide a continuous record of operation of each emission capture system.

(6) Where the capture system is designed and operated such that all emissions are captured and ducted to a control device, the owner or operator shall not be subject to the requirements of this section.

Section 7. Test Methods and Procedures. (1) Reference methods in Appendix A of 40 CFR 60, except as provided under 401 KAR 50:045, shall be used to determine compliance with the standards prescribed under Section 3 as follows:

(a) Reference Method 5 for the concentration of particulate matter and associated moisture content;

(b) Reference Method 1 for sample and velocity traverses. Sampling of flue gases during each steel production cycle shall be discontinued whenever all flue gases are diverted from the stack and shall be resumed after each diversion period;

(c) Reference Method 2 for velocity and volumetric flow rate;

(d) Reference Method 3 for gas analysis; and

(e) Reference Method 9 for opacity determination. For the purpose of this regulation, opacity observations taken at fifteen (15) second intervals immediately before and after a diversion of exhaust gases from the stack may be considered to be consecutive for the purpose of computing an average opacity for a six (6) minute period. Observations taken during a diversion shall not be used in determining compliance with the opacity standard.

(2) For Reference Method 5, the sampling for each run shall continue for an integral number of cycles with total duration of at least sixty (60) minutes. The sampling rate shall be at least 0.9 dscm/hr (0.53 dscf/min) except that shorter sampling times when necessitated by process variables or other factors, may be approved by the department. A cycle shall start at the beginning of either the scrap preheat or the oxygen blow and shall terminate immediately prior to tapping.

(3) For the purpose of this regulation, the owner or operator shall conduct the demonstration of compliance with Section 3 and furnish the department a written report of the results of the test.

(4) During any performance test required under 401 KAR 59:005, Section 2, no gaseous diluents may be added to the effluent gas stream after any collector, unless the amount of dilution is separately determined and considered in the determination of emissions.

(5) When more than one (1) control device serves the BOPF being tested, the concentration of particulate matter shall be determined using the equation given in Appendix A to this regulation.

(6) Any control device subject to the provisions of this regulation shall be designed and constructed to allow measurement of volumetric flow rate and emissions using applicable test methods and procedures.

(7) Where emissions from any BOPF(s) are combined with emissions from other affected facilities in the same shop and controlled by a common capture system and control device, the owner or operator may use any of the following procedures during a performance test:

(a) Base compliance on control of the combined emissions;

(b) Utilize a method acceptable to the department which compensates for the emissions from the other affected facilities.

(c) Any combination of the criteria of paragraphs (a) and (b) of this subsection.

APPENDIX A TO 401 KAR 59:065
DETERMINATION OF PARTICULATE MATTER CONCENTRATION

$$C = \frac{\sum_{n=1}^{N} (CQ)_n}{\sum_{n=1}^{N} (Q)_n}$$

Where:
C = concentration of particulate matter in mg/dscm (gr/dscf) as determined by Method 5.
N = total number of control devices tested.
Q = volumetric flow rate of the effluent gas stream in dscm/hr (dscf/hr) as determined by Method 2.
$(CQ)_n$ or $(Q)_n$ = value of the applicable parameter for each control device tested (n).

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401 KAR 59:070. New sewage treatment plants.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of emissions from new incinerators which burn sludge produced by municipal sewage treatment facilities.

Section 1. Applicability. The provisions of this regulation shall apply to each affected facility which is each incinerator commenced on or after the classification date defined below which combusts wastes containing more than ten (10) percent sewage sludge (dry basis) produced by municipal sewage treatment plants, or each incinerator that charges more than 1000 kg (2205 lb) per day municipal sewage sludge (dry basis).

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given them in 401 KAR 50:010. "Classification date" means June 11, 1973.

Section 3. Standard for Particulate Matter. On and after the date on which the performance test required to be conducted by 401 KAR 59:005 is completed, no owner or operator or any sewage sludge incinerator subject to the provisions of this regulation shall discharge or cause the discharge into the atmosphere of:
(1) Particulate matter at a rate in excess of 0.65 g/kg dry sludge input (1.30 lb/ton dry sludge input).
(2) Any gases which exhibit twenty (20) percent opacity or greater.

Section 4. Monitoring of Operations. The owner or operator of any sludge incinerator subject to the provisions of this regulation shall:
(1) Install, calibrate, maintain, and operate a flow measuring device which can be used to determine either the mass or volume of sludge charged to the incinerator. The flow measuring device shall have an accuracy of plus or minus five (5) percent over its operating range.
(2) Provide access to the sludge charged so that a well-mixed representative grab sample of the sludge can be obtained.
(3) Install, calibrate, maintain and operate a weighing device for determining the mass of any municipal solid waste charged to the incinerator when sewage sludge and municipal solid waste are incinerated together. The weighing device shall have an accuracy of plus or minus five (5) percent over its operating range.

Section 5. Test Methods and Procedures. (1) The reference methods, as defined in Appendix A of 40 CFR 60, filed by reference in 401 KAR 50:015, except as provided under 401 KAR 50:045, shall be used to determine compliance with the standards prescribed in Section 3 as follows:
(a) Reference Method 5 for the concentration of particulate matter and associated moisture content;
(b) Reference Method 1 for sample and velocity traverses;
(c) Reference Method 2 for volumetric flow rate; and
(d) Reference Method 3 for gas analysis.
(2) For Reference Method 5, the sampling time for each run shall be at least sixty (60) minutes and the sampling rate shall be at least 0.015 dscm/min (0.53 dscf/min), except that shorter sampling times, when necessitated by process variables or other factors may be approved by the department.
(3) Dry sludge charging rate shall be determined as follows:
(a) Determine the mass (Sm) or volume (Sv) of sludge charged to the incinerator during each run using a flow measuring device meeting the requirements of Section 4(1). If total input during a run is measured by a flow measuring device, such readings shall be used. Otherwise, record the flow measuring device readings at five (5) minute intervals during a run. Determine the quantity charged during each interval by averaging the flow rates at the beginning and end of the interval and then multiplying the average for each interval by the time for each interval. Then add the quantity for each interval to determine the total quantity charged during the entire run, (Sm) or (Sv).
(b) Collect samples of the sludge charged to the incinerator in non-porous collecting jars at the beginning of each run and at approximately one (1) hour intervals thereafter until the test ends, and determine for each sample the dry sludge content (total solids residue) in accordance with the method specified by the department.
(c) Determine the quantity of dry sludge per unit sludge charged in terms of either average quantity of dry sludge per unit volume of sludge charged to the incinerator, or average ratio of quantity of dry sludge to quantity of sludge charged to the incinerator.
1. If the volume of sludge charged is used, the equation in Appendix A to this regulation shall be used to determine the quantity of dry sludge per unit sludge charged.
2. If the mass of sludge charged is used, the equation in

Appendix B to this regulation shall be used to determine the quantity of dry sludge per unit sludge charged.

(4) Particulate emission rate shall be determined by the equation in Appendix C of this regulation.

(5) Compliance with Section 3(1) shall be determined by the formula in Appendix D of this regulation.

APPENDIX A TO 401 KAR 59:070

Equation to determine the quantity of dry sludge per unit sludge charged, using volume of sludge charged.

$$S_d = (60 \times 10^{-3}) \frac{R_{DV} S_V}{T} \quad \text{(metric units)}$$

$$S_D = (8.021) \frac{R_{DV} S_V}{T} \quad \text{(English units)}$$

Where:

S_D = average dry sludge charging rate during the run, kg/hr. (lb/hr).

R_{DV} = average quantity of dry sludge per unit volume of sludge charged to the incinerator, mg/l (lb/ft³).

S_V = sludge charged to the incinerator during the run, m³ (gal).

T = duration of run, min.

60 x 10^{-3} = metric units conversion factor, l-kg-min/m³-mg-hr.

8.021 = English units conversion factor, ft³-min/gal-hr.

APPENDIX B TO 401 KAR 59:070

Equation to determine the quantity of dry sludge per unit charged, using the mass of sludge charged.

$$S_D = (60) \frac{R_{DM} S_M}{T} \quad \text{(metric or English units)}$$

Where:

S_D = average dry sludge charging rate during the run, kg/hr (lb/hr.)

R_{DM} = average ratio of quantity of dry sludge to quantity of sludge charged to the incinerator, mg/mg (lb/lb).

S_M = sludge charged during the run, kg (lb).

T = duration of run, min.

60 = conversion factor, min/hr.

APPENDIX C TO 401 KAR 59:070

Equation to determine particulate emission rate.

$$C_{aw} = C_s Q_s \text{ (metric or English units)}$$

Where:

C_{aw} = particulate matter mass emissions, mg/hr (lb/hr).

C_s = particulate matter concentration, mg/m³ (lb/dscf).

Q_s = volumetric stack gas flow rate, dscm/hr (dscf/hr). Q_s and C_s shall be determined using Methods 2 and 5, respectively.

APPENDIX D TO 401 KAR 59:070

Equation to determine compliance with Section 3(1).

$$C_{ds} = (10^{-3}) \frac{C_{aw}}{S_D} \quad \text{(metric units)}$$

$$C_{ds} = (2000) \frac{C_{aw}}{S_D} \quad \text{(English units)}$$

Where:

D_{ds} = particulate emission discharge, g/kg dry sludge (lb/ton dry sludge).

10^{-3} = metric conversion factor, g/mg.

2000 = English conversion factor, lb/ton.

C_{aw} = Particulate matter mass emissions as calculated from Appendix C to this regulation.

401 KAR 59:081-5

EUGENE F. MOONEY, Secretary

ADOPTED: November 14, 1978

RECEIVED BY LRC: November 14, 1978 at 9 a.m.

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 59:080. New kraft (sulfate) pulp mills.

RELATES TO: KRS Chapter 224

PURSUANT TO: KRS 13.082, 224.033

NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of emissions from new kraft (sulfate) pulp mills.

Section 1. Applicability. The provisions of this regulation shall apply to each affected facility which:

(1) Is associated with a kraft (sulfate) pulp mill;

(2) Is not subject to another standard of performance within this chapter with respect to particulates or total reduced sulfur;

(3) Commenced on or after the classification date defined below but before September 24, 1976.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given them in 401 KAR 50:010.

(1) "Total reduced sulfur (TRS)" means all reduced sulfur compounds including but not limited to hydrogen sulfide, methyl mercaptan, dimethyl sulfide, and dimethyl disulfide expressed in terms of hydrogen sulfide.

(2) "Classification date" means April 9, 1972.

Section 3. Standard for Particulate Matter. No person shall cause, suffer, allow, or permit particulate emissions from the following affected facilities in excess of:

(1) Recovery furnace: 2.3 pounds per ton of equivalent unbleached dried pulp produced;

(2) Lime kilns: 1.0 pound per ton of equivalent unbleached air dried pulp produced;
(3) Dissolving smelt tanks: 0.5 pounds per ton of equivalent unbleached air dried pulp produced;
(4) No person shall cause, suffer, allow, or permit visible emissions in excess of thirty-five (35) percent opacity.

Section 4. Standard for Total Reduced Sulfur (TRS). (1) No person shall cause, suffer, allow, or permit total reduced sulfur emissions from the recovery furnace of any kraft (sulfate) pulp mill in excess of an exit stack gas concentration of fifteen (15) parts per million by volume expressed as an arithmetic average over any consecutive twenty-four (24) hour period.
(2) No person shall cause, allow, or permit total reduced sulfur emissions from the recovery furnace of any kraft (sulfate) pulp mill in excess of an exit stack gas concentration of forty (40) parts per million by volume for more than sixty (60) total minutes in any twenty-four (24) hour period.
(3) No person shall cause, suffer, allow, or permit the emission of various noncondensable gas streams from digester relief, blow tank relief, evaporator hot wells, or multiple effect evaporators containing total reduced sulfur in any affected facility unless treated by thermal oxidation or an equivalent method with ninety-eight (98) percent efficiency.
(4) Control of other points of emission of total reduced sulfur, shall be considered on an individual basis as determined by the department.

Section 5. Test Methods and Procedures. Except as provided in 401 KAR 50:045, performance tests used to demonstrate compliance with Sections 3 and 4 shall be conducted according to the following methods, filed by reference in 401 KAR 50:015:
(1) Reference Method 5 for the emission rates of particulate matter and the associated moisture content.
(2) Reference Method 1 for sample and velocity traverses.
(3) Reference Method 2 for velocity and volumetric flow rate.
(4) Reference Method 3 for gas analysis.
(5) Reference Method 9 for visible emissions.
(6) Reference Method 16 for the concentration of TRS. All concentrations of TRS from the lime kiln and recovery furnace that are measured as required by this subsection shall be corrected to ten (10) percent by volume oxygen and eight (8) percent by volume oxygen, respectively, when the oxygen concentrations exceed these values.
(7) Reference Method 17 (in-stack filtration) may be used as an alternative method for Reference Method 5 provided that a constant value of 0.009 g/dscm (0.004 gr/dscf) is added to the results of Reference Method 17 and the stack temperature is no greater than 205°C. (400°F).
(8) For particulate tests, the sampling time for each run shall be at least sixty (60) minutes and the sampling rate shall be at least 0.85 dscm/hr (0.53 dscf/hr) except that shorter sampling times, when necessitated by process variable or other factors, may be approved by the department. Water shall be used as the clean up solvent instead of acetone in the sample recovery procedure outlined in Reference Method 5 or 17.

EUGENE F. MOONEY, Secretary
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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 59:081. New kraft pulp mills.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of emissions from new kraft pulp mills.

Section 1. Applicability. (1) The provisions of this regulation are applicable to the following affected facilities in kraft pulp mills: digester system, brown stock washer system, multiple-effect evaporator system, black liquor oxidation system, recovery furnace, smelt dissolving tank, lime kiln, and condensate stripper system. In pulp mills where kraft pulping is combined with neutral sulfite semichemical pulping, the provisions of this regulation are applicable when any portion of the material charged to an affected facility is produced by the kraft pulping operation.
(2) Any affected facility under subsection (1) of this section that commences on or after the classification date defined below is subject to the requirements of this regulation.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the same meaning given them in 401 KAR 50:010.
(1) "Kraft pulp mill" means any pulp mill which produces pulp from wood by cooking (digesting) wood chips in a water solution of sodium hydroxide and sodium sulfide (white liquor) at high temperature and pressure. Regeneration of the cooking chemicals through a recovery process is also considered a part of the kraft pulp mill.
(2) "Neutral sulfite semichemical pulping operation" means any operation in which pulp is produced from wood by cooking (digesting) wood chips in a solution of sodium sulfite and sodium bicarbonate, followed by a mechanical defibrating (grinding).
(3) "Total reduced sulfur (TRS)" means the sum of the sulfur compounds, hydrogen sulfide, methyl mercaptan, dimethyl sulfide, and dimethyl disulfide, that are released during the kraft pulping operation and measured by Reference Method 16 of Appendix A of 40 CFR 60, filed by reference in 401 KAR 50:015.
(4) "Digester system" means each continuous digester or each batch digester used for the cooking of wood in white liquor, and associated flash tank(s), blow tank(s), chip steamer(s), and condenser(s).
(5) "Brown stock washer system" means brown stock washers and associated knotters, vacuum pumps, and filtrate tanks used to wash the pulp following the digester system.
(6) "Multiple-effect evaporator system" means the multiple-effect evaporators and associated condenser(s) and hotwell(s) used to concentrate the spent cooking liquid that is separated from the pulp (black liquor).
(7) "Black liquor oxidation system" means the vessels used to oxidize, with air or oxygen, the black liquor, and associated storage tank(s).

(8) "Recovery furnace" means either a straight kraft recovery furnace or a cross recovery furnace, and includes the direct-contact evaporator for a direct-contact furnace.

(9) "Straight kraft recovery furnace" means a furnace used to recover chemicals consisting primarily of sodium and sulfur compounds by burning black liquor which on a quarterly basis contains seven (7) percent by weight or less of the total pulp solids from the neutral sulfite semichemical process or has green liquor sulfidity of twenty-eight (28) percent by weight or less.

(10) "Cross recovery furnace" means a furnace used to recover chemicals consisting primarily of sodium and sulfur compounds by burning black liquor which on a quarterly basis contains more than seven (7) percent by weight of the total pulp solids from the neutral sulfite semichemical process and has a green liquor sulfidity of more than twenty-eight (28) percent by weight.

(11) "Black liquor solids" means the dry weight of the solids which enter the recovery furnace in the black liquor.

(12) "Green liquor sulfidity" means the sulfidity of the liquor which leaves the smelt dissolving tank.

(13) "Smelt dissolving tank" means a vessel used for dissolving the smelt collected from the recovery furnace.

(14) "Lime kiln" means a unit used to calcine lime mud, which consists primarily of calcium carbonate, into quicklime, which is calcium oxide.

(15) "Condensate stripper system" means a column, and associated condensers, used to strip with air or steam, TRS compounds from condensate streams from various processes within a kraft pulp mill.

(16) "Classification date" means September 24, 1976.

Section 3. Sandard for Prticulate Matter. On and after the date on which the performance test required by 401 KAR 59:005, Section 2, is completed, no owner or operator subject to the provisions of this regulation shall cause to be discharged into the atmosphere:

(1) From any recovery furnace any gases which:

(a) Contain particulate matter in excess of 0.10 g/dscm (0.044 gr/dscf) corrected to eight (8) percent oxygen.

(b) Exhibit thirty-five (35) percent opacity or greater.

(2) From any smelt dissolving tank any gases which contain particulate matter in excess of 0.1 g/kg black liquor solids (dry weight) (0.2 lb/ton black liquor solids (dry weight)).

(3) From any lime kiln any gases which contain particulate matter in excess of:

(a) 0.15 g/dscm (0.067 gr/dscf) corrected to ten (10) percent oxygen, when gaseous fossil fuel is burned.

(b) 0.30 g/dscm (0.13 gr/dscf) corrected to ten (10) percent oxygen, when liquid fossil fuel is burned.

Section 4. Standard for Total Reduced Sulfur (TRS). On and after the date on which the performance test required by 401 KAR 59:005, Section 2, is completed, no owner or operator subject to the provisions of this regulation shall cause to be discharged into the atmosphere:

(1) From any digester system, brown stock washer system, multiple-effect evaporator system, black liquor oxidation system, or condensate stripper system any gases which contain TRS in excess of five (5) ppm by volume on a dry basis, corrected to ten (10) percent oxygen, unless the following conditions are met:

(a) The gases are combusted in a lime kiln subject to the provisions of subsction (5) of this section;

(b) The gases are combusted in a recovery furnace subject to the provisions of subsections (2) or (3) of this section;

(c) The gases are combusted with other waste gases in an incinerator or other device, or combusted in a lime kiln or recovery furnace not subject to the provisions of this regulation, and are subjected to a minimum temperature of 1200°F. for at least 0.5 second; or

(d) It has been demonstrated to the department's satisfaction by the owner or operator that incinerating the exhaust gases from a new, modified, or reconstructed black liquor oxidation system or brown stock washer system in an existing facility is technologically or economically not feasible. Any existing system will become subject to the provisions of this regulation if the facility is changed so that the gases can be incinerated.

(e) The gases from the digester system, brown stock washer system, or black liquor oxidation system are controlled by a means other than combustion. In this case, these systems shall not discharge any gases to the atmosphere which contain TRS in excess of five (5) ppm by volume on a dry basis, corrected to the actual oxygen content of the untreated gas stream.

(2) From any straight kraft recovery furnace any gases which contain TRS in excess of five (5) ppm by volume on a dry basis, corrected to eight (8) percent oxygen.

(3) From any cross recovery furnace any gases which contain TRS in excess of twenty-five (25) ppm by volume on a dry basis, corrected to eight (8) percent oxygen.

(4) From any smelt dissolving tank any gases which contain TRS in excess of 0.0084 g/kg black liquor solids (dry weight) (0.0168 lb/ton liquor solids (dry weight)).

(5) From any lime kiln any gases which contain TRS in excess of eight (8) ppm by volume on a dry basis, corrected to ten (10) percent oxygen.

Section 5. Monitoring of Emissions and Operations. (1) Any owner or operator subject to the provisions of this regulation shall install, calibrate, maintain, and operate the following continuous monitoring systems:

(a) A continuous monitoring system to monitor and record the opacity of the gases discharged into the atmosphere from any recovery furnace. The span of this system shall be set at seventy (70) percent opacity.

(b) Continuous monitoring systems to monitor and record the concentration of TRS emissions on a dry basis and the percent of oxygen by volume on a dry basis in the gases discharged into the atmosphere from any lime kiln, recovery furnace, digester system, brown stock washer system, multiple-effect evaporator system, black liquor oxidation system, or condensate stripper system, except where the provisions of Section 4(1)(c), (d) apply. These systems shall be located downstream of the control device(s) and the span(s) of these continuous monitoring system(s) shall be set:

1. At a TRS concentration of thirty (30) ppm for the TRS continuous monitoring system, except that for any cross recovery furnace the span shall be set at fifty (50) ppm.

2. At twenty (20) percent oxygen for the continuous oxygen monitoring system.

(2) Any owner or operator subject to the provisions of this regulation shall install, calibrate, maintain, and operate the following continuous monitoring devices:

(a) A monitoring device which measures the combustion temperature at the point of incineration of effluent gases which are emitted from any digester system, brown stock washer system, multiple-effect evaporator system, black liquor oxidation system, or condensate stripper system where the provisions of Section 4(1)(c) apply. The monitor-

ing device is to be certified by the manufacturer to be accurate within plus or minus one (1) percent of the temperature being measured.

(b) For any lime kiln or smelt dissolving tank using a scrubber emission control device:

1. A monitoring device for the continuous measurement of the pressure loss of the gas stream through the control equipment. The monitoring device is to be certified by the manufacturer to be accurate to within a gage pressure of plus or minus 500 pascals (ca plus or minus two (2) inches water gage pressure).

2. A monitoring device for the continuous measurement of the scrubbing liquid supply pressure to the control equipment. The monitoring device is to be certified by the manufacturer to be accurate within plus or minus fifteen (15) percent of design scrubbing liquid supply pressure. The pressure sensor or tap is to be located close to the scrubber liquid discharge point. The department may be consulted for approval of alternative locations.

(3) Except where the provisions of Section 4(1)(d) or (4) apply, any owner or operator subject to the provisions of this regulation shall:

(a) Calculate and record on a daily basis twelve (12) hour average TRS concentrations for the two (2) consecutive periods of each operating day. Each twelve (12) hour average shall be defined as the arithmetic mean of the appropriate twelve (12) contiguous one (1) hour average total reduced sulfur concentrations provided by each continuous monitoring system installed under subsection (1)(b) of this section.

(b) Calculate and record on a daily basis twelve (12) hour average oxygen concentrations for the two (2) consecutive periods of each operating day for the recovery furnace and lime kiln. These twelve (12) hour averages shall correspond to the twelve (12) hour average TRS concentrations under paragraph (a) of this subsection and shall be determined as an arithmetic mean of the appropriate twelve (12) contiguous one (1) hour average oxygen concentrations provided by each continuous monitoring system installed under subsection (1)(b) of this section.

(c) Correct all twelve (12) hour average TRS concentrations to ten (10) volume percent oxygen, except that all twelve (12) hour average TRS concentration from a recovery furnace shall be corrected to eight (8) percent by volume using the equation in Apprendix A of this regulation.

(4) For the purpose of reports required under 401 KAR 59:005, Section 3(3), any owner or operator subject to the provisions of this regulation shall report periods of excess emissions as follows:

(a) For emissions from any recovery furnace periods of excess emissions are:

1. All twelve (12) hour averages of TRS concentrations above five (5) ppm by volume for straight kraft recovery furnaces and above twenty-five (25) ppm by volume for cross recovery furnaces.

2. All six (6) minute average opacities that exceed thirty-five (35) percent.

(b) For emissions from any lime kiln, periods of excess emissions are all twelve (12) hour average TRS concentration above eight (8) ppm by volume.

(c) For emissions from any digester system, brown stock washer system, multiple-effect evaporator system, black liquor oxidation system, or condensate stripper system periods of excess emissions are:

1. All twelve (12) hour average TRS concentrations above five (5) ppm by volume unless the provisions of Section 4(1)(a), (b), (d) apply; or

2. All periods in excess of five (5) minutes and their duration during which the combustion temperature at the point of incineration is less than 1200°F. where the provisions of Section 4(1) apply.

(5) The department will not consider periods of excess emissions reported under subsection (4) of this section to be indicative of a violation of 401 KAR 50:055, Section 2(5), provided that:

(a) The percent of the total number of possible contiguous periods of excess emissions in a quarter (excluding periods of startup, shutdown, or malfunction and periods when the facility is not operating) during which excess emissions occur does not exceed:

1. One (1) percent for TRS emissions from recovery furnaces.

2. Six (6) percent for average opacities from recovery furnaces.

(b) The department determines that the affected facility, including air pollution control equipment, is maintained and operated in a manner which is consistent with good air pollution control practice for minimizing emissions during periods of excess emissions.

Section 6. Test Methods and Procedures. (1) Reference methods in Appendix A of 40 CFR 60, except as provided for in 401 KAR 50:045, shall be used to determine compliance with Section 3 as follows:

(a) Method 5 for the concentration of particulate matter and the associated moisture content;

(b) Method 1 for sample and velocity traverses;

(c) When determining compliance with Section 3(2), Method 2 for velocity and volumetric flow rate;

(d) Method 3 for gas analysis; and

(e) Method 9 for visible emissions.

(2) For Method 5, the sampling time for each run shall be at least sixty (60) minutes and the sampling rate shall be at least 0.85 dscm/hr (0.53 dscf/min) except that shorter sampling times, when necessitated by process variables or other factors, may be approved by the department. Water shall be used as the cleanup solvent instead of acetone in the sample recovery procedure outlined in Method 5.

(3) Method 17 (in-stack filtration) may be used as an alternate method for Method 5 for determining compliance with Section 3(1)(a): provided, that a constant value of 0.009 g/dscm (0.004 gr/dscf) is added to the results of Method 17 and the stack temperature is no greater than 205°C (ca. 400°F). Water shall be used as the cleanup solvent instead of acetone in the sample recovery procedure outlined in Method 17.

(4) For the purpose of determining compliance with Section 4, the following reference methods shall be used:

(a) Method 16 for the concentration of TRS;

(b) Method 3 for gas analysis; and

(c) When determining compliance with Section 4(4), use the results of Method 2, Method 16, and the black liquor solids feed rate in the equation in Appendix B of this regulation to determine the TRS emission rate.

(d) When determining whether a furnace is straight kraft recovery furnace or a cross recovery furnace, TAPPI Method T.624, filed by reference in 401 KAR 50:015, shall be used to determine sodium sulfide, sodium hydroxide and sodium carbonate concentrations. These determinations shall be made three (3) times daily from the green liquor and the daily average values shall be converted to sodium oxide and substituted into the equation in Appendix C of this regulation to determine the green liquor sulfidity.

(5) All concentrations of particulate matter and TRS re-

quired to be measured by this section from lime kilns or incinerators shall be corrected to ten (10) percent by volume oxygen and those concentrations from recovery furnaces shall be corrected to eight (8) percent by volume oxygen. These corrections shall be made in the manner specified in Section 5(3)(c).

APPENDIX A TO 401 KAR 59:081

Formula to correct 12 hour average TRS concentration from a recovery furnace to 8% volume.

$$C_{corr} = C_{meas} X (21 - X/21 - y)$$

Where:

C_{corr} = the concentration corrected for oxygen.

C_{meas} = the concentration uncorrected for oxygen.

X = the volumetric oxygen concentration in percentage to be corrected to (8 percent for recovery furnaces and 10 percent for lime kilns, incinerators, or other devices).

y = the measured 12-hour average volumetric oxygen concentration.

APPENDIX B TO 401 KAR 59:081

Black liquor solids feed rate equation.

$$E = (C_{H_2S}F_{H_2S} + C_{MeSH}F_{MeSH} + C_{DMS}F_{DMS} + C_{DMDS}F_{DMDS})(Q_{sd})/BLS$$

Where:

E = Mass of TRS emitted per unity of black liquor solids (g/kg) (lb⅔ton).

C_{H_2S} = Average conc. of hydrogen sulfide (H_2S) during the test period, (ppm).

C_{MeSH} = Average conc. of methyl mercaptan (MeSH) during the test period, (ppm).

C_{DMS} = Average conc. of dimethyl sulfide (DMS) during the test period (ppm).

C_{DMDS} = Average conc. of dimethyl disulfide (DMDS) during the test period (ppm).

F_{H_2S} = 0.001417 g/m³ ppm for metric units

F_{H_2S} = 0.8844 lb/ft³ ppm for English units

F_{MeSH} = 0.00200 g/m³ ppm for metric units

F_{MeSH} = 0.1248 lb/ft³ ppm for English units

F_{DMS} = 0.002583 g/m³ ppm for metric units

F_{DMS} = 0.1612 lb/ft³ ppm for English units

F_{DMDS} = 0.003917 g/m³ ppm for metric units

F_{DMDS} = 0.2445 lb/ft³ ppm for English units

Q_{sd} = dry volumetric stack gas flow rate corrected to standard conditions, dscm/hr (dscf/hr).

BLS = black liquor solids feed rate, kg/hr. (lb/hr.).

APPENDIX C TO 401 KAR 59:081

Equation to determine green liquor sulfidity.

$$GLS = 100 C_{Na_2S}/C_{Na_2S} + C_{NaOH} + C_{Na_2CO_3}$$

Where:

GLS = percent green liquor sulfidity

C_{Na_2S} = average conc. of Na_2S expressed as Na_2O (mg/L)

C_{NaOH} = average conc. of NaOH expressed as Na_2O (mg/L)

$C_{Na_2CO_3}$ = average conc. of Na_2CO_3 expressed as Na_2O (mg/L)

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 59:085. New sulfite pulp mills.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of emissions from new sulfite pulp mills.

Section 1. Applicability. The provisions of this regulation shall apply to each affected facility which:

(1) Is associated with a sulfite pulp mill;

(2) Is not subject to another standard of performance within this chapter with respect to sulfur oxides;

(3) Commenced on or after the classification date defined below.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given them in 401 KAR 50:010. "Classification date" means April 9, 1972.

Section 3. Standards for Sulfur Oxides Emissions. No person shall cause or permit sulfur oxides emissions from blow pits, washer vents, storage tanks, digester relief, recovery system, etc., to exceed 9.0 lb. per air dried ton of pulp produced.

Section 4. Test Methods and Procedures. Except as provided in 401 KAR 50:045, performance tests used to demonstrate compliance with Section 3 shall be conducted according to the following methods, filed by reference in 401 KAR 50:015:

(1) Reference Method 1 for velocity traverses.

(2) Reference Method 2 for velocity and volumetric flow rate.

(3) Reference Method 3 for gas analysis.

(4) Reference Method 6 for sulfur oxide emission rates.

(a) The sampling point shall be at the centroid of the duct or stack or at a point no closer to the walls than one (1) m (3.28 ft.). The sample shall be extracted at a rate proportional to the gas velocity at the sampling point.

(b) The minimum sampling time shall be twenty (20) minutes and the minimum sample volume shall be 0.02 dscm (0.71 dscf) for each sample. The arithmetic average of two (2) samples shall constitute one (1) run. Three (3) runs are needed for a compliance test. Samples shall be taken at approximately thirty (30) minute intervals.

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DEPARTMENT FOR NATURAL RESOURCES
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401 KAR 59:090. New ethylene producing plants.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 244.033
NECESSITY AND FUNCTION: KRS 244.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of emissions from new ethylene producing plants.

Section 1. Applicability. The provisions of this regulation shall apply to each affected facility which means each waste gas stream of any ethylene producing plant commenced on or after the classification date defined below.

Section 2. Definitions. As used in this regulation all terms not defined herein shall have the meaning given them in 401 KAR 50:010. "Classification date" means April 9, 1972.

Section 3. Standard for Hydrocarbons. No person shall emit into the atmosphere a waste gas stream from any ethylene producing plant unless the waste gas stream is subjected to 1,300 degrees Fahrenheit for 0.5 seconds or greater in a direct-flame afterburner or equally effective catalytic vapor incinerator. Either device must be quipped with an indicating pyrometer which is positioned in the working area at the operator's eye level.

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401 KAR 59:095. New oil-effluent water separators.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of emissions from new oil-effluent water separators.

Section 1. Applicability. The provisions of this regulation shall apply to each affected facility which means each oil-effluent water separator which recovers 200 gallons a day or more of any petroleum product from any equipment which processes, refines, stores, or handles hydrocarbons with a Reid vapor pressure of 0.5 pounds or greater commenced on or after the classification date defined below.

Section 2. Definitions. As used in this regulation all terms not defined herein shall have the meaning given them in 401 KAR 50:010.

(1) "Oil-effluent water separator" means any tank, box, sump, or other container in which any petroleum or product thereof, floating on or entrained or contained in water entering such tank, box, sump, or other container, is physically separated and removed from such water prior to outfall, drainage, or recovery of such water.

(2) "Enclosed container" means a vessel which entirely encloses the content except for pressure relief vents.

(3) "Floating roof" means a vessel cover consisting of double deck, pontoon single deck, internal floating cover or covered floating roof, which rests upon and is supported by the liquid being contained, and is equipped with a closure seal or seals to close the space between the roof edge and vessel wall.

(4) "Classification date" means April 9, 1972.

(5) "Vapor recovery system" means a vapor gathering system capable of collecting all hydrocarbon vapors and gases discharged from a vessel and a vapor disposal system capable of processing such hydrocarbon vapors and gases so as to prevent their emission to the atmosphere.

(6) "Submerged fill pipe" means any fill pipe the discharge of which is entirely submerged when the liquid level is six (6) inches above the bottom of the vessel; or when applied to a vessel which is loaded from the side, shall mean any fill pipe the discharge opening of which is entirely submerged when the liquid level is two (2) times the fill pipe diameter above the tank.

Section 3. Standard for Hydrocarbons. (1) If the oil-effluent water separator is used exclusively in conjunction with the production of crude oil, as a minimum it shall be an enclosed container equipped with a permanent submerged fill pipe. All gauging and sampling devices shall be gas-tight except when gauging and sampling is taking place.

(2) An oil-effluent water separator not subject to subsection (1) of this section shall be one of the following types of vessels: a vessel equipped with a floating roof, a vessel equipped with a vapor recovery system, or their equivalent. All gauging and sampling devices shall be gas-tight except when gauging and sampling is taking place.

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DEPARTMENT FOR NATURAL RESOURCES
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401 KAR 59:100. New petroleum liquids loading facilities at bulk terminals.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of emissions from new petroleum liquids loading facilities at bulk terminals.

Section 1. Applicability. The provisions of this regulation shall apply to each affected facility which means each loading facility commenced on or after the classification date defined below, which loads more than 20,000 gallons per day of petroleum liquids into tank trucks, trailers, railroad tank cars, or barges.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given them in 401 KAR 50:010.

(1) "Petroleum liquids" means crude petroleum, condensate, and any finished or intermediate products manufactured in a petroleum refinery but does not mean Number 2 to Number 6 fuel oils, gas turbine fuel oils, or diesel fuel oils.

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

(3) "Classification date" means the effective date of this regulation.

Section 3. Standard for Hydrocarbons. (1) No owner or operator of any loading facility shall load petroleum liquids unless such facility is equipped with a vapor control system which is in good working order, and in operation.

(2) Loading shall be accomplished in such a manner that all displaced vapor and air will be vented only to the vapor collection system. Measures shall be 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.

(3) No owner or operator shall permit the hydrocarbon emissions from the vapor control device to exceed eighty (80) milligrams per liter of petroleum liquids loaded.

(4) No owner or operator shall open tank hatches or allow hatches to be opened at any time during loading operations if bottom-fill is practiced. If top-submerged fill is practiced, the hatch is to be opened the minimum time necessary to install the submerged fill pipe and associated vapor collection equipment.

(5) No owner or operator shall permit there to be any leak in the railroad cars, barges, trailers, tank trucks, pressure relief valves, or associated vapor collection systems during loading. A leak is defined as a reading of ten (10) percent of the lower explosive limit as propane on the portable hydrocarbon detector (explosimeter) with the probe one (1) centimeter from the source.

(6) No owner or operator shall permit petroleum liquids to be spilled, discarded in sewers, stored in open containers, or handled in any other manner that would result in evaporation.

Section 4. Monitoring and Reporting Requirements. The owner or operator shall conduct such monitoring of operations and submit records as specified by the department.

Section 5. Compliance. (1) The design of the vapor control system is subject to the approval of the department.

(2) Kentucky Method 95, filed by reference in 401 KAR 50:015, shall be used to determine compliance with the standard in Section 3.

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DEPARTMENT FOR NATURAL RESOURCES
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401 KAR 59:101. New bulk plants.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of hydrocarbon emissions from new bulk plants.

Section 1. Applicability. The provisions of this regulation shall apply to each affected facility which commenced on or after the classification date defined below.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given to them in 401 KAR 50:010.

(1) "Affected facility" means a bulk plant.

(2) "Bulk plant" means a petroleum liquids storage and distribution facility with a maximum daily throughput greater than 200 gallons but less than or equal to 20,000 gallons.

(3) "Petroleum liquids" means crude petroleum, condensate, and any finished or intermediate product manufactured in a petroleum refinery but does not mean Number 2 to Number 6 fuel oils, gas turbine fuel oils, or diesel fuel oils.

(4) "Bottom fill system" means a system of filling transport vehicle tanks through an opening that is flush with the bottom of the transport vehicle tank.

(5) "Vapor balance system" means a combination of pipes or hoses which create a closed system between the vapor spaces of an unloading tank and a receiving tank such that vapors displaced from the receiving tank are transferred to the tank being unloaded.

(6) "Submerged fill tube system" means a fill tube the discharge of which is entirely submerged when the liquid

level is six (6) inches above the bottom of the transport vehicle tank.

(7) "Classification date" means the effective date of this regulation.

(8) "Transport vehicle" means tank trucks, trailers, railroad tank cars, or barges.

Section 3. Standard for Hydrocarbons. (1) The owner or operator of an affected facility shall install, maintain, and operate:

(a) Stationary storage tank control devices according to the provisions of 401 KAR 59:050 and/or 401 KAR 61:050.

(b) A vapor balance system for:

1. Filling of stationary storage tanks from transport vehicle tanks; and

2. Filling of transport vehicle tanks from stationary storage tanks.

(c) For loading into transport vehicle tanks either:

1. A submerged fill tube system; or

2. A bottom fill system.

(2) The vapor balance system shall be equipped with fittings which are vapor tight and will automatically close upon disconnection so as to prevent the release of organic material.

(3) The cross-sectional area of the vapor return hose must be at least fifty (50) percent of the cross-sectional area of the liquid fill line and free of flow restrictions.

(4) The vapor balance system must be equipped with interlocking devices which prevent transfer of petroleum liquids until the vapor return hose is connected.

(5) Transport vehicle tank hatches shall be closed at all times during loading operations.

(6) There shall be no leaks from the pressure/vacuum relief valves and hatch covers of the stationary storage tanks or transport vehicle tanks during loading.

(7) The pressure relief valves on storage vessels and tank trucks or trailers shall be set to release at no less than 0.7 psig unless a lower setting is required by applicable fire codes.

(8) The owner or operator shall not load petroleum liquids into any transport vehicle or receive petroleum liquids from any transport vehicle which does not have proper fittings for connection of the vapor balance system, nor shall the owner or operator load or receive petroleum liquids unless the vapor balance system is properly connected and in good working order. Except as provided in subsection (9) of this section the fittings on the transport vehicle tanks must be vapor tight and automatically close upon disconnection so as to prevent the release of organic material.

(9) The following shall apply to the loading of a transport vehicle tank by means of a submerged fill tube system:

(a) When inserted into the tank, the submerged fill tube system must form a vapor tight seal with the tank.

(b) Tank hatches are to be opened only for the minimum time necessary to insert the submerged fill tube system.

(10) No owner or operator shall permit petroleum liquids to be spilled, discarded in sewers, stored in open containers, or handled in any other manner that would result in evaporation.

Section 4. The owner or operator may elect to use an alternate control system if it can be demonstrated to the department's satisfaction that the alternate system will achieve equivalent control efficiency.

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401 KAR 59:105. New process gas streams.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of emissions from new process gas streams.

Section 1. Applicability. The provisions of this regulation shall apply to each affected facility which means any process gas stream which:

(1) Is not elsewhere subject to a standard of performance within this chapter with respect to hydrogen sulfide, sulfur dioxide, or carbon monoxide;

(2) Commenced on or after the classification date defined below.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given them in 401 KAR 50:010.

(1) "Classification date" means the effective date of this regulation;

(2) "Process gas stream" means any gas stream emitted from any process including, but not limited to, petroleum refineries, by-product coke plants, grey iron cupolas, blast furnace, and basic oxygen steel furnace.

Section 3. Standard for Hydrogen Sulfide. No person shall cause, suffer, allow or permit the emission or combustion of hydrogen sulfide in a process gas stream to exceed ten (10) grains per 100 dscf (165 ppm by volume) at zero percent oxygen.

Section 4. Standard for Sulfur Dioxide. No person shall cause, suffer, allow or permit the emission of sulfur dioxide in a process gas stream to exceed 28.63 grains per 100 dscf (250 ppm by volume) at zero percent oxygen.

Section 5. Standard for Carbon Monoxide. (1) No person shall emit the carbon monoxide gases generated during the operation of any grey iron cupola, blast furnace, basic oxygen steel furnace or coal conversion plants unless they are burned at 1,300°F for 0.5 seconds or greater in a direct flame afterburner or equivalent device equipped with an indicating pyrometer which is positioned in the working area at the operator's eye level.

(2) No person shall emit a carbon monoxide waste gas stream from any catalyst regeneration of a petroleum

cracking system, petroleum fluid coker, or other petroleum process into the atmosphere, unless the waste gas stream is burned at 1,300°F for 0.5 seconds or greater in a direct flame afterburner or boiler equipped with an indicating pyrometer which is positioned in the working area at the operator's eye level.

Section 6. Test Methods and Procedures. Except as provided in 401 KAR 50:045, performance tests used to demonstrate compliance with Sections 3, 4 and 5 shall be conducted according to the following methods, filed by reference in 401 KAR 50:015:

(1) Reference Method 11 for Hydrogen Sulfide. The sample shall be drawn from a point near the centroid of the gas line. The minimum sampling time shall be ten (10) minutes and the minimum sample volume shall be 0.01 dscm (0.35 dscf) for each sample. The arithmetic average of two (2) samples shall constitute one (1) run. Samples shall be taken at approximately one (1) hour intervals.

(2) Reference Method 6 for Sulfur Dioxide. Reference Method 1 shall be used for velocity traverses and Reference Method 2 for determining velocity and volumetric flow rate. The sampling site for determining sulfur dioxide concentration by Reference Method 6 shall be the same as for determining volumetric flow rate by Reference Method 2. The sampling point in the duct for determining sulfur dioxide concentration by Reference Method 6 shall be at the centroid of the cross section or at a point no closer to the walls than one (1) m (thirty-nine (39) inches) if the cross sectional area is five (5) square meters or more and the centroid is more than one (1) meter from the wall. The sample shall be extracted at a rate proportional to the gas velocity at the sampling point. The minimum sampling time shall be ten (10) minutes and the minimum sampling volume shall be 0.01 dscm (0.35 dscf) for each sample. The arithmetic average of two (2) samples shall constitute one (1) run. Three (3) runs will constitute compliance test. Samples shall be taken at approximately one (1) hour intervals.

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
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401 KAR 59:110. New primary copper smelters.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of emissions from new primary copper smelters.

Section 1. Applicability. The provisions of this regulation are applicable to the following affected facilities in primary copper smelters: dryer, roaster, smelting furnace, and copper converter, commenced on or after the classification date defined below.

Section 2. Definitions. As used in this regulation al. terms not defined herein shall have the meaning given them in 401 KAR 50:010.

(1) "Primary copper smelter" means any installation or any intermediate process engaged in the production of copper from copper sulfide ore concentrates through the use of pyrometallurgical techniques.

(2) "Dryer" means any facility in which a copper sulfide ore concentrate charge is heated in the presence of air to eliminate a portion of the moisture from the charge, provided less than five (5) percent of the sulfur contained in the charge is eliminated in the facility.

(3) "Roaster" means any facility in which a copper sulfide ore concentrate charge is heated in the presence of air to eliminate a significant portion (five (5) percent or more) of the sulfur contained in the charge.

(4) "Calcine" means the solid materials produced by a roaster.

(5) "Smelting" means processing techniques for the melting of a copper sulfide ore concentrate or calcine charge leading to the formation of separate layers of molten slag, molten copper and/or copper matte.

(6) "Classification date" means October 16, 1974.

(7) "Smelting furnace" means any vessel in which the smelting of copper sulfide ore concentrates or calcines is performed and in which the heat necessary for smelting is provided by an electric current, rapid oxidation of a portion of the sulfur contained in the concentrate as it passes through an oxidizing atmosphere, or the combustion of a fossil fuel.

(8) "Copper converter" means any vessel to which copper matte is charged and oxidized to copper.

(9) "Sulfuric acid plant" means any facility producing sulfuric acid by the contact process.

(10) "Fossil fuel" means natural gas, petroleum, coal, and any form of solid, liquid,or gaseous fuel derived from such materials for the purpose of creating useful heat.

(11) "Reverberatory smelting furnace" means any vessel in which the smelting of copper sulfide ore concentrates or calcines is performed and in which the heat necessary for smelting is provided primarily by combustion of a fossil fuel.

(12) "Total smelter charge" means the weight (dry basis) of all copper sulfides ore concentrates processed at a primary copper smelter, plus the weight of all other solid materials introduced into the roasters and smelting furnaces at a primary copper smelter, except calcine, over a one (1) month period.

(13) "High level of volatile impurities" means a total smelter charge containing more than 0.2 weight percent arsenic, 0.1 weight percent antimony, 4.5 weight percent lead or 5.5 weight percent zinc, on a dry basis.

Section 3. Standard for Particulate Matter. On and after the date on which the performance test required to be conducted by 401 KAR 59:005, Section 2, is completed, no owner or operator subject to the provisions of this regulation shall cause to be discharged into the atmosphere from any dryer any gases which contain particulate matter in excess of fifty (50) mg/dscm (0.022 gr/dscf).

Section 4. Standard for Sulfur Dioxide. (1) On and after the date on which the performance test required to be conducted by 401 KAR 59:005, Section 2, is completed, no

owner or operator subject to the provisions of this section shall cause to be discharged into the atmosphere from any roaster, smelting furnace or copper converter any gases which contain sulfur dioxide in excess of 0.065 percent by volume, except as provided in subsections (2) and (3) of this section.

(2) Reverberatory smelting furnaces shall be exempted from subsection (1) of this section during periods when the total smelter charge at the primary copper smelter contains a high level of volatile impurities.

(3) A change in the fuel combusted in a reverberatory furnace shall not be considered a modification under this regulation.

Section 5. Standard for Visible Emissions. (1) On and after the date on which the performance test required to be conducted by 401 KAR 59:005, Section 2, is completed, no owner or operator subject to the provisions of this regulation shall cause to be discharged into the atmosphere from any dryer any visible emissions which exhibit greater than twenty (20) percent opacity.

(2) On and after the date on which the performance test required to be conducted by 401 KAR 59:005, Section 2, is completed, no owner or operator subject to the provisions of this section shall cause to be discharged into the atmosphere from any affected facility that uses a sulfuric acid plant to comply with the standard set forth in Section 4, any visible emissions which exhibit greater than twenty (20) percent opacity.

Section 6. Monitoring of Operations. (1) The owner or operator of any primary copper smelter subject to Section 4(2) shall keep a monthly record of the total smelter charge and weight percent (dry basis) of arsenic, antimony, lead and zinc contained in this charge. The analytical methods and procedures employed to determine the weight of the total smelter charge and the weight percent of arsenic, antimony, lead and zinc shall be approved by the department and shall be accurate to within plus or minus ten (10) percent.

(2) The owner or operator of any primary copper smelter subject to the provisions of this regulation shall install and operate:

(a) A continuous monitoring system to monitor and record the opacity of gases discharged into the atmosphere from any dryer;

(b) A continuous monitoring system to monitor and record sulfur dioxide emissions discharged into the atmosphere from any roaster, smelting furnace or copper convertor subject to Section 4(1). The span of this system shall be set at a sulfur dioxide concentration of 0.20 percent by volume.

1. The continuous monitoring system performance evaluation required under 401 KAR 59:005, Section 4(3), shall be completed prior to the initial performance test required under 401 KAR 59:005, Section 2. During the performance evaluation, the span of the continuous monitoring system may be set at a sulfur dioxide concentration of 0.15 percent by volume if necessary to maintain the system output between twenty (20) percent and ninety (90) percent of full scale. Upon completion of the continuous monitoring system performance evaluation, the span of the continuous monitoring system shall be set at a sulfur dioxide concentration of 0.20 percent by volume.

2. For the purpose of the continuous monitoring system performance evaluation required under 401 KAR 59:005, Section 4(3), the reference method referred to under the Field Test for Accuracy (Relative) in Performance Specification 2 of Appendix B of 40 CFR 60, filed by reference in 401 KAR 50:015, shall be Reference Method 6. For the performance evaluation each concentration measurement shall be of one (1) hour duration. The pollutant gas used to prepare the calibration gas mixture required under paragraph 2.1, Performance Specification 2 of Appendix B of 40 CFR 60, and the calibration checks under 401 KAR 59:005, Section 4(4), shall be sulfur dioxide.

(3) Six (6) hour average sulfur dioxide concentrations shall be calculated and recorded daily for the four (4) consecutive six (6) hour periods of each operating day. Each six (6) hour average shall be determined as the arithmetic mean of the approximate six (6) continuous one (1) hour average sulfur dioxide concentrations provided by the continuous monitoring system installed under subsection (2) of this section.

(4) For the purpose of reports required under Section 1(9), periods of excess emissions that shall be reported are defined as follows:

(a) Opacity. Any six (6) minute period during which the average opacity, measured by the continuous monitoring system installed under subsection (2) of this section, exceeds the standard under Section 5.

(b) Sulfur dioxide. Any six (6) hour period as described in subsection (3) of this section during which the average emissions of sulfur dioxide, as measured by the continuous monitoring system installed under subsection (2) of this section exceeds the standard under Section 4.

Section 7. Test Methods and Procedures. (1) The reference methods as defined in Appendix A of 40 CFR 60, except as provided for in 401 KAR 50:045, shall be used to determine compliance with the standards prescribed in Sections 3, 4, and 5 as follows:

(a) Reference Method 5 for the concentration of particulate matter and the associated moisture content;

(b) Sulfur dioxide concentrations shall be determined using the continuous monitoring system installed in accordance with Section 6(2). One (1) six (6) hour average period shall constitute one (1) run. The monitoring system drift during any run shall not exceed two (2) percent of span.

(2) For Reference Method 5, Reference Method 1 shall be used for selecting the sampling site and the number of traverse points, Reference Method 2 for determining velocity and volumetric flow rate and Reference Method 3 for determining the gas analysis. The sampling time for each run shall be at least sixty (60) minutes and the minimum sampling volume shall be 0.85 dscm (thirty (30) dscf) except that smaller times or volumes, when necessitated by process variables or other factors may be approved by the department.

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
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401 KAR 59:115. New primary zinc smelters.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of emissions from new primary zinc smelters.

Section 1. Applicability. The provisions of this regulation are applicable to the following affected facilities in primary zinc smelters: roaster and sintering machine, which commenced on or after the classification date defined below.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given them in 401 KAR 50:010.

(1) "Primary zinc smelters" means any installation engaged in the production, or any intermediate process in the production, of zinc or zinc oxide from zinc sulfide ore concentrates through the use of pyrometallurgical techniques.

(2) "Roaster" means any facility in which a zinc sulfide ore concentrate charge is heated in the presence of air to eliminate a significant portion (more than ten (10) percent) of the sulfur contained in the charge.

(3) "Classification date" means October 16, 1974.

(4) "Sintering machine" means any furnace in which calcines are heated in the presence of air to agglomerate the calcines into a hard porous mass called "sinter."

(5) "Sulfuric acid plant" means any facility producing sulfuric acid by the contact process.

Section 3. Standard for Particulate Matter. On and after the date on which the performance test required to be conducted by 401 KAR 59:005, Section 2, is completed, no owner or operator subject to the provisions of this regulation shall cause to be discharged into the atmosphere from any sintering machine any gases which contain particulate matter in excess of fifty (50) mg/dscf (0.022 gr/dscf).

Section 4. Standard for Sulfur Dioxide. (1) On and after the date on which the performance test required to be conducted by 401 KAR 59:005, Section 2, is completed, no owner or operator subject to the provisions of this regulation shall cause to be discharged into the atmosphere from any roaster any gases which contain sulfur dioxide in excess of 0.065 percent by volume.

(2) Any sintering machine which eliminates more than ten (10) percent of the sulfur initially contained in the zinc sulfide ore concentrates will be considered as a roaster under subsection (1) of this section.

Section 5. Standard for Visible Emissions. (1) On and after the date on which the performance test required to be conducted by 401 KAR 59:005, Section 2, is completed, no owner or operator subject to the provisions of this regulation shall cause to be discharged into the atmosphere from any sintering machine any visible emissions which exhibit greater than twenty (20) percent opacity.

(2) On and after the date on which the performance test required to be conducted by 401 KAR 59:005, Section 2, is completed, no owner or operator subject to the provisions of this regulation shall cause to be discharged into the atmosphere from any affected facility that uses a sulfuric acid plant to comply with the standard set forth in Section 4 any visible emissions which exhibit greater than twenty (20) percent opacity.

Section 6. Monitoring of Operations. (1) The owner or operator of any primary zinc smelter subject to the provisions of this regulation shall install and operate:

(a) A continuous monitoring system to monitor and record the opacity of gases discharged into the atmosphere from any sintering machine. The span of this system shall be set at eighty (80) to 100 percent opacity;

(b) A continuous monitoring system to monitor and record sulfur dioxide emissions discharged into the atmosphere from any roaster subject to Section 4. The span of this system shall be set at a sulfur dioxide concentration of 0.20 percent by volume.

1. The continuous monitoring system performance evaluation required under 401 KAR 59:005, Section 4(3), shall be completed prior to the initial performance test required under 401 KAR 59:005, Section 2. During the performance evaluation, the span of the continuous monitoring system may be set at a sulfur dioxide concentration of 0.15 percent by volume if necessary to maintain the system output between twenty (20) percent and ninety (90) percent of full scale. Upon completion of the continuous monitoring system performance evaluation, the span of the continuous monitoring system shall be set at a sulfur dioxide concentration of 0.20 percent by volume.

2. For the purpose of the continuous monitoring system performance evaluation required under 401 KAR 59:005, Section 4(3), the reference method referred to under the Field Test for Accuracy (Relative) in Performance Specification 2 of Appendix B of 40 CFR 60, filed by reference in 401 KAR 50:015, shall be Reference Method 6. For the performance evaluation, each concentration measurement shall be of one (1) hour duration. The pollutant gas used to prepare the calibration gas mixtures required under paragraph 2.1, Performance Specification 2 of Appendix B of 40 CFR 60, and for calibration checks under 401 KAR 59:005, Section 4(4), shall be sulfur dioxide.

(2) Two (2) hour average sulfur dioxide concentrations shall be calculated and recorded daily for the twelve (12) consecutive two (2) hour periods of each operating day. Each two (2) hour average shall be determined as the arithmetic mean of the appropriate two (2) continuous one (1) hour average sulfur dioxide concentrations provided by the continuous monitoring system installed under subsection (1) of this section.

(3) For the purpose of reports required under 401 KAR 59:005, Section 3(3), periods of excess emissions that shall be reported are defined as follows:

(a) Opacity. Any six (6) minute period during which the average opacity, as measured by the continuous monitoring system installed under subsection (1) of this section, exceeds the standard under Section 5(1);

(b) Sulfur dioxide. Any two (2) hour period, as described in subsection (2) of this section, during which the average emissions of sulfur dioxide, as measured by the continuous monitoring system installed under subsection (1) of this section, exceeds the standard under Section 4.

Section 7. Test Methods and Procedures. The reference methods in Appendix A to 40 CFR 60, except as provided for in 401 KAR 50:045, shall be used to determine compliance with the standards prescribed in Sections 3, 4, and 5 as follows:

(1) Reference Method 5 for the concentration of particulate matter and the associated moisture content;

(2) Sulfur dioxide concentrations shall be determined using the continuous monitoring system installed in accordance with Section 6(1). One (1) two (2) hour average period shall constitute one (1) run.

(3) For Reference Method 5, Reference Method 1 shall be used for selecting the sampling site and the number of traverse points, Reference Method 2 for determining velocity and volumetric flow rate, and Reference Method 3 for determining the gas analysis. The sampling time for each run shall be at least sixty (60) minutes and the minimum sampling volume shall be 0.85 dscm (thirty (30) dscf) except that smaller times or volumes, when necessitated by process variables or other factors, may be approved by the department.

EUGENE F. MOONEY, Secretary
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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 59:120. New primary lead smelters.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of emissions from new primary lead smelters.

Section 1. Applicability. The provisions of this regulation are applicable to the following affected facilities in primary lead smelters: sintering machine, sintering machine discharge end, blast furnace, dross reverberatory furnace, electric smelting furnace, and converter, which commenced on or after the classification date defined below.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given them in 401 KAR 50:010.

(1) "Primary lead smelter" means any installation of any intermediate process engaged in the production of lead from lead sulfide ore concentrates through the use of pyrometallurgical techniques.

(2) "Sintering machine" means any furnace in which a lead sulfide ore concentrate charge is heated in the presence of air to eliminate sulfur contained in the charge and to agglomerate the charge into a hard porous mass called "sinter."

(3) "Sinter bed" means the lead sulfur ore concentrate charge within a sintering machine.

(4) "Sintering machine discharge end" means any apparatus which receives sinter as it is discharged from the conveying grate of a sintering machine.

(5) "Blast furnace" means any reduction furnace to which sinter is charged and which forms separate layers of molten slag and lead bullion.

(6) "Dross reverberatory furnace" means any furnace used for the removal or refining of impurities from lead bullion.

(7) "Electric smelting furnace" means any furnace in which the heat necessary for smelting of the lead sulfide ore concentrate charge is generated by passing an electric current through a portion of the molten mass in the furnace.

(8) "Converter" means any vessel to which lead concentrate or bullion is charged and refined.

(9) "Sulfuric acid plant" means any facility producing sulfuric acid by the contact process.

(10) "Classification date" means October 16, 1974.

Section 3. Standard for Particulate Matter. On and after the date on which the performance test required to be conducted by 401 KAR 59:005 is completed, no owner or operator subject to the provisions of this regulation shall cause to be discharged into the atmosphere from any blast furnace, dross reverberatory furnace, or sintering machine discharge end any gases which contain particulate matter in excess of fifty-nine (59) mg/dscm (0.022 gr/dscf).

Section 4. Standard for Sulfur Dioxide. On and after the date on which the performance test required to be conducted by 401 KAR 59:005 is completed, no owner or operator subject to the provisions of this regulation shall cause to be discharged into the atmosphere from any sintering machine, electric smelting furnace, or converter gases which contain sulfur dioxide in excess of 0.065 percent by volume.

Section 5. Standard for Visible Emissions. (1) On and after the date on which the performance test required to be conducted by 401 KAR 59:005 is completed, no owner or operator subject to the provisions of this regulation shall cause to be discharged into the atmosphere from any blast furnace, dross reverberatory furnace, or sintering machine discharge end any visible emissions which exhibit greater than twenty (20) percent opacity.

(2) On and after the date on which the performance test required to be conducted by 401 KAR 59:005 is completed, no owner or operator subject to the provisions of this regulation shall cause to be discharged into the atmosphere from any affected facility that uses a sulfuric acid plant to comply with the standard set forth in Section 4, any visible emissions which exhibit greater than twenty (20) percent opacity.

Section 6. Monitoring of Operations. The owner or operator of any primary lead smelter subject to the provisions of this regulation shall install and operate:

(1) A continuous monitoring system to monitor and record the opacity of gases discharged into the atmosphere from any blast furnace or sintering machine discharge end. The span of this system shall be set at eighty (80) to 100 percent opacity;

(2) A continuous monitoring system to monitor and record sulfur dioxide emissions discharged into the atmosphere from any sintering machine, electric furnace, or

converter subject to Section 4. The span of this system shall be set at a sulfur dioxide concentration of 0.20 percent by volume.

(3) The continuous monitoring system performance evaluation required under 401 KAR 59:005, Section 4(3), shall be completed prior to the initial performance test required under 401 KAR 59:005. During the performance evaluation, the span of the continuous monitoring system may be set at a sulfur dioxide concentration of 0.15 percent by volume if necessary to maintain the system output between twenty (20) percent and ninety (90) percent of full scale. Upon completion of the continuous monitoring system performance evaluation, the span of the continuous monitoring system shall be set at a sulfur dioxide concentration of 0.20 percent by volume.

Section 7. Test Methods and Procedures. (1) The reference methods in Appendix A to 40 CFR 60, filed by reference in 401 KAR 50:015, except as provided for in 401 KAR 50:045, shall be used to determine compliance with the standards prescribed in Sections 3, 4, and 5 as follows:

(a) Reference Method 5 for the concentration of particulate matter and the associated moisture content;

(b) Sulfur dioxide concentrations shall be determined using the continuous monitoring system installed in accordance with Section 6(1). One (1) two (2) hour average period shall constitute one (1) run.

(2) For Reference Method 5, Reference Method 1 shall be used for selecting the sampling site and the number of traverse points, Reference Method 2 for determining velocity and volumetric flow rate, and Reference Method 3 for determining the gas analysis. The sampling time for each run shall be at least sixty (60) minutes and the minimum sampling volume shall be 0.85 dscm (thirty (30) dscf) except that smaller times or volumes, when necessitated by process variables or other factors, may be approved by the department.

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 59:125. New primary aluminum reduction plants.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of emissions from new primary aluminum reduction plants.

Section 1. Applicability. The provisions of this regulation shall apply to each affected facility which means each potroom group and anode bake plant (within a primary aluminum reduction plant) commenced on or after the classification date defined below.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given them in 401 KAR 50:010.

(1) "Primary aluminum reduction plant" means any source manufacturing aluminum by elecrolytic reduction.

(2) "Anode bake plant" means an affected facility which produces carbon anodes for use in a primary aluminum reduction plant.

(3) "Potroom" means a building unit which houses a group of electrolytic cells in which aluminum is produced.

(4) "Potroom group" means an uncontrolled potroom, a potroom which is controlled individually, or a group of potrooms ducted to the same control system.

(5) "Roof monitor" means that portion of the roof of a potroom where gases not captured at the cell exit from the potroom.

(6) "Aluminum equivalent" means an amount of aluminum which can be produced from a ton of anodes produced by an anode bake plant.

(7) "Total fluorides" means elemental fluorine and all fluoride compounds, as measured by reference methods specified in Section 6 or equipvalent or alternative methods.

(8) "Primary control system" means an air pollution control system designed to remove gaseous and particulate fluorides from exhaust gases which are captured at the cell.

(9) "Prebake plant" means any primary aluminum reduction plant whose electrolytic reduction cells utilize carbon anodes manufactured in an anode bake plant.

(10) "Vertical stud soderberg plant" means any primary aluminum reduction plant whose electrolytic reduction cells utilize an anode consisting of a rectangular container, open at the top and bottom, suspended above the cell, into which carbon paste is fed at intervals, becoming baked by the heat of the cell as it gradually descends into the container. Current carrying studs project vertically into the anode through the unbaked paste and into the baked portion of the anode.

(11) "Horizontal stud soderberg plant" means any primary aluminum reduction plant whose electrolytic reduction cells utilize an anode consisting of a rectangular container open at the top and bottom, suspended above the cell, into which carbon paste is fed at intervals becoming baked by the heat of the cell as it gradually descends into the container. Rows of studs in channel assemblies project laterally into the paste and move with the anode.

(12) "Secondary control system" means an air pollution control system designed to remove gaseous and particulate fluorides which escape capture by the primary control system.

(13) "Applicable affected facility" means each potroom group and anode bake plant within a primary aluminum reduction plant.

(14) "Classification date" means October 23, 1974.

Section 3. Standard for Visible Emissions. On and after the date on which the performance test required to be conducted by 401 KAR 59:005 is completed, no owner or operator subject to the provisions of this regulation shall cause to be discharged into the atmosphere:

(1) From any potroom group any gases which exhibit ten (10) percent opacity or greater;

(2) From any anode bake plant any gases which exhibit twenty (20) percent opacity and greater.

Section 4. Standard for Fluorides. On and after the date on which the performance test required to be conducted by

401 KAR 59:005 is completed, no owner or operator subject to the provisions of this regulation shall cause to be discharged into the atmosphere gases which contain total fluorides in excess of:

(1) One (1) kg/metric ton (two (2) lb/ton) of aluminum produced for vertical stud soderberg and horizontal stud soderberg plants;

(2) 0.95 kg/metric ton (1.9 lb/ton) of aluminum produced for potroom groups at prebaked plants; and

(3) 0.05 kg/metric ton (0.1 lb/ton) of aluminum equivalent for anode bake plants.

Section 5. Monitoring of Operations. (1) The owner or operator of any applicable affected facility subject to the provisions of this regulation shall install, calibrate, maintain, and operate monitoring devices which can be used to determine daily the weight of the aluminum and anode produced. The weighing devices shall have an accuracy of plus or minus five (5) percent over their operating range.

(2) The owner or operator of any applicable affected facility shall maintain a record of daily production rates of aluminum and anodes, raw material feed rates, and cell or potline voltages.

(3) The owner or operator of any affected facility shall install, use, and maintain ambient air monitoring equipment in accordance with such methods as the department shall prescribe; establish and maintain records of same; and make periodic emission reports at intervals prescribed by the department.

Section 6. Test Methods and Procedures. (1) The reference methods as defined in Appendix A of 40 CFR 60, filed by reference in 401 KAR 50:015, except as provided for in 401 KAR 50:045, shall be used to determine compliance with the standards prescribed in Section 4, as follows:

(a) For sampling emissions from stacks:

1. Reference Method 13A or 13B for the concentration of total fluoride and the associated moisture content;
2. Reference Method 1 for sample and velocity traverses;
3. Reference Method 2 for velocity and volumetric flow rate: and
4. Reference Method 3 for gas analysis.

(b) For sampling emissions from roof monitors not employing stacks or pollutant collection systems:

1. Reference Method 14 for the concentration of total fluorides and associated moisture content;
2. Reference Method 1 for sample and velocity traverses;
3. Reference Method 2 and Reference Method 14 for velocity and volumetric flow rate; and
4. Reference Method 3 for gas analysis.

(c) For sampling emissions from roof monitors not employing stacks but equipped with pollutant collection systems the procedures under 401 KAR 50:045 shall be followed.

(2) For Reference Method 13A or 13B, the sampling time for each run shall be at least eight (8) hours for any potroom sample and at least four (4) hours for any anode bake plant sample, and the minimum sample volume shall be 6.8 dscm (240 dscf) for any potroom sample and 3.4 dscm (120 dscf) for any anode bake plant sample except that shorter sampling times or smaller volumes, when necessitated by process variables or other factors, may be approved by the department.

(3) The air pollution control system for each affected facility shall be constructed so that volumetric flow rates and total fluoride emissions can be accurately determined using applicable methods specified under subsection (1) of this section.

(4) The rate of aluminum production shall be determined as follows:

(a) Determine the weight of the aluminum in metric tons produced during a period from the last tap before a run starts until the first tap after the run ends using a monitoring device which meets the requirements of Section 5(4);

(b) Divide the weight of aluminum produced by the length of the period in hours.

(5) For anode bake plants, the aluminum equivalent for anodes produced shall be determined as follows:

(a) Determine the average weight (metric tons) of anodes produced in the anode bake plant during a representative oven cycle using a monitoring device which meets the requirements of Section 5(1);

(b) Determine the average rate of anode production by dividing the total weight of anodes produced during the representative oven cycle by the length of the cycle in hours;

(c) Calculate the aluminum equivalent for anodes produced by multiplying the average rate of anode production by two (2). (Note: an owner or operator may establish a different multiplication factor by submitting production records of the tons of aluminum produced and the concurrent tons of anode consumed by potrooms.);

(d) The owner or operator shall submit production records of the tons of aluminum produced and the concurrent tons of anodes consumed by potrooms during a representative production day. A second aluminum equivalent for anodes produced will be calculated by dividing the tons of aluminum produced by the concurrent tons of anode consumed. The smaller of the aluminum equivalents for anodes produced, as calculated under this paragraph and paragraph (c) of this subsection, shall be used to determine the lbs fluorides/tons of aluminum equivalent for anode bake plants.

(6) For each run, potroom group emissions expressed in kg/metric ton of aluminum produced shall be determined using the equation in Appendix A of this regulation.

(7) For each run, as applicable, anode bake plant emissions expressed in kg/metric ton of aluminum equivalent shall be determined using the equation in Appendix B of this regulation.

APPENDIX A TO 401 KAR 59:125
EQUATION FOR POTROOM GROUP EMISSIONS

$$E_p = \frac{(CQ)_1 10^6 + (CQ)_2 10^{-6}}{M}$$

Where:

E_p = Potroom group emissions of total fluorides in kg/metric ton of aluminum produced.

C = Concentration of total fluorides in mg/dscm as determined by Reference Method 13A or 13B, or Reference Method 14 as applicable.

Q = Volumetric flow rate of the effluent gas stream in dscm/hour as determined by Reference Method 2 and/or Reference Method 14, as applicable.

10^{-6} = Conversion factor for mg to kg.

M = Rate of aluminum production in metric ton/hour as determined by Section 6(4).

$(CQ)_2$ = Product of C and Q for measurements of primary control system effluent gas streams.

$(CQ)_1$ = Product of C and Q for measurements of secondary control system or roof monitor effluent gas stream.

APPENDIX B TO 401 KAR 59:125
EQUATION FOR ANODE BAKE PLANT EMISSIONS

$$E_a = \frac{(CQ)\,10^{-6}}{M_b}$$

Where:
E_a = Anode bake plant emissions of total fluorides in kg/metric ton of aluminum equivalent.
C = Concentration of total fluorides in mg/dscm as determined by Reference Method 13A or 13B.
Q = Volumetric flow rate of the effluent gas stream in dscm/hour as determined by Reference Method 2.
10^{-6} = Conversion factor from mg to kg.
M_b = Aluminum equivalent for anodes produced by anode bake plants in metric ton/hour as determined by Section 6(5).

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 59:130. Phosphate fertilizer industry; new wet process phosphoric acid plants.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of emissions from new wet process phosphoric acid plants.

Section 1. Applicability. The affected facility to which the provisions of this regulation apply is each wet-process phosphoric acid plant. For the purpose of this regulation, the affected facility includes any combination of: reactors, filters, evaporators, and hotwells, commenced on or after the classification date.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given them in 401 KAR 50:010.
(1) "Wet-process phosphoric acid plant" means any facility manufacturing phosphoric acid by reacting phosphate rock and acid.
(2) "Classification date" means October 22, 1974.
(3) "Total fluorides" means elemental fluorine and all fluoride compounds as measured by reference methods specified in Section 5, or equivalent or alternative methods.
(4) "Equivalent phosphorus pentoxide feed" means the quantity of phosphorus, expressed as phosphorus pentoxide, fed to the process.

Section 3. Standard for Fluorides. On and after the date on which the performance test required to be conducted by 401 KAR 59:005, Section 2, is completed, no owner or operator subject to the provisions of this regulation shall cause to be discharged into the atmosphere from any affected facility any gases which contain total fluorides in excess of 10.0 g/metric ton of equivalent phosphorus pentoxide feed (0.020 lb/ton).

Section 4. Monitoring of Operations. (1) The owner or operator of any wet-process phosphoric acid plant subject to the provisions of this regulation shall install, calibrate, maintain, and operate a monitoring device which can be used to determine the mass flow of phosphorus-bearing feed material to the process. The monitoring device shall have an accuracy of plus or minus five (5) percent over its operating range.
(2) The owner or operator of any wet-process phosphoric acid plant shall maintain a daily record of equivalent phosphorus pentoxide feed by first determining the total mass rate in metric ton/hour flow rate which meets the requirements of subsection (1) of this section and then by proceeding according to Section 5(4)(a).
(3) The owner or operator of any wet-process phosphoric acid plant subject to the provisions of this regulation shall install, calibrate, maintain, and operate a monitoring device which continuously measures and permanently records the total pressure drop across the process scrubbing system. The monitoring device shall have an accuracy of plus or minus five (5) percent over its operating range.

Section 5. Test Methods and Procedures. (1) The reference methods as defined in Appendix A of 40 CFR 60, filed by reference in 401 KAR 50:015, except as provided in 401 KAR 50:045, shall be used to determine compliance with the standard prescribed in Section 3 as follows:
(a) Reference Method 13A or 13B for the concentration of total fluorides and the associated moisture content;
(b) Reference Method 1 for sampling and velocity traverses;
(c) Reference Method 2 for velocity and volumetric flow rate; and
(d) Reference Method 3 for gas analysis.
(2) For Reference Method 13A or 13B, the sampling time for each run shall be at least sixty (60) minutes and the minimum sample volume shall be 0.85 dscm (thirty (30) dscf) except that shorter sampling times or smaller volumes, when necessitated by process variables or other factors, may be approved by the department.
(3) The air pollution control system for the affected facility shall be constructed so that volumetric flow rates and total fluoride emissions can be accurately determined by applicable test methods and procedures.
(4) Equivalent phosphorus pentoxide feed shall be determined as follows:
(a) Determine the total mass rate in metric ton/hour of phosphorus-bearing feed during each run using a flow monitoring device meeting the requirements of Section 4(1);
(b) Calculate the equivalent phosphorus pentoxide feed by multiplying the percentage of phosphorus pentoxide content, as measured by the spectrophotometric molybdovanadophosphate method (AOAC Method 9), times the total mass rate of phosphorus-bearing feed. AOAC Method 9 is published in the "Official Methods of Analysis" of the Association of Official Analytical

Chemists, 11th edition, 1970, pp. 11-12, filed by reference in 401 KAR 50:015. Other methods may be approved by the department.

(5) For each run, emissions expressed in g/metric ton of the equivalent phosphorus pentoxide feed shall be determined using the equation given in Appendix A of this regulation.

APPENDIX A TO 401 KAR 59:130

DETERMINATION OF EMISSIONS OF TOTAL FLUORIDES

$$E = \frac{C\,Q\,(10^{-3})}{M}$$

Where:

E = Emissions of total fluorides in g/metric ton of equivalent phosphorus pentoxide feed.

C = Concentration of total fluorides in mg/dscm as determined by Reference Method 13A or 13B.

Q = Volumetric flow rate of the effluent gas stream in dscm/hour as determined by Reference Method 2.

10^{-3} = Conversion factor for mg to g.

M = Equivalent phosphorus pentoxide feed in metric ton/hour as determined by Section 5(4).

EUGENE F. MOONEY, Secretary

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 59:135. Phosphate fertilizer industry; new super-phosphoric acid plants.

RELATES TO: KRS Chapter 224

PURSUANT TO: KRS 13.082, 244.033

NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe rgulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of emissions from new super-phosphoric acid plants.

Section 1. Applicability. The affected facility to which the provisions of this regulation apply is each super-phosphoric acid plant. For the purpose of this regulation the affected facility includes any combination of: evaporators, hot-wells, acid sumps, and cooling tanks, commenced on or after the classification date defined below.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given them in 401 KAR 50:010.

(1) "Superphosphoric acid plant" means any facility which concentrates wet-process phosphoric acid to sixty-six (66) percent or greater phosphorus pentoxide content by weight for eventual consumption as a fertilizer.

(2) "Total fluorides" means elemental fluorine and all fluoride compounds as measured by reference methods specified in Section 5, or equivalent or alternative methods.

(3) "Equivalent phosphorus pentoxide feed" means the quantity of phosphorus, expressed as phosphorus pentoxide, fed to the process.

(4) "Classfication date" means October 22, 1974.

Section 3. Standard for Fluorides. On and after the date on which the performance test required to be conducted by 401 KAR 59:005, Section 2, is completed, no owner or operator subject to the provisions of this regulation shall cause to be discharged into the atmosphere from any affected facility any gases which contain total fluorides in excess of 5.0 g/metric ton of equivalent phosphorus pentoxide feed (0.010 lb/ton).

Section 4. Monitoring of Operations. (1) The owner or operator of any superphosphoric acid plant subject to the provisions of this regulation shall install, calibrate, maintain, and operate a flow monitoring device which can be used to determine the mass flow of phosphorus-bearing feed material to the process. The flow monitoring device shall have an accuracy of plus or minus five (5) percent over its operating range.

(2) The owner or operator of any superphosphoric acid plant shall maintain a daily record of equivalent phosphorus pentoxide feed by first determining the total mass rate in metric tons/hour of phosphorus-bearing feed using a flow monitoring device meeting the requirements of subsection (1) of this section and then by proceeding according to Section 5(4).

(3) The owner or operator of any superphosphoric acid plant subject to the provisions of this regulation shall install, calibrate, maintain and operate a monitoring device which continuously measures and permanently records the total pressure drop across the process scrubbing system. The monitoring device shall have an accuracy of plus or minus five (5) percent over its operating range.

Section 5. Test Methods and Procedures. (1) The reference methods as defined in Appendix A of 40 CFR 60, filed by reference in 401 KAR 50:015, except as provided in 401 KAR 50:045 shall be used to determine compliance with the standard prescribed in Section 3 as follows:

(a) Reference Method 13A or 13B for the concentration of total fluorides and the associated moisture content;

(b) Reference Method 1 for sampling and velocity traverses;

(c) Reference Method 2 for velocity and volumetric flow rate; and

(d) Reference Method 3 for gas analysis.

(2) For Reference Method 13A or 13B, the sampling time for each run shall be at least sixty (60) minutes and the minimum sample volume shall be at least 0.85 dscm (thirty (30) dscf) except that shorter sampling times or smaller volumes, when necessitated by process variables or other factors may be approved by the department.

(3) The air pollution control system for the affected facility shall be constructed so that volumetric flow rates and total fluoride emissions can be accurately determined by applicable test methods and procedures.

(4) Equivalent phosphorus pentoxide feed shall be determined as follows:

(a) Determine the total mass rate in metric tons/hour of phosphorus-bearing feed during each run using a flow

monitoring device meeting the requirements of Section 4(1).

(b) Calculate the equivalent phosphorus pentoxide feed by multiplying the percentage phosphorus pentoxide content, as measured by the spectrophotometric molybdovanabophosphate method (AOAC Method 9), times the total mass rate of phosphorus-bearing feed. AOAC Method 9 is published in the "Official Methods of Analysis" of the Association of Official Analytical Chemists, 11th edition, 1970, pp. 11-12, filed by reference in 401 KAR 50:015. Other methods may be approved by the department.

(5) For each run, emissions expressed in g/metric ton of equivalent phosphorus pentoxide feed, shall be determined using the equation given in Appendix A of this regulation.

APPENDIX A TO 401 KAR 59:135
DETERMINATION OF EMISSIONS
OF TOTAL FLUORIDES

$$E = \frac{C\,Q\,(10^{-3})}{M}$$

Where:

E = Emissions of total fluorides in g/metric ton of equivalent phosphorus pentoxide feed.

C = Concentration of total fluorides in mg/dscm as determined by Reference Method 13A or 13B.

Q = Volumetric flow rate of the effluent gas stream in dscm/hour as determined by Reference Method 2.

10^{-3} = Equivalent phosphorus pentoxide feed in metric ton/hour as determined by Section 5(4).

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 59:140. Phosphate fertilizer industry; new diammonium phosphate plants.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of emissions from new diammonium phosphate plants.

Section 1. Applicability. The affected facility to which the provisions of this regulation apply is each granular diammonium phosphate plant. For the purpose of this regulation, the affected facility includes any combination of: reactors, granulators, dryers, coolers, screens and mills, commenced on or after the classification date defined below.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given them in 401 KAR 50:010.

(1) "Granular diammonium phosphate plant" means any plant manufacturing granular diammonium phosphate by reacting phosphoric acid with ammonia.

(2) "Total fluorides" means elemental fluorine and all fluoride compounds as measured by reference methods specified in Section 5, or equivalent or alternative methods.

(3) "Equivalent phosphorus pentoxide feed" means the quantity of phosphorus, expressed as phosphorus pentoxide, fed to the process.

(4) "Classification date" means October 22, 1974.

Section 3. Standard for Fluorides. On and after the date on which the performance test required to be conducted by 401 KAR 59:005 is completed, no owner or operator subject to the provisions of this section shall cause to be discharged into the atmosphere from any affected facility any gases which contain total fluorides in excess of thirty (30) g/metric ton of equivalent phosphorus pentoxide feed (0.060 lb/ton).

Section 4. Monitoring of Operations. (1) The owner or operator of any granular diammonium phosphate plant subject to the provisions of this regulation shall install, calibrate, maintain, and operate a flow monitoring device which can be used to determine the mass flow of phosphorus-bearing feed material to the process. The flow monitoring device shall have an accuracy of plus or minus five (5) percent over its operating range.

(2) The owner or operator of any granular diammonium phosphate plant shall maintain a daily record of equivalent phosphorus pentoxide feed by first determining the total mass rate in metric ton/hr of phosphorus-bearing feed using a flow monitoring device meeting the requirements of subsection (1) of this section and then by proceeding according to Section 5(4)(b).

(3) The owner or operator of any granular diammonium phosphate plant subject to the provisions of this regulation shall install, calibrate, maintain and operate a monitoring device which continuously measures and permanently records the total pressure drop across the scrubbing system. The monitoring device shall have an accuracy of plus or minus five (5) percent over its operating range.

Section 5. Test Methods and Procedures. (1) The reference methods as defined in Appendix A of 40 CFR 60, filed by reference in 401 KAR 50:015, except as provided for in 401 KAR 50:045, shall be used to determine compliance with the standard prescribed in Section 3 as follows:

(a) Reference Method 13A or 13B for the concentration of total fluorides and the associated moisture content;

(b) Reference Method 1 for sample and velocity traverses;

(c) Reference Method 2 for velocity and volumetric flow rate; and

(d) Reference Method 3 for gas analysis.

(2) For Method 13A or 13B, the sampling time for each run shall be at least sixty (60) minutes and the minimum sample volume shall be at least 0.85 dscm (thirty (30) dscf) except that shorter sampling times or smaller volumes when necessitated by process variables or other factors, may be approved by the department.

(3) The air pollution control system for the affected facility shall be constructed so that volumetric flow rates and total fluoride emissions can be accurately determined

by applicable test methods and procedures.

(4) Equivalent phosphorus pentoxide feed shall be determined as follows:

(a) Determine the total mass rate in metric ton/hr of phosphorus-bearing feed during each run using a flow monitoring device meeting the requirements of Section 4(1).

(b) Calculate the equivalent phosphorus pentoxide feed by multiplying the percentage phosphorus pentoxide content, as measured by the spectrophotometric molybdovanadophosphate method (AOAC Method 9), times the total mass rate of phosphorus-bearing feed. AOAC Method 9 is published in the "Official Methods of Analysis" of the Association of Official Analytical Chemists, 11th edition, 1970, pp. 11-12, filed by reference in 401 KAR 50:015. Other methods may be approved by the department.

(5) For each run, emissions expressed in g/metric ton of equivalent phosphorus pentoxide feed shall be determined using the equation in Appendix A to this regulation.

APPENDIX A TO 401 KAR 59:140

Equation for Equivalent Phosphorus Pentoxide Feed Emissions

$$E = \frac{(CQ)\,10^{-3}}{M}$$

where:

E = emissions of total fluorides in g/metric ton of equivalent phosphorus pentoxide.

C = concentration of total fluorides in mg/dscm as determined by Reference Method 13A or 13B.

Q = volumetric flow rate of the effluent gas stream in dscm/hr as determined by Reference Method 2.

10^{-3} = conversion factor for mg to g.

M = equivalent phosphorus pentoxide feed in metric tons/hr as determined by Section 5(4)(b).

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 59:145. Phosphate fertilizer industry; new triple superphosphate plants.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of emissions from new triple superphosphate plants.

Section 1. Applicability. The affected facility to which the provisions of this regulation apply is each triple superphosphate plant. For the purpose of this regulation, the affected facility includes any combination of: mixers, curing belts (dens), reactors, granulators, dryers, cookers, screens, mills and facilities which store run-of-pile triple superphosphate, commenced on or after the classification date defined below.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given them in 401 KAR 50:010.

(1) "Classification date" means October 22, 1974.

(2) "Triple superphosphate plant" means any facility manufacturing triple superphosphate by reacting phosphate rock with phosphoric acid. A run-of-pile triple superphosphate plant includes curing and storing.

(3) "Run-of-pile triple superphosphate" means any triple superphosphate that has not been processed in a granulator and is composed of particles at least twenty-five (25) percent by weight of which (when not caked) will pass through a sixteen (16) mesh screen.

(4) "Total fluorides" means elemental fluorine and all fluoride compounds as measured by reference methods specified in Section 5, or equivalent or alternative methods.

(5) "Equivalent phosphorus pentoxide feed" means the quantity of phosphorus, expressed as phosphorus pentoxide, fed to the process.

Section 3. Standard for Fluorides. On and after the date on which the performance test required to be conducted by 401 KAR 59:005 is completed, no owner or operator subject to the provisions of this regulation shall cause to be discharged into the atmosphere from any affected facility any gases which contain total fluorides in excess of 100 g/metric ton of equivalent phosphorus pentoxide feed (0.20 lb/ton).

Section 4. Monitoring of Operations. (1) The owner or operator of any triple superphosphate plant subject to the provisions of this regulation shall install, calibrate, maintain and operate a flow monitoring device which can be used to determine the mass flow of phosphorus-bearing feed material to the process. The flow monitoring device shall have an accuracy of plus or minus five (5) percent over its operating range.

(2) The owner or operator of any triple superphosphate plant shall maintain a daily record of equivalent phosphorus pentoxide feed by first determining the total mass rate in metric tons/hr of phosphorus-bearing feed using a flow monitoring device meeting the requirements of subsection (1) of this section and then by proceeding according to Section 5(4)(b).

(3) The owner or operator of any triple superphosphate plant subject to the provisions of this regulation shall install, calibrate, maintain, and operate a monitoring device which continuously measures and permanently records the total pressure drop across the process scrubbing system. The monitoring device shall have an accuracy of plus or minus five (5) percent over its operating range.

Section 5. Test Methods and Procedures. (1) The reference methods as defined in Appendix A of 40 CFR 60, filed by reference in 401 KAR 50:015, except as provided for in 401 KAR 50:045, shall be used to determine compliance with the standard prescribed in Section 3 as follows:

(a) Reference Method 13A or 13B for the concentration of total fluorides and the associated moisture content;

(b) Reference Method 1 for sample and velocity traverses;
(c) Reference Method 2 for velocity and volumetric flow rate; and
(d) Reference Method 3 for gas analysis.
(2) For Reference Method 13A or 13B, the sampling time for each run shall be at least sixty (60) minutes and the minimum sample volume shall be at least 0.85 dscm (thirty (30) dscf) except that shorter sampling times or smaller volumes, when necessitated by process variables or other factors, may be approved by the department.
(3) The air pollution control system for the affected facility shall be constructed so that volumetric flow rates and total fluoride emissions can be accurately determined by applicable test methods and procedures.
(4) Equivalent phosphorus pentoxide feed shall be determined as follows:
(a) Determine the total mass rate in metric tons/hr of phosphorus-bearing feed during each run using a flow monitoring device meeting the requirements of Section 4(1).
(b) Calculate the equivalent phosphorus pentoxide feed by multiplying the percentage phosphorus pentoxide content, as measured by the spectrophotometric molybdovanadophosphate method (AOAC Method 9), times the total mass rate of phosphorus-bearing feed. AOAC Method 9 is published in the "Official Methods of Analysis" of the Association of Official Analytical Chemists, 11th edition, 1970, pp. 11-12, filed by reference in 401 KAR 50:015. Other methods may be approved by the department.
(5) For each run, emissions expressed in g/metric ton of equivalent phosphorus pentoxide feed shall be determined using the equation in Appendix A of this regulation.

APPENDIX A TO 401 KAR 59:145

Determination of Emissions of Total Fluorides

$$E = \frac{CQ\,(10^{-3})}{M}$$

Where:
E = Emissions of total fluorides in g/metric ton of equivalnt phosphorus pentoxide feed.
C = Concentration of total fluorides in mg/dscm as determined by Reference Method 13A or 13B.
Q = Volumetric flow rate of the effluent gas stream in dscm/hr as determined by Reference Method 2.
10^{-3} = Conversion factor for mg to g.
M = Equivalent phosphorus pentoxide feed in metric tons/hr as determined by Section 5(4).

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 59:150. Phosphate fertilizer industry; new granular triple superphosphate storage facilities.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of emissions from new granular triple superphosphate storage facilities.

Section 1. Applicability. The affected facility to which the provisions of this regulation apply is each granular triple superphosphate storage facility. For the purpose of this regulation, the affected facility includes any combination of: storage or curing piles, conveyors, elevators, screens and mills, commenced on or after the classification date defined below.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given them in 401 KAR 50:010.
(1) "Granular triple superphosphate storage facility" means any facility curing or storing granular triple superphosphate.
(2) "Total fluorides" means elemental fluorine and all fluoride compounds as measured by reference methods specified in Section 5, or equivalent or alternative methods.
(3) "Classification date" means October 22, 1974.
(4) "Equivalent phosphorus pentoxide stored" means the quantity of phosphorus, expressed as phosphorus pentoxide, being cured or stored in the affected facility.
(5) "Fresh granular triple superphosphate" means granular triple superphosphate produced no more than ten (10) days prior to the date of the performance test.

Section 3. Standard for Fluorides. On and after the date on which the performance test required to be conducted by 401 KAR 59:005, Section 2, is completed, no owner or operator subject to the provisions of this regulation shall cause to be discharged into the atmosphere from any affected facility any gases which contain total fluorides in excess of 0.25 g/hr/metric ton of equivalent phosphorus pentoxide stored (.0005 lb/hr/ton of equivalent phosphorus pentoxide stored).

Section 4. Monitoring of Operations. (1) The owner or operator of any granular triple superphosphate storage facility subject to the provisions of this regulation shall maintain an accurate account of triple superphosphate in storage to permit the determination of the amount of equivalent phosphorus pentoxide stored.
(2) The owner or operator of any granular triple superphosphate storage facility shall maintain a daily record of total equivalent phosphorus pentoxide stored by multiplying the percentage phosphorus pentoxide content, as determined by Section 5(6)(b) times the total mass of granular triple superphosphate stored.
(3) The owner or operator of any granular triple superphosphate storage facility subject to the provisions of this regulation shall install, calibrate, maintain and operate a

monitoring device which continuously measures and permanently records the total pressure drop across the process scrubbing system. The monitoring device shall have an accuracy of plus or minus five (5) percent over its operating range.

Section 5. Test Methods and Procedures. (1) The reference methods as defined in Appendix A of 40 CFR 60, filed by reference in 401 KAR 50:015, except as provided for in 401 KAR 50:045, shall be used to determine compliance with the standard prescribed in Section 3 as follows:

(a) Reference Method 13A or 13B for the concentration of total fluorides and the associated moisture content;

(b) Reference Method 1 for sample and velocity traverses;

(c) Reference Method 2 for velocity and volumetric flow rate; and

(d) Reference Method 3 for gas analysis.

(2) For Reference Method 13A or 13B, the sampling time for each run shall be at least sixty (60) minutes and the minimum sample volume shall be at least 0.85 dscm (30 dscf) except that shorter sampling times or smaller volumes, when necessitated by process variables or other factors, may be approved by the department.

(3) The air pollution control system for the affected facility shall be constructed so that volumetric flow rates and total fluoride emissions can be accurately determined by applicable test methods and procedures.

(4) Except as provided under subsection (5) of this section, all performance tests on granular triple superphosphate storage facilities shall be conducted only when the following quantities of product are being cured or stored in the facility.

(a) Total granular triple superphosphate at least ten (10) percent of the amount of triple superphosphate in the building;

(b) Fresh granular triple superphosphate at least twenty (20) percent of the amount of triple superphosphate in the building.

(5) If the provisions set forth in subsection (4)(b) of this section exceed production capabilities for fresh granular triple superphosphate, the owner or operator shall have at least five (5) days maximum production of fresh granular triple superphosphate in the building during a performance test.

(6) Equivalent phosphorus pentoxide stored shall be determined as follows:

(a) Determine the total mass stored during each run using an accountability system meeting the requirements of Section 4(1).

(b) Calculate the equivalent phosphorus pentoxide stored by multiplying the percentage phosphorus pentoxide content, as measured by the spectrophotometric molybdovanadophosphate method (AOAC Method 9) times the total mass stored. AOAC Method 9 is published in the "Official Methods of Analysis" of the Association of Official Analytical Chemists, 11th edition, 1970, pp. 11-12, filed by reference in 401 KAR 50:015. Other methods may be approved by the department.

(7) For each run, emissions expressed in g/hr/metric ton of equivalent phosphorus pentoxide stored shall be determined using the equation given in Appendix A of this regulation.

APPENDIX A TO 401 KAR 59:150

DETERMINATION OF EMISSIONS OF TOTAL FLUORIDES

$$E = \frac{CQ\,(10^{-3})}{M}$$

Where:

E = Emissions of total fluorides in g/metric ton of equivalnt phosphorus pentoxide feed.

C = Concentration of total fluorides in mg/dscm as determined by Reference Method 13A or 13B.

Q = Volumetric flow rate of the effluent gas stream in dscm/hr as determined by Reference Method 2.

10^{-3} = Conversion factor for mg to g.

M = Equivalent phosphorus pentoxide feed in metric tons/hr as determined by Section 5(4).

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 59:155. New coal preparation plants.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of emissions from new coal preparation plants.

Section 1. Applicability. The provisions of this regulation are applicable to any of the following affected facilities in coal preparation plants which process more than 200 tons per day: thermal dryers, pneumatic coal-cleaning equipment (air tables), coal processing and conveying equipment (including breakers and crushers), coal storage systems, roads, and coal transfer and loading systems, commenced on or after the classification date defined below.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given them in 401 KAR 50:010.

(1) "Coal preparation plant" means any facility (excluding underground mining operations) which prepares coal by one or more of the following processes: breaking, crushing, screening, wet or dry cleaning, and thermal drying.

(2) "Classification date" means October 24, 1974.

(3) "Bituminous coal" means solid fossil fuel classified as bituminous coal by A. S. T. M. Designation D-388-66(72), filed by reference in 401 KAR 50:015.

(4) "Coal" means all solid fossil fuels classified as anthracite, bituminous, subbituminous, or lignite by A. S. T. M. Designation D-388-66(72).

(5) "Cyclonic flow" means a spiraling movement of exhaust gases within a duct or stack.

(6) "Thermal dryer" means any facility in which the moisture content of bituminous coal is reduced by contact with a heated gas stream which is exhausted to the atmosphere.

(7) "Pneumatic coal-cleaning equipment" means any facility which classifies bituminous coal by size or separates bituminous coal from refuse by application of air stream(s).

(8) "Coal processing and conveying equipment" means any machinery used to reduce the size of coal or to separate coal from refuse, and the equipment used to convey coal to or remove coal and refuse from the machinery. This includes, but is not limited to, breakers, crushers, screens, and conveyor belts.

(9) "Coal storage system" means any facility used to store coal including open storage piles.

(10) "Transfer and loading system" means any facility used to transfer and load coal for shipment.

(11) "Continuous operation" means any affected facility which operates uninterrupted for any period of time greater than one (1) minute's duration.

(12) "Intermittent operation" means any affected facility which operates at intervals equal to or less than one (1) minute's duration.

Section 3. Standards for Particulate Matter. (1) On and after the date on which the performance test required to be conducted by 401 KAR 59:005, Section 2, is completed, an owner or operator subject to the provisions of this regulation shall not cause to be discharged into the atmosphere from any thermal dryer, gases which:

(a) Contain particulate matter in excess of 0.070 g/dscm (0.031 gr/dscf).

(b) Exhibit twenty (20) percent opacity or greater.

(2) On and after the date on which the performance test required to be conducted by 401 KAR 59:005, Section 2, is completed, an owner or operator subject to the provisions of this regulation shall not cause to be discharged into the atmosphere from any pneumatic coal cleaning equipment, gases which:

(a) Contain particulate matter in excess of 0.040 g/dscm (0.018 gr/dscf).

(b) Exhibit ten (10) percent opacity or greater.

(3) On and after the date on which the performance test required to be conducted by 401 KAR 59:005, Section 2, is completed, an owner or operator subject to the provisions of this regulation shall not cause to be discharged into the atmosphere from any road, coal processing and/or conveying equipment, coal storge system, or coal transfer and/or loading system processing coal:

(a) Visible emissions from any continuous operation, equal to or greater than twenty (20) percent opacity. An average opacity will be determined by recording the opacity from the affected facility every fifteen (15) seconds for three (3) consecutive minutes and dividing the sum by the number of observations. Except for the above averaging time and corresponding number of observations, all other procedures of Reference Method 9 of Appendix A to 40 CFR 60, filed by reference in 401 KAR 50:015, shall apply;

(b) Visible emissions from intermittent operations, equal to or greater than twenty-five (25) percent opacity for one (1) minute. An average opacity from the affected facility will be determined by recording the opacity every fifteen (15) seconds for one (1) minute and dividing the sum by the number of observations. Except for the above averaging time and corresponding number of observations, all other procedures of Reference Method 9 of Appendix A to 40 CFR 60 shall apply;

(c) Visible emissions beyond the property line of the property on which the emissions originate.

(4) Visible emissions in excess of those specified in any one paragraph of subsection (3) of this section, or any combination of these paragraphs shall constitute a violation of that standard.

Section 4. Monitoring of Operations. (1) The owner or operator of any thermal dryer shall install, calibrate, maintain, and continuously operate monitoring devices as follows:

(a) A monitoring device for the measurement of the temperature of the gas stream at the exit of the thermal dryer on a continuous basis. The monitoring device is to be certified by the manufacturer to be accurate within plus or minus three (3) ° Fahrenheit.

(b) For affected facilities that use venturi scrubber emission control equipment:

1. A monitoring device for the continuous measurement of the pressure loss through the venturi construction of the control equipment. The monitoring device is to be certified by the manufacturer to be accurate within plus or minus one (1) inch water gage.

2. A monitoring device for the continuous measurement of the water supply pressure to the control equipment. The monitoring device is to be certified by the manufacturer to be accurate within plus or minus five (5) percent of design water supply pressure. The pressure sensor or tap must be located close to the water discharge point. The department may be consulted for approval of alternative locations.

(2) All monitoring devices under subsection (1) of this section are to be recalibrated annually in accordance with procedures under 401 KAR 59:005, Section 4(2).

Section 5. Test Methods and Procedures. (1) The reference methods as defined in Appendix A of 40 CFR 60, except as provided in 401 KAR 50:045 and in Section 3, are to be used to determine compliance with the standards prescribed in Section 3 as follows:

(a) Reference Method 5 for the concentration of particulate matter and associated moisture content;

(b) Reference Method 1 for sample and velocity traverses;

(c) Reference Method 2 for velocity and volumetric flow rate; and

(d) Reference Method 3 for gas analysis.

(2) For Reference Method 5, the sampling time for each run is at least sixty (60) minutes and the minimum sample volume is 0.85 dscm (thirty (30) dscf) except that shorter sampling times or smaller volumes, when necessitated by process variables or other factors, may be approved by the department. Sampling is not to be started until thirty (30) minutes after startup and is to be terminated before shutdown procedures commence. The owner or operator of the affected facility shall eliminate cyclonic flow during performance tests in a manner acceptable to the department.

(3) The owner or operator shall construct the facility so that particulate emissions from thermal dryers or pneumatic coal cleaning equipment can be accurately

determined by applicable test methods and procedures under subsection (1) of this section.

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 59:160. New ferroalloy production facilities.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of emissions from new ferroalloy production facilities.

Section 1. Applicability. The provisions of this regulation are applicable to the following affected facilities: electric submerged arc furnaces which produce silicon metal, ferrosilicon, calcium silicon, silicomanganese zirconium, ferrochrome silicon, silvery iron, high-carbon ferrochrome, charge chrome, standard ferromanganese, silicomanganese, ferromanganese silicon, or calcium carbide; and dust-handling equipment, commenced on or after the classification date defined below.

Section 2. Definitions. As used in this regulation all terms not defined herein shall have the meaning given them in 401 KAR 50:010.

(1) "Electric submerged arc furnace" means any furnace wherein electrical energy is converted to heat energy by transmission of current between electrodes partially submerged in the furnace charge.

(2) "Furnace charge" means any material introduced into the electric submerged arc furnace and may consist of, but is not limited to, ores, slag, carbonaceous material, and limestone.

(3) "Product change" means any change in the composition of the furnace charge that would cause the electric submerged arc furnace to become subject to a different mass standard applicable under this regulation.

(4) "Slag" means the more or less completely fused and vitrified matter separated during the reduction of metal from its ore.

(5) "Tapping" means the removal of slag or product from the electric submerged arc furnace under normal operating conditions such as removal of metal under normal pressure and movement by gravity down the spout into the ladle.

(6) "Tapping period" means the time duration from initiation of the process of opening the tap hole until plugging of the tap hole is complete.

(7) "Furnace cycle" means the time period from completion of a furnace product tap to the completion of the next consecutive product tap.

(8) "Tapping station" means that general area where molten product or slag is removed from the electric submerged arc furnace.

(9) "Blowing tap" means any tap in which an evolution of gas forces or projects jets of flame or metal sparks beyond the ladle, runner or collection hood.

(10) "Furnace power input" means the resistive electrical power consumption of an electric submerged arc furnace as measured in kilowatts.

(11) "Dust-handling equipment" means any equipment used to handle particulate matter collected by the air pollution control device (and located at or near such device) serving any electric submerged arc furnace subject to this regulation.

(12) "Control device" means the air pollution control equipment used to remove particulate matter generated by an electric submerged arc furnace from an effluent gas stream.

(13) "Classification date" means October 21, 1974.

(14) "Capture system" means the equipment (including hoods, ducts, fans, dampers, etc.) used to capture or transport particulate matter generated by an effected electric submerged arc furnace to the control device.

(15) "Standard ferromanganese" means that alloy as defined by A.S.T.M. designation A-99-66(71). (A.S.T.M. designations are filed by reference in 401 KAR 50:015.)

(16) "Silicomanganese" means that alloy as defined by A.S.T.M. designation A-483-64(74).

(17) "Calcuim carbide" means material containing seventy (70) to eighty-five (85) percent calcium carbide by weight.

(18) "High-carbon ferrochrome" means that alloy as defined by A.S.T.M. designation A-101-73 grades HC1 through HC6.

(19) "Charge chrome" means that alloy containing fifty-two (52) to seventy (70) percent by weight chromium, five (5) to eight (8) percent by weight carbon, and three (3) to six (6) percent by weight silicon.

(20) "Silvery iron" means any ferrosilicon, as defined by A.S.T.M. designation A-100-69(74), which contains less than thirty (30) percent silicon.

(21) "Ferrochrome silicon" means that alloy as defined by A.S.T.M. designation A-482-66(71).

(22) "Silicomanganese zirconium" means that alloy containing sixty (60) to sixty-five (65) percent by weight silicon, 1.5 to 2.5 percent by weight calcium, five (5) to seven (7) percent by weight zirconium, 0.75 to 1.25 percent by weight aluminum, five (5) to seven (7) percent by weight manganese, and two (2) to three (3) percent by weight barium.

(23) "Calcium silicon" means that alloy as defined by A.S.T.M. designation A-495-64(70).

(24) "Ferrosilicon" means that alloy as defined by A.S.T.M. designation A-100-69 grades A, B, C, D, and E which contains fifty (50) or more percent by weight silicon.

(25) "Silicon metal" means any silicon alloy containing more than ninety-six (96) percent silicon by weight.

(26) "Ferromanganese silicon" means that alloy containing sixty-three (63) to sixty-six (66) percent by weight manganese, twenty-eight (28) to thirty-two (32) percent by weight silicon, and a maximum of 0.08 percent by weight carbon.

(27) "Concentrated discharge" means that the outlet from a control device consists of either stacks (one (1) or more) or openings on the device's top or side which has (have) a total area less than five (5) percent of the corresponding top or side and which has (have) a length of not more than twice the width.

(28) "Dispersed discharge" means that the outlet from a control device consists of opening(s) on the device's top or side which has (have) a total area exceeding five (5) percent of the corresponding top or side or which have a length more than twice the width. A control device may have both dispersed and concentrated discharges.

Section 3. Standard for Particulate Matter. (1) On and after the date on which the performance test required to be conducted by 401 KAR 59:005, Section 2, is completed, no owner or operator subject to the provisions of this regulation shall cause to be discharged into the atmosphere from any electric submerged arc furnace any gases which:

(a) Exit from a control device and contain particulate matter in excess of:

1. 0.45 kg/MW-hr (0.99 lb/MW-hr) while silicon metal, ferrosilicon, calcium silicon, or silicomanganese zirconium is being produced.

2. 0.23 kg/MW-hr (0.51 lb/MW-hr) while high-carbon ferrochrome, charge chrome, standard ferromanganese, silicomanganese, calcium carbide, ferrochrome silicon, ferromanganese silicon, or silvery iron is being produced.

(b) Exit from a control device and exhibit an opacity equal to or greater than:

1. Three (3) percent where control device has dispersed discharge.

2. Fifteen (15) percent where control device has concentrated discharge.

(c) Exit from an electric submerged arc furnace and escape the capture system and are visible without the aid of instruments. The requirements under this paragraph apply only during periods when flow rates are being established under Section 6(4).

(d) Escape the capture system at the tapping station and are visible without the aid of instruments for more than forty (40) percent of each tapping period. There are no limitations on visible emissions under this paragraph when a blowing tap occurs. The requirements under this paragraph apply only during periods when flow rates are being established under Section 6(4).

(2) On and after the date on which the performance test required to be conducted by 401 KAR 59:005, Section 2, is completed, no owner or operator subject to the provisions of this regulation shall cause to be discharged into the atmosphere from any dust-handling equipment any gases which exhibit ten (10) percent opacity or greater.

Section 4. Standard for Carbon Monoxide. On and after the date on which the performance test required to be conducted by 401 KAR 59:005, Section 2, is completed, no owner or operator subject to the provisions of this regulation shall cause to be discharged into the atmosphere from any electric submerged arc furnace any gases which contain, on a dry basis, twenty (20) or greater volume percent of carbon monoxide. Combustion of such gases under conditions acceptable to the department constitutes compliance with this section. Acceptable conditions include, but are not limited to, flaring of gases or use of gases as fuel or other processes.

Section 5. Emissions Monitoring. (1) The owner or operator subject to the provisions of this regulation shall install, calibrate, maintain and operate a continuous monitoring system for measurement of the opacity of emissions discharged into the atmosphere from the control device(s) with a concentrated discharge.

(2) For the purpose of reports required under 401 KAR 59:005, Section 3, the owner or operator shall report as excess emissions all six (6) minute periods in which the average opacity is fifteen (15) percent or greater.

(3) The owner or operator subject to the provisions of this regulation shall submit a written report of any product change to the department. Reports of product changes must be postmarked not later than thirty (30) days after implementation of the product change.

Section 6. Monitoring of Operations. (1) The owner or operator of any electric submerged arc furnace subject to the provisions of this regulation shall maintain daily records of the following information:

(a) Product being produced;

(b) Description of constitutents of furnace charge, including the quantity, by weight;

(c) Time and duration of each tapping period and the identification of material tapped (slag or product);

(d) All furnace power input data obtained under subsection (2) of this section;

(e) All flow rate data obtained under subsection (3) of this section or all fan motor power consumption and pressure drop data obtained under subsection (5) of this section.

(2) The owner or operator subject to the provisions of this regulation shall install, calibrate, maintain and operate a device to measure and continuously record the furnace power input. The furnace power input may be measured at the output or input side of the transformer. The device must have an accuracy of plus or minus five (5) percent over its operating range.

(3) The owner or operator subject to the provisions of this regulation shall install, calibrate, and maintain a monitoring device that continuously measures and records the volumetric flow rate through each separately ducted hood of the capture system, except as provided under subsection (5) of this section. The owner or operator of an electric submerged arc furnace that is equipped with a water cooled cover which is designed to contain and prevent escape of the generated gas and particulate matter shall monitor only the volumetric flow rate through the capture system for control of emissions from the tapping station. The owner or operator may install the monitoring device(s) in any appropriate location in the exhaust duct such that reproducible flow rate monitoring will result. The flow rate monitoring device must have an accuracy of plus or minus ten (10) percent over its normal operating range and must be calibrated according to the manufacturer's instructions. The department may require the owner or operator to demonstrate the accuracy of the monitoring device relative to Reference Methods 1 and 2 of Appendix A to 40 CFR 60, filed by reference in 401 KAR 50:015.

(4) When performance tests are conducted under the provisions of 401 KAR 59:005, Section 2, to demonstrate compliance with the standards under Section 3(1)(c) and (d), volumetric flow rate through each separately ducted hood of the capture system must be determined using the monitoring device required under subsection (3) of this section. The volumetric flow rates must be determined for furnace power input levels at fifty (50) and 100 percent of the nominal rated capacity of the electric submerged arc furnace. At all times the electric submerged arc furnace is operated, the owner or operator shall maintain the volumetric flow rate at or above the appropriate levels for that furnace power input level determined during the most recent performance test. If emissions due to tapping are captured and ducted separately from emissions of the elec-

tric submerged arc furnace, during each tapping period the owner or operator shall maintain the exhaust flow rates through the capture system over the tapping station at or above the levels established during the most recent performance test. Operation at lower flow rates may be considered by the department to be unacceptable operation and maintenance of the affected facility. The owner or operator may request that these flow rates be re-established by conducting new performance tests under 401 KAR 59:005, Section 2.

(5) The owner or operator may as an alternative to subsection (3) of this section determine the volumetric flow rate through each fan of the capture system from the fan power consumption, pressure drop across the fan and the fan performance curve. Only data specific to the operation of the affected electric submerged arc furnace are acceptable for demonstration of compliance with the requirements of this section. The owner or operator shall maintain on file a permanent record of the fan performance curve (prepared for a specific temperature) and shall:

(a) Install, calibrate, maintain, and operate a device to continuously measure and record the power consumption of the fan motor (measured in kilowatts); and

(b) Maintain and operate a device to continuously measure and record the pressure drop across the fan. The fan power consumption and pressure drop measurements must be synchronized to allow real time comparisons of the data. The monitoring devices must have an accuracy of plus or minus five (5) percent over their normal operating ranges.

(6) The volumetric flow rate through each fan of the capture system must be determined from the fan power consumption, fan pressure drop, and fan performance curve specified under subsection (5) of this section, during any performance test required under 401 KAR 59:005, Section 2, to demonstrate compliance with the standards under Section 3(1)(c) and (d). The owner or operator shall determine the volumetric flow rate at a representative temperature for furnace power input levels of fifty (50) and 100 percent of the nominal rated capacity of the electric submerged arc furnace. At all times the electric submerged arc furnace is operated, the owner or operator shall maintain the fan power consumption and fan pressure drop at levels such that the volumetric flow rate is at or above the levels established during the most recent performance test for that furnace power input level. If emissions due to tapping are captured and ducted separately from the emissions of the electric submerged arc furnace, during each tapping period the owner or operator shall maintain the fan power consumption and fan pressure drop at levels such that the volumetric flow rate is at or above the levels established during the most recent performance test. Operation at lower flow rates may be considered by the department to be unacceptable operation and maintenance of the affected facility. The owner or operator may request that these flow rates be re-established by conducting new performance tests under 401 KAR 59:005, Section 2. The department may require the owner or operator to verify the fan performance curve by monitoring necessary fan operating parameters and determining the gas volume moved relative to Methods 1 and 2 of Appendix A to 40 CFR 60.

(7) All monitoring devices required under subsection (3) and (5) of this section are to be checked for calibration annually in accordance with the procedures under 401 KAR 59:005, Section 4(2).

Section 7. Test Methods and Procedures. (1) The reference methods as defined in Appendix A of 40 CFR 60, except as provided in 401 KAR 50:045, shall be used to determine compliance with the standards prescribed in Sections 3 and 4 as follows:

(a) Reference Method 5 for the concentration of particulate matter and the associated moisture content except that the heating systems specified in paragraphs 2.1.2 and 2.1.4 of Reference Method 5 are not to be used when the carbon monoxide content of the gas stream exceeds ten (10) percent by volume, dry basis;

(b) Reference Method 1 for sample and velocity flow rate;

(c) Reference Method 2 for velocity and volumetric flow rate;

(d) Reference Method 3 for gas analysis, including carbon monoxide; and

(e) Reference Method 9 for opacity determination.

(2) For Reference Method 5, the sampling time for each run is to include an integral number of furnace cycles. The sampling time for each run must be at least sixty (60) minutes and the minimum sample volume must be 1.8 dscm (sixty-four (64) dscf) when sampling emissions from open electric submerged arc furnaces with wet scrubber control devices, sealed electric submerged arc furnaces, or semi-enclosed electric submerged arc furnaces. When sampling emissions from other types of installations, the sampling time for each run must be at least 200 minutes and the minimum sample volume must be 5.7 dscm (200 dscf). Shorter sampling times or smaller sampling volumes, when necessitated by process variables or other factors, may be approved by the department.

(3) During the performance test, the owner or operator shall record the maximum open hood area (in hoods with segmented or otherwise moveable sides) under which the process is expected to be operated and remain in compliance with all standards. Any future operation of the hooding system with open areas in excess of the maximum is not permitted.

(4) The owner or operator shall construct the control device so that volumetric flow rates and particulate matter emissions can be accurately determined by applicable test methods and procedures.

(5) During any performance test required under 401 KAR 59:005, Section 2, the owner or operator shall not allow gaseous diluents to be added to the effluent gas stream after the fabric in an open pressurized fabric filter collector unless the total gas volume flow from the collector is accurately determined and considered in the determination of emissions.

(6) When compliance with Section 4 is to be attained by combusting the gas stream in a flare, the location of the sampling site for particulate matter is to be upstream of the flare.

(7) For each run, particulate matter emissions, expressed in kg/hr (lb/hr), must be determined for each exhaust stream at which emissions are quantified using the equation given in Appendix A to this regulation.

(8) For Method 5, particulate matter emissions from the affected facility, expressed in kg/MW-hr (lb/MW-hr) must be determined for each run using the equation given in Appendix B to this regulation.

APPENDIX A TO 401 KAR 59:160
DETERMINATION OF PARTICULATE MATTER EMISSIONS

$$En = C\ Q$$

Where:
En = Emissions of particulate matter in kg/hr (lb/hr).
C = Concentration of particulate matter in kg/dscm (lb/dscf) as determined by Reference Method 5.
Q = Volumetric flow rate of the effluent gas stream as dscm/hr (dscf/hr) as determined by Reference Method 2.

APPENDIX B TO 401 KAR 59:160
DETERMINATION OF PARTICULATE MATTER EMISSIONS FOR METHOD 5

$$E = \frac{\sum_{n=1}^{N} E_n}{P}$$

Where:
E = Emissions of particulate from the affected facility in kg/MW-hr (lb/MW-hr).
N = Total number of exhaust streams at which emissions are quantified.
E_n = Emission of particulate matter from each exhaust stream in kg/hr (lb/hr), as determined in Section 7(7).
P = Average furnace power input during the sampling period, in megawatts as determined according to Section 6(2).

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 59:165. Steel plants and foundries using new electric arc furnaces.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of emissions from steel plants and foundries using new electric arc furnaces and associated metallurgical equipment.

Section 1. Applicability. The provisions of this regulation apply to the following affected facilities in steel plants and foundries: electric arc furnaces and/or associated metallurgical equipment located in the same shop as well as associated dust handling equipment commenced on or after the classification date defined below.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given them in 401 KAR 50:010.

(1) "Electric arc furnace (EAF)" means any furnac that produces molten steel and heats the charge materials with electric arcs from carbon electrodes. Furnaces from which the molten steel is cast into the shape of finished products, such as in a foundry, are affected facilities included within the scope of this definition. Furnaces which, as the primary source of iron, continuously feed prereduced ore pellets are not affected facilities within the scope of this definition.

(2) "Dust-handling equipment" means any equipment used to handle particulate matter collected by the control device and located at or near the control device for an EAF subject to this regulation.

(3) "Control device" means the air pollution control equipment used to remove particulate matter generated by an EAF(s) from the effluent gas stream.

(4) "Capture system" means the equipment (including ducts, hoods, fans, dampers, etc.) used to capture or transport particulate matter generated by an EAF and associated metallurgical equipment to the air pollution control device.

(5) "Associated metallurgical equipment" in the shop includes but is not limited to scrap pre-heaters and degreasers, and equipment for hot metal transfer, charging, lancing, boiling, slagging, and de-slagging, tapping, innoculating, teeming, hot-topping, vacuum de-gassing, continuous casting, etc.

(6) "Charge" means the addition of iron and steel scrap or other materials into the top of an electric arc furnace.

(7) "Charging period" means the time period commencing at the moment an EAF starts to open and ending either three (3) minutes after the EAF roof is returned to its closed position or six (6) minutes after commencement of opening of the roof, whichever is longer.

(8) "Tap" means the pouring of molten steel from an EAF.

(9) "Tapping period" means the time period commencing at the moment an EAF begins to tilt to pour and ending either three (3) minutes after an EAF returns to an upright position or six (6) minutes after commencing to tilt, whichever is longer.

(10) "Meltdown and refining" means the phase of the steel production cycle when charge material is melted and undesirable elements are removed from the metal.

(11) "Meltdown and refining period" means the time period commencing at the termination of the initial charging period and ending at the initiation of the tapping period, excluding any intermediate charging period.

(12) "Shop opacity" means the arithmetic average of twenty-four (24) or more opacity observations of emissions from the shop taken in accordance with Reference Method 9 of Appendix A of 40 CFR 60, filed by reference in 401 KAR 50:015, for the applicable time periods.

(13) "Heat time" means the period commencing when scrap is charged to an empty EAF and terminating when the EAF tap is completed.

(14) "Shop" means the building which houses one or more EAF.

(15) "Direct shell evacuation system" means any system that maintains a negative pressure within the EAF above the slag or metal and ducts these emissions to the control device.

(16) "Concentrated discharge" means that the outlet from a control device consists of either stacks (one (1) or more) or openings on the device's top or side which has

(have) a total area less than five (5) percent of the corresponding top or side and which has (have) a length of not more than twice the width.

(17) "Dispersed discharge" means that the outlet from a control device consists of opening(s) on the device's top or side which has (have) a total area exceeding five (5) percent of the corresponding top or side or which have a length more than twice the width.

(18) "Classification date" means October 21, 1974.

Section 3. Standard for Particulate Matter. (1) On and after the date on which the performance test required to be conducted by 401 KAR 59:005, Section 2, is completed, no owner or operator subject to the provisions of this regulation shall cause to be discharged into the atmosphere from an electric arc furnace and associated metallurgical equipment any gases which:

(a) Exit from a control device and contain particulate matter in excess of 0.0052 grains/dscf (twelve (12) mg/dscm);

(b) Exit from a control device and exhibit opacity in excess of:

1. Three (3) percent for a control device with a concentrated discharge.

2. Zero (0) percent for a control device with a dispersed discharge.

(c) Exit directly from a shop and exhibit an opacity greater than zero (0) percent except:

1. Shop opacity less than twenty (20) percent may occur which is caused by an EAF during its charging period.

2. Shop opacity less than thirty (30) percent may occur which is produced by an EAF during its tapping period.

3. Where the capture system is operated such that the roof of the shop is closed during the charge and the tap, and emissions to the atmosphere are prevented until the roof is opened after completion of the charge or tap, the shop opacity standards under paragraph (c) of this subsection shall apply when the roof is opened and shall continue to apply for the length of time defined by the charging and/or tapping periods.

(2) On and after the date on which the performance test required to be conducted by 401 KAR 59:005, Section 2, is completed, no owner or operator subject to the provisions of this regulation shall cause to be discharged into the atmosphere from dust-handling equipment any gases which exhibit ten (10) percent opacity or greater.

Section 4. Emission Monitoring. (1) A continuous monitoring system for the measurement of the opacity of emissions discharged into the atmosphere from the control device(s) with a concentrated discharge shall be installed, calibrated, maintained and operated by the owner or operator subject to the provisions of this regulation.

(2) For the purpose of reports under 401 KAR 59:005, Section 3, periods of excess emissions that shall be reported are defined as all six (6) minute periods during which the average opacity is three (3) percent or greater.

Section 5. Monitoring of Operations. (1) The owner or operator subject to the provisions of this regulation shall maintain records daily of the following information:

(a) Time and duration of each charge;

(b) Time and duration of each tap;

(c) All flow rate data obtained under subsection (2) of this section or equivalent obtained under subsection (4) of this section; and

(d) All pressure data obtained under subsection (5) of this section.

(2) Except as provided under subsection (4) of this section, the owner or operator subject to the provisions of this regulation shall install, calibrate, and maintain a monitoring device that continuously records the volumetric flow rate through each separately ducted hood. The monitoring device(s) may be installed in any appropriate location in the exhaust duct such that reproducible flow rate monitoring will result. The flow rate monitoring device(s) shall have an accuracy of plus or minus ten (10) percent over its normal operating range and shall be calibrated according to the manufacturer's instructions. The department may require the owner or operator to demonstrate the accuracy of the monitoring device(s) relative to Reference Methods 1 and 2 of Appendix A of 40 CFR 60.

(3) When the owner or operator of an EAF is required to demonstrate compliance with the standard under Section 3(1)(c), and at any other time the department may require; the volumetric flow rate through each separately ducted hood shall be determined during all periods in which the hood is operated for the purpose of capturing emissions from the EAF using the monitoring device under subsection (2) of this section. The owner or operator may petition the department for re-establishment of these flow rates whenever the owner or operator can demonstrate to the department's satisfaction that the EAF operating conditions upon which the flow rates were previously established are no longer applicable. The flow rates determined during the most recent demonstration of compliance shall be maintained (or may be exceeded) at the appropriate level for each applicable period. Operation at lower flow rates may be considered by the department to be unacceptable operation and maintenance of the affected facility.

(4) The owner or operator may petition the department to approve any alternative method that will provide a continuous record of operation of each emission capture system.

(5) Where emissions during any phase of the heat time are controlled by use of a direct shell evacuation system, the owner or operator shall install, calibrate and maintain a monitoring device that continuously records the pressure in the free space inside the EAF. The pressure shall be recorded as fifteen (15) minute integrated averages. The monitoring device may be installed in any appropriate location in the EAF such that reproducible results will be obtained. The pressure monitoring device shall have an accuracy of plus or minus five (5) mm of water gauge over its normal operating range and shall be calibrated according to the manufacturer's instructions.

(6) When the owner or operator of an EAF is required to demonstrate compliance with the standard under Section 3(1)(c) and at any other time the department may require, the pressure in the free space inside the furnace shall be determined during the meltdown and refining period(s) using the monitoring device under subsection (5) of this section. The owner or operator may petition the department for re-establishment of the fifteen (15) minute integrated average pressure whenever the owner or operator can demonstrate to the department's satisfaction that the EAF operating conditions upon which the pressures were previously established are no longer applicable. The pressure determined during the most recent demonstration of compliance shall be maintained at all times the EAF is operating in a meltdown and refining period. Operation at higher pressures may be considered by the department to be unacceptable operation and maintenance of the affected facility.

(7) Where the capture system is designed and operated

such that all emissions are captured and ducted to a control device, the owner or operator shall not be subject to the requirements of this section.

(8) Where each EAF in a shop has an actual tapping capacity of less than ten (10) tons, the owner or operator shall not be subject to the requirements of this section.

Section 6. Test Methods and Procedures. (1) The reference methods as defined in Appendix A of 40 CFR 60, except as provided for in 401 KAR 50:045, shall be used to determine compliance with the standard prescribed in Section 3 as follows:

(a) Reference Method 5 for concentration of particulate matter and associated moisture content;

(b) Reference Method 1 for sample and velocity traverses;

(c) Reference Method 2 for velocity and volumetric flow rate;

(d) Reference Method 3 for gas analysis; and

(e) Reference Method 9 for opacity determination.

(2) For Reference Method 5, the sampling time for each run shall be at least four (4) hours. When a single EAF is sampled, the sampling time for each run shall also include an integral number of heats. Shorter sampling times, when necessitated by process variables or other factors, may be approved by the department. The minimum sample volume shall be 4.5 dscm (160 dscf).

(3) For the purpose of this regulation, the owner or operator shall conduct the demonstration of compliance with Section 3(1)(c) and furnish the department a written report of the results of the test.

(4) During any performance test required under 401 KAR 59:005, Section 2, no gaseous diluents may be added to the effluent gas stream after the fabric in any pressurized fabric filter collector, unless the amount of dilution is separately determined and considered in the determination of emissions.

(5) When more than one (1) control device serves the EAF(s) being tested, the concentration of particulate matter shall be determined using the equation given in Appendix A of this regulation.

(6) Any control device subject to the provisions of this regulation shall be designed and constructed to allow measurement of volumetric flow rate and emissions using applicable test methods and procedures.

(7) Where emissions from any EAF(s) are combined with emissions from other affected facilities in the same shop and controlled by a common capture system and control device, the owner or operator may use any of the following procedures during a performance test:

(a) Base compliance on control of the combined emissions;

(b) Utilize a method acceptable to the department which compensates for the emissions from the other affected facilities; and

(c) Any combination of the criteria of paragraphs (a) and (b) of this subsection.

Section 7. 401 KAR 3:050 is hereby repealed.

APPENDIX A TO 401 KAR 59:165
DETERMINATION OF CONCENTRATION
OF PARTICULATE MATTER

$$C = \frac{\sum_{n=1}^{N} (C\,Q)_n}{\sum_{n=1}^{N} (Q)_n}$$

Where:

C = concentration of particulate matter in mg/dscm (gr/dscf) as detemined by Reference Method 5.

N = total number of control devices tested.

Q = volumetric flow rate of the effluent gas stream in dscm/hr (dscf/hr) as determined by Reference Method 2.

$(C\,Q)_n$ or $(Q)_n$ = value of the applicable parameter for each control device tested (n).

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 59:170. New lime manufacturing plants.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation is to provide standards of performance for new lime manufacturing plants.

Section 1. Applicability. (1) The provisions of this regulation are applicable to the following affected facilities used in the manufacture of lime: rotary lime kilns and lime hydrators.

(2) The provisions of this regulation are not applicable to facilities used in the manufacture of lime at kraft pulp mills.

(3) Any facility under subsection (1) of this section that commences on or after the classification date defined below, is subject to the requirements of this regulation.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the same meaning given them in 401 KAR 50:010.

(1) "Lime manufacturing plant" means any plant which produces a lime product from limestone by calcination. Hydration of the lime product is also considered to be part of the source.

(2) "Lime product" means the product of the calcina-

tion process including, but not limited to, calcitic lime, dolomitic lime, and dead-burned dolomite.

(3) "Rotary lime kiln" means a unit with an inclined rotating drum which is used to produce a lime product from limestone by calcination.

(4) "Lime hydrator" means a unit used to produce hydrated lime product.

(5) "Classification date" means May 3, 1977.

Section 3. Standard for Particulate Matter. On and after the date on which the performance test required by 401 KAR 59:005, Section 2, is completed, no owner or operator subject to the provisions of this regulation shall cause to be discharged into the atmosphere:

(1) From any rotary lime kiln any gases which:

(a) Contain particulate matter in excess of 0.15 kilogram per megagram of limestone feed (0.30 lb/ton).

(b) Exhibit ten (10) percent opacity or greater.

(2) From any lime hydrator any gases which contain particulate matter in excess of 0.075 kilogram per megagram of lime feed (0.15 lb/ton).

Section 4. Monitoring of Emissions and Operations. (1) The owner or operator subject to the provisions of this regulation shall install, calibrate, maintain, and operate a continuous monitoring system, except as provided in subsection (2) of this section, to monitor and record the opacity of a representative portion of the gases discharged into the atmosphere from any rotary lime kiln. The span of this system shall be set at forty (40) percent opacity.

(2) The owner or operator of any rotary lime kiln using a wet scrubbing emission control device subject to the provisions of this regulation shall not be required to monitor the opacity of the gases discharged as required in subsection (1) of this section, but shall install, calibrate, maintain, and operate the following continuous monitoring devices:

(a) A monitoring device for the continuous measurement of the pressure loss of the gas stream through the scrubber. The monitoring device must be accurate within plus or minus 250 pascals (one (1) inch of water).

(b) A monitoring device for the continuous measurement of the scrubbing liquid supply pressure to the control device. The monitoring device must be accurate within plus or minus five (5) percent of design scrubbing liquid supply pressure.

(3) The owner or operator of any lime hydrator using a wet scrubbing emission control device subject to the provisions of this regulation shall install, calibrate, maintain, and operate the following continuous monitoring devices:

(a) A monitoring device for the continuous measuring of the scrubbing liquid flow rate. The monitoring device must be accurate within plus or minus five (5) percent of design scrubbing liquid flow rate.

(b) A monitoring device for the continuous measurement of the electric current, in amperes, used by the scrubber. The monitoring device must be accurate within plus or minus ten (10) percent over its normal operating range.

(4) For the purpose of conducting a performance test under 401 KAR 59:005, Section 2, the owner or operator of any lime manufacturing plant subject to the provisions of this regulation shall install, calibrate, maintain, and operate a device for measuring the mass rate of limestone feed to any affected rotary lime kiln and the mass rate of lime feed to any affected lime hydrator. The measuring device used must be accurate to within plus or minus five (5) percent of the mass rate over its operating range.

(5) For the purpose of reports required under 401 KAR 59:005, Section 3, periods of excess emissions that shall be reported are defined as all six (6) minute periods during which the average opacity of the plume from any lime kiln subject to this regulation is ten (10) percent or greater.

Section 5. Test Methods and Procedures. (1) Reference methods in Appendix A of 40 CFR 60, filed by reference in 401 KAR 50:015, except as provided under 401 KAR 50:045, shall be used to determine compliance with Section 3(1) as follows:

(a) Method 5 for the measurement of particulate matter.

(b) Method 1 for sample and velocity traverses.

(c) Method 2 for velocity and volumetric flow rate.

(d) Method 3 for gas analysis.

(e) Method 4 for stack gas moisture.

(f) Method 9 for visible emissions.

(2) For Method 5, the sampling time for each run shall be at least sixty (60) minutes and the sampling rate shall be at least 0.85 std cubic meters per hour, dry basis (0.53 dscf/min), except that shorter sampling times, when necessitated by process variables or other factors, may be approved by the department.

(3) Because of the high moisture content (forty (40) to eighty-five (85) percent by volume) of the exhaust gases from hydrators, the Method 5 sample train may be modified to include a calibrated orifice immediately following the sample nozzle when testing lime hydrators. In this configuration, the sampling rate necessary for maintaining isokinetic conditions can be directly related to exhaust gas velocity without a correction for moisture content. Extra care should be exercised when cleaning the sample train with the orifice in this position following the test runs.

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 59:175. New service stations.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of volatile organic compound emissions from new service stations.

Section 1. Applicability. The provisions of this regulation shall apply to each affected facility located in counties designated non-attainment for ozone according to 401 KAR 51:010 which commenced on or after the classification date defined below.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given to them in 401 KAR 50:010.

(1) "Affected facility" means the gasoline storage tanks at a service station.
(2) "Classification date" means the effective date of this regulation.
(3) "Service station" means any public or private establishment which dispenses gasoline into vehicle fuel tanks.
(4) "Submerged fill pipe" means any fill pipe the discharge of which is entirely submerged when the liquid level is six (6) inches above the bottom of the tank; or when applied to a tank which is loaded from the side, shall mean any fill pipe the discharge opening of which is entirely submerged when the liquid level is two (2) times the fill pipe diameter above the bottom of the tank.
(5) "Vapor balance system" means a system which conducts vapors displaced from storage tanks during filling operations to the storage compartment of the transport vehicle delivering the fuel.
(6) "Vent line restriction" means:
(a) An orifice of one-half (½) to three-quarters (¾) inch inside diameter;
(b) A pressure-vacuum relief valve set to open at eight (8) oz. per square inch pressure and four (4) oz. per square inch vacuum; or
(c) A vent shut-off valve which is activated by connection of the vapor return hose.
(7) "Interlocking system" means devices which keep the storage tank sealed unless the vapor hose is connected or which prevent delivery of fuel until the vapor hose is connected.

Section 3. Standard for Volatile Organic Compounds. (1) The owner or operator of an affected facility shall install, maintain, and operate the following devices:
(a) Submerged fill pipe;
(b) Gauge well drop tube which extends to within six (6) inches of the bottom of the tank;
(c) Vent line restriction on the affected facility vent line; and
(d) Vapor balance system with an interlocking system and vapor tight connections on the liquid fill line and the vapor return line. The cross-sectional area of the vapor return hose must be at least fifty (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.
(2) The owner or operator may elect to use an alternate control system if that system can be demonstrated to the department's satisfaction to achieve an equivalent control efficiency.
(3) The owner or operator shall not allow any transport vehicle to deliver fuel to an affected facility until the transport vehicle is properly connected to the vapor balance system or alternate control system.

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 59:180. New automobile and light duty truck surface coating operations.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of volatile organic compound emissions from new automobile and light-duty truck surface coating operations.

Section 1. Applicability. The provisions of this regulation shall apply to each affected facility commenced on or after the classification date defined below.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given to them in 401 KAR 50:010.
(1) "Affected facility" means a coating line for automobile and light-duty truck frames, small parts, wheels, and main body parts at an assembly plant.
(2) "Applicator" means the mechanism or device used to apply the coating, including, but not limited to dipping and spraying.
(3) "Automobile" means all passenger cars or passenger car derivatives capable of seating twelve (12) or fewer passengers.
(4) "Classification date" means the effective date of this regulation.
(5) "Coating line" means a series of equipment and/or operations used to apply, dry, or cure any prime, topcoat or repair coatings containing volatile organic compounds. This shall include, but is not limited to:
(a) Mixing operations;
(b) Process storage;
(c) Applicators;
(d) Drying operations including, but not limited to, flashoff area evaporation, oven drying, baking, curing, and polymerization;
(e) Clean up operations;
(f) Leaks, spills and disposal of volatile organic compounds;
(g) Processing and handling of recovered volatile organic compounds;
(h) For the purposes of determining compliance with this regulation, if any equipment or operation could be considered to be a part of more than one (1) coating line, its volatile organic compound emissions shall be assigned to each coating line of which it is a part proportionally to the throughput of volatile organic compound it receives from or distributes to each coating line;
(i) If any portion of the series of equipment and/or operations qualify for an exemption according to Section 5, then that portion shall be considered to be a separate coating line.
(6) "Final repair coating line" means a coating line for the repainting of any coatings which are damaged during vehicle assembly.
(7) "Flashoff area" means the space between the application area and the oven.
(8) "Light-duty truck" means any motor vehicle rated at

3,864 kilograms (8,500 pounds) gross vehicle weight or less which are designed primarily for purposes of transportation of property or are derivatives of such vehicles (including but not limited to, pickups, vans, and window vans).

(9) "Prime coat coating line" means a coating line for the first coating and surfacer which is responsible for protecting the surface from corrosion and providing for good adhesion of the topcoat.

(10) "Process storage" means mixing tanks, holding tanks, and other tanks, drums, or other containers which contain surface coatings, volatile organic compounds, or recovered volatile organic compounds; but does not mean storage tanks which are subject to 401 KAR 59:050 or 401 KAR 61:050.

(11) "Topcoat coating line" means a coating line for the coating of the surface to obtain desired aesthetic effects.

(12) "Volatile organic compounds" means chemical compounds of carbon (excluding methane, ethane, carbon monoxide, carbon dioxide, carbonic acid, metalic carbides, and ammonium carbonate) which have a vapor pressure greater than one tenth (0.1) mm of Hg at conditions of twenty (20) degrees Celsius and 760 mm of Hg.

(13) "Surfacer" means the spray application of primer to touch-up areas on the surface not adequately covered during electrodeposition.

(14) "Volatile organic compounds net input" means the total amount of volatile organic compounds input to the affected facility minus the amount of volatile organic compounds that are not emitted into the atmosphere. Volatile organic compounds that are prevented from being emitted to the atmosphere by the use of control devices shall not be subtracted from the total for the purposes of determining volatile organic compound net input. When the nature of any operation or design of equipment is such as to permit more than one interpretation of this definition, the interpretation that results in the minimum value for allowable emission shall apply.

Section 3. Standard for Volatile Organic Compounds. No person shall cause, allow, or permit an affected facility to discharge into the atmosphere more than fifteen (15) percent by weight of the volatile organic compounds net input into the affected facility.

Section 4. Compliance. (1) In all cases the design of any control system is subject to approval by the department.

(2) Compliance with the standard in Section 3 shall be demonstrated by a material balance except in those cases where the department determines that a material balance is not possible. For those cases where a material balance is not possible, compliance will be determined based upon an engineering analysis by the department of: the control system design, control device efficiency, control system capture efficiency, and any other factors that could influence the performance of the system. If so requested by the department, performance tests as specified by the department shall be conducted in order to determine the efficiency of the control device.

(3) With the prior approval of the department, the owner or operator may elect to effect such changes in the affected facility as are necessary to qualify for an exemption under Section 5.

(4) Whenever deemed necessary by the department, the department shall obtain samples of the coatings used at an affected facility to verify that the coatings meet the requirements in Section 5. The following methods of analyses, filed by reference in 401 KAR 50:015, for coatings shall be used as applicable except in those cases where the department determines that other methods would be more appropriate:

(a) ASTM D 1644-75 Method A;
(b) ASTM D 1475-60(74);
(c) ASTM D 2369-73; or
(d) Federal Standard 141 a, Method 4082.1.

Section 5. Exemptions. Any affected facility shall be exempt from the provisions of Section 3 if the volatile organic compound content of the coating is:

(1) Prime coating line: 0.10 kilograms per liter of coating (0.8 pounds per gallon), excluding water, delivered to the first applicators associated with the prime coating line and 0.34 kilograms per liter of coating (2.8 pounds per gallon), excluding water, delivered to the applicators associated with the surfacer.

(2) Topcoat coating line: 0.34 kilograms per liter of coating (2.8 pounds per gallon), excluding water, delivered to the applicator(s) associated with the topcoat coating line.

(3) Repair coating line: 0.58 kilograms per liter of coating (4.8 pounds per gallon), excluding water, as delivered to the applicator.

EUGENE F. MOONEY, Secretary
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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 59:185. New solvent metal cleaning equipment.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of volatile organic compound emissions for new solvent metal cleaning equipment.

Section 1. Applicability. The provisions of this regulation shall apply to each affected facility commenced on or after the classification date defined below.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given to them in 401 KAR 50:010.

(1) "Affected facility" means cold cleaners, open top vapor degreasers, and conveyorized degreasers which utilize volatile organic compounds to remove soluble impurities from metal surfaces.

(2) "Volatile organic compounds" means chemical compounds of carbon excluding methane, ethane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides, and ammonium carbonate which have a vapor

pressure greater than one tenth (0.1) mm of Hg at conditions of twenty (20) degrees Celcius and 760 mm of Hg.

(3) "Classification date" means the effective date of this regulation.

(4) "Freeboard height" means, for a cold cleaner, the distance from the liquid solvent level in the degreaser tank to the lip of the tank. For a vapor degreaser it is the distance from the solvent vapor level in the tank to the lip of the tank.

(5) "Freeboard ratio" means the freeboard height divided by the width of the degreaser.

(6) "Refrigerated chiller" means a second set of freeboard condenser coils located slightly above the primary condenser coils which create a cold air blanket above the vapor zone.

(7) "Cold cleaner" means a batch-loaded degreaser whose solvent is kept below its boiling point.

(8) "Open top vapor degreaser" means a batch loaded degreaser whose solvent is heated to its boiling point creating a solvent vapor zone.

(9) "Conveyorized degreasers" means a degreaser which is continuously loaded by means of a conveyor system. Its solvent may be boiling or non-boiling.

(10) "Solvent" means, in this regulation, volatile organic compounds.

Section 3. Standard for Volatile Organic Compounds. The owner or operator of an affected facility to which this regulation applies shall install, maintain and operate the control equipment and observe at all times the operating requirements which apply to this type of degreaser as specified in Sections 4, 5, and 6.

Section 4. Cold Cleaners. (1) Control equipment:

(a) The cleaner shall be equipped with a cover. If the solvent volatility is greater than fifteen (15) mm of Hg measured at 100°F or if the solvent is agitated or heated, then the cover shall be designed so that it can be easily operated with one (1) hand.

(b) The cleaner shall be equipped with a drainage facility such that solvent that drains off parts removed from the cleaner will return to the cleaner. If the solvent volatility is greater than thirty-two (32) mm of Hg measured at 100°F then the drainage facility shall be internal so that parts are enclosed under the cover while draining.

(c) A permanent, conspicuous label, summarizing the operating requirements specified in Section 4(2) shall be installed on or near the cleaner.

(d) If used, the solvent spray shall be a fluid stream (not a fine, atomized or shower type spray) and at a pressure which does not cause excessive splashing.

(e) If the solvent volatility is greater than thirty-two (32) mm of Hg measured at 100°F or if the solvent is heated above 120°F, then one (1) of the following control devices shall be used:

1. Freeboard that gives a freeboard ratio greater than or equal to 0.7.
2. Water cover (solvent must be insoluble in and heavier than water).
3. Other systems of equivalent control, such as a refrigerated chiller or carbon adsorption.

(2) Operating requirements:

(a) Do not dispose of waste solvent or transfer it to another party, such that greater than twenty (20) percent by weight of the waste solvent can evaporate into the atmosphere. Store waste solvent only in covered containers.

(b) Close degreaser cover whenever not handling parts in the cleaner.

(c) Drain cleaned parts until dripping ceases (fifteen (15) seconds is usually necessary).

Section 5. Open Top Vapor Degreasers. (1) Control equipment:

(a) The degreaser shall be equipped with a cover that can be opened and closed easily without disturbing the vapor zone.

(b) The degreaser shall be equipped with the following safety switches:

1. Condenser flow switch and thermostat to shut off sump heat if condenser coolant either is not circulating or is too warm.
2. Spray safety switch to shut off spray pump if the vapor level drops more than four (4) inches.
3. Vapor level control thermostat which shuts off sump heat if the vapor zone rises above the design level.

(c) The degreaser shall be equipped with at least one (1) of the following major control devices:

1. Freeboard ratio greater than or equal to 0.75, and if the degreaser opening is greater than ten (10) square feet, the cover shall be powered.
2. Refrigerated chiller.
3. Enclosed design such that the cover or door opens only when the dry part is actually entering or exiting the degreaser.
4. Carbon adsorption system, with ventilation greater than or equal to fifty (50) cfm/square foot of air/vapor interface area (when cover is open), and exhausting less than twenty-five (25) ppm by volume solvent averaged over one complete adsorption cycle.
5. Control system demonstrated to have control efficiency equivalent to or better than any of the above.

(d) A permanent, conspicuous label, summarizing the operating procedures specified in Section 5(2) shall be installed on or near the degreaser.

(2) Operating requirements:

(a) Keep the cover closed at all times except when processing work loads through the degreaser.

(b) Minimize solvent carry-out by the following measures:

1. Rack parts so that entrainment of solvent is avoided and full drainage is accomplished.
2. Move parts in and out of the degreaser at less than eleven (11) ft./min.
3. Degrease the work load in the vapor zone until condensation ceases (thirty (30) seconds or more is usually necessary).
4. Tip out any pools of solvent on the cleaned parts before removal.
5. Allow parts to dry within the degreaser above the vapor zone until visually dry (fifteen (15) seconds is usually necessary).

(c) Do not degrease porous or absorbent materials such as cloth, leather, wood, or rope.

(d) Work loads should not occupy more than half of the degreaser's open top area.

(e) The vapor level should not drop more than four (4) inches when the work load enters or leaves the vapor zone.

(f) Never spray above the vapor level.

(g) Repair solvent leaks immediately or shut down the degreaser.

(h) Do not dispose of waste solvent or transfer it to another party such that greater than twenty (20) percent by weight of the waste solvent can evaporate into the atmosphere. Store waste solvent only in closed containers.

(i) Exhaust ventilation should not exceed sixty-five (65) cfm per square foot of degreaser area unless necessary to

meet OSHA requirements or control device requirements. Ventilation fans should not be used near the degreaser opening.

(j) Water should not be visually detectable in the solvent exiting the water separator.

Section 6. Conveyorized Degreasers. (1) Control equipment:

(a) A conveyorized degreaser shall be enclosed except for work load entrances and exits.

(b) The degreaser shall be equipped with a drying tunnel or another means such as rotating baskets sufficient to prevent cleaned parts from carrying out solvent liquid or vapor.

(c) Minimized openings: entrances and exits shall silhouette work loads so that the average clearance between parts and the edge of the degreaser opening is either less than four (4) inches or less than ten (10) percent of the width of the opening.

(d) Down-time covers: The degreaser shall be equipped with covers for closing off the entrance and exit during shutdown hours.

(e) If the degreaser has an air/solvent interface area or an air/vapor interface area equal to or greater than twenty (20) square ft., it shall be equipped with at least one (1) of the following major control devices:

1. Refrigerated chiller.

2. Carbon adsorption system with ventilation greater than or equal to fifty (50) cfm/square foot of air/vapor interface area (when down-time covers are open) and exhausting less than twenty-five (25) ppm of solvent by volume averaged over a complete adsorption cycle.

3. A system demonstrated to have a control efficiency equivalent to or better than either of the above.

(f) If the degreaser is a vapor type, it shall be equipped with the following safety switches:

1. Condensor flow switch and thermostat which will shut off the sump heat if coolant is either not circulating or is too warm.

2. Spray safety switch which will shut off the spray pump or conveyor if the vapor level drops more than four (4) inches.

3. Vapor level control thermostat which will shut off sump heat if the vapor level rises above the design level.

(g) A permanent, conspicuous label, summarizing the operating procedures specified in Section 6(2) shall be installed on or near the degreaser.

(2) Operating requirements:

(a) Exhaust ventilation should not exceed sixty-five (65) cfm per square foot of degreaser opening unless necessary to meet OSHA requirements or control device requirements. Work place fans should not be used near the degreaser opening.

(b) Minimize solvent carry-out by the following measures:

1. Rack parts so that entrainment of solvent is avoided and full drainage is accomplished.

2. Maintain vertical conveyor speed at less than eleven (11) ft/min.

(c) Do not dispose of waste solvent or transfer it to another party such that greater than twenty (20) percent by weight of the waste solvent can evaporate into the atmosphere. Store waste solvent only in closed containers.

(d) Repair solvent leaks immediately or shutdown the degreaser.

(e) Water should not be visually detectable in the solvent exiting the water separator.

(f) Down-time covers shall be placed over entrances and exits of the degreaser immediately after the conveyor and exhaust are shut down and removed just before they are started up.

EUGENE F. MOONEY, Secretary
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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 59:190. New insulation of magnet wire operations.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of volatile organic compound emissions from new insulation of magnet wire operations.

Section 1. Applicability. The provisions of this regulation shall apply to each affected facility commenced on or after the classification date defined below.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given to them in 401 KAR 50:010.

(1) "Affected facility" means a coating line for insulation of magnet wire.

(2) "Applicator" means the mechanism or device used to apply the coating, including but not limited to a coating bath.

(3) "Coating die" means the device, located between the applicator and the drying oven, which scrapes off excess coating and leaves a thin film of desired thickness.

(4) "Magnet wire" means wire used in such equipment as electrical motors, generators, and transformers which carries an electrical current.

(5) "Coating line" means a series of equipment and/or operations used to apply, dry, or cure any coatings containing volatile organic compounds. This shall include, but is not limited to:

(a) Mixing operations;
(b) Process storage;
(c) Applicators;
(d) Drying operations including coating die area evaporation, oven drying, baking, curing, and polymerization;
(e) Clean up operations;
(f) Leaks, spills and disposal of volatile organic compounds;
(g) Processing and handling of recovered volatile organic compounds;
(h) For the purposes of determining compliance with this regulation, if any equipment or operation could be considered to be a part of more than one (1) coating line, its volatile organic compound emissions shall be assigned to

each coating line of which it is a part proportionally to the throughput of volatile organic compound it receives from or distributes to each coating line;

(i) If any portion of the series of equipment and/or operations qualify for an exemption according to Section 5, then that portion shall be considered to be a separate coating line.

(6) "Volatile organic compounds" means chemical compounds of carbon (excluding methane, ethane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides, and ammonium carbonate) which have a vapor pressure greater than one tenth (0.1) mm of Hg at conditions of twenty (20) degrees Celsius and 760 mm of Hg.

(7) "Process storage" means mixing tanks, holding tanks, and other tanks, drums, or other containers which contain surface coatings, volatile organic compounds, or recovered volatile organic compounds; but does not mean storage tanks which are subject to 401 KAR 59:050 or 401 KAR 61:050.

(8) "Classification date" means the effective date of this regulation.

(9) "Volatile organic compounds net input" means the total amount of volatile organic compounds input to the affected facility minus the amount of volatile organic compounds that are not emitted into the atmosphere. Volatile organic compounds that are prevented from being emitted to the atmosphere by the use of control devices shall not be subtracted from the total for the purposes of determining volatile organic compound net input. When the nature of any operation or design of equipment is such as to permit more than one (1) interpretation of this definition, the interpretation that results in the minimum value for allowable emission shall apply.

Section 3. Standard for Volatile Organic Compounds. No person shall cause, allow, or permit an affected facility to discharge into the atmosphere more than fifteen (15) percent by weight of the volatile organic compounds net input into the affected facility.

Section 4. Compliance. (1) In all cases the design of any control system is subject to approval by the department.

(2) Compliance with the standard in Section 3 shall be demonstrated by a material balance except in those cases where the department determines that a material balance is not possible. For those cases where a material balance is not possible, compliance will be determined based upon an engineering analysis by the department of: the control system design, control device efficiency, control system capture efficiency and any other factors that could influence the performance of the system. If so requested by the department, performance tests as specified by the department shall be conducted in order to determine the efficiency of the control device.

(3) With the prior approval of the department, the owner or operator may elect to effect such changes in the affected facility as are necessary to qualify for an exemption under Section 5.

(4) Whenever deemed necessary by the department, the department shall obtain samples of the coatings used at an affected facility to verify that the coatings meet the requirements in Section 5. The following methods of analyses, filed by reference in 401 KAR 50:015, for coatings shall be used as applicable except in those cases where the department determines that other methods would be more appropriate:

(a) ASTM D 1644-75 Method A;
(b) ASTM D 1475-60(74);
(c) ASTM D 2369-73; or
(d) Federal Standard 141 a, Method 4082.1.

Section 5. Exemptions. Any affected facility shall be exempt from the provisions of Section 3 if the volatile organic compound content of the coating is less than 0.20 kilograms per liter of coating (1.7 pounds per gallon), excluding water, delivered to the applicators associated with the coating line.

EUGENE F. MOONEY, Secretary
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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 59:195. New metal furniture surface coating operations.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of volatile organic compound emissions from new metal furniture surface coating operations.

Section 1. Applicability. The provisions of this regulation shall apply to each affected facility commenced on or after the classification date defined below.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given to them in 401 KAR 50:010.

(1) "Affected facility" means a coating line for indoor and/or outdoor metal furniture.

(2) "Applicator" means the mechanism or device used to apply the coating, including but not limited to: dipping, spraying, or flowcoating.

(3) "Flashoff area" means the space between the applicator and the oven.

(4) "Prime coat" means the first film of coating applied in a two (2) coat operation which is responsible for protecting the surface from corrosion and providing for good adhesion of the topcoat.

(5) "Topcoat" means the final film of coating applied in a two (2) coat operation to obtain desired aesthetic effects.

(6) "Single coat" means a single film coating applied directly to the metal substrate omitting the prime coat.

(7) "Coating line" means a series of equipment and/or operations used to apply, dry, or cure any prime, topcoat or single coatings containing volatile organic compounds. This shall include, but is not limited to:

(a) Mixing operations;
(b) Process storage;
(c) Applicators;

(d) Drying operations including, but not limited to, flashoff area evaporation, oven drying, baking, curing, and polymerization;
(e) Clean up operations;
(f) Leaks, spills and disposal of volatile organic compounds;
(g) Processing and handling of recovered volatile organic compounds;
(h) For the purposes of determining compliance with this regulation, if any equipment or operation could be considered to be a part of more than one (1) coating line, its volatile organic compound emissions shall be assigned to each coating line of which it is a part proportionally to the throughput of volatile organic compound it receives from or distributes to each coating line;
(i) If any portion of the series of equipment and/or operations qualify for an exemption according to Section 5, then that portion shall be considered to be a separate coating line.
(8) "Volatile organic compound" means chemical compounds of carbon (excluding methane, ethane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides, and ammonium carbonate) which have a vapor pressure greater than one-tenth (0.1) mm of Hg at conditions of twenty (20) degrees Celsius and 760 mm of Hg.
(9) "Process storage" means mixing tanks, holding tanks, and other tanks, drums, or other containers which contain surface coatings, volatile organic compounds, or recovered volatile organic compounds; but does not mean storage tanks which are subject to 401 KAR 59:050 or 401 KAR 61:050.
(10) "Metal furniture" means household and business items including but not limited to: tables, chairs, waste baskets, beds, desks, lockers, benches, shelving, file cabinets, lamps and room dividers.
(11) "Classification date" means the effective date of this regulation.
(12) "Volatile organic compounds net input" means the total amount of volatile organic compounds input to the affected facility minus the amount of volatile organic compounds that are not emitted into the atmosphere. Volatile organic compounds that are prevented from being emitted to the atmosphere by the use of control devices shall not be subtracted from the total for the purposes of determining volatile organic compound net input. When the nature of any operation or design of equipment is such as to permit more than one (1) interpretation of this definition, the interpretation that results in the minimum value for allowable emission shall apply.

Section 3. Standard for Volatile Organic Compounds. No person shall cause, allow, or permit an affected facility to discharge into the atmosphere more than fifteen (15) percent by weight of the volatile organic compounds net input into the affected facility.

Section 4. Compliance. (1) In all cases the design of any control system is subject to approval by the department.
(2) Compliance with the standard in Section 3 shall be demonstrated by a material balance except in those cases where the department determines that a material balance is not possible. For those cases where a material balance is not possible, compliance will be determined based upon an engineering analysis by the department of: the control system design, control device efficiency, control system capture efficiency, and any other factors that could influence the performance of the system. If so requested by the department, performance tests as specified by the department shall be conducted in order to determine the efficiency of the control device.
(3) With the prior approval of the department, the owner or operator may elect to effect such changes in the affected facility as are necessary to qualify for an exemption under Section 5.
(4) Whenever deemed necessary by the department, the department shall obtain samples of the coatings used at an affected facility to verify that the coatings meet the requirements in Section 5, the following methods of analyses filed by reference in 401 KAR 50:015, for coatings shall be used as applicable except in those cases where the department determines that other methods would be more appropriate:
(a) ASTM D 1644-75 Method A;
(b) ASTM D 1475-60(74);
(c) ASTM D 2369-73; or
(d) Federal Standard 141 a, Method 4082.1.

Section 5. Exemptions. Any affected facility shall be exempt from the provisions of Section 3 if the volatile organic compound content of the coating is less than 0.36 kilograms per liter of coating (3.0 pounds per gallon), excluding water, delivered to the applicators associated with the prime, single or topcoat coating line.

EUGENE F. MOONEY, Secretary
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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 59:200. New large appliance surface coating operations.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of volatile organic compound emissions from new large appliance surface coating operations.

Section 1. Applicability. The provisions of this regulation shall apply to each affected facility commenced on or after the classification date defined below.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given to them in 401 KAR 50:010.
(1) "Affected facility" means a coating line for large appliances such as, but not limited to: doors, cases, lids, panels and interior support parts of residential and commercial washers, dryers, ranges, refrigerators, freezers, water heaters, dishwashers, trash compactors, and air conditioners.

(2) "Applicator" means the mechanism or device used to apply the coating, including but not limited to dipping or spraying.
(3) "Flashoff area" means the space between the applicator and the oven.
(4) "Prime coat" means the first film of coating applied in a two (2) coat operation.
(5) "Topcoat" means the final film of coating applied in a two (2) coat operation.
(6) "Single coat" means a single film coating applied directly to the metal substrate omitting the prime coat.
(7) "Coating line" means a series of equipment and/or operations used to apply, dry, or cure any prime, topcoat or single coatings containing volatile organic compounds. This shall include, but is not limited to:
(a) Mixing operations;
(b) Process storage;
(c) Applicators;
(d) Drying operations including, but not limited to, flashoff area evaporation, oven drying, baking, curing, and polymerization;
(e) Clean up operations;
(f) Leaks, spills and disposal of volatile organic compounds;
(g) Processing and handling of recovered volatile organic compounds;
(h) For the purposes of determining compliance with this regulation, if any equipment or operation could be considered to be a part of more than one (1) coating line, its volatile organic compound emissions shall be assigned to each coating line of which it is a part proportionally to the throughput of volatile organic compound it receives from or distributes to each coating line;
(i) If any portion of the series of equipment and/or operations qualify for an exemption according to Section 5, then that portion shall be considered to be a separate coating line.
(8) "Volatile organic compounds" means chemical compounds of carbon (excluding methane, ethane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides, and ammonium carbonate) which have a vapor pressure greater than one-tenth (0.1) mm of Hg at conditions of twenty (20) degrees Celsius and 760 mm of Hg.
(9) "Process storage" means mixing tanks, holding tanks, and other tanks, drums, or other containers which contain surface coatings, volatile organic compounds, or recovered volatile organic compounds; but does not mean storage tanks which are subject to 401 KAR 59:050 or 401 KAR 61:050.
(10) "Classification date" means the effective date of this regulation.
(11) "Volatile organic compounds net input" means the total amount of volatile organic compounds input to the affected facility minus the amount of volatile organic compounds that are not emitted into the atmosphere. Volatile organic compounds that are prevented from being emitted to the atmosphere by the use of control devices shall not be subtracted from the total for the purposes of determining volatile organic compound net input. When the nature of any operation or design of equipment is such as to permit more than one (1) interpretation of this definition, the interpretation that results in the minimum value for allowable emission shall apply.

Section 3. Standard for Volatile Organic Compounds. No person shall cause, allow, or permit an affected facility to discharge into the atmosphere more than fifteen (15) percent by weight of the volatile organic compounds net input into the affected facility.

Section 4. Compliance. (1) In all cases the design of any control system is subject to approval by the department.
(2) Compliance with the standard in Section 3 shall be demonstrated by a material balance except in those cases where the department determines that a material balance is not possible. For those cases where a material balance is not possible, compliance will be determined based upon an engineering analysis by the department of: the control system design, control device efficiency, control system capture efficiency, and any other factors that could influence the performance of the system. If so requested by the department, performance tests as specified by the department shall be conducted in order to determine the efficiency of the control device.
(3) With the prior approval of the department, the owner or operator may elect to effect such changes in the affected facility as are necessary to qualify for an exemption under Section 5.
(4) Whenever deemed necessary by the department, the department shall obtain samples of the coatings used at an affected facility to verify that the coatings meet the requirements in Section 5. The following methods of analyses, filed by reference in 401 KAR 50:015, for coatings shall be used as applicable except in those cases where the department determines that other methods would be more appropriate:
(a) ASTM D 1644-75 Method A;
(b) ASTM D 1475-60(74);
(c) ASTM D 2369-73; or
(d) Federal Standard 141 a, Method 4082.1.

Section 5. Exemptions. (1) Any affected facility shall be exempt from the provisions of Section 3 if the volatile organic compound content of the coating is less than 0.34 kilograms per liter of coating (2.8 pounds per gallon), excluding water, delivered to the applicators associated with the prime, single or topcoat coating line.
(2) Repair coating operations for the purpose of repairing scratches and nicks that occur during assembly shall be exempt from the provisions of Section 3.

EUGENE F. MOONEY, Secretary
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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 59:205. New general surface coating operations.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation

provides for the control of volatile organic compound emissions from new general surface coating operations.

Section 1. Applicability. The provisions of this regulation shall apply to each affected facility commenced on or after the classification date defined below.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given to them in 401 KAR 50:010.

(1) "Affected facility" means a coating line which is not subject to any other standard of performance with respect to volatile organic compounds under this chapter.

(2) "Volatile organic compounds" means chemical compounds of carbon (excluding methane, ethane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides, and ammonium carbonate) which have a vapor pressure greater than one-tenth (0.1) mm of Hg at conditions of twenty (20) degrees Celsuis and 760 mm of Hg.

(3) "Coating line" means a series of equipment and/or operations used to apply surface coatings containing volatile organic compounds. This shall include, but is not limited to:

(a) Mixing operations;

(b) Process storage;

(c) Applicators such as spray booths, dip tanks, printers and roller coaters;

(d) Drying operations including, but not limited to, flashoff evaporation, oven drying, baking, curing, and polymerization;

(e) Clean up operations;

(f) Leaks, spills and disposal of volatile organic compounds;

(g) Processing and handling of recovered volatile organic compounds;

(h) For the purposes of determining compliance with this regulation, if any equipment or operation could be considered to be a part of more than one (1) coating line, its volatile organic compound emissions shall be assigned to each coating line of which it is a part proportionally to the throughput of volatile organic compound it receives from or distributes to each coating line;

(i) If any portion of the series of equipment and/or operations qualify for an exemption according to Section 5, then that portion shall be considered to be a separate coating line.

(4) "Surface coating" includes, but is not limited to, the following materials: paints of all types; primers; printing inks; adhesives; solvents; cements; lubricants; weatherproof coatings; varnishes; coating thinners; natural or synthetic rubbers; fabric and textile coatings; and paper coatings.

(5) "Process storage" means mixing tanks, holding tanks, and other tanks, drums, or other containers which contain surface coatings, volatile organic compounds, or recovered volatile organic compounds; but does not mean storage tanks which are subject to 401 KAR 59:050 or 401 KAR 61:050.

(6) "High-solids coating" means a coating with a volatile content of not more than thirty (30) percent by volume of the coating as applied.

(7) "Water-borne coating" means a coating with its volatile content consisting of water and volatile organic compounds, the volatile organic compounds comprising not more than twenty (20) percent by volume of the volatile content as applied.

(8) "VOC net input" means the total amount of volatile organic compounds input to the affected facility minus the amount of volatile organic compounds that are not emitted into the atmosphere. Volatile organic compounds that are prevented from being emitted to the atmosphere by the use of control devices shall not be subtracted from the total for the purposes of determining volatile organic compound net input. When the nature of any operation or design of equipment is such as to permit more than one (1) interpretation of this definition, the interpretation that results in the minimum value for allowable emission shall apply.

(9) "Classification date" means the effective date of this regulation.

Section 3. Standard for Volatile Organic Compounds. No person shall cause, allow, or permit an affected facility to discharge into the atmosphere more than fifteen (15) percent by weight of the volatile organic compounds net input into the affected facility.

Section 4. Compliance. (1) In all cases the design of any control system is subject to approval by the department.

(2) Compliance with the standard in Section 3 shall be demonstrated by a material balance except in those cases where the department determines that a material balance is not possible. For those cases where a material balance is not possible, compliance will be determined based upon an engineering analysis by the department of: the control system design, control device efficiency, control system capture efficiency, and any other factors that could influence the performance of the system. If so requested by the department, performance tests as specified by the department shall be conducted in order to determine the efficiency of the control device.

(3) With the prior approval of the department, the owner or operator may elect to effect such changes in the affected facility as are necessary to qualify for an exemption under Section 5.

(4) Whenever deemed necessary by the department, the department shall obtain samples of the coatings used at an affected facility to verify that the coatings meet the requirements in Section 5. The following methods of analyses, filed by reference in 401 KAR 50:015, for coatings shall be used as applicable except in those cases where the department determines that other methods would be more appropriate:

(a) ASTM D 1644-75 Method A;

(b) ASTM D 1475-60(74);

(c) ASTM D 2369-73; or

(d) Federal Standard 141 a, Method 4082.1.

Section 5. Exemptions. (1) Any affected facility which utilizes only high-solid coatings and/or water-borne coatings shall be exempt from the provisions of Section 3.

(2) Any affected facility located in a source where the source's volatile organic compound input is less than ten (10) tons per year shall be exempt from the provisions of Section 3.

EUGENE F. MOONEY, Secretary

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 59:210. New fabric, vinyl and paper surface coating operations.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of volatile organic compound emissions from new fabric, vinyl or paper surface coating operations.

Section 1. Applicability. The provisions of this regulation shall apply to each affected facility commenced on or after the classification date defined below.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given to them in 401 KAR 50:010.

(1) "Affected facility" means a coating line for fabric, vinyl, or paper.

(2) "Applicator" means the mechanism or device used to apply the coating including but not limited to: roll, knife, or rotogravure coater.

(3) "Flashoff area" means the space between the applicator and the oven.

(4) "Coating line" means a series of equipment and/or operations used to apply, dry, or cure any coatings containing volatile organic compounds. This shall include, but is not limited to:

(a) Mixing operations;
(b) Process storage;
(c) Applicators;
(d) Drying operations including, but not limited to, flashoff area evaporation, oven drying, baking, curing, and polymerization;
(e) Clean up operations;
(f) Leaks, spills and disposal of volatile organic compounds;
(g) Processing and handling of recovered volatile organic compounds;
(h) For the purposes of determining compliance with this regulation, if any equipment or operation could be considered to be a part of more than one (1) coating line, its volatile organic compound emissions shall be assigned to each coating line of which it is a part proportionally to the throughput of volatile organic compound it receives from or distributes to each coating line;
(i) If any portion of the series of equipment and/or operations qualifies for an exemption according to Section 5, then that portion shall be considered to be a separate coating line.

(5) "Volatile organic compounds" means chemical compounds of carbon (excluding methane, ethane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides, and ammonium carbonate) which have a vapor pressure greater than one-tenth (0.1) mm of Hg at conditions of twenty (20) degress Celsius and 760 mm of Hg.

(6) "Process storage" means mixing tanks, holding tanks, and other tanks, drums, or other containers which contain surface coatings, volatile organic compounds, or recovered volatile organic compounds; but does not mean storage tanks which are subject to 401 KAR 59:050 or 401 KAR 61:050.

(7) "Fabric coating" means the coating of a textile substrate to impart properties that are not initially present, such as strength, stability, water or acid repellancy, or appearance.

(8) "Vinyl coating" means the coating of vinyl coated fabric or vinyl sheets which includes decorative or protective topcoats or printing.

(9) "Paper coating" means the coating of paper (but does not include the printing of paper), pressure sensitive tapes regardless of substrate, related web coating processes on plastic film such as typewriter ribbons, photographic film, magnetic tape, and decorative coatings on metal foil such as gift wrap and packaging.

(10) "Knife coating" means the application of a coating material to a substrate by means of drawing the substrate beneath a knife that spreads the coating evenly over the full width of the substrate.

(11) "Roll coating" means the application of a coating material to a substrate by means of hard rubber or steel rolls.

(12) "Rotogravure coating" means the application of a coating material to a substrate by means of a roll coating technique in which the pattern to be applied is etched on the coating roll. The coating material is picked up in these recessed areas and is transferred to the substrate.

(13) "Classification date" means the effective date of this regulation.

(14) "Volatile organic compounds net input" means the total amount of volatile organic compounds input to the affected facility minus the amount of volatile organic compounds that are not emitted into the atmosphere. Volatile organic compounds that are prevented from being emitted to the atmosphere by the use of control devices shall not be subtracted from the total for the purposes of determining volatile organic compound net input. When the nature of any operation or design of equipment is such as to permit more than one (1) interpretation of this definition, the interpretation that results in the minimum value for allowable emission shall apply.

Section 3. Standard for Volatile Organic Compounds. No person shall cause, allow, or permit an affected facility to discharge into the atmosphere more than fifteen (15) percent by weight of the volatile organic compounds net input into the affected facility.

Section 4. Compliance. (1) In all cases the design of any control system is subject to approval by the department.

(2) Compliance with the standard in Section 3 shall be demonstrated by a material balance except in those cases where the department determines that a material balance is not possible. For those cases where a material balance is not possible, compliance will be determined based upon an engineering analysis by the department of: the control system design, control device efficiency, control system capture efficiency, and any other factors that could influence the performance of the system. If so requested by the department, performance tests as specified by the department shall be conducted in order to determine the efficiency of the control device.

(3) With the prior approval of the department, the owner or operator may elect to effect such changes in the affected facility as are necessary to qualify for an exemption under Section 5.

(4) Whenever deemed necessary by the department, the department shall obtain samples of the coatings used at an affected facility to verify that the coatings meet the requirements in Section 5. The following methods of analyses, filed by reference in 401 KAR 50:015, for coatings shall be used as applicable except in those cases where the department determines that other methods would be more appropriate:
(a) ASTM D 1644-75 Method A;
(b) ASTM D 1475-60(74);
(c) ASTM D 2369-73; or
(d) Federal Standard 141 a, Method 4082.1.

Section 5. Exemptions. (1) Any affected facility coating fabric or paper shall be exempt from the provisions of Section 3 if the volatile organic compound content of the coating is less than 0.35 kilograms per liter of coating (2.9 pounds per gallon), excluding water, delivered to the applications associated with the coating line.
(2) Any affected facility coating vinyl shall be exempt from the provisions of Section 3 if the volatile organic compound content of the coating is less than 0.45 kilograms per liter of coating (3.8 pounds per gallon) excluding water, delivered to the applicators associated with the coating line.

EUGENE F. MOONEY, Secretary
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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 59:215. New can surface coating operations.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of volatile organic compound emissions from new can surface coating operations.

Section 1. Applicability. The provisions of this regulation shall apply to each affected facility commenced on or after the classification date defined below.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given to them in 401 KAR 50:010.
(1) "Affected facility" means a coating line for cans.
(2) "Applicator" means the mechanism or device used to apply the coating, including but not limited to spray or roller.
(3) "Flashoff area" means the space between the applicator and the oven.
(4) "End sealing compound" means a synthetic rubber compound which is coated onto can ends and functions as a gasket when the end is assembled on the can.
(5) "Exterior base coating" means a coating applied to the exteior of a can to provide exterior protection to the metal and background for the lithographic or printing operation.
(6) "Interior base coating" means a coating applied by roller coater or spray to the interior of a can to provide a protective lining between the can metal and product.
(7) "Interior body spray" means a coating sprayed on the interior of the can body to provide a protective film between the product and the can.
(8) "Overvarnish" means a coating applied directly over ink to reduce the coefficient of friction, to provide gloss and to protect the finish against abrasion and corrosion.
(9) "Three (3) piece can side-seam spray" means a coating sprayed on the exterior and interior of a welded, cemented or soldered seam to protect the exposed metal.
(10) "Two (2) piece can exterior end coating" means a coating applied by roller coating or spraying to the exterior end of a can to provide protection to the metal.
(11) "Coating line" means a series of equipment and/or operations used to apply, dry, or cure any coatings containing volatile organic compounds. This shall include, but is not limited to:
(a) Mixing operations;
(b) Process storage;
(c) Applicators;
(d) Drying operations including but not limited to flashoff area evaporation, oven drying, baking, curing, and polymerization;
(e) Clean up operations;
(f) Leaks, spills and disposal of volatile organic compounds;
(g) Processing and handling of recovered volatile organic compounds;
(h) For the purposes of determining compliance with this regulation, if any equipment or operation could be considered to be a part of more than one (1) coating line, its volatile organic compound emissions shall be assigned to each coating line of which it is a part proportionally to the throughput of volatile organic compound it receives from or distributes to each coating line;
(i) If any portion of the series of equipment and/or operations qualifies for an exemption according to Section 5, then that portion shall be considered to be a separate coating line.
(12) "Volatile organic compounds" means chemical compounds of carbon (excluding methane, ethane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides, and ammonium carbonate) which have a vapor pressure greater than one tenth (0.1) mm of Hg at conditions of twenty (20) degrees Celsius and 760 mm of Hg.
(13) "Process storage" means mixing tanks, holding tanks, and other tanks, drums, or other containers which contain surface coatings, volatile organic compounds, or recovered volatile organic compounds; but does not mean storage tanks which are subject to 401 KAR 59:050 or 401 KAR 61:050.
(14) "Classification date" means the effective date of this regulation.
(15) "Volatile organic compounds net input" means the total amount of volatile organic compounds input to the affected facility minus the amount of volatile organic compounds that are not emitted into the atmosphere. Volatile organic compounds that are prevented from being emitted to the atmosphere by the use of control devices shall not be subtracted from the total for the purposes of determining volatile organic compound net input. When the nature of any operation or design of equipment is such as to permit

more than one (1) interpretation of this definition, the interpretation that results in the minimum value for allowable emission shall apply.

Section 3. Standard for Volatile Organic Compounds. No person shall cause, allow, or permit an affected facility to discharge into the atmosphere more than fifteen (15) percent by weight of the volatile organic compounds net input into the affected facility.

Section 4. Compliance. (1) In all cases the design of any control system is subject to approval by the department.

(2) Compliance with the standard in Section 3 shall be demonstrated by a material balance except in those cases where the department determines that a material balance is not possible. For those cases where a material balance is not possible, compliance will be determined based upon an engineering analysis by the department of: the control system design, control device efficiency, control system capture efficiency, and any other factors that could influence the performance of the system. If so requested by the department, performance tests as specified by the department shall be conducted in order to determine the efficiency of the control device.

(3) With the prior approval of the department, the owner or operator may elect to effect such changes in the affected facility as are necessary to qualify for an exemption under Section 5.

(4) Whenever deemed necessary by the department, the department shall obtain samples of the coatings used at an affected facility to verify that the coatings meet the requirements in Section 5. The following methods of analyses, filed by reference in 401 KAR 50:015, for coatings shall be used as applicable except in those cases where the department determines that other methods would be more appropriate:

(a) ASTM D 1644-75 Method A;
(b) ASTM D 1475-60(74);
(c) ASTM D 2369-73; or
(d) Federal Standard 141 a, Method 4082.1.

Section 5. Exemptions. Any affected facility shall be exempt from the provisions of Section 3 if the volatile organic compound content of the coating is:

(1) Less than 0.34 kilograms per liter of coating (2.8 pounds per gallon), excluding water, delivered to the applicators associated with the sheet basecoat (exterior and interior) and overvarnish or, two (2) piece can exterior (basecoat and overvarnish) coating lines;

(2) Less than 0.51 kilograms per liter of coating (4.2 pounds per gallon), excluding water, delivered to the applicators associated with two (2) and three (3) piece can interior body spray or two (2) piece can exterior end (spray or roll coat) coating lines;

(3) Less than 0.66 kilograms per liter of coating (5.5 pounds per gallon), excluding water, delivered to the applicators associated with the three (3) piece can side-seam spray coating line;

(4) Less than 0.44 kilograms per liter of coating (3.7 pounds per gallon), excluding water, delivered to the applicators associated with the end sealing compound coating line.

EUGENE F. MOONEY, Secretary
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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 59:220. New coil surface coating operations.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of volatile organic compound emissions from new coil surface coating operations.

Section 1. Applicability. The provisions of this regulation shall apply to each affected facility commenced on or after the classsification date defined below.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given to them in 401 KAR 50:010.

(1) "Affected facility" means a coating line for metal sheets or strips that comes in rolls or coils.

(2) "Applicator" means the mechanism or device used to apply the coating, including but not limited to: roller or spray.

(3) "Quench area" means a chamber where the hot metal exiting the oven is cooled by either a spray of water or a blast of air followed by water cooling.

(4) "Prime coat" means the first film of coating applied in a two (2) coat operation which is responsible for protecting the surface from corrosion and providing for good adhesion of the topcoat.

(5) "Topcoat" means the final film of coating applied in a two (2) coat operation to obtain desired aesthetic effects.

(6) "Single coat" means a single film coating applied directly to the metal substrate omitting the prime coat.

(7) "Coating line" means a series of equipment and/or operations used to apply, dry, or cure any coatings containing volatile organic compounds. This shall include, but is not limited to:

(a) Mixing operations;
(b) Process storage;
(c) Applicators;
(d) Drying operations including but not limited to quench area, oven drying, baking, curing, and polymerization;
(e) Clean up operations;
(f) Leaks, spills and disposal of volatile organic compounds;
(g) Processing and handling of recovered volatile organic compounds;
(h) For the purposes of determining compliance with this regulation, if any equipment or operation could be considered to be a part of more than one (1) coating line, its volatile organic compound emissions shall be assigned to each coating line of which it is a part proportionally to the throughput of volatile organic compound it receives from or distributes to each coating line;
(i) If any portion of the series of equipment and/or operations qualify for an exemption according to Section 5, then that portion shall be considered to be a separate coating line.

(8) "Volatile organic compounds" means chemical compounds of carbon (excluding methane, ethane, carbon

monoxide, carbon dioxide, carbonic acid, metallic carbides, and ammonium carbonate) which have a vapor pressure greater than one tenth (0.1) mm of Hg at conditions of twenty (20) degrees Celsius and 760 mm of Hg.

(9) "Process storage" means mixing tanks, holding tanks, and other tanks, drums, or other containers which contain surface coatings, volatile organic compounds, or recovered volatile organic compounds; but does not mean storage tanks which are subject to 401 KAR 59:050 or 401 KAR 61:050.

(10) "Classification date" means the effective date of this regulation.

(11) "Volatile organic compounds net input" means the total amount of volatile organic compounds input to the affected facility minus the amount of volatile organic compounds that are not emitted into the atmosphere. Volatile organic compounds that are prevented from being emitted to the atmosphere by the use of control devices shall not be subtracted from the total for the purposes of determining volatile organic compound net input. When the nature of any operation or design of equipment is such as to permit more than one (1) interpretation of this definition, the interpretation that results in the minimum value for allowable emission shall apply.

Section 3. Standard for Volatile Organic Compounds. No person shall cause, allow, or permit an affected facility to discharge into the atmosphere more than fifteen (15) percent by weight of the volatile organic compounds net input into the affected facility.

Section 4. Compliance. (1) In all cases the design of any control system is subject to approval by the department.

(2) Compliance with the standard in Section 3 shall be demonstrated by a material balance except in those cases where the department determines that a material balance is not possible. For those cases where a material balance is not possible, compliance will be determined based upon an engineering analysis by the department of: the control system design, control device efficiency, control system capture efficiency, and any other factors that could influence the performance of the system. If so requested by the department, performance tests as specified by the department shall be conducted in order to determine the efficiency of the control device.

(3) With the prior approval of the department, the owner or operator may elect to effect such changes in the affected facility as are necessary to qualify for an exemption under Section 5.

(4) Whenever deemed necessary by the department, the department shall obtain samples of the coatings used at an affected facility to verify that the coatings meet the requirements in Section 5. The following methods of analyses, filed by reference in 401 KAR 50:015, for coatings shall be used as applicable except in those cases where the department determines that other methods would be more appropriate:

(a) ASTM D 1644-75 Method A;
(b) ASTM D 1475-60(74);
(c) ASTM D 2369-73; or
(d) Federal Standard 141 a, Method 4082.1.

Section 5. Exemptions. Any affected facility shall be exempt from the provisions of Section 3 if the volatile organic compound content of the coating is less than 0.31 kilograms per liter of coating (2.6 pounds per gallon), excluding water, delivered to the applicators associated with the prime, single or topcoat coating line.

EUGENE F. MOONEY, Secretary
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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 61:005. General provisions.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation is to provide for the establishment of monitoring requirements, performance testing requirements, and other general provisions as related to existing sources.

Section 1. Applicability. The provisions of this chapter shall apply to the owner or operator of any existing source for which a standard of performance has been promulgated under this chapter.

Section 2. Performance Test. (1) On or before the completion of a control plan at an affected facility and at such other times as may be required by the department, the owner or operator of an affected facility, except for those affected facilities specified below, shall conduct performance test(s) according to 401 KAR 50:045 and shall furnish the department a written report of the results of such performance test(s).

(a) Process operation with a process weight rate of less than 100 tons per hour;

(b) Indirect heat exchangers of less than 250 million BTU heat input;

(c) Incinerator with a charging rate of forty-five (45) metric tons per day (fifty (50) tons/day) or less;

(d) Affected facilities specified in 401 KAR 61:025, 401 KAR 61:035, 401 KAR 61:040, 401 KAR 61:045, 401 KAR 61:050, 401 KAR 61:056, 401 KAR 61:060, 401 KAR 61:085, 401 KAR 61:095, and 401 KAR 61:135.

(2) The department may require the owner or operator of any affected facility including those specified in subsection (1) of this section to conduct performance test(s) according to 401 KAR 50:045 and furnish a written report of the results of such performance test(s).

Section 3. Emission Monitoring. This section sets forth the minimum requirements for continuous emission monitoring, recording, and reporting for source categories which are set forth. It includes the performance specifications for accuracy, reliability, and durability of acceptable monitoring systems and techniques to convert emission data to units of applicable emission standards.

(1) The owner or operator of a source in a category listed below shall:

(a) Install, calibrate, operate and maintain all monitor-

ing equipment necessary for continuously monitoring the pollutants specified in this section for the applicable source category;

(b) Complete the installation and performance test of such equipment and begin monitoring and recording within eighteen (18) months of the effective date of this regulation, except as provided in paragraph (c) of this subsection; and

(c) For continuous emission monitoring systems for which there are no performance specifications under Appendix B of 40 CFR 60, filed by reference in 401 KAR 50:015, as of the effective date of this regulation, complete the installation and performance tests of such equipment and begin monitoring and recording within eighteen (18) months of promulgation of the applicable performance specifications under Appendix B of 40 CFR 60.

(2) The source categories and the respective monitoring requirements are listed below.

(a) Indirect heat exchangers, as specified in subsection (6)(a) of this section shall be monitored for opacity, sulfur dioxide emissions, and oxygen or carbon dioxide.

(b) Sulfuric acid plants, as specified in subsection (6)(b) of this section shall be monitored for sulfur dioxide emissions.

(c) Nitric acid plants as specified in subsection (6)(c) of this section shall be monitored for nitrogen oxides emissions.

(d) Petroleum refinery affected facilities as specified in subsection (6)(d) of this section shall be monitored as specified in subsection (6)(d) of this section.

(e) Incinerators, as specified in subsection (6)(e) of this section, shall be monitored for opacity.

(f) Control devices, as specified in subsection (6)(f) of this section, shall be monitored for opacity.

(3) Exemption. Sources which are scheduled for retirement within five (5) years after the effective date of this regulation are exempt from the requirements of this section, provided that adequate evidence and guarantees are provided that clearly show that the source will cease operating on or before that date.

(4) Extensions. Reasonable extensions of the time provided for installation of monitors may be allowed for sources unable to meet the time-frame prescribed in subsection (1)(b) of this section, provided the owner or operator of such facility demonstrates that good faith efforts have been made to obtain and install such devices within such prescribed time-frame.

(5) Monitoring systems malfunctions. The department may provide a temporary exemption from the monitoring and reporting requirements of this section during any period of monitoring system malfunction, provided that the source owner or operator shows, to the department's satisfaction, that the malfuction was unavoidable and is being repaired as expeditiously as practicable.

(6) Monitoring requirements:

(a) Indirect heat exchangers. Each indirect heat exchanger, except as provided in the following subparagraphs, with an annual average capacity factor of greater than thirty (30) percent as demonstrated to the department by the owner or operator, shall conform with the following monitoring requirements when such facility is subject to an emission standard for the pollutant in question. (Annual average capacity factor means the ratio of the acutal annual heat input to the potential annual heat input based on rated capacity.)

1. A continuous monitoring system for the measurement of capacity which meets the appropriate performance specification as specified in subsection (7) of this section shall be installed, calibrated, maintained, and operated in accordance with the procedures of this subsection by the owner or operator of any such indirect heat exchanger of greater than 250 million BTU per hour heat input except where: gaseous fuel is the only fuel burned, or oil or a mixture of gas and oil are the only fuels burned and the source is able to comply with the applicable particulate matter and opacity standards without utilization of particulate matter collection equipment, and where the source has never been found, through any administrative or judicial proceedings, to be in violation of any visible emission standard.

2. A continuous monitoring system for the measurement of sulfur dioxide which meets the appropriate performance specifications as specified in subsection (7) of this section shall be installed, calibrated, maintained, and operated on any indirect heat exchangers (except where natural gas or wood waste is burned) of greater than 250 million BTU per hour heat input.

3. A continuous monitoring system for the measurement of the percent oxygen or carbon dioxide which meets the appropriate performance specifications as specified in subsection (7) of this section shall be installed, calibrated, operated, and maintained on indirect heat exchangers where measurements of oxygen or carbon dioxide in the flue gas are required to convert either sulfur dioxide or nitrogen oxides continuous emission monitoring data, or both, to units of the emission standard.

(b) Sulfuric acid plants. For the purposes of this regulation, "sulfuric acid plant" means any facility producing sulfuric acid by the contact process by burning elemental sulfur, alkylation acid, hydrogen sulfide, or acid sludge, but does not include facilities where conversion to sulfuric acid is utilized primarily as a means of preventing emissions to the atmosphere of sulfur dioxide or other sulfur compounds. The owner or operator of each sulfuric acid plant of greater than 200 tons per day production capacity, the production capacity being expressed as 100 percent acid, shall install, calibrate, maintain, and operate a continuous monitoring system for the measurement of sulfur dioxide which meets the appropriate performance specifications as specified in subsection (7) of this section for each sulfuric acid producing facility within such plant.

(c) Nitric acid plants. For the purposes of this regulation "nitric acid plant" means any facility producing nitric acid thirty (30) to seventy (70) percent by weight in strength by either the pressure or atmospheric pressure process. The owner or operator of each nitric acid plant of greater than 200 tons per day production capacity, the production capacity being expressed as 100 percent acid, shall install, calibrate, maintain and operate a continuous monitoring system for the measurement of nitrogen oxides which meet the appropriate performance specifications as specified in subsection (7) of this section for each nitric acid producing facility within such plant.

(d) Petroleum refineries. The owner or operator of each affected facility specified in this paragraph shall install, calibrate, maintain and operate continuous monitoring equipment as follows:

1. A continuous monitoring system for the measurement of opacity for catalyst regenerator for fluid bed cracking units of greater than 20,000 barrels per day fresh feed capacity which meets the appropriate performance specifications specified in subsection (7) of this section.

2. An instrument for continuously monitoring and recording the concentration of carbon monoxide in gases discharged into the atmosphere from fluid catalytic crack-

ing unit catalyst regenertors subject to 401 KAR 61:145 which meets the appropriate performance specifications specified in subsection (7) of this section. The span of this continuous monitoring system shall be 1,000 ppm.

3. A continuous monitoring system for the measurement of sulfur dioxide in the gases discharged into the atmosphere from the combustion of fuel gases subject to 401 KAR 61:145 which meets the appropriate performance specifications specified in subsection (7) of this section (except where a continuous monitoring system for the measurement of hydrogen sulfide is installed under subparagraph 4 of this paragraph). The pollutant gas used to prepare calibration gas mixtures under Performance Specification 2 of 40 CFR 60 paragraph 2.1 and for calibration checks shall be sulfur dioxide. The span shall be set at 100 ppm. For conducting monitoring system performance evaluations, Reference Method 6 shall be used.

4. An instrument for continuously monitoring and recording concentrations of hydrogen sulfide in fuel gases burned in any fuel gas combustion device subject to 401 KAR 61:145 which meets the appropriate performance specifications specified in subsection (7) of this section, if compliance is achieved by removing hydrogen sulfide from the fuel gas before it is burned; fuel gas combustion devices having a common source of fuel gas may be monitored at one (1) location, if monitoring at this location accurately represents the concentration of hydrogen sulfide in the fuel gas burned. The span of this continuous monitoring system shall be 300 ppm.

5. An instrument for continuously monitoring and recording concentrations of sulfur dioxide in the gases discharged into the atmosphere from any Claus sulfur recovery plant subject to 401 KAR 61:145 which meets the appropriate performance specifications in subsection (7) of this section, if compliance is achieved through the use of an oxidation control system or a reduction control system followed by incineration. The span of this continuous monitoring system shall be set at 500 ppm.

6. An instrument(s) for continuously monitoring and recording the concentration of hydrogen sulfide and reduced sulfur compounds in the gases discharged into the atmosphere from any Claus sulfur recovery plant subject to 401 KAR 61:145 which meets the appropriate performance specifiactions specified in subsection (7) of this section, if compliance is achieved through the use of a reduction control system not followed by incineration. The span(s) of this continuous monitoring system shall be set at twenty (20) ppm for monitoring and recording the concentration of hydrogen sulfide and 600 ppm for monitoring and recording the concentration of reduced sulfur compounds.

(e) Incinerators. Each incinerator with a charging capacity of more than forty-five (45) metric tons per day (fifty (50) tons/day) shall install, calibrate, maintain and operate a continuous monitoring system for the measurement of opacity which meets the appropriate performance specifications as specified in subsection (7) of this section.

(f) Each control device with a concentrated discharge associated with the affected facilities subject to 401 KAR 61:070, 401 KAR 61:075, or 401 KAR 61:080 shall install, calibrate, maintain, and operate a continuous monitoring system for the measurement of opacity which meets the appropriate performance specifications as specified in subsection (7) of this section.

(7) Except as provided in subsection (8) of this section, all owners or operators which are required to comply with this section shall demonstrate compliance with the following performance specifications of Appendix B to 40 CFR 60.

(a) Continuous monitoring systems for measuring opacity shall comply with Performance Specification 1.

(b) Continuous monitoring systems for measuring sulfur dioxide shall comply with Performance Specification 2.

(c) Continuous monitoring systems for measuring nitrogen oxides shall comply with Performance Specification 2.

(d) Continuous monitoring systems for measuring oxygen shall comply with Performance Specification 3.

(e) Continuous monitoring systems for measuring carbon dioxide shall comply with Performance Specification 3.

(8) An owner or operator who, prior to September 11, 1974, entered into a binding contractual obligation to purchase specific continuous monitoring system components or who installed continuous monitoring equipment prior to October 6, 1975 shall comply with the following requirements:

(a) Continuous monitoring systems for measuring opacity of emissions shall be capable of measuring emission levels within plus or minus twenty (20) percent with a confidence level of ninety-five (95) percent. The Calibration Error Test and associated calculation procedures set forth in Performance Specification 1 of Appendix B to 40 CFR 60 shall be used for demonstrating compliance with this specification;

(b) Continuous monitoring systems for measurement of nitrogen oxides or sulfur dioxide shall be capable of measuring emission levels within plus or minus twenty (20) percent with a confidence level of ninety-five (95) percent. The Calibration Error Test, the Field Test for Accuracy (Relative), and associated operating and calculation procedures set forth in Appendix B to 40 CFR 60 shall be used for demonstrating compliance with this specification;

(c) Owners or operators of all continuous monitoring systems installed on an affected facility prior to October 6, 1975, may be required to conduct tests under paragraphs (a) and/or (b) of this subsection if requested by the department;

(d) All continuous monitoring systems referenced by this subsection shall be upgraded or replaced (if necessary) with new continuous monitoring systems, and the new or improved systems shall be demonstrated to comply with applicable performance specifications within five (5) years of the effective date of this regulation.

(9) Calibration gases. For sulfur dioxide monitoring systems installed on indirect heat exchangers or sulfuric acid plants, the pollutant gas used to prepare calibration gas mixtures (Section 2.1, Performance Specification 2, Appendix B to 40 CFR 60) shall be sulfur dioxide. For nitrogen oxides monitoring systems, installed on nitric acid plants the pollutant gas used to prepare calibration gas mixtures (Section 2.1, Performance Specification 2, Appendix B to 40 CFR 60) shall be nitrogen dioxide. This gas shall also be used for daily checks under subsection (13) of this section as applicable. Span and zero gases certified by their manufacturer to be traceable to National Bureau of Standards reference gases shall be used whenever these reference gases are available. Every six (6) months from dates of manufacture, span and zero gases shall be reanalyzed by conducting triplicate analyses using the reference methods in Appendix A to 40 CFR 60 as follows: for sulfur dioxide, use Reference Method 6, for nitrogen dioxide use Reference Method 7, and for carbon dioxide and oxygen use Reference Method 3.

(10) Cycling times. Cycling times include the total time a monitoring system requires to sample, analyze, and record an emission measurement.

(a) Continuous monitoring systems for measuring opacity shall complete a minimum of one (1) cycle of operation (sampling, analyzing, and data recording) for each successive ten (10) second period.

(b) Continuous monitoring systems for measuring oxides of nitrogen, carbon dioxide, oxygen, or sulfur dioxide shall complete a minimum of one (1) cycle of operation (sampling, analyzing, and data recording) for each successive fifteen (15) minute period.

(11) Monitor location. A continuous monitoring device shall be installed such that representative measurements of emissions or process parameters (i.e., oxygen or carbon dioxide) from the affected facility are obtained. Additional guidance for location of continuous monitoring systems to obtain representative samples are contained in the applicable Performance Specifications of Appendix B of 40 CFR 60.

(12) Combined effluents. When the effluents from two (2) or more affected facilities of similar design and operating characteristics are combined before being released to the atmosphere, the department may allow monitoring systems to be installed on the combined effluent. When the affected facilities are not of similar design and operating characteristics, or when the effluent from one (1) affected facility is released to the atmosphere through more than one (1) point, the department shall establish alternate procedures to implement the intent of these requirements.

(13) Zero and span drift. Owners or operators of all continuous monitoring systems installed in accordance with the requirements of this subsection shall record the zero and span drift in accordance with the method prescribed by the manufacturer of such instruments; to subject the instruments to the manufacuter's recommended zero and span check at least once daily unless the manufacturer has recommended adjustments at shorter intervals, in which case the recommendations shall be followed; to adjust the zero and span whenever the twenty-four (24) hour zero drift or twenty-four (24) hour calibration drift limits of the applicable performance specifications in Appendix B of 40 CFR 60 are exceeded; and to adjust continuous monitoring systems referenced by subsection (8) of this section whenever the twenty-four (24) hour zero drift or twenty-four (24) hour calibration drift exceeds ten (10) percent of the emission standard.

(14) Span. Instrument span should be approximately 200 percent of the expected instrument data display output corresponding to the emission standard of the source.

(15) Alternate procedures and requirements. The department may allow equivalent procedures and requirements that have been approved by the U.S. Environmental Protection Agency for continuous monitoring systems as follows:

(a) Alternate monitoring requirements to accommodate continuous monitoring systems that require corrections for stack moisture conditions (e.g., an instrument measuring sulfur dioxide emissions on a wet basis could be used with an instrument measuring oxygen concentration on a dry basis if acceptable methods of measuring stack moisture conditions are used to allow accurate adjustments of the measured sulfur dioxide concentration to a dry basis).

(b) Alternate locations for installing continuous monitoring systems or monitoring devices when the owner or operator can demonstrate to the satisfaction of the department that installation at alternate locations will enable accurate and representative measurements.

(c) Alternative procedures for performing calibration checks (e.g., some instruments may demonstrate superior drift characteristics that require checking at less frequent intervals).

(d) Alternative monitoring requirements when the effluent from two (2) or more identical affected facilities is released to the atmosphere through more than one (1) point (e.g., an extractive, gaseous monitoring system used at several points may be approved if the procedures recommended are suitable for generating accurate emission averages).

(e) Alternate continuous monitoring systems that do not meet the spectral response requirements in Performance Specification 1, Appendix B of 40 CFR 60, but adequately demonstrate a definite and consistent relationship between their measurements and the opacity measurements of a system complying with the requirements in Performance Specification 1. The department may require that such demonstration be performed for each affected facility.

(16) Minimum data requirements. The following paragraphs set forth the minimum data reporting requirements. Both a printed summary and computer tape or cards shall be furnished in the format specified by the division.

(a) Owners of operators of facilities required to install continuous monitorings systems shall submit for every calendar quarter, a written report of excess emissions and the nature and cause of the excess emissions if known. The averaging period used for data reporting should correspond to the averaging period specified in the emission test method used to determine compliance with an emission standard for the pollutant/source category in question. The required report shall include, as a minimum, the data stipulated in this subsection. All quarterly reports shall be postmarked by the thirtieth (30th) day following the end of each calendar quarter.

(b) For opacity measurements, the summary shall consist of the magnitude in actual percent opacity of six (6) minute averages of opacity greater than the opacity standard in the applicable standard for each hour of operation of the facility. Average values may be obtained by integration over the averaging period or by arithmetically averaging a minimum of four (4) equally spaced, instantaneous opacity measurements per minute. Any time period exempted shall be considered before determining the excess average of opacity (e.g., whenever a regulation allows two (2) minutes of opacity measurements in excess of the standard, the source shall report all opacity averages, in any one (1) hour, in excess of the standard, minus the two (2) minute exemption). If more than one (1) opacity standard applies, excess emissions data must be submitted in relation to all such standards. Opacity data need be reported on computer cards or tape only.

(c) For gaseous measurements the summary shall consist of hourly averages in the units of the applicable standard. The hourly averages shall not appear in the written summary, but shall be made available from the computer tape or cards.

(d) The date and time identifying each period during which the continuous monitoring system was inoperative, except for zero and span checks, and the nature of system repairs or adjustments shall be reported. Proof of continuous monitoring system performance whenever system repairs or adjustments have been made is required.

(e) When no excess emissions have occurred and the continuous monitoring system(s) have not been inoperative, repaired, or adjusted, such information shall be included in the report.

(f) Owners or operators of affected facilities shall maintain a file of all information reported in the quarterly summaries, and all other data collected either by the continuous monitoring system or as necessary to convert monitoring data to the units of the applicable standard for a minimum of two (2) years from the date of collection of such data or submission of such summaries.

(17) Owners or operators of affected facilities shall use the following procedures for converting monitoring data to units of the standard where necessary.

(a) For indirect heat exchangers the following procedures shall be used to convert gaseous emission monitoring data in parts per million to g/million cal (lb/million BTU) where necessary:

1. When the owner or operator of an indirect heat exchanger elects under subsection (6)(a)3 of this section to measure oxygen in the flue gases, the measurements of the pollutant concentration and oxygen concentration shall each be on a dry basis and Equation I of the conversion procedures in Appendix A to this regulation shall be used.

2. When the owner or operator elects under subsection (6)(a)3 of this section to measure carbon dioxide in the flue gases, the measurement of the pollutant concentration and the carbon dioxide concentration shall each be on a consistent basis (wet or dry) and Equation II of the conversion procedures in Appendix A to this regulation shall be used.

(b) For sulfuric acid plants the owner or operator shall:

1. Establish a conversion factor three (3) times daily according to the procedures in 401 KAR 59:035, Section 5(2);

2. Multiply the conversion factor by the average sulfur dioxide concentration in the flue gases to obtain average sulfur dioxide emissions in kg/metric ton (lb/short ton); and

3. Report the average sulfur dioxide emission for each averaging period in excess of the applicable emission standard in the quarterly summary.

(c) The department may allow data reporting or reduction procedures varying from those set forth in this section if the owner or operator of a source shows to the satisfaction of the department that his procedures are at least as accurate as those in this section. Such procedures may include but are not limited to the following:

1. Alternative procedures for computing emission averages that do not require integration of data (e.g., some facilities may demonstrate that the variability of their emissions is sufficiently small to allow accurate reduction of data based upon computing averages from equally spaced data points over the averaging period).

2. Alternative methods of converting pollutant concentration mesurements to the units of the emission standards.

(18) Special consideration. The department may provide for approval, on a case-by-case basis, of alternative monitoring requirements different from the provisions of this section if the provisions of this section (i.e., the installation of a continuous emission monitoring system) cannot be implemented by a source due to physical plant limitations or extreme economic reasons. In such cases, when the department exempts any source subject to this section by use of this provision from installing continuous emission monitoring systems, the department shall set forth alternative emission monitoring and reporting requirements (e.g., periodic manual stack tests) to satisfy the intent of these regulations. Examples of such special cases include, but are not limited to, the following:

(a) Alternate monitoring requirements may be prescribed when installation of a continuous monitoring system or monitoring device specified by this section would not provide accuracte determinations of emissions.

(b) Alternate monitoring requirements may be prescribed when the affected facility is infrequently operated.

(c) Alternative monitoring requirements may be prescribed when the department deems that the requirements of this section would impose an extreme economic burden on the source owner or operator. The burden of proof for an alleged "economic burden" is to be borne by the source.

(d) Alternative monitoring requirements may be prescribed when the department deems that monitoring systems prescribed by this section cannot be installed due to physical limitations at the facility.

APPENDIX A TO 401 KAR 61:005
CONVERSION PROCEDURES

Equation I.

$$E = \frac{CF\,(20.9)}{(20.9 - \%\ O_2)}$$

Equation II.

$$E = \frac{CF_c(100)}{\%\ CO_2}$$

Where:

E = pollutant emission, g/million cal (lb/million BTU).

C = pollutant concentration, g/dscm (lb/dscf), determined by multiplying the average concentration (ppm) for each hourly period by 4.16×10^{-5} M g/dscm per ppm (2.64×10^{-9} M lb/dscf per ppm) where M = pollutant molecular weight, g/g-mole (lb/lb mole). M = 64 for sulfur dioxide and 46 for oxides of nitrogen.

$\%O_2, \%CO_2$ = oxygen or carbon dioxide volume (expressed as percent) determined with equipment specified under Section 3(6)(a)3.

F,Fc = a factor representing a ratio of the volume of dry flue gases generated to the calorific value of the fuel combusted (F), and a factor representing a ratio of the volume of the carbon dioxide generated to the calorific value of the fuel combusted (Fc) respectively. Values of F and Fc are given in 401 KAR 59:015 as applicable.

EUGENE F. MOONEY, Secretary
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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 61:010. Existing incinerators.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides standards of performance for existing incinerators.

Section 1. Applicability. The provisions of this regulation shall apply to each affected facility which means each incinerator with a capacity of 2.5 cubic feet or greater commenced before the classification date defined below.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given them in 401 KAR 50:010.

(1) "Incinerator" means any furnace and appurtenances thereto used in the process of burning waste for the primary purpose of removing the combustible matter from the waste.

(2) "Auxiliary fuel" means a substance burned in an incinerator to supply additional heat to attain temperature sufficiently high to dry and ignite the waste and to maintain ignition of the waste.

(3) "Classification date" means:

(a) August 17, 1971 for incinerators with a charging rate of more than fifty (50) tons/day.

(b) April 9, 1972 for incinerators with a charging rate of fifty (50) tons/day or less.

Section 3. Standard for Particulate Matter. (1) No person shall cause, suffer, allow, or permit the emission produced by the incineration of any substance other than sawdust, wood chips, or bark which:

(a) Is greater than twenty (20) percent opacity; or

(b) For those incinerators with charging rate greater than or equal to 500 lb/hr, exceeds 0.20 grains of particulate matter per standard cubic foot of dry flue gas corrected to twelve (12) percent carbon dioxide excluding the contribution of carbon dioxide from auxiliary fuel.

(2) No person shall cause, suffer, allow, or permit the emission produced by the incineration of sawdust, wood chips, or bark which:

(a) Is equal to or greater than forty (40) percent opacity (for the purposes of 401 KAR 50:055, Section 2(4) and (5), thirty (30) consecutive minutes shall be allowed for startup and thirty (30) consecutive minutes shall be allowed for shutdown); or

(b) Exceeds 0.21 grains of particulate matter per standard cubic foot of dry flue gas corrected to twelve (12) percent carbon dioxide excluding the contribution of carbon dioxide from auxiliary fuel.

Section 4. Monitoring of Operations. The owner or operator of any incinerator of more than forty-five (45) metric tons per day charging rate (fifty (50) tons per day) subject to the provisions of this regulation shall record the daily charging rates and hours of operation.

Section 5. Test Methods and Procedures. (1) Except as provided in 401 KAR 50:045, performance tests used to demonstrate compliance with Section 3 shall be conducted according to the following methods, (filed by reference in 401 KAR 50:015):

(a) Kentucky Method 50 for the concentration of particulate matter and the associated moisture content;

(b) Reference Method 1 for sample and velocity traverses;

(c) Reference Method 2 for velocity and volumetric flow rate; and

(d) Reference Method 3 for gas analysis and calculation of excess air using the integrated sample technique.

(2) For Kentucky Method 50 the sampling time for each run shall be at least sixty (60) minutes and the minimum sample volume shall be 0.85 dscm (30.0 dscf) except that smaller sampling times or sample volumes, when necessitated by process variables or other factors, may be approved by the department.

(3) If a wet scrubber is used, the gas analysis sample shall reflect flue gas conditions after the scrubber, allowing for carbon dioxide absorption by sampling the gas on the scrubber inlet and outlet sides according to either the procedure under paragraphs (a) to (c) of this subsection or the procedure under paragraphs (a), (b) and (f) of this subsection as follows:

(a) The outlet sampling site shall be the same as for the particulate matter measurement. The inlet site shall be selected according to Reference Method 1, or as specified by the department.

(b) Randomly select nine (9) sampling points within the cross-section at both the inlet and outlet sampling sites. Use the first set of three (3) for the first run, the second set for the second run, and the third set for the third run.

(c) Simultaneously with each particulate matter run, extract and analyze for CO2 an integrated gas sample according to Reference Method 3, traversing the three (3) sample points and sampling at each point for equal increments of time. Conduct the runs at both inlet and outlet sampling sites.

(d) Measure the volumetric flow rate at the inlet during each particulate matter run according to Reference Method 2, using the full number of traverse points. For the inlet make two (2) full velocity traverses approximately one (1) hour apart during each run and average the results. The outlet volumetric flow rate may be determined from the particulate matter run (Reference Method 5).

(e) Calculate the adjusted CO2 percentage using the equation in Appendix A to this regulation.

(f) Alternatively, the following procedures may be substituted for the procedures under paragraphs (c), (d) and (e) of this subsection:

1. Simultaneously with each particulate matter run, extract and analyze for carbon dioxide, oxygen and nitrogen an integrated gas sample according to Reference Method 3, traversing the three (3) sample points and sampling for equal increments of time at each point. Conduct the runs at both the inlet and oulet sampling sites.

2. After completing the analysis of the gas sample, calculate the percentage of excess air (%EA) for both the inlet and outlet sampling sites using Equation 3-1 in Reference Method 3.

3. Calculate the adjusted CO2 percentage using the equation in Appendix B to this regulation.

4. Particulate matter emissions expressed in g/dscm, shall be corrected to twelve (12) percent CO2 by using the equation in Appendix C to this regulation.

APPENDIX A TO 401 KAR 61:010
EQUATION FOR ADJUSTED CO_2 PERCENTAGE

$$(\%\ CO_2)\ adj = (\%\ CO_2)di\ (Qdi/Qdo)$$

Where:

($\%\ CO_2$) adj is the adjusted CO_2 percentage which removed the effect of CO_2 absorption and diffusion of air;

($\%\ CO_2$) di is the percentage of CO_2 measured before the scrubber, dry basis;

Qdi is the volumetric flow rate before the scrubber, average of two runs, dscf/min, using Reference Method 2; and

Qdo is the volumetric flow rate after the scrubber, dscf/min, using Reference Methods 2 and 5.

APPENDIX B TO 401 KAR 61:010
EQUATION FOR ADJUSTED CO_2 PERCENTAGE

$$(\%\ CO_2)adj = (\%\ CO_2)di\frac{100 + (\%\ EA)i}{100 + (\%\ EA)o}$$

Where:
($\%\ CO_2$)adj is the adjusted outlet CO_2 percentage;
($\%\ CO_2$)di is the percentage of CO_2 measured before the scrubber, dry basis;
(%EA)i is the percentage of excess air at the inlet; and
(%EA)o is the percentage of excess air at the outlet.

APPENDIX C TO 401 KAR 61:010
EQUATION FOR CORRECTING
PARTICULATE MATTER EMISSIONS

$$C_{12} = \frac{12c}{\%\ CO_2}$$

Where:
C_{12} is the concentration of particulate matter corrected to twelve percent CO_2;
c is the concentration of particulate matter as measured by Reference Method 5;
$\%\ CO_2$ is the percentage of CO_2 as measured by Reference Method 3, or when applicable, the adjusted outlet CO_2 percentage as determined by Section 5(3)(c).

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 61:015. Existing indirect heat exchangers.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of emissions from existing indirect heat exchangers.

Section 1. Applicability. The provisions of this regulation shall apply to each affected facility commenced before the applicable classification date defined below.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given them in 401 KAR 50:010 and 401 KAR 50:025.

(1) "Affected facility" means an indirect heat exchanger having a heat input capacity of more than one (1) million BTU per hour.

(2) "Indirect heat exchanger" means any piece of equipment, apparatus, or contrivance 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.

(3) "Classification date" means:

(a) August 17, 1971, for affected facilities with a capacity of more than 250 million BTU per hour heat input;

(b) April 9, 1972, for affected facilities with a capacity of 250 million BTU per hour heat input or less.

Section 3. Method for Determining Allowable Emission Rates. (1) Except as provided in subsection (3) of this section, the total rated heat input capacity of all affected facilities, commenced before the applicable classification date within a source shall be used as specified in Sections 4 and 5 to determine the allowable emission in terms of pounds of effluent per million BTU heat input.

(2) At such time as any affected facility is assigned an allowable emission rate by the department, at no time thereafter shall that rate be changed due to inclusion or shutdown of any affected facility at the source.

(3) (a) A source may petition the department to establish an allowable emission rate which may be apportioned without regard to individual affected facility heat input provided that the conditions specified in paragraphs (b), (c), (d), (e), and (f) of this subsection are met. Such allowable emission rate shall be determined according to the following equation:

$$F = (AB + DE)/C$$

Where:
A = the allowable emission rate (in pounds of effluent per milion BTU input), as determined according to 401 KAR 59:015, Section 3(1);
B = the total rated heat input (in millions of BTU per hour) of all affected facilities commenced on or after the applicable classification date within a source, including those for which an application to construct, modify, or reconstruct has been submitted to the department;
C = the total rated heat input (in millions of BTU per hour, of all affected facilities within a source, including those for which an application to construct, modify, or reconstruct has been submitted to the department;
D = the total emission rate (in pounds of effluent per million BTU input) as determined according to subsection (1) of this section;
E = the total rated heat input (in millions of BTU per hour) of all affected facilities commenced before the applicable classification date;
F = the alternate allowable emission rate (in pounds of effluent per actual million BTU input).

(b) At no time shall the owner or operator of the source allow the total emissions (in pounds of effluent per hour) from all affected facilities within the source divided by the total actual heat input (in millions of BTU per hour) of all affected facilities within the source to exceed the alternate allowable emission rate as determined by paragraph (a) of this subsection.

(c) At no time shall the owner or operator of the source allow the emissions from any affected facility commenced on or after the applicable classification date to exceed the allowable emission rate determined by use of that affected facility's rated heat input (instead of the heat input as determined by subsection (1), of this section) as specified in 401 KAR 59:015, Sections 4 and 5.

(d) The owner or operator of the source must demonstrate compliance with this subsection by conducting a performance test according to 401 KAR 50:045 on each affected facility under such conditions as may be specified by the department.

(e) Upon petition, the department will establish an alternate emission rate in accordance with this subsection if the owner or operator demonstrates to the department's satisfaction that the source will maintain compliance with this subsection on a continual basis.

Section 4. Standard for Particulate Matter. Except as provided for in Section 3(3), no owner or operator of an affected facility subject to the provisions of this regulation shall cause to be discharged into the atmosphere from that affected facility:

(1) Particulate matter in excess of that specified in Appendix A, of this regulation;

(2) Emissions which exhibit greater than twenty (20) percent opacity in regions classified as Priority I with respect to particulate matter, except:

(a) That, for cyclone or pulverized fired indirect heat exchangers, a maximum of forty (40) percent opacity shall be permissible for not more than two (2) consecutive minutes in any sixty (60) consecutive minutes;

(b) That, for stoker fired indirect heat exchangers, a maximum of forty (40) percent opacity shall be permissible for not more than six (6) consecutive minutes in any sixty (60) consecutive minutes during cleaning the fire box or blowing soot and, for indirect heat exchangers with stationary grates, a maximum of forty (40) percent opacity shall be permissible during cleaning of the grates for not more than three (3) consecutive minutes in any sixty (60) consecutive minutes for each section of grates that are cleaned;

(c) For emissions from an indirect heat exchanger during building a new fire for the period required to bring the boiler up to operating conditions provided the method used is that recommended by the manufacturer and the time does not exceed the manufacturer's recommendations.

(3) Emissions which exhibit greater than forty (40) percent opacity in regions classified as Priority II or III with respect to particulate matter except;

(a) That, for cyclone or pulverized fired indirect heat exchangers, a maximum of sixty (60) percent opacity shall be permissible for not more than two (2) consecutive minutes in any sixty (60) consecutive minutes;

(b) That, for stoker fired indirect heat exchangers, a maximum of sixty (60) percent opacity shall be permissible for not more than six (6) consecutive minutes in any sixty (60) consecutive minutes during cleaning the fire box or blowing soot and, for indirect heat exchangers with stationary grates, a maximum of sixty (60) percent opacity shall be permissible during cleaning of the grates for not more than three (3) consecutive minutes in any sixty (60) consecutive minutes for each section of grates that are cleaned;

(c) For emissions from an indirect heat exchanger during building a new fire for the period required to bring the boiler up to operating conditions provided the method used is that recommended by the manufacturer and the time does not exceed the manufacturer's recommendations.

(4) The emission limitations contained in other subsections of this section shall not apply to any affected facility (with more than 250 million BTU per hour heat input capacity which was in being or under construction before August 17, 1971, or any affected facility with 250 million BTU per hour capacity or less which was in being or under construction prior to April 9, 1972) if that affected facility was in compliance prior to April 9, 1972, with, or has a valid permit to operate within the provisions of the previous Kentucky Air Pollution Control Commission Regulation No. 7 entitled "Prevention and Control of Emissions of Particulate Matter from Combustion of Fuel in Indirect Heat Exchangers." These affected facilities shall comply with the emission limitations in that regulation except that replacement of the particulate emissions control device associated with the affected facility shall subject it to the standard contained in this section.

Section 5. Standard for Sulfur Dioxide. (1) Except as provided for in Section 3(3), no owner or operator of an affected facility subject to the provisions of this regulation shall cause to be discharged into the atmosphere from that affected facility, any gases which contain sulfur dioxide in excess of that specified in Appendix B of this regulation.

(2) When different fuels are burned simultaneously in any combination, the applicable standard shall be determined by proration using the following formula:

Allowable Sulfur Dioxide Emission,

$$\text{lb/MM BTU} = \frac{y\,(a) + z\,(b)}{y + z}$$

Where:

y is the percent of total heat input derived from liquid or gaseous fuel;

z is the percent of total heat input derived from solid fuel;

a is the allowable sulfur dioxide emission in pounds per million BTU heat input derived from liquid or gaseous fuel; and

b is the allowable sulfur dioxide emissions in pounds per million BTU heat input derived from solid fuel.

(3) Compliance shall be based on the total heat input from all fuels burned, including gaseous fuels.

Section 6. Monitoring of Operations. (1) The sulfur content of solid fuels, as burned, shall be determined in accordance with the methods specified by the department.

(2) The sulfur content of liquid fuels, as burned, shall be determined in accordance with the methods specified by the department.

(3) The rate of fuel burned for each fuel shall be measured daily or at shorter intervals and recorded. The heating value and ash content of fuels shall be ascertained at least once per week and recorded. Where the indirect heat exchanger is used to generate electricity, the average electrical output and the minimum and maximum hourly generation rate shall be measured and recorded daily.

(4) The owner or operator of any indirect heat exchanger of more than 250 million BTU per hour heat input subject to the provisions of this regulation shall maintain a file of all measurements required by this regulation and summarized monthly. The record of any such measurement(s) and summary shall be retained for at least two (2) years following the date of such measurements and summaries.

(5) The department may require for any indirect heat exchanger of less than 250 million BTU per hour heat input any or all the fuel monitoring required by this section.

Section 7. Test Methods and Procedures. (1) Except as provided in 401 KAR 50:045, performance tests used to demonstrate compliance with Sections 4 and 5 shall be conducted according to the following methods (filed by reference in 401 KAR 50:015):

(a) Reference Method 1 for the selection of sampling site and sample traverses.

(b) Reference Method 3 for gas analysis to be used when applying Reference Methods 6 and 7, and Kentucky Method 50.

(c) Kentucky Method 50 for the concentration of particulate matter and the associated moisture content.

(d) Reference Method 6 for the concentration of sulfur dioxide and

(e) Reference Method 7 for the concentration of nitrogen oxides.

(2) For Kentucky Method 50, Reference Method 1 shall be used to select the sampling site and the number of traverse sampling points. The sampling time for each run shall be at least sixty (60) minutes and the minimum sampling volume shall be 0.85 dscm (thirty (30) dscf) except that smaller sampling times or volumes, when necessitated by process variables or other factors, may be approved by the department. The probe and filter holder heating systems in the sampling train shall be set to provide a gas temperature no greater than 120°C (248°F).

(3) For Reference Methods 6 and 7, the sampling site shall be the same as that selected for Kentucky Method 50. The sampling point in the duct shall be at the centroid of the cross section or at a point no closer to the walls than one (1) m (3.28 ft.). For Reference Method 6, the sample shall be extracted at a rate proportional to the gas velocity at the sampling point.

(4) For Reference Method 6, the minimum sampling time shall be twenty (20) minutes and the minimum sampling volume shall be 0.02 dscm (0.71 dscf) for each sample. The arithmetic mean of two (2) samples shall constitute one (1) run. Samples shall be taken at approximately thirty (30) minute intervals.

(5) For Reference Method 7, each run shall consist of at least four (4) grab samples taken at approximately fifteen (15) minute intervals. The arithmetic mean of the samples shall constitute the run value.

(6) For each run using the methods specified by subsection (1)(c), (d), and (e) of this section, the emissions expressed in g/million cal (lb/million BTU) shall be determined by the following equation:

$$E = CF \frac{20.9}{20.9 - \%O_2}$$

Where:

E = pollutant emission g/million cal (lb/million BTU).

C = pollutant concentration, g/dscm (lb/dscf) determined by Kentucky Method 50 and Reference Method 6 or 7.

F = a factor as determined in 401 KAR 59:015, Section 7.

$\%O_2$ = oxygen content by volume (expressed as percent), dry basis.

Percent oxygen shall be determined by using the integrated or grab sampling and analysis procedures for Reference Method 3 as applicable. The sample shall be as follows:

1. For determination of sulfur dioxide and nitrogen oxides emissions, the oxygen sample shall be obtained simultaneously at the same point for Reference Method 6 and 7 determinations, respectively. For Reference Method 7, the oxygen sample shall be obtained using the grab sampling and analysis procedures for Reference Method 3.

2. For determination of particulate emissions, the oxygen sample shall be obtained simultaneously by traversing the duct at the sample sampling location used for each run of Kentucky Method 50 under Section 1(6). Reference Method 1 shall be used for selection of the number of traverse points except that no more than twelve (12) sample points are required.

(7) When combinations of fossil fuels are fired, the heat input, expressed in cal/hr (BTU/hr), shall be determined during each testing period by multiplying the gross calorific value of each fuel fired by the rate of each fuel burned. Gross calorific value shall be determined in accordance with A.S.T.M. methods D2015-66(72) (solid fuels). D240-64(73) (liquid fuels), or D1826-64(70) (gaseous fuels), as applicable (A.S.T.M. designation filed by reference in 401 KAR 50:015). The rate of fuels burned during each testing period shall be determined by suitable methods and shall be confirmed by a material balance over the steam generation system.

Section 8. Compliance Timetable. (1) Affected facilities located in areas designated as attainment for sulfur dioxide and/or particulate matter shall be in compliance on the effective date of this regulation.

(2) (a) In Class I counties designated as non-attainment for sulfur dioxide, the owner or operator of any affected facility in any source whose total rated capacity is sixteen thousand million BTU per hour (16,000 MM BTU/hr) or more shall be required to complete the following:

1. Submit a final control plan for achieving compliance with this regulation no later than April 1, 1978;

2. Award contracts for complying coal by September 1, 1978;

3. Initiate use of such complying coal on or before December 1, 1979;

4. Demonstrate compliance by performance tests on or before October 1, 1981.

(b) In Class IVA counties designated as non-attainment for sulfur dioxide, the owner or operator of any affected facility in any source with a total rated capacity of greater than fifteen hundred million BTU per hour (1,500 MM BTU/hr) but less than twenty-one thousand million BTU per hour (21,000 MM BTU/hr) shall be required to complete the following:

1. Submit a final control plan for achieving compliance with this regulation no later than May 1, 1979;

2. Award contracts for complying coal by August 1, 1979;

3. Initiate use of such complying coal on or before January 1, 1980;

4. Demonstrate compliance by performance tests on or before March 1, 1980;

(c) In Class IVA counties designated as non-attainment for sulfur dioxide, the owner or operator of any affected facility in any source with a total rated capacity of greater than twenty-one thousand million BTU per hour (21,000 MM BTU/hr) shall be required to complete the following:

1. Submit a control plan for flue gas desulfurization and initiate construction of a coal washing plant on or before March 1, 1978;

2. Issue invitations for bids for construction and installation of flue gas desulfurization equipment on or before October 1, 1978;

3. Award contract for construction and installation of flue gas desulfurization equipment on or before January 1, 1979;

4. Initiate construction of flue gas desulfurization equipment on or before October 1, 1979;

5. Complete construction of coal washing plant on or before December 1, 1980;

6. Complete construction of flue gas desulfurization equipment on or before April 1, 1982;

7. Demonstrate compliance by performance tests on or before July 1, 1982.

(d) The owner or operator of any affected facility

APPENDIX A TO 401 KAR 61:015
ALLOWABLE PARTICULATE EMISSION RATES

For sources having a Total Heat Input Capacity (as determined by Section 3(1) of this regulation) of:

The standard (in pounds per million BTU actual heat input) is (based upon the Priority classification with respect to particulates of the Region in which the source is located):

(MM BTU/hr)	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
10000 or more	0.11	0.15	0.18

Interpolation of allowable emissions for intermediate heat input values not specified above may be accomplished by use of the equations shown below for the appropriate heat input range specified. In all equations X = millions of BTU per hour heat input as determined by Section 3(1) of this regulation, and Y = allowable particulate emissions in pounds per million BTU actual heat input.

Region Classification with respect to Particulate Matter	Range (MM BTU/Hr)	Allowable (Pounds/MM BTU)
Priority I	10 to 10,000	$Y = 0.9634\ X^{-0.2356}$
Priority II	10 to 10,000	$Y = 1.2825\ X^{-0.2330}$
Priority III	10 to 10,000	$Y = 1.3152\ X^{-0.2159}$

APPENDIX B
TO
401 KAR 61:015
ALLOWABLE SULFUR DIOXIDE EMISSION RATES

For sources having a total heat input (as determined by Section 3(1) of this regulation) of:	The standard (in pounds per million BTU 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 II		CLASS III		CLASS IV		CLASS IVA		CLASS V		CLASS VA	
(MM BTU/Hr)	Liquid/Gaseous Fuel	Solid Fuel	Liquid/Gaseous Fuel	Solid Fuel	Liquid/Gaseous Fuel	Solid Fuel	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	4.0	6.0	4.6	7.0	5.4	8.0	5.4	8.0	6.0	9.0	6.0	9.0
50	1.5	2.4	2.4	3.7	3.2	4.8	4.3	6.4	4.3	6.4	4.9	7.3	4.9	7.3
100	1.2	1.8	2.0	3.0	2.7	4.1	4.0	5.9	4.0	5.9	4.5	6.7	4.5	6.7
150	1.0	1.5	1.8	2.7	2.5	3.7	3.7	5.6	3.7	5.6	4.3	6.4	4.3	6.4
200	0.9	1.3	1.6	2.5	2.3	3.5	3.6	5.4	3.6	5.4	4.1	6.2	4.1	6.2
250-1500	0.8	1.2	1.5	2.3	2.2	3.3	3.5	5.2	3.5	5.2	4.0	6.0	4.0	6.0
greater than 1500	0.8	1.2	1.5	2.3	2.2	3.3	3.5	5.2	2.1	3.1	4.0	6.0	0.4	0.6

Interpolation of allowable emissions for rated capacity values between 10 and 250 million BTU heat input may be accomplished by use of the equations shown below for the appropriate fuel specified. In all equations Y = allowable sulfur dioxide emission in pounds per million BTU actual heat input, X = millions of BTU per hour heat input capacity rating as determined by Section 3(1) of this regulation.

COUNTY CLASS	FUEL	ALLOWABLE (POUNDS/MM BTU)
I	LIQUID/GASEOUS	$Y = 7.7223 X^{-0.4106}$
	SOLID	$Y = 13.8781 X^{-0.4434}$
II	LIQUID/GASEOUS	$Y = 8.0681 X^{-0.3047}$
	SOLID	$Y = 11.9134 X^{-0.2979}$
III	LIQUID/GASEOUS	$Y = 7.7966 X^{-0.2291}$
	SOLID	$Y = 11.9872 X^{-0.2336}$
IV	LIQUID/GASEOUS	$Y = 7.3639 X^{-0.1347}$
	SOLID	$Y = 10.8875 X^{-0.1338}$
IVA	LIQUID/GASEOUS	$Y = 7.3639 X^{-0.1347}$
	SOLID	$Y = 10.8875 X^{-0.1338}$
V	LIQUID/GASEOUS	$Y = 8.0189 X^{-0.1260}$
	SOLID	$Y = 12.0284 X^{-0.1260}$
VA	LIQUID/GASEOUS	$Y = 7.7223 X^{-0.4106}$
	SOLID	$Y = 13.8781 X^{-0.4434}$

located in any area designated non-attainment for sulfur dioxide and/or particulate matter, except as provided for in paragraphs (a), (b), and (c) of this subsection, shall demonstrate compliance with this regulation as expeditiously as practicable but in no case later than December 31, 1982.

EUGENE F. MOONEY, Secretary
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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 61:020. Existing process operations.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of emissions from existing process operations which are not subject to another particulate emission standard within this chapter.

Section 1. Applicability. The provisions of this regulation shall apply to each affected facility, associated with a process operation, which is not subject to another emission standard with respect to particulates in this chapter, commenced before the classification date defined below.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given them in 401 KAR 50:010.

(1) "Process operation" means any method, form, action, operation or treatment of manufacturing or processing, and shall include any storage or handling of materials or products, before, during, or after manufacturing or processing.

(2) "Process weight" means the total weight of all materials introduced into any affected facility which may cause any emission of particulate matter, but does not include liquid and gaseous fuels charged, combustion air, or uncombined water.

(3) "Classification date" means July 2, 1975.

(4) "Process weight rate" means a rate established as follows:

(a) 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;

(b) 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 such a period; and

(c) Where the nature of any process operation or the design of any equipment is such as to permit more than one (1) interpretation of this definition, the interpretation which results in the minimum value for allowable emission shall apply.

(5) "Affected facility" as related to process operations means the last operation preceding the emission of air contaminants which results:

(a) In the separation of the air contaminant from the process materials; or

(b) In the conversion of the process materials into air contaminants, but does not include an air pollution abatement operation.

Section 3. Standard for Particulate Matter. (1) No person shall cause, suffer, allow or permit the emission into the open air of particualte matter from any affected facility, or from all air pollution control equipment installed on any affected facility which:

(a) Is equal to or greater than forty (40) percent opacity; or

(b) Is in excess of the quantity specified in Appendix A of this regulation.

(2) An affected facility may elect to substitute the following standards in lieu of the value given in Appendix A:

(a) A maximum exit particulate emission concentration of 0.02 grains per standard cubic foot;

(b) Air pollution control equipment of at least ninety-seven (97) percent actual efficiency;

(c) Addition of dilution air shall not constitute compliance; and

(d) At least ninety (90) percent of the particulate emissions from the affected facility must be vented to the control device.

Section 4. Test Methods and Procedures. Except as provided in 401 KAR 50:045, performance tests used to demonstrate compliance with Section 3 shall be conducted according to the following methods (filed by reference in 401 KAR 50:015):

(1) Kentucky Method 50 for the emission rates of particulate matter and the associated moisture content.

(2) Reference Method 1 for sample and velocity traverses.

(3) Reference Method 2 for velocity and volumetric flow rate.

(4) Reference Method 3 for gas analysis.

(5) Reference Method 9 for visible emissions.

(6) For Kentucky Method 50, Reference Method 1 shall be used to select the sampling site and the number of traverse sampling points. The sampling time for each run shall be at least sixty (60) minutes and the minimum sample volume shall be 0.85 dscm (thirty (30) dscf) except that smaller sampling time or volumes, when necessitated by process variables or other factors, may be approved by the department.

(Continued on next page)

APPENDIX A TO 401 KAR 61:020
ALLOWABLE RATE OF PARTICULATE EMISSION
BASED ON PROCESS WEIGHT RATE

Process Weight Rate		Maximum Allowable Emission Rate
Lb/Hr.	Ton/Hr.	Lb/Hr.
100 or less	0.05 or less	0.551
200	0.10	0.877
400	0.20	1.40
600	0.30	1.83
800	0.40	2.22
1,000	0.50	2.58
1,500	0.75	3.38
2,000	1.00	4.10
2,500	1.25	4.76
3,000	1.50	5.38
3,500	1.75	5.96
4,000	2.00	6.52
5,000	2.50	7.58
6,000	3.00	8.56
7,000	3.50	9.49
8,000	4.00	10.4
9,000	4.50	11.2
10,000	5.00	12.0
12,000	6.00	13.6
16,000	8.00	16.5
18,000	9.00	17.9
20,000	10.00	19.2
30,000	15.00	25.2
40,000	20.00	30.5
50,000	25.00	35.4
60,000	30.00	40.0
70,000	35.00	41.3
80,000	40.00	42.5
90,000	45.00	43.6
100,000	50.00	44.6
120,000	60.00	46.3
140,000	70.00	47.8
160,000	80.00	49.1
200,000	100.00	51.3
1,000,000	500.00	69.0
2,000,000	1,000.00	77.6
6,000,000	3,000.00	92.7

Interpolation of the data for process weight rates up to 60,000 lb/hr. shall be accomplished by use of the equation

$$E = 4.10P^{0.67}$$

and interpolation and extrapolation of the data for process weight rates in excess of 60,000 lb/hr. shall be accomplished by the use of the equation

$$E = 55.0P^{0.11}-40$$

where E = rate of emission in lb/hr and P = process weight rate in tons/hr.

EUGENE F. MOONEY, Secretary
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DEPARTMENT FOR NATURAL RESOURCES
AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 61:025. Existing kraft (sulfate) pulp mills.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement and control of air pollution. This regulation provides for the control of emissions from existing kraft (sulfate) pulp mills.

Section 1. Applicability. The provisions of this regulation shall apply to each affected facility which:
(1) Is associated with a kraft (sulfate) pulp mill:
(2) Is not subject to another standard of performance within this chapter with respect to particulates or total reduced sulfur;
(3) Commenced before the classification date defined below.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given to them in 401 KAR 50:010.
(1) "Total reduced sulfur (TRS)" means all reduced sulfur compounds including but not limited to hydrogen sulfide, methyl mercaptan, dimethyl sulfide and dimethyl disulfide expressed in terms of hydrogen sulfide.
(2) "Classification date" means April 9, 1972.

Section 3. Standard for Particulate Matter. No person shall cause, suffer, allow or permit particulate emissions from the following affected facilities in excess of:
(1) Recovery furnace: 3.5 pounds per ton of equivalent unbleached air dried pulp produced;
(2) Lime kilns: 1.0 pounds per ton of equivalent unbleached air dried pulp produced;
(3) Dissolving smelt tanks: 0.5 pounds per ton of equivalent unbleached air dried pulp produced;
(4) An emission equal to or greater than twenty (20) percent opacity.

Section 4. Standard for Total Reduced Sulfur (TRS).
(1) No person shall cause, suffer, allow or permit total reduced sulfur emissions from the recovery furnace of any kraft (sulfate) pulp mill in excess of an exit stack gas concentration of fifteen (15) parts per million by volume expressed as an arithmetic average over any consecutive twenty-four (24) hour period.
(2) No person shall cause, allow or permit total reduced sulfur emissions from the recovery furnace of any kraft pulp mill in excess of an exit stack gas concentration of forty (40) parts per million by volume for more than sixty (60) total minutes in any twenty-four (24) hour period.
(3) No person shall cause, suffer, allow or permit the emissions of various noncondensable gas streams from digester relief, blow tank relief, evaporaor hot wells, or multiple effect evaporators containing total reduced sulfur in a kraft pulp mill unless treated by thermal oxidation or an equivalent method with ninety-eight (98) percent efficiency.
(4) Control of other points of emission of total reduced sulfur, shall be considered on an individual basis as determined by the department.

Section 5. Test Methods and Procedures. Except as provided in 401 KAR 50:045, performance tests used to demonstrate compliance with Sections 3 and 4 shall be conducted according to the following methods (filed by reference in 401 KAR 50:015):

(1) Reference Method 5 for the emission rates of particulate matter and the associated moisture content.

(2) Reference Method 1 for sample and velocity traverses.

(3) Reference Method 2 for velocity and volumetric flow rate.

(4) Reference Method 3 for gas analysis.

(5) Reference Method 9 for visible emissions.

(6) Reference Method 16 for the concentration of TRS. All concentrations of TRS from the lime kiln and recovery furnace that are measured as required by this subsection shall be corrected to ten (10) percent by volume oxygen and eight (8) percent by volume oxygen, respectively, when the oxygen concentrations exceed these values.

(7) Reference Method 17 (in-stack filtration) may be used as an alternative method for Reference Method 5 provided that a constant value of 0.009 g/dscm (0.004 gr/dscf) is added to the results of Reference Method 1 and the stack temperature is no greater than 205°C (400°F).

(8) For particulate tests, the sampling time for each run shall be at least sixty (60) minutes and the sampling rate shall be at least 0.85 dscm/hr (0.53 dscf/hr) except that shorter sampling times, when necessitated by process variable or other factors, may be approved by the department. Water shall be used as the clean up solvent instead of acetone in the sample recovery procedure outlined in Reference Method 5 or 17.

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 61:030. Existing sufluric acid plants.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides standards of performance for existing sulfuric acid plants.

Section 1. Applicability. The provisions of this regulation shall apply to affected facilities associated with sulfuric acid plants commenced before the classification date defined below.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given them in 401 KAR 50:010. "Classification date" means August 17, 1971.

Section 3. Standard for Sulfuric Acid Mist. No person shall cause, suffer, allow, or permit the following emissions into the open air:

(1) Sulfuric acid mist in the effluent in excess of 0.5C pounds per ton of acid produced, the production being expressed as 100 percent sulfuric acid.

(2) A visible emission which is greater than twenty (20) percent opacity.

Section 4. Standard for Sulfur Dioxide. No person shall cause, suffer, allow, or permit the following emission into the open air: Sulfur dioxide in the effluent in excess of 27.6 pounds per ton of acid produced, the production being expressed as 100 percent sulfuric acid.

Section 5. Test Methods and Procedures. (1) The reference methods as defined in Appendix A of 40 CFR 60, filed by reference in 401 KAR 50:015, except as provided in 401 KAR 50:045, shall be used to determine compliance with the standards prescribed in Sections 3 and 4:

(a) Reference Method 8 for the concentrations of sulfur dioxide and acid mist;

(b) Reference Method 1 for sample and velocity traverses;

(c) Reference Method 2 for velocity and volumetric flow rate; and

(d) Reference Method 3 for gas analysis.

(2) The moisture content can be considered to be zero. For Reference Method 8 the sampling time for each run shall be at least sixty (60) minutes and the minimum sample volume shall be 1.15 dscm (40.6 dscf) except that smaller sampling times or sample volumes, when necessitated by process variables or other factors, may be approved by the department.

(3) Acid production rate, expressed in metric tons per hour of 100 percent sulfuric acid shall be determined during each testing period by suitable methods and shall be confirmed by a material balance over the production system.

(4) Acid mist and sulfur dioxide emissions, expressed in g/metric ton of 100 percent sulfuric acid shall be determined by dividing the emission rate in g/hr by the acid production rate. The emission rate shall be determined by the equation g/hr = (QS)(c), where QS = volumetric flow rate of the effluent in dscm/hr as determined in accordance with subsection 1(c) of this section and c = acid mist and sulfur dioxide concentrations in g/dscm as determined in accordance with subsection (1)(a) of this section.

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 61:035. Existing process gas streams.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of emissions from existing process gas streams.

Section 1. Applicability. The provisions of this regulation shall apply to each affected facility which means any process gas stream which:

(1) Is not elsewhere subject to a standard of performance within this chapter with respect to hydrogen sulfide, sulfur dioxide, or carbon monoxide;

(2) Commenced before the classification date defined below;

(3) Emits hydrogen sulfide or sulfur dioxide and is located in a county classified as Class I or VA with respect to sulfur dioxide;

(4) Emits carbon monoxide generated during the operation of any grey iron cupola, blast furnace, basic oxygen steel furnace, catalyst regeneration of a petroleum cracking system, or other petroleum process.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given them in 401 KAR 50:010 or 401 KAR 50:025.

(1) "Classification date" means the effective date of this regulation.

(2) "Process gas stream" means any gas stream emitted from any process, including, but not limited to, petroleum refineries, by-product coke plants, grey iron cupolas, blast furnace, and basic oxygen steel furnace.

Section 3. Standard for Hydrogen Sulfide. No person shall cause, suffer, allow or permit the emission or combustion of hydrogen sulfide in a process gas stream to exceed ten (10) grains per 100 dscf (165 ppm by volume) at zero percent oxygen.

Section 4. Standard for Sulfur Dioxide. No person shall cause, suffer, allow or permit the emission of sulfur dioxide in a process gas stream to exceed 239 grains per 100 dscf (2,000 ppm by volume) at zero percent oxygen.

Section 5. Standard for Carbon Monoxide. (1) No person shall emit the carbon monoxide gases generated during the operation of any grey iron cupola, blast furnaces, basic oxygen steel furnace or coal conversion plants, unless they are burned at 1,300°F for 0.5 seconds or greater in a direct flame afterburner or equivalent device equipped with an indicating pyrometer which is positioned in the working area at the operator's eye level.

(2) No person shall emit a carbon monoxide waste gas stream from any catalyst regeneration of a petroleum cracking system, petroleum fluid coker, or other petroleum process into the atmosphere, unless the waste gas stream is burned at 1,300°F for 0.5 seconds or greater in a direct flame afterburner or boiler equipped with an indicating pyrometer which is positioned in the working area at the operator's eye level.

Section 6. Test Methods and Procedures. Except as provided in 401 KAR 50:045, performance tests used to demonstrate compliance with Sections 3 and 4 shall be conducted according to the following methods (filed by reference in 401 KAR 50:015):

(1) Reference Method 11 for hydrogen sulfide. The sample shall be drawn from a point near the centroid of the gas line. The minimum sampling time shall be ten (10) minutes and the minimum sample volume 0.01 dscm (0.35 dscf) for each sample. The arithmetic average of two (2) samples shall constitute one (1) run. Samples shall be taken at approximately one (1) hour intervals.

(2) Reference Method 6 for sulfur dioxide. Reference Method 1 shall be used for velocity traverses and Reference Method 2 for determining velocity and volumetric flow rate. The sampling site for determining SO2 concentration by Reference Method 6 shall be the same as for determining the volumetric flow rate by Reference Method 2. The sampling point in the duct for determining SO2 concentration by Reference Method 6 shall be at the centroid of the cross section or at a point no closer to the walls than one (1) m (thirty-nine (39) inches) if the cross sectional area is five (5) square meters or more and the centroid is more than one (1) meter from the wall. The sample shall be extracted at a rate proportional to the gas velocity at the sampling point. The minimum sampling time shall be ten (10) minutes and the minimum sampling volume 0.01 dscm (0.35 dscf) for each sample. The arithmetic average of two (2) samples shall constitute one (1) run. Three (3) runs will constitute compliance test. Samples shall be taken at approximately one (1) hour intervals.

Section 7. Compliance Timetable. Those affected facilities subject to the standards in this regulation shall achieve compliance with those standards within eighteen (18) months of the effective date of this regulation.

(1) Hydrogen sulfide and sulfur dioxide. The provisions of Sections 3 and 4 are applicable upon the effective date of this regulation with respect to affected facilities located in counties classified as Class I with respect to sulfur dioxide. The owner or operator of an affected facility located in a Class VA county with respect to sulfur dioxide shall be required to complete the following:

(a) Submit a final control plan for achieving compliance with Sections 3 and 4 no later than May 1, 1979.

(b) Award the control system contract no later than June 1, 1979.

(c) Initiate on-site construction or installation of emission control equipment no later than May 1, 1980.

(d) On-site construction or installation of emission control equipment shall be completed no later than August 1, 1980.

(e) Final compliance shall be achieved no later than October 1, 1980.

(2) Carbon monoxide. The owner or operator of an affected facility shall be required to complete the following:

(a) Submit a final control plan for achieving compliance with Section 5 no later than May 1, 1979.

(b) Award the control system contract no later than June 1, 1979.

(c) Initiate on-site construction or installation of emission control equipment no later than March 1, 1980.

(d) On-site construction or installation of emission con-

trol equipment shall be completed no later than June 1, 1980.

(e) Final compliance shall be achieved no later than August 1, 1980.

EUGENE F. MOONEY, Secretary
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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 61:040. Existing ethylene producing plants.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides standards of performance for existing ethylene producing plants.

Section 1. Applicability. The provisions of this regulation shall apply to each affected facility which means each waste gas stream of ethylene producing plants commenced before the classification date defined below, and which are located in a region classified as Priorty I with respect to photochemical oxidants (and hydrocarbons).

Section 2. Definitions. As used in this section, all terms not defined herein shall have the meaning given them in 401 KAR 50:010. "Classification date" means April 9, 1972.

Section 3. Standard for Hydrocarbons. No person shall emit into the atmosphere a waste gas stream from any ethylene producing plant unless the waste gas stream is subjected to temperatures of 1,300°F for 0.5 seconds or greater in a direct-flame afterburner or equally effective catalytic vapor incinerator. Either device must be equipped with an indicating pyrometer which is positioned in the working area at the operator's eye level.

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 61:045. Existing oil-effluent water separators.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of emissions from existing oil-effluent water separators.

Section 1. Applicability. The provisions of this regulation shall apply to each affected facility which means each oil-effluent water separator commenced before the classification date defined below which recovers 200 gallons day or more of any petroleum products from any equipment which processes, refines, stores, or handles hydrocarbons with a Reid vapor pressure of 0.5 pounds or greater.

Section 2. Definitions. As used in this regulation all terms not defined herein shall have the meaning given them in 401 KAR 50:010.

(1) "Oil-effluent water separator" means any tank, box, sump, or other container in which any petroleum or product thereof, floating on or entrained or contained in water entering such tank, box, sump, or other container, is physically separated and removed from such water prior to outfall, drainage, or recovery of such water.

(2) "Enclosed container" means a vessel which entirely encloses the contents except for pressure relief vents.

(3) "Floating roof" means a 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, and is equipped with a closure seal or seals to close the space between the roof edge and vessel wall.

(4) "Classification date" means the effective date of this regulation.

(5) "Vapor recovery system" means a vapor gathering system capable of collecting all hydrocarbon vapors and gases discharged from a vessel and a vapor disposal system capable of processing such hydrocarbon vapors and gases so as to prevent their emission to the atmosphere.

(6) "Submerged fill pipe" means any fill pipe the discharge of which is entirely submerged when the liquid level is six (6) inches above the bottom of the vessel; or when applied to a vessel which is loaded from the side, shall mean any fill pipe the discharge opening of which is entirely submerged when the liquid level is two (2) times the fill pipe diameter above the tank.

Section 3. Standard for Hydrocarbons. (1) If the oil-effluent water separator is used exclusively in conjunction with the production of crude oil, as a minimum it shall be an enclosed container equipped with a permanent submerged fill pipe. All gauging and sampling devices shall be gas-tight except when gauging and sampling is taking place.

(2) Any oil-effluent water separator not subject to subsection (1) of this section shall be a vesssel equipped with a floating roof, or a vessel equipped with a vapor recovery system, or their equivalent. All gauging and sampling devices shall be gas tight except when gauging and sampling is taking place.

Section 4. Compliance Timetable. (1) An affected facility located in a Priority I Region for hydrocarbons shall be in compliance on or before the effective date of this regulation.

(2) The owner or operator of an affected facility located in a Priority III Region for hydrocarbon shall be required to complete the following:

(a) Submit a final control plan for achieving compliance

with this regulation no later than May 1, 1979.
(b) Award the control device contract no later than September 1, 1979.
(c) Initiate on-site construction or installations of emissions control equipment no later than March 1, 1980.
(d) On-site construction or installation of emission control equipment shall be completed no later than October 1, 1980.
(e) Final compliance shall be achieved no later than January 1, 1981.

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 61:050. Existing storage vessels for petroleum liquids.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of emissions from existing storage vessels for petroleum liquids.

Section 1. Applicability. The provisions of this regulation shall apply to each affected facility which means each storage vessel for petroleum liquids commenced before the applicable classification date defined below, which has a storage capacity greater than 500 gallons.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given them in 401 KAR 50:010.
(1) "Storage vessel" means any tank, reservoir, or container used for the storage of petroleum liquids, but does not include:
(a) Pressure vessels which are designed to operate in excess of fifteen (15) pounds per square inch gauge without emissions to the atmosphere except under emergency conditions;
(b) Subsurface caverns or porous rock reservoirs; or
(c) 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.
(2) "Petroleum liquids" means crude petroleum, condensate, and any finished or intermediate products manufactured in a petroleum refinery but does not mean Number 2 through Number 6 fuel oils, gas turbine fuel oil Number 2-GT through 4-GT, or diesel fuel oils Number 2-D and 4-D as specified by the department.
(3) "Petroleum refinery" means any facility engaged in producing gasoline, kerosene, distillate fuel oils, residual fuel oils, lubricants, or other products through distillation of petroleum or through redistillation, cracking, or reforming of unfinished petroleum derivatives.
(4) "Crude petroleum" means a naturally occurring mixture which consists of hydrocarbons and/or sulfur, nitrogen and/or oxygen derivatives of hydrocarbons and which is a liquid at standard conditions.
(5) "Hydrocarbon" means any organic compound consisting predominantly of carbon and hydrogen.
(6) "Condensate" means hydrocarbon liquid separated from natural gas which condenses due to changes in the temperature and/or pressure and remains liquid at standard conditions.
(7) "True vapor pressure" means the equilibrium partial pressure exerted by a petroleum liquid as determined in accordance with methods specified by the department.
(8) "Floating roof" means 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 petroleum liquid being contained and is equipped with a closure seal or seals to close the space between the roof edge and tank wall.
(9) "Vapor recovery system" means a vapor gathering system capable of collecting all hydrocarbon vapors and gases discharged from the storage vessel and a vapor disposal system capable of processing such hydrocarbon vapors and gases so as to prevent their emission to the atmosphere.
(10) "Reid vapor pressure" is the absolute vapor pressure of volatile crude oil and volatile non-viscous petroleum liquids, except liquified petroleum gases, as determined by methods specified by the department.
(11) "Submerged fill pipe" means any fill pipe the discharge of which is entirely submerged when the liquid level is six (6) inches above the bottom of the tank; or when applied to a tank which is loaded from the side, shall mean every fill pipe the discharge opening of which is entirely submerged when the liquid level is two (2) times the fill pipe diameter above the bottom of the tank.
(12) "Classification date" means April 9, 1972.

Section 3. Standard for Hydrocarbons. The owner or operator of any storage vessel to which this regulation applies shall store petroleum liquids as follows:
(1) If the storage vessel has a storage capacity greater than 40,000 gallons and if the true vapor pressure of the petroleum liquid, as stored, is equal to or greater than seventy-eight (78) mm Hg (1.5 psia) but not greater than 570 mm Hg (11.1 psia) the storage vessel shall be equipped with a floating roof, a vapor recovery system, or their equivalents.
(2) If the storage vessel has a storage capacity greater than 40,000 gallons and if the true vapor pressure of the petroleum liquid as stored is greater than 570 mm Hg (11.1 psia), the storage vessel shall be equipped with a vapor recovery system or its equivalent.
(3) If the storage vessel has a storage capacity greater than 500 gallons, as a minimum it shall be equipped with a permanent submerged fill pipe.

Section 4. Operating Requirements. (1) There shall be no visible holes, tears, or other openings in the seal or any seal fabric; and
(2) All openings, except stub drains, shall be equipped with covers, lids, or seals such that:
(a) The cover, lid, or seal is in the closed position at all times except when in actual use;
(b) Automatic bleeder vents are closed at all times except when the roof is floated off or landed on the roof leg supports; and

(c) Rim vents, if provided, are set to open when the roof is being floated off the roof leg supports or at the manufacturer's recommended setting.

Section 5. Compliance Timetable. (1) An affected facility located in a Priority I Region for hydrocarbons shall be in compliance on or before the effective date of this regulation.

(2) Except as provided in subsection (3) of this section, the owner or operator of an affected facility located in a Priority III region for hydrocarbons shall be required to complete the following:

(a) Submit a final control plan for achieving compliance with this regulation no later than May 1, 1979.

(b) Award the control device contract no later than September 1, 1979.

(c) Initiate on-site construction or installation of emissions control equipment no later than March 1, 1980.

(d) On-site construction or installation of emission control equipment shall be completed no later than October 1, 1980.

(e) Final compliance shall be achieved no later than January 1, 1981.

(3) An owner or operator of a storage vessel with a storage capacity of greater than 500 gallons but less than or equal to 40,000 gallons which is associated with a bulk gasoline plant regulated by 401 KAR 61:055 shall adhere to the compliance schedule provided therein.

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 61:055. Existing petroleum liquids loading facilities at bulk terminals.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of emissions from existing petroleum liquids loading facilities at bulk terminals.

Section 1. Applicability. The provisions of this regulation shall apply to each affected facility which means loading facilities commenced before the classification date defined below which load more than 20,000 gallons per day of petroleum liquids into tank trucks, trailers, railroad tank cars, or barges.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given them in 401 KR 50:010.

(1) "Classification date" means the effective date of this regulation.

(2) "Petroleum liquids" means crude petroleum, condensate, and any finished or intermediate products manufactured in a petroleum refinery but does not mean Number 2 through Number 6 fuel oils, gas turbine fuel oils, or diesel fuel oils.

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

Section 3. Standard for Hydrocarbons. (1) No owner or operator of any loading facility shall load petroleum liquids unless such facility is equipped with a vapor control system which is in good working order and in operation.

(2) Loading shall be accomplished in such a manner that all displaced vapor and air will be vented only to the vapor collection system. Measures shall be 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.

(3) No owner or operator shall permit the hydrocarbon emissions from the vapor control device to exceed eighty (80) milligrams per liter of petroleum liquids loaded.

(4) No owner or operator shall open tank hatches or allow hatches to be opened at any time during loading operations if bottom-fill is practiced. If top-submerged fill is practiced, the hatch is to be opened the minimum time necessary to install the submerged fill pipe and associated vapor collection equipment.

(5) No owner or operator shall permit there to be any leak in the railroad cars, barges, trailers, tank trucks, pressure relief valves, or associated vapor collection. A leak is defined as a reading of ten (10) percent of the lower explosive limit as propane on the portable hydrocarbon detector (explosimeter) with the probe one (1) centimeter from the source.

(6) No owner or operator shall permit petroleum liquids to be spilled, discarded in sewers, stored in open containers, or handled in any other manner that would result in evaporation.

Section 4. Monitoring and Reporting Requirements. The owner or operator shall conduct such monitoring of operations and submit records as specified by the department.

Section 5. Compliance. (1) The design of the vapor control system is subject to the approval of the department.

(2) Kentucky Method 95, filed by reference in 401 KAR 50:015, shall be used to determine compliance with the standard in Section 3.

Section 6. Compliance Timetable. The owner or operator of an affected facility shall be required to complete the following:

(1) Submit a final control plan for achieving compliance with this regulation no later than May 1, 1979.

(2) Award the control system contract no later than September 1, 1979.

(3) Initiate on-site construction or installation of emission control equipment no later than March 1, 1980.

(4) On-site construction or installation of emission con-

trol equipment shall be completed no later than November 1, 1980.

(5) Final compliance shall be achieved no later than January 1, 1981.

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 61:056. Existing bulk plants.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of hydrocarbon emissions from existing bulk plants.

Section 1. Applicability. The provisions of this regulation shall apply to each affected facility which commenced before the classification date defined below.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given to them in 401 KAR 50:010.

(1) "Affected facility" means a bulk plant.

(2) "Bulk plant" means a petroleum liquids storage and distribution facility with a maximum daily throughput greater than 200 gallons but less than or equal to 20,000 gallons.

(3) "Petroleum liquids" means crude petroleum, condensate, and any finished or intermediate product manfactured in a petroleum refinery but does not mean Number 2 to Number 6 fuel oils, gas turbine fuel oils, or diesel fuel oils.

(4) "Bottom fill system" means a system of filling transport vehicle tanks through an opening that is flush with the bottom of the transport vehicle tank.

(5) "Vapor balance system" means a combination of pipes or hoses which create a closed system between the vapor spaces of an unloading tank and a receiving tank such that vapors displaced from the receiving tank are transferred to the tank being unloaded.

(6) "Submerged fill tube system" means a fill tube the discharge of which is entirely submerged when the liquid level is six (6) inches above the bottom of the transport vehicle tank.

(7) "Classification date" means the effective date of this regulation.

(8) "Transport vehicle" means tank trucks, trailers, railroad tank cars, or barges.

Section 3. Standard for Hydrocarbons. (1) The owner or operator of an affected facility shall install, maintain, and operate:

(a) Stationary storage tank control devices according to the provisions of 401 KAR 59:050 and/or 401 KAR 61:050.

(b) A vapor balance system for:

1. Filling of stationary storage tanks from transport vehicle tanks; and

2. Filling of transport vehicle tanks from stationary storage tanks.

(c) For loading into transport vehicle tanks either:

1. A submerged fill tube system; or

2. A bottom fill system.

(2) The vapor balance system shall be equipped with fittings which are vapor tight and will automatically close upon disconnection so as to prevent the release of organic material.

(3) The cross-sectional area of the vapor return hose must be at least fifty (50) percent of the cross-sectional area of the liquid fill line and free of flow restrictions.

(4) The vapor balance system must be equipped with interlocking devices which prevent transfer of petroleum liquids until the vapor return hose is connected.

(5) Transport vehicle tank hatches shall be closed at all times during loading operations.

(6) There shall be no leaks from the pressure/vacuum relief valves and hatch covers of the stationary storage tanks or transport vehicle tanks during loading.

(7) The pressure relief valves on storage vessels and tank trucks or trailers shall be set to release at no less than 0.7 psig unless a lower setting is required by applicable fire codes.

(8) The owner or operator shall not load petroleum liquids into any transport vehicle or receive petroleum liquids from any transport vehicle which does not have proper fittings for connection of the vapor balance system, nor shall the owner or operator load or receive petroleum liquids unless the vapor balance system is properly connected and in good working order. Except as provided in subsection (9) of this section the fittings on the transport vehicle tanks must be vapor tight and automatically close upon disconnection so as to prevent the release of organic material.

(9) The following shall apply to the loading of a transport vehicle tank by means of a submerged fill tube system:

(a) When inserted into the tank, the submerged fill tube system must form a vapor tight seal with the tank.

(b) Tank hatches are to be opened only for the minimum time necessary to insert the submerged fill tube system.

(10) No owner or operator shall permit petroleum liquids to be spilled, discarded in sewers, stored in open containers, or handled in any other manner that would result in evaporation.

Section 4. The owner or operator may elect to use an alternate control system if it can be demonstrated to the department's satisfaction that the alternate system will achieve equivalent control efficiency.

Section 5. Compliance Timetable. (1) The owner or operator of an affected facility located in Boone, Boyd, Campbell, Daviess, Fayette, Henderson, Jefferson, Kenton or McCracken County shall be required to complete the following:

(a) Submit a final control plan for achieving compliance with this regulation no later than May 1, 1979.

(b) Award the control system contract no later than September 1, 1979.

(c) Initiate on-site construction or installation of emission control equipment no later than March 1, 1980.

(d) On site construction or installation of emission control equipment shall be completed no later than November 1, 1980.

(e) Final compliance shall be achieved no later than January 1, 1981.

(2) The owner or operator of an affected facility located in a county not specified under subsection (1) of this section shall be required to complete the following:

(a) Submit a final control plan for achieving compliance with this regulation no later than May 1, 1981.

(b) Award the control system contract no later than September 1, 1981.

(c) Initiate on-site construction or installation of emission control equipment no later than March 1, 1982.

(d) On site construction or installation of emission control equipment shall be completed no later than November 1, 1982.

(e) Final compliance shall be achieved no later than January 1, 1983.

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 61:060. Existing sources using organic solvents.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of emissions from existing sources using any organic solvents.

Section 1. Applicability. (1) The provisions of this regulation shall apply to any affected facility:

(a) Located in a Priority I Region for photochemical oxidants which commenced before the classification date defined below;

(b) Located in a Priority III Region for photochemical oxidants which commenced before the classification date defined below but on or after April 9, 1972.

(2) The provisions of this regulation shall not apply to:

(a) The manufacture of organic solvents or the transport, loading, or storage of organic solvents or materials containing organic solvents;

(b) The spraying or other employment of insecticides, pesticides, or herbicides;

(c) The employment, application, evaporation or drying of saturated halogenated hydrocarbons or perchlorethylene;

(d) The use of any material in any affected facility described in subsection (1) of this section if the volatile content consists of non-photochemically reactive solvent comprising not more than thirty (30) percent by volume of the material as applied;

(e) The use of any material in any affected facility described in subsection (1) of this section if the volatile content consists only of water and non-photochemically reactive solvent and the solvent comprises not more th twenty (20) percent of said volatile content by volume a applied;

(f) The use of equipment for which other requirements are specified by regulations of the Division of Air Pollution or which are exempt from air pollution control requirements.

(g) The emergency release of organic material due to overpressurization provided that the vents are equipped with self-closing pressure relief valves or equivalent devices. Rupture discs are not acceptable as pressure relief valves.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given them in 401 KAR 50:010.

(1) "Affected facility" means any article, machine, equipment, or other contrivance used for employing or applying any organic solvent, or any material containing organic solvent, which is baked, heat-cured, or heat polymerized in the presence of oxygen regardless of the photochemical reactivity of the organic solvents;

(2) "Organic materials" means chemical compounds of carbon excluding methane, ethane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides, and ammonium carbonate;

(3) "Organic solvents" means organic materials which are liquids at standard conditions and which are used as dissolvers, viscosity reducers, cleaning agents, diluents, or thinners, except that such materials which exhibit a boiling point higher than 220 degrees Fahrenheit at 0.5 millimeter mercury absolute pressure or having an equivalent vapo pressure shall not be considered to be solvents unless exposed to temperatures exceeding 200 degrees Fahrenheit;

(4) "Photochemically reactive solvent" means any solvent with an aggregate of more than twenty (20) percent of its total volume composed of the chemical compounds classified below or which exceeds any of the following individual percentage composition limitations, referred to the total volume of solvent;

(a) A combination of hydrocarbons, alcohols, aldehydes, esters, ethers, or ketones having an olefinic or cyclo-olefinic type of unsaturation; five (5) percent;

(b) A combination of aromatic compounds with eight (8) or more carbon atoms to the molecule except ethylbenzene, eight (8) percent;

(c) A combination of ethylbenzene, ketones having branched hydrocarbon structures, trichloroethylene or toluene; twenty (20) percent;

(d) When any organic solvent or any constituent of an organic solvent may be classified by its chemical structure into more than one (1) of the above groups of organic compounds it shall be considered as a member of the most reactive chemical group, that is, that group having the least allowable percent of the total volume of solvents.

(5) "Classification date" means the effective date of this regulation.

Section 3. Standard for Organic Material. No person shall discharge into the open air, from any affected facility using organic solvents more than forty (40) pounds organic material in any one (1) day, nor eight (8) pounds any one (1) hour unless said emissions have been reduced by at least eighty-five (85) percent by weight.

(2) Those portions of any series of affected facilities designed for processing a continuous web, strip or wire which emit organic materials shall be taken collectively to determine compliance with this section. Emissions of organic materials resulting from air or heated drying of products for the first twelve (12) hours after their removal from an affected facility shall be included in determining compliance with this section. Further, emissions of organic material to the atmosphere from the clean-up with an organic solvent of any affected facility shall be included with other emissions of organic materials from that affected facility for determining compliance with this regulation.

(3) Emissions of organic materials into the atmosphere required to be controlled by subsections (1) and (2) of this section shall be reduced by:

(a) Incineration, provided that ninety (90) percent or more of the carbon in the organic material discharged from an affected facility is oxidized to carbon dioxide; or

(b) Adsorption; or

(c) Modifying processing procedures, equipment and/or materials in such a manner so as to achieve no less than the degree of control of organic solvents required. The implementation of such modifications in lieu of compliance with subsections (1) and (2) of this section shall require the express prior approval of the department.

(4) A person incinerating, adsorbing, or otherwise processing organic materials pursuant to this section shall provide, properly install and maintain in calibration, in good working order and in operation, devices as specified in the permit to construct or the permit to operate, or as specified by the department, for indicating temperatures, pressures, rates of flow or other operating conditions necessary to determine the degree and effectiveness of air pollution control.

(5) Any person using organic solvents or any material containing organic solvents shall supply the department, upon request and in the manner and form prescribed, written evidence of the chemical composition, physical properties and amount consumed for each organic solvent used.

Section 4. Compliance. (1) In all cases the design of any control system is subject to approval by the department.

(2) Compliance with the standard in Section 3 shall be demonstrated by a material balance except in those cases where the department determines that a material balance is not possible. For those cases where a material balance is not possible, compliance will be determined based upon an engineering analysis by the department of: the control system design, control device efficiency, control system capture efficiency and any other factors that could influence the performance of the system. If so requested by the department, performance tests as specified by the department shall be conducted in order to determine the efficiency of the control device.

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 61:065. Existing nitric acid plants.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of emissions from existing nitric acid plants.

Section 1. Appliciability. The provisions of this regulation shall apply to each affected facility which means each nitric acid production unit commenced before the classification date defined below.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given them in 401 KAR 50:010.

(1) "Nitric acid production unit" means any facility producing weak nitric acid by either the pressure or atmospheric pressure process.

(2) "Weak acid production unit" means acid which is thirty (30) to seventy (70) percent by weight in strength.

(3) "Classification date" means August 17, 1971.

Section 3. Standard for Nitrogen Oxides. On and after the date on which the performance test required to be conducted by 401 KAR 61:005, Section 2, is completed, no owner or operator subject to the provisions of this regulation shall cause to be discharged into the atmosphere from any affected facility any gases which:

(1) Contain nitrogen oxides, expressed as nitrogen dioxide, in excess of 2.9 kg per metric ton of acid produced (5.8 lb. per ton), the production being expressed as 100 percent nitric acid.

(2) Exhibit ten (10) percent opacity, or greater.

Section 4. Test Methods and Procedures. (1) The reference methods as defined in Appendix A of 40 CFR 60, filed by reference in 401 KAR 50:015, except as provided for in 401 KAR 50:045, shall be used to determine compliance with the standard prescribed in Section 3 as follows:

(a) Reference Method 7 for the concentration of nitrogen oxides;

(b) Reference Method 1 for sample and velocity traverse;

(c) Reference Method 2 for velocity and volumetric flow rate; and

(d) Reference Method 3 for gas analysis.

(2) The sampling point shall be the center of the stack or duct at a point no closer to the walls than one (1) meter (3.28 feet). Each run shall consist of at least four (4) grab samples taken at approximately fifteen (15) minute intervals. The arithmetic mean of the samples shall constitute the run value. A velocity traverse shall be performed once per run.

(3) Acid production rate, expressed in metric tons per hour of 100 percent nitric acid, shall be determined during each testing period by suitable methods and shall be confirmed by a material balance over the production system.

(4) For each run, nitrogen oxides, expressed in g/metric

ton of 100 percent nitric acid, shall be determined by dividing the emission rate in g/hour by the acid production rate. The emission rate shall be determined by the equation:

$$g/hr = (Qx)(c)$$

where:
Qx = volumetric flow rate of the effluent in dscm/hr, and
c = nitrogen oxides concentration in g/dscm.

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
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401 KAR 61:070. Existing ferroalloy production facilities.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of emissions from existing ferroalloy production facilities.

Section 1. Applicability. The provisions of this regulation are applicable to the following affected facilities commenced before the classification date defined below: electric submerged arc furnaces which produce silicon metal, ferrosilicon, calcium silicon, silicomanganese zirconium, ferrochrome silicon, silvery iron, high-carbon ferrochrome, charge chrome, standard ferromanganese, silicomanganese, ferromanganese silicon, or calcium carbide; and dust-handling equipment.

Section 2. Definitions. As used in this regulation all terms not defined herein shall have the meaning given them in 401 KAR 50:010.

(1) "Electric submerged arc furnace" means any furnace wherein electrical energy is converted to heat energy by transmission of current between electrodes partially submerged in the furnace charge.

(2) "Furnace charge" means any material introduced into the electric submerged arc furnace and may consist of, but is not limited to, ores, slag, carbonaceous material, and limestone.

(3) "Product change" means any change in the composition of the furnace charge that would cause the electric submerged arc furnace to become subject to a different mass standard applicable under Section 3.

(4) "Slag" means the more or less completely fused and vitrified matter separated during the reduction of metal from its ore.

(5) "Tapping" means the removal of slag or product from the electric submerged arc furnace under normal operating conditions such as removal of metal under normal pressure and movement by gravity down the spout into the ladle.

(6) "Tapping period" means the time duration from initiation of the process of opening the tap hole until plugging of the tap hole is complete.

(7) "Furnace cycle" means the time period from completion of a furnace product tap to the completion of the next consecutive product tap.

(8) "Tapping station" means that general area where molten product or slag is removed from the electric submerged arc furnace.

(9) "Blowing tap" means any tap in which an evolution of gas forces or projects jets of flame or metal sparks beyond the ladle, runner or collection hood.

(10) "Furnace power input" means the resistive electrical power consumption of an electric submerged arc furnace as measured in kilowatts.

(11) "Dust-handling equipment" means any equipment used to handle particulate matter collected by the air pollution control device (and located at or near such device) serving any electric submerged arc furnace subject to this regulation.

(12) "Control device" means the air pollution control equipment used to remove particulate matter generated by an electric submerged arc furnace from an effluent gas stream.

(13) "Capture system" means the equipment (including hoods, ducts, fans, dampers, etc.) used to capture or transport particulate matter generated by an effected electric submerged arc furnace to the control device.

(14) "Standard ferromanganese" means that alloy as defined by A.S.T. M. designation A-99-66(71). (A.S.T.M. designations are filed by reference in 401 KAR 50:015.)

(15) "Silicomanganese" means that alloy as defined by A.S.T.M. designation A-483-64(74).

(16) "Calcium carbide" means material containing seventy (70) to eighty-five (85) percent calcium carbide by weight.

(17) "High-carbon ferrochrome" means that alloy as defined by A.S.T.M. designation A-101-73 grades HC1 through HC6.

(18) "Charge chrome" means that alloy containing fifty-two (52) to seventy (70) percent by weight chromium, five (5) to eight (8) percent by weight carbon, and three (3) to six (6) percent by weight silicon.

(19) "Silvery iron" means any ferrosilicon, as defined by A.S.T.M. designation A-100-69(74), which contains less than thirty (30) percent silicon.

(20) Ferrochrome silicon" means that alloy as defined by A.S.T.M. designation A-482-66(71).

(21) "Silicomanganese zirconium" means that alloy containing sixty (60) to sixty-five (65) percent by weight silicon, 1.5 to 2.5 percent by weight calcium, five (5) to seven (7) percent by weight zirconium, 0.75 to 1.25 percent by weight aluminum, five (5) to seven (7) percent by weight manganese, and two (2) to three (3) percent by weight barium.

(22) "Calcium silicon" means that alloy as defined by A.S.T.M. designation A-495-64(70).

(23) "Ferrosilicon" means that alloy as defined by A.S.T.M. designation A-100-69(74) grades A, B, C, D, and E which contains fifty (50) or more percent by weight silicon.

(24) "Silicon metal" means any silicon alloy containing more than ninety-six (96) percent silicon by weight.

(25) "Ferromanganese silicon" means that alloy containing sixty-three (63) to sixty-six (66) percent by weight manganese, twenty-eight (28) to thirty-two (32) percent by

weight silicon, and a maximum of 0.08 percent by weight carbon.

(26) "Classification date" means October 21, 1974.

(27) "Concentrated discharge" means that the outlet from a control device consists of either stacks (one (1) or more) or openings on the device's top or side which has (have) a total area less than five (5) percent of the corresponding top or side and which has (have) a length of not more than twice the width.

(28) "Dispersed discharge" means that the outlet from a control device consists of opening(s) on the device's top or side which has (have) a total area exceeding five (5) percent of the corresponding top or side or which has (have) a length more than twice the width. A control device may have both dispersed and concentrated discharges.

Section 3. Standard for Particulate Matter. (1) On and after the date on which the performance test required to be conducted by 401 KAR 61:005 is completed, no owner or operator subject to the provisions of this regulation shall cause to be discharged into the atmosphere from any electric submerged arc furnace any gases which:

(a) Exit from a control device and contain particulate matter in excess of 0.90 kg/MW-hr (1.98 lb/MW-hr) while silicon metal, ferrosilicon, calcium silicon, or silicomanganese zirconium is being produced.

(b) Exit from a control device and contain particulate matter in excess of 0.46 kg/MW-hr (1.02 lb/MW-hr) while high-carbon ferrochrome, charge chrome, standard ferromanganese, silicomanganese, calcium carbide, ferrochrome silicon, ferromanganese silicon, or silvery iron is being produced.

(c) Exit from a control device and exhibit an opacity equal to or greater than:

1. Three (3) percent where control device has dispersed discharge.

2. Twenty (20) percent where control device has concentrated discharge.

(d) Exit from an electric submerged arc furnace and escape the capture system and are visible without the aid of instruments. The requirements under this paragraph apply only during periods when flow rates are being established under Section 5(4).

(e) Escape the capture system at the tapping station and are visible without the aid of instruments for more than forty (40) percent of each tapping period. There are no limitations on visible emissions under this paragraph when a blowing tap occurs. The requirements under this paragraph apply only during periods when flow rates are being established under Section 5(4).

(2) On and after the date on which the performance test required to be conducted by 401 KAR 61:005 is completed, no owner or operator subject to the provisions of this regulation shall cause to be discharged into the atmosphere from any dust-handling equipment any gases which exhibit ten (10) percent opacity or greater.

(3) The owner or operator subject to the provisions of this regulation shall submit a written report of any product change to the department. Reports of product changes must be postmarked not later than thirty (30) days after implementation of the product change.

Section 4. Standard for Carbon Monoxide. On and after the date on which the performance test required to be conducted by 401 KAR 61:005 is completed, no owner or operator subject to the provisions of this regulation shall cause to be discharged into the atmosphere from any electric submerged arc furnace any gases which contain, on a dry basis, twenty (20) or greater percent by volume of carbon monoxide. Combustion of such gases under conditions acceptable to the department constitutes compliance with this section. Acceptable conditions include, but are not limited to, flaring of gases or use of gases as fuel for other processes.

Section 5. Monitoring of Operations. (1) The owner or operator of any electric submerged arc furnace subject to the provisions of this regulation shall maintain daily records of the following information:

(a) Product being produced.

(b) Description of constitutents of furnace charge, including the quantity, by weight.

(c) Time and duration of each tapping period and the identification of material tapped (slag or product).

(d) All furnace power input data obtained under Section 1(2).

(e) All flow rate data obtained under Section 1(3) or all fan motor power consumption and pressure drop data obtained under Section 1(5).

(2) The owner or operator subject to the provisions of this regulation shall install, calibrate, maintain and operate a device to measure and continuously record the furnace power input. The furnace power input may be measured at the output or input side of the transformer. The device must have an accuracy of plus or minus five (5) percent over its operating range.

(3) The owner or operator subject to the provisions of this regulation shall install, calibrate, and maintain a monitoring device that continuously measures and records the volumetric flow rate through each separately ducted hood of the capture system, except as provided under subsection (5) of this section. The owner or operator of an electric submerged arc furnace that is equipped with a water cooled cover which is designed to contain and prevent escape of the generated gas and particulate matter shall monitor only the volumetric flow rate through the capture system for control of emissions from the tapping station. The owner or operator may install the monitoring device(s) in any appropriate location in the exhaust duct such that reproducible flow rate monitoring will result. The flow rate monitoring device must have an accuracy of plus or minus ten (10) percent over its normal operating range and must be calibrated according to the manufacturer's instructions. The department may require the owner or operator to demonstrate the accuracy of the monitoring device relative to Reference Methods 1 and 2 of Appendix A to 40 CFR 60, (filed by reference in 401 KAR 50:015).

(4) When performance tests are conducted under the provisions of 401 KAR 61:005 to demonstrate compliance with the standards under Section 3(1)(d) and (e), the volumetric flow rate through each separately ducted hood of the capture system must be determined using the monitoring device required under subsection (3) of this section. The volumetric flow rates must be determined for furnace power input levels at fifty (50) and 100 percent of the nominal rated capacity of the electric submerged arc furnace. At all times the electric submerged arc furnace is operated, the owner or operator shall maintain the volumetric flow rate at or above the appropriate levels for that furnace power input level determined during the most recent performance test. If emissions due to tapping are captured and ducted separately from emissions of the electric submerged arc furnace, during each tapping period the owner or operator shall maintain the exhaust flow rates through the capture system over the tapping station at or

above the levels established during the most recent performance test. Operation at lower flow rates may be considered by the department to be unacceptable operation and maintenance of the affected facility. The owner or operator may request that these flow rates be re-established by conducting new performance tests under 401 KAR 61:005.

(5) The owner or operator may, as an alternative to subsection (3) of this section, determine the volumetric flow rate through each fan of the capture system from the fan power consumption, pressure drop across the fan and the fan performance curve. Only data specific to the operation of the affected electric submerged arc furnace are acceptable for demonstration of compliance with the requirements of this subsection. The owner or operator shall maintain on file a permanent record of the fan performance curve (prepared for a specific temperature) and shall:

(a) Install, calibrate, maintain, and operate a device to continuously measure and record the power consumption of the fan motor (measured in kilowatts); and

(b) Install, calibrate, maintain and operate a device to continuously measure and record the pressure drop across the fan. The fan power consumption and pressure drop measurements must be synchronized to allow real time comparisons of the data. The monitoring devices must have an accuracy of plus or minus five (5) percent over their normal operating ranges.

(6) The volumetric flow rate through each fan of the capture system must be determined from the fan power consumption, fan pressure drop, and fan performance curve specified under subsection (5) of this section, during any performance test required under 401 KAR 61:005 to demonstrate compliance with the standards under Section 3(1)(d) and (e). The owner or operator shall determine the volumetric flow rate at a representative temperature for furnace power input levels of fifty (50) and 100 percent of the nominal rated capacity of the electric submerged arc furnace. At all times the electric submerged arc furnace is operated, the owner or operator shall maintain the fan power consumption and fan pressure drop at levels such that the volumetric flow rate is at or above the levels established during the most recent performance test for that furnace power input level. If emissions due to tapping are captured and ducted separately from the emissions of the electric submerged arc furnace, during each tapping period the owner or operator shall maintain the fan power consumption and fan pressure drop at levels such that the volumetric flow rate is at or above the levels established during the most recent performance test. Operation at lower flow rates may be considered by the department to be unacceptable operation and maintenance of the affected facility. The owner or operator may request that these flow rates be re-established by conducting new performance tests under 401 KAR 61:005. The department may require the owner or operator to verify the fan performance curve by monitoring necessary fan operating parameters and determining the gas volume moved relative to Reference Methods 1 and 2 of Appendix A to 40 CFR 60.

(7) All monitoring devices required under subsections (3) and (5) of this section are to be checked for calibration annually in accordance with the procedures under the manufacturer's written requirements or recommendations for checking the operation or calibration of the device.

Section 6. Test Methods and Procedures. (1) The reference methods in Appendix A of 40 CFR 60, except as provided in 401 KAR 50:045, shall be used to determine compliance with the standards prescribed in Sections 3 and 4 as follows:

(a) Reference Method 5 for the concentration of particulate matter and the associated moisture content except that the heating systems specified in paragraphs 2.1.2 and 2.1.4 of Reference Method 5 are not to be used when the carbon monoxide content of the gas stream exceeds ten (10) percent by volume, dry basis;

(b) Reference Method 1 for sample and velocity traverses;

(c) Reference Method 2 for velocity and volumetric flow rate;

(d) Reference Method 3 for gas analysis, including carbon monoxide; and

(e) Reference Method 9 for opacity determination.

(2) For Reference Method 5, the sampling time for each run is to include an integral number of furnace cycles. The sampling time for each run must be at least sixty (60) minutes and the minimum sample volume must be 1.8 dscm (sixty-four (64) dscf) when sampling emissions from open electric submerged arc furnaces with wet scrubber control devices, sealed electric submerged arc furnaces, or semi-enclosed electric submerged arc furnaces. When sampling emissions from other types of installations, the sampling time for each run must be at least 200 minutes and the minimum sample volume must be 5.7 dscm (200 dscf). Shorter sampling times or smaller sampling volumes, when necessitated by process variables or other factors, may be approved by the department.

(3) During the performance test, the owner or operator shall record the maximum open hood area (in hoods with segmented or otherwise moveable sides) under which the process is expected to be operated and remain in compliance with all standards. Any future operation of the hooding system with open areas in excess of the maximum is not permitted.

(4) The control device shall be designed so that volumetric flow rate and particulate matter emissions can be determined accurately by applicable test methods and procedures.

(5) During any performance test required under 401 KAR 61:005, the owner or operator shall not allow gaseous diluents to be added to the effluent gas stream after the fabric in an open pressurized fabric filter collector unless the total gas volume flow from the collector is accurately determined and considered in the determination of emissions.

(6) When compliance with Section 4 is to be attained by combusting the gas stream in a flare, the location of the sampling site for particulate matter is to be upstream of the flare.

(7) For each run, particulate matter emissions, expressed in kg/hr (lb/hr), must be determined for each exhaust stream at which emissions are quantified using the equation given in Appendix A to this regulation.

(8) For Reference Method 5, particulate matter emissions from the affected facility, expressed in kg/MW-hr (lb/MW-hr) must be determined for each run using the equation given in Appendix B to this regulation.

APPENDIX A TO 401 KAR 61:070
DETERMINATION OF PARTICULATE MATTER EMISSIONS

$$En = C_s Q_s$$

Where:
En = Emissions of particulate matter in kg/hr (lb/hr).
C_s = Concentration of particulate matter in kg/dscm (lb/dscf) as determined by Reference Method 5.
Q_s = Volumetric flow rate of the effluent gas stream in dscm/hr (dscf/hr) as determined by Reference Method 2.

APPENDIX B TO 401 KAR 61:070
DETERMINATION OF PARTICULATE MATTER EMISSIONS FOR METHOD 5

$$E = \frac{\sum_{n=1}^{N} En}{P}$$

Where:
E = Emissions of particulate from the affected facility in kg/MW-hr (lb/MW-hr).
N = Total number of exhaust streams at which emissions are quantified.
E_n = Emission of particulate matter from each exhaust stream (n) in kg/hr (lb/hr), as determined in Section 6(7).
P = Average furnace power input during the sampling period, in megawatts as determined according to Section 6(2).

EUGENE F. MOONEY, Secretary
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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 61:075. Steel plants and foundries using existing electric arc furnaces.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of emissions from steel plants or foundries using existing electric arc furnaces.

Section 1. Applicability. The provisions of this regulation apply to the following affected facilities in steel plants and foundries commenced before the classification date defined below: electric arc furnaces and/or associated metallurgical equipment located in the same shop as well as associated dust handling equipment.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given them in 401 KAR 50:010.

(1) "Electric arc furnace (EAF)" means any furnace that produces molten steel and heats the charge materials with electric arcs from carbon electrodes. Furnaces from which the molten steel is cast into the shape of finished products, such as in a foundry, are affected facilities included within the scope of this definition. Furnaces which, as the primary source of iron, continuously feed prereduced ore pellets are not affected facilities within the scope of this definition.

(2) "Dust-handing equipment" means any equipment used to handle particulate matter collected by the control device and located at or near the control device for an EAF subject to this regulation.

(3) "Control device" means the air pollution control equipment used to remove particulate matter generated by an EAF(s) from the effluent gas stream.

(4) "Capture system" means the equipment (including ducts, hoods, fans, dampers, etc.) used to capture or transport particulate matter generated by an EAF and associated metallurgical equipment to the air pollution control device.

(5) "Associated metallurgical equipment" in the shop includes but is not limited to scrap pre-heaters and degreasers, and equipment for hot metal transfer, charging, lancing, boiling, slagging and de-slagging, tapping, innoculating, teeming, hot-topping, vacuum de-gassing, continuous casting, etc.

(6) "Charge" means the addition of iron and steel scrap or other materials into the top of an electric arc furnace.

(7) "Charging period" means the time period commencing at the moment an EAF starts to open and ending either three (3) minutes after the EAF roof is returned to its closed position or six (6) minutes after commencement of opening of the roof, whichever is longer.

(8) "Tap" means the pouring of molten steel from an EAF.

(9) "Tapping period" means the time period commencing at the moment an EAF begins to tilt to pour and ending either three (3) minutes after an EAF returns to an upright position or six (6) minutes after commencing to tilt, whichever is longer.

(10) "Meltdown and refining" means that phase of the steel production cycle when charge material is melted and undesirable elements are removed from the metal.

(11) "Meltdown and refining period" means the time period commencing at the termination of the initial charging period and ending at the initiation of the tapping period, excluding any intermediate charging periods.

(12) "Shop opacity" means the arithmetic average of twenty-four (24) or more opacity observations of emissions from the shop taken in accordance with Reference Method 9 of Appendix A of 40 CFR 60, filed by reference in 401 KAR 50:015, for the applicable time periods.

(13) "Heat time" means the period commencing when scrap is charged to an empty EAF and terminating when the EAF tap is completed.

(14) "Shop" means the building which houses one (1) or more EAF.

(15) "Direct shell evacuation system" means any system that maintains a negative pressure within the EAF above the slag or metal and ducts the emissions to the control device.

(16) "Concentrated discharge" means that the outlet from a control device consists of either stacks (one (1) or

more) or openings on the device's top or side which has (have) a total area less than five (5) percent of the corresponding top or side and which has (have) a length of not more than twice the width.

(17) "Dispersed discharge" means that the outlet from a control device consists of opening(s) on the device's top or side which has (have) a total area exceeding five (5) percent of the corresponding top or side or which have a length more than twice the width.

(18) "Classification date" means October 21, 1974.

Section 3. Standard for Particulate Matter. (1) On and after the date on which the performance test required to be conducted by 401 KAR 61:005 is completed, no owner or operator subject to the provisions of this regulation shall cause to be discharged into the atmosphere from an electric arc furnace and associated metallurgical equipment any gases which:

(a) Exit from a control device and contain particulate matter in excess of 0.010 grains/dscf (twenty-three (23) mg/dscm);

(b) Exit from a control device and exhibit opacity in excess of:

1. Ten (10) percent for a control device with a concentrated discharge.

2. Three (3) percent for a control device with a dispersed discharge.

(c) Exit directly from a shop and exhibit an opacity greater than ten (10) percent except:

1. Shop opacity less than thirty (30) percent may occur which is caused by an EAF during its charging period.

2. Shop opacity less than thirty (30) percent may occur which is produced by an EAF during its tapping period.

3. Where the capture system is operated such that the roof of the shop is closed during the charge and the tap, and emissions to the atmosphere are prevented until the roof is opened after completion of the charge or tap, the shop opacity standards under this paragraph shall apply when the roof is opened and shall continue to apply for the length of time defined by the charging and/or tapping periods.

(2) On and after the date on which the performance test required to be conducted by 401 KAR 61:005 is completed, no owner or operator subject to the provisions of this regulation shall cause to be discharged into the atmosphere from dust-handling equipment any gases which exhibit ten (10) percent opacity or greater.

Section 4. Monitoring of Operations. (1) The owner or operator subject to the provisions of this regulation shall maintain records daily of the following information:

(a) Time and duration of each charge;

(b) Time and duration of each tap;

(c) All flow rate data obtained under subsection (2) of this section or equivalent obtained under subsection (4) of this section; and

(d) All pressure data obtained under subsection (5) of this section.

(2) Except as provided under subsection (4) of this section, the owner or operator subject to the provisions of this regulation shall install, calibrate, and maintain a monitoring device that continuously records the volumetric flow rate through each separately ducted hood. The monitoring device(s) may be installed in any appropriate location in the exhaust duct such that reproducible flow rate monitoring will result. The flow rate monitoring device(s) shall have an accuracy of plus or minus ten (10) percent over its normal operating range and shall be calibrated according to the manufacturer's instructions. The department may require the owner or operator to demonstrate the accuracy of the monitoring device(s) relative to Reference Methods 1 and 2 of Appendix A of 40 CFR 60.

(3) When the owner or operator of an EAF is required to demonstrate compliance with the standard under Section 3(1)(c), and at any other time the department may require; the volumetric flow rate through each separately ducted hood shall be determined during all periods in which the hood is operated for the purpose of capturing emissions from the EAF using the monitoring device under subsection (2) of this section. The owner or operator may petition the department for re-establishment of these flow rates whenever the owner or operator can demonstrate to the department's satisfaction that the EAF operating conditions upon which the flow rates were previously established are no longer applicable. The flow rates determined during the most recent demonstration of compliance shall be maintained (or may be exceeded) at the appropriate level for each applicable period. Operation at lower flow rates may be considered by the department to be unacceptable operation and maintenance of the affected facility.

(4) The owner or operator may petition the department to approve any alternative method that will provide a continuous record of operation of each emission capture system.

(5) Where emissions during any phase of the heat time are controlled by use of a direct shell evacuation system, the owner or operator shall install, calibrate and maintain a monitoring device that continuously records the pressure in the free space inside the EAF. The pressure shall be recorded as fifteen (15) minute integrated averages. The monitoring device may be installed in any appropriate location in the EAF such that reproducible results will be obtained. The pressure monitoring device shall have an accuracy of plus or minus five (5) mm of water gauge over its normal operating range and shall be calibrated according to the manufacturer's instructions.

(6) When the owner or operator of an EAF is required to demonstrate compliance with the standard under Section 3(1)(c) and at any other time the department may require, the pressure in the free space inside the furnace shall be determined during the meltdown and refining period(s) using the monitoring device under subsection (5) of this section. The owner or operator may petition the department for re-establishment of the fifteen (15) minute integrated average pressure whenever the owner or operator can demonstrate to the department's satisfaction that the EAF operating conditions upon which the pressures were previously established are no longer applicable. The pressure determined during the most recent demonstration of compliance shall be maintained at all times the EAF is operating in a meltdown and refining period. Operation at higher pressures may be considered by the department to be unacceptable operation and maintenance of the affected facility.

(7) Where the capture system is designed and operated such that all emissions are captured and ducted to a control device, the owner or operator shall not be subject to the requirements of this section.

(8) Where each EAF in a shop has an actual tapping capacity of less than ten (10) tons, the owner or operator shall not be subject to the requirements of this section.

Section 5. Test Methods and Procedures. (1) Reference methods in Appendix A of 40 CFR 60, except as provided under 401 KAR 50:045, shall be used to determine compliance with this regulation as follows:

(a) Reference Method 5 for concentration of particulate matter and associated moisture content;
(b) Reference Method 1 for sample and velocity traverses;
(c) Reference Method 2 for velocity and volumetric flow rate;
(d) Reference Method 3 for gas analysis; and
(e) Reference Method 9 for opacity determination.
(2) For Reference Method 5, the sampling time for each run shall be at least four (4) hours. When a single EAF is sampled, the sampling time for each run shall also include an integral number of heats. Shorter sampling times, when necessitated by process variables or other factors, may be approved by the department. The minimum sample volume shall be 4.5 dscm (160 dscf).
(3) For the purpose of this section, the owner or operator shall conduct the demonstration of compliance with Section 3(1)(c) and furnish the department a written report of the results of the test.
(4) During any performance test required under 401 KAR 61:005 no gaseous diluents may be added to the effluent gas stream after the fabric in any pressurized fabric filter collector, unless the amount of dilution is separately determined and considered in the determination of emissions.
(5) When more than one (1) control device serves the EAF(s) being tested, the concentration of particulate matter shall be determined using the equation in Appendix A to this regulation.
(6) Any control device subject to the provisions of this regulation shall be designed and constructed to allow measurement of volumetric flow rate and emissions using applicable test methods and procedures.
(7) Where emissions from any EAF(s) are combined with emissions from other affected facilities in the same shop and controlled by a common capture system and control device, the owner or operator may use any of the following procedures during a performance test:
(a) Base compliance on control of the combined emissions;
(b) Utilize a method acceptable to the department which compensates for the emissions from the other affected facilities; and
(c) Any combination of the criteria of paragraphs (a) and (b) of this subsection.

APPENDIX A TO 401 KAR 61:075
EQUATION FOR CONCENTRATION
OF PARTICULATE MATTER
FOR MORE THAN ONE CONTROL DEVICE

$$C_s = \frac{\sum_{n=1}^{N} (C_s Q_s)_n}{\sum_{n=1}^{N} (Q_s)_n}$$

Where:
Cs = concentration of particulate matter in mg/dscm (gr/dscf) as detemined by Reference Method 5.
N = total number of control devices tested.
Qs = volumetric flow rate of the effluent gas stream in dscm/hr (dscf/hr) as determined by Reference Method 2.
$(C_sQ_s)_n$ or $(Q_s)_n$ = value of the applicable parameter for each control device tested.

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 61:080. Steel plants using existing basic oxygen process furnaces.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for control of emissions from steel plants using existing basic oxygen process furnaces.

Section 1. Applicability. Provisions of this regulation are applicable to the following affected facilities commenced before the classification date defined below: basic oxygen process furnaces, associated metallurgical equipment, and dust-handling equipment.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given them in 401 KAR 50:010.
(1) "Basic oxygen process furnaces (BOPF)" means any furnace producing steel by charging scrap steel, hot metal and flux materials into a vessel and introducing a high volume of an oxygen-rich gas.
(2) "Dust-handling equipment" means any equipment used to handle particulate matter collected by the control device and located at or near the control device for a BOPF and/or associated equipment subject to this regulation.
(3) "Control device" means the air pollution control equipment used to remove from the effluent gas stream, particulate matter generated by a BOPF and/or associated equipment.
(4) "Capture system" means the equipment (including ducts, hoods, fans, dampers, etc.) used to capture or transport particulate matter generated by a BOPF and associated equipment to the air pollution control device.
(5) "Combusted exhaust" means that the oxidizable constituents in the furnace effluent have been combusted in the exhaust system and then cooled and cleaned for discharge to the atmosphere, with or without recuperation of the heat removed.
(6) "Steel production cycle" means the operations required to produce each batch of steel and includes the following major functions: scrap preheating, scrap charging, hot metal charging, oxygen blowing and tapping.
(7) "Charge" means the addition of steel scrap or other materials into a BOPF followed by molten pig iron.
(8) "Charging period" means the time period commencing at the moment a BOPF starts to tilt to receive its

charge and ending three (3) minutes after the BOPF returns to its upright position.

(9) "Tap" means the pouring of molten steel from a BOPF.

(10) "Tapping period" means the time period commencing at the moment a BOPF begins to tilt to pour and ending three (3) minutes after the BOPF returns to an upright position.

(11) "Heat time" means the period commencing when scrap is charged to an empty BOPF and terminating when the BOPF tap is completed.

(12) "Operations" refer to all metallurgical processes in the shop including but not limited to scrap pre-heating, transferring hot metal, charging, blowing, de-slagging, tapping, teeming, vacuum de-gassing, continuous casting, etc.

(13) "Shop" means the building or bay which houses one or more BOPFs and associated equipment.

(14) "Shop opacity" means the arithmetic average of twenty-four (24) or more opacity observations of emissions from the shop taken in accordance with Reference Method 9 of Appendix A of 40 CFR 60, filed by reference in 401 KAR 50:015, applicable time periods.

(15) "Concentrated discharge" means that the outlet from a control device consists of either stacks (one or more) or openings on the device's top or side which has (have) a total area less than five (5) percent of the corresponding top or side and which has (have) a length of not more than twice the width.

(16) "Dispersed discharge" means that the outlet from a control device consists of opening(s) on the device's top or side which has (have) a total area exceeding five (5) percent of the corresponding top or side or which has (have) a length more than twice the width. An affected facility may have both dispersed and concentrated discharges.

(17) "Classification date" means June 11, 1973.

Section 3. Standard for Particulate Matter. (1) On and after the date on which the performance test required to be conducted by 401 KAR 61:005 is completed, no owner or operator subject to the provisions of this regulation shall cause to be discharged into the atmosphere from a basic oxygen process furnace and/or associated metallurgical equipment located in the same shop any gases which:

(a) Exit from a control device and contain particulate matter in excess of .022 gr/dscf;

(b) Exit from a control device and exhibit opacity of thirty (30) percent or more;

(c) Exit from a shop and, due to operations of a BOPF and/or associated metallurgical equipment exhibit shop opacity greater than ten (10) percent.

(2) On and after the date on which the performance test required to be conducted by 401 KAR 61:005 is completed, no owner or operator subject to the provisions of this regulation shall cause to be discharged into the atmosphere from dust-handling equipment any gases which exhibit ten (10) percent opacity or greater.

Section 4. Monitoring of Operations. (1) The owner or operator subject to the provisions of this regulation shall maintain records daily of the following information:

(a) Time and duration of each charge;

(b) Time and duration of each tap; and

(c) All flow rate data obtained under subsection (2) of this section, or equivalent obtained under subsection (4) of this section.

(2) Except as provided under subsection (4) of this section, the owner or operator subject to the provisions of this regulation shall install, calibrate, and maintain a monitoring device that continuously records the volumetric flow rate through each separately ducted BOPF hood. The monitoring device(s) may be installed in any appropriate location in the exhaust duct such that reproducible flow rate monitoring will result. The flow rate monitoring device(s) shall have an accuracy of plus or minus ten (10) percent over its normal operating range and shall be calibrated according to the manufacturer's instructions. The department may require the owner or operator to demonstrate the accuracy of the monitoring device(s) relative to Reference Methods 1 and 2 of Appendix A of 40 CFR 60.

(3) When the owner or operator of a BOPF is required to demonstrate compliance with the standard under Section 3(1)(c), and at any other time the department may require, the volumetric flow rate through each separately ducted BOPF hood shall be determined during all periods in which the hood is operated for the purpose of capturing emissions from the BOPF using the monitoring device under subsection (2) of this section. The owner or operator may petition the department for re-establishment of these flow rates whenever the owner or operator can demonstrate to the department's satisfaction that the BOPF operating conditions upon which the flow rates were previously established are no longer applicable. The flow rates determined during the most recent demonstration of compliance shall be maintained (or may be exceeded) at the appropriate level for each applicable period. Operation at lower flow rates may be considered by the department to be unacceptable operation and maintenance of the affected facility.

(4) The owner or operator may petition the department to approve any alternative method that will provide a continuous record of operation of each emission capture system.

(5) Where the capture system is designed and operated such that all emissions are captured and ducted to a control device, the owner or operator shall not be subject to the requirements of this section.

Section 5. Test Methods and Procedures. (1) Reference methods in Appendix A of 40 CFR 60, except as provided under 401 KAR 50:045, shall be used to determine compliance with the standards prescribed under Section 3 as follows:

(a) Reference Method 5 for the concentration of particulate matter and associated moisture content;

(b) Reference Method 1 for sample and velocity traverses.

(c) Reference Method 2 for velocity and volumetric flow rate;

(d) Reference Method 3 for gas analysis; and

(e) Reference Method 9 for opacity determination.

(2) For Reference Method 5, the sampling time for each run shall be at least four (4) hours. When a single BOPF is sampled, the sampling time for each run shall also include an integral number of heats. Shorter sampling times, when necessitated by process variables or other factors, may be approved by the department. The minimum sample volume shall be 4.5 dscm (160 dscf).

(3) For the purpose of this section, the owner or operator shall conduct the demonstration of compliance with Section 3(1)(c) and furnish the department a written report of the results of the test.

(4) During any performance test required under 401

KAR 61:005 no gaseous diluents may be added to the gas stream effluent from any control device unless the amount of dilution is separately determined and considered in the determination of emissions.

(5) When more than one (1) control device serves the BOPF(s) being tested, the concentration of particulate matter shall be determined using the equation in Appendix A of this regulation.

(6) Any control device subject to the provisions of this regulation shall be designed and constructed to allow measurement of volumetric flow rate and emissions using applicable test methods and procedures.

(7) Where emissions from any BOPF(s) are combined with emissions from other affected facilities in the same shop and controlled by a common capture system and control device, the owner or operator may use any of the following procedures during a performance test:

(a) Base compliance on control of the combined emissions;

(b) Utilize a method acceptable to the department which compensates for the emissions from the other affected facilities.

(c) Any combination of the criteria of paragraphs (a) and (b) of this subsection.

Section 6. 401 KAR 3:060 is hereby repealed.

APPENDIX A TO 401 KAR 61:080
EQUATION FOR CONCENTRATION OF
PARTICULATE MATTER FOR
MORE THAN ONE CONTROL DEVICE

$$C_s = \frac{\sum_{n=1}^{N} (C_s Q_s)_n}{\sum_{n=1}^{N} (Q_s)_n}$$

Where:

C_s = concentration of particulate matter in mg/dscm (gr/dscf) as determined by Reference Method 5.

N = total number of control devices tested.

Q_s = volumetric flow rate of the effluent gas stream in dscm/hr (dscf/hr) as determined by Reference Method 2.

$(C_sQ_s)_n$ or $(Q_s)_n$ = value of the applicable parameter for each control device tested.

EUGENE F. MOONEY, Secretary
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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 61:085. Existing service stations.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of volatile organic compound emissions from existing service stations.

Section 1. Applicability. The provisions of this regulation shall apply to each affected facility located in counties designated non-attainment for ozone according to 401 KAR 51:010 which commenced before the classification date defined below.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given to them in 401 KAR 50:010.

(1) "Affected facility" means the gasoline storage tanks at a service station.

(2) "Classification date" means the effective date of this regulation.

(3) "Service station" means any public or private establishment which dispenses gasoline into vehicle fuel tanks.

(4) "Submerged fill pipe" means any fill pipe the discharge of which is entirely submerged when the liquid level is six (6) inches above the bottom of the tank; or when applied to a tank which is loaded from the side, shall mean any fill pipe the discharge opening of which is entirely submerged when the liquid level is two (2) times the fill pipe diameter above the bottom of the tank.

(5) "Vapor balance system" means a system which conducts vapors displaced from storage tanks during filling operations to the storage compartment of the transport vehicle delivering the fuel.

(6) "Vent line restriction" means:

(a) An orifice of one-half (½) to three-quarters (¾) inch inside diameter; or

(b) A pressure-vacuum relief valve set to open at eight (8) oz. per square inch pressure and four (4) oz. per square inch vacuum; or

(c) A vent shut-off valve which is activated by connection of the vapor return hose.

(7) "Interlocking system" means devices which keep the storage tank sealed unless the vapor hose is connected or which prevent delivery of fuel until the vapor hose is connected.

Section 3. Standard for Volatile Organic Compounds. (1) The owner or operator of an affected facility shall install, maintain, and operate the following devices:

(a) Submerged fill pipe;

(b) Gauge well drop tube which extends to within six (6) inches of the bottom of the tank;

(c) Vent line restriction on the affected facility vent line; and

(d) Vapor balance system with an interlocking system and vapor tight connections on the liquid fill line and the vapor return line. The cross-sectional area of the vapor return hose must be at least fifty (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.

(2) The owner or operator may elect to use an alternate control system if that system can be demonstrated to the department's satisfaction to achieve an equivalent control efficiency.

(3) The owner or operator shall not allow any transport vehicle to deliver fuel to an affected facility until the transport vehicle is properly connected to the vapor balance system or alternate control system.

Section 4. Compliance Timetable. (1) The owner or operator of an affected facility with an annual throughput greater than or equal to 250,000 gal. shall be required to complete the following:

(a) Submit a final control plan for achieving compliance with this regulation no later than September 1, 1979.

(b) Award the control device contract no later than November 1, 1979.

(c) Initiate on-site construction or installation of emission control equipment no later than April 1, 1980.

(d) On-site construction or installation of emission control equipment shall be completed no later than November 1, 1980.

(e) Final compliance shall be achieved no later than February 1, 1981.

(2) The owner or operator of an affected facility with an annual throughput of less than 250,000 gal. shall be required to complete the following:

(a) Submit a final control plan for achieving compliance with this regulation no later than September 1, 1979.

(b) Award the control device contract no later than November 1, 1980.

(c) Initiate on-site construction or installation of emission control equipment no later than April 1, 1981.

(d) On-site construction or installation of emission control equipment shall be completed no later than November 1, 1981.

(e) Final compliance shall be achieved no later than February 1, 1982.

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 61:090. Existing automobile and light duty truck surface coating operations.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of volatile organic compound emissions from existing automobile and light-duty truck surface coating operations.

Section 1. Applicability. The provisions of this regulation shall apply to each affected facility commenced before the classification date defined below.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given to them in 401 KAR 50:010.

(1) "Affected facility" means a coating line for automobile and light-duty truck frames, small parts, wheels, and main body parts at an assembly plant.

(2) "Applicator" means the mechanism or device used to apply the coating, including, but not limited to dipping and spraying.

(3) "Automobile" means all passenger cars or passenger car derivatives capable of seating twelve (12) or fewer passengers.

(4) "Classification date" means the effective date of this regulation.

(5) "Coating line" means a series of equipment and/or operations used to apply, dry, or cure any prime, topcoat or repair coatings containing volatile organic compounds. This shall include, but is not limited to:

(a) Mixing operations;
(b) Process storage;
(c) Applicators;
(d) Drying operations including, but not limited to, flashoff area evaporation, oven drying, baking, curing, and polymerization;
(e) Clean up operations;
(f) Leaks, spills and disposal of volatile organic compounds;
(g) Processing and handling of recovered volatile organic compounds;
(h) For the purposes of determining compliance with this regulation, if any equipment or operation could be considered to be a part of more than one (1) coating line, its volatile organic compound emissions shall be assigned to each coating line of which it is a part proportionally to the throughput of volatile organic compound it receives from or distributes to each coating line;
(i) If any portion of the series of equipment and/or operations qualify for an exemption according to Section 6, then that portion shall be considered to be a separate coating line.

(6) "Final repair coating line" means a coating line for the repainting of any coatings which are damaged during vehicle assembly.

(7) "Flashoff area" means the space between the application area and the oven.

(8) "Light-duty truck" means any motor vehicle rated at 3,864 kilograms (8,500 pounds) gross vehicle weight or less which are designed primarily for purposes of transportation of property or are derivatives of such vehicles (including but not limited to, pickups, vans, and window vans).

(9) "Prime coat coating line" means a coating line for the first coating and surfacer which is responsible for protecting the surface from corrosion and providing for good adhesion of the topcoat.

(10) "Process storage" means mixing tanks, holding tanks, and other tanks, drums, or other containers which contain surface coatings, volatile organic compounds, or recovered volatile organic compounds; but does not mean storage tanks which are subject to 401 KAR 59:050 or 401 KAR 61:050.

(11) "Topcoat coating line" means a coating line for the coating of the surface to obtain desired aesthetic effects.

(12) "Volatile organic compounds" means chemical

compounds of carbon (excluding methane, ethane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides, and ammonium carbonate) which have a vapor pressure greater than one tenth (0.1) mm of Hg at conditions of twenty (20) degrees Celsius and 760 mm of Hg.

(13) "Surfacer" means the spray application of primer to touch-up areas on the surface not adequately covered during electrodeposition.

(14) "Volatile organic compounds net input" means the total amount of volatile organic compounds input to the affected facility minus the amount of volatile organic compounds that are not emitted into the atmosphere. Volatile organic compounds that are prevented from being emitted to the atmosphere by the use of control devices shall not be subtracted from the total for the purposes of determining volatile organic compound net input. When the nature of any operation or design of equipment is such as to permit more than one interpretation of this definition, the interpretation that results in the minimum value for allowable emission shall apply.

Section 3. Standard for Volatile Organic Compounds. No person shall cause, allow, or permit an affected facility to discharge into the atmosphere more than fifteen (15) percent by weight of the volatile organic compounds net input into the affected facility.

Section 4. Compliance. (1) In all cases the design of any control system is subject to approval by the department.

(2) Compliance with the standard in Section 3 shall be demonstrated by a material balance except in those cases where the department determines that a material balance is not possible. For those cases where a material balance is not possible, compliance will be determined based upon an engineering analysis by the department of: the control system design, control device efficiency, control system capture efficiency, and any other factors that could influence the performance of the system. If so requested by the department, performance tests as specified by the department shall be conducted in order to determine the efficiency of the control device.

(3) With the prior approval of the department, the owner or operator may elect to effect such changes in the affected facility as are necessary to qualify for an exemption under Section 6.

(4) Whenever deemed necessary by the department, the department shall obtain samples of the coatings used at an affected facility to verify that the coatings meet the requirements in Section 6. The following methods of analyses, filed by reference in 401 KAR 50:015, for coatings shall be used as applicable except in those cases where the department determines that other methods would be more appropriate:

(a) ASTM D 1644-75 Method A;
(b) ASTM D 1475-60(74);
(c) ASTM D 2369-73; or
(d) Federal Standard 141 a, Method 4082.1.

(5) To qualify for an exemption under Section 6 the limits shall be determined based upon an annual arithmetic mean.

Section 5. Compliance Timetable. The owner or operator of an affected facility shall be required to complete the following:

(1) Submit a final control plan for achieving compliance with this regulation no later than January 1, 1980.

(2) Award the control system contract for the exempt coatings and any accompanying process change contracts no later than March 1, 1980.

(3) Initiate on-site construction or installation of emission control equipment or process changes for exempt coatings no later than June 1, 1980.

(4) On-site construction or installation of emission control equipment or process changes for exempt coatings shall be completed no later than October 1, 1981.

(5) Final compliance shall be achieved no later than January 1, 1982.

Section 6. Exemptions. Any affected facility shall be exempt from the provisions of Section 3 if the volatile organic compound content of the coating is:

(1) Prime coating line: 0.10 kilograms per liter of coating (1.2 pounds per gallon), excluding water, delivered to the first applicators associated with the prime coating line and 0.34 kilograms per liter of coating (2.8 pounds per gallon), excluding water, delivered to the applicators associated with the surfacer or, fifty-five (55) percent solids by volume organic-borne prime coat electrostatically sprayed.

(2) Topcoat coating line: 0.34 kilograms per liter of coating (2.8 pounds per gallon), excluding water, delivered to the applicator(s) associated with the topcoat coating line or, a fifty-five (55) percent solids by volume organic-borne topcoat electrostatically sprayed.

(3) Repair coating line: 0.58 kilograms per liter of coating (4.8 pounds per gallon), excluding water, as delivered to the applicator.

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 61:095. Existing solvent metal cleaning equipment.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of volatile organic compound emissions for existing solvent metal cleaning equipment.

Section 1. Applicability. The provisions of this regulation shall apply to each affected facility commenced before the classification date defined below.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given to them in 401 KAR 50:010.

(1) "Affected facility" means cold cleaners, open top vapor degreasers, and conveyorized degreasers which utilize volatile organic compounds to remove soluble impurities from metal surfaces.

(2) "Volatile organic compounds" means chemical compounds of carbon excluding methane, ethane, carbon

monoxide, carbon dioxide, carbonic acid, metallic carbides, and ammonium carbonate which have a vapor pressure greater than one tenth (0.1) mm of Hg at conditions of twenty (20) degrees Celcius and 760 mm of Hg.

(3) "Classification date" means the effective date of this regulation.

(4) "Freeboard height" means, for a cold cleaner, the distance from the liquid solvent level in the degreaser tank to the lip of the tank. For a vapor degreaser it is the distance from the solvent vapor level in the tank to the lip of the tank.

(5) "Freeboard ratio" means the freeboard height divided by the width of the degreaser.

(6) "Refrigerated chiller" means a second set of freeboard condenser coils located slightly above the primary condenser coils which create a cold air blanket above the vapor zone.

(7) "Cold cleaner" means a batch-loaded degreaser whose solvent is kept below its boiling point.

(8) "Open top vapor degreaser" means a batch loaded degreaser whose solvent is heated to its boiling point creating a solvent vapor zone.

(9) "Conveyorized degreasers" means a degreaser which is continuously loaded by means of a conveyor system. Its solvent may be boiling or non-boiling.

(10) "Solvent" means, in this regulation, volatile organic compounds.

Section 3. Standard for Volatile Organic Compounds. The owner or operator of an affected facility to which this regulation applies shall install, maintain and operate the control equipment and observe at all times the operating requirements which apply to this type of degreaser as specified in Sections 4, 5, and 6.

Section 4. Cold Cleaners. (1) Control equipment:

(a) The cleaner shall be equipped with a cover. If the solvent volatility is greater than fifteen (15) mm of Hg measured at 100°F or if the solvent is agitated or heated, then the cover shall be designed so that it can be easily operated with one (1) hand.

(b) The cleaner shall be equipped with a drainage facility such that solvent that drains off parts removed from the cleaner will return to the cleaner. If the solvent volatility is greater than thirty-two (32) mm of Hg measured at 100°F then the drainage facility shall be internal so that parts are enclosed under the cover while draining. The drainage facility may be external if the department determines that an internal type cannot fit into the cleaning system.

(c) A permanent, conspicuous label, summarizing the operating requirements specified in subsection (2) of this section shall be installed on or near the cleaner.

(d) If used, the solvent spray shall be a fluid stream (not a fine, atomized or shower type spray) and at a pressure which does not cause excessive splashing.

(e) If the solvent volatility is greater than thirty-two (32) mm of Hg measured at 100°F or if the solvent is heated above 120°F, then one (1) of the following control devices shall be used:

1. Freeboard that gives a freeboard ratio greater than or equal to 0.7.

2. Water cover (solvent must be insoluble in and heavier than water).

3. Other systems of equivalent control, such as a refrigerated chiller or carbon adsorption.

(2) Operating requirements:

(a) Do not dispose of waste solvent or transfer it to another party, such that greater than twenty (20) percent by weight of the waste solvent can evaporate into the atmosphere. Store waste solvent only in covered containers.

(b) Close degreaser cover whenever not handling parts in the cleaner.

(c) Drain cleaned parts until dripping ceases (fifteen (15) seconds is usually necessary).

Section 5. Open Top Vapor Degreasers. (1) Control equipment:

(a) The degreaser shall be equipped with a cover that can be opened and closed easily without disturbing the vapor zone.

(b) The degreaser shall be equipped with the following safety switches:

1. Condenser flow switch and thermostat to shut off sump heat if condenser coolant either is not circulating or is too warm.

2. Spray safety switch to shut off spray pump if the vapor level drops more than four (4) inches.

3. Vapor level control thermostat which shuts off sump heat if the vapor zone rises above the design level.

(c) The degreaser shall be equipped with at least one (1) of the following major control devices:

1. Freeboard ratio greater than or equal to 0.75, and if the degreaser opening is greater than ten (10) square feet, the cover shall be powered.

2. Refrigerated chiller.

3. Enclosed design such that the cover or door opens only when the dry part is actually entering or exiting the degreaser.

4. Carbon adsorption system, with ventilation greater than or equal to fifty (50) cfm/square foot of air/vapor interface area (when cover is open), and exhausting less than twenty-five (25) ppm by volume solvent averaged over one (1) complete adsorption cycle.

5. Control system demonstrated to have control efficiency equivalent to or better than any of the above.

(d) A permanent, conspicuous label, summarizing the operating procedures specified in subsection (2) of this section shall be installed on or near the degreaser.

(2) Operating requirements:

(a) Keep the cover closed at all times except when processing work loads through the degreaser.

(b) Minimize solvent carry-out by the following measures:

1. Rack parts so that entrainment of solvent is avoided and full drainage is accomplished.

2. Move parts in and out of the degreaser at less than eleven (11) ft./min.

3. Degrease the work load in the vapor zone until condensation ceases (thirty (30) seconds or more is usually necessary).

4. Tip out any pools of solvent on the cleaned parts before removal.

5. Allow parts to dry within the degreaser above the vapor zone until visually dry (fifteen (15) seconds is usually necessary).

(c) Do not degrease porous or absorbent materials such as cloth, leather, wood, or rope.

(d) Work loads should not occupy more than half of the degreaser's open top area.

(e) The vapor level should not drop more than four (4) inches when the work load enters or leaves the vapor zone.

(f) Never spray above the vapor level.

(g) Repair solvent leaks immediately or shut down the degreaser.

(h) Do not dispose of waste solvent or transfer it to

another party such that greater than twenty (20) percent by weight of the waste solvent can evaporate into the atmosphere. Store waste solvent only in closed containers.

(i) Exhaust ventilation should not exceed sixty-five (65) cfm per square foot of degreaser area unless necessary to meet OSHA requirements or control device requirements. Ventilation fans should not be used near the degreaser opening.

(j) Water should not be visually detectable in the solvent exiting the water separator.

Section 6. Conveyorized Degreasers. (1) Control equipment:

(a) A conveyorized degreaser shall be enclosed except for work load entrances and exits.

(b) The degreaser shall be equipped with a drying tunnel or another means such as rotating baskets sufficient to prevent cleaned parts from carrying out solvent liquid or vapor.

(c) Minimized openings: entrances and exits shall silhouette work loads so that the average clearance between parts and the edge of the degreaser opening is either less than four (4) inches or less than ten (10) percent of the width of the opening.

(d) Down-time covers: The degreaser shall be equipped with covers for closing off the entrance and exit during shutdown hours.

(e) If the degreaser has an air/solvent interface area or an air/vapor interface area equal to or greater than twenty (20) square ft. it shall be equipped with at least one (1) of the following major control devices:

1. Refrigerated chiller.

2. Carbon adsorption system with ventilation greater than or equal to fifty (50) cfm/square foot of air/vapor interface area (when down-time covers are open) and exhausting less than twenty-five (25) ppm of solvent by volume averaged over a complete adsorption cycle.

3. A system demonstrated to have a control efficiency equivalent to or better than either of the above.

(f) If the degreaser is a vapor type, it shall be equipped with the following safety switches:

1. Condensor flow switch and thermostat which will shut off the sump heat if coolant is either not circulating or is too warm.

2. Spray safety switch which will shut off the spray pump or conveyor if the vapor level drops more than four (4) inches.

3. Vapor level control thermostat which will shut off sump heat if the vapor level rises above the design level.

(g) A permanent, conspicuous label, summarizing the operating procedures specified in subsection (2) of this section shall be installed on or near the degreaser.

(2) Operating requirements:

(a) Exhaust ventilation should not exceed sixty-five (65) cfm per square foot of degreaser opening unless necessary to meet OSHA requirements or control device requirements. Work place fans should not be used near the degreaser opening.

(b) Minimize solvent carry-out by the following measures:

1. Rack parts so that entrainment of solvent is avoided and full drainage is accomplished.

2. Maintain vertical conveyor speed at less than eleven (11) ft/min.

(c) Do not dispose of waste solvent or transfer it to another party such that greater than twenty (20) percent by weight of the waste solvent can evaporate into the atmosphere. Store waste solvent only in closed containers.

(d) Repair solvent leaks immediately or shutdown the degreaser.

(e) Water should not be visually detectable in the solvent exiting the water separator.

(f) Down-time covers shall be placed over entrances and exits of the degreaser immediately after the conveyor and exhaust are shut down and removed just before they are started up.

Section 7. Compliance Timetable. The owner or operator of an affected facility shall be required to complete the following:

(1) Submit a final control plan for achieving compliance with this regulation no later than May 1, 1979.

(2) Award the control system contract no later than July 1, 1979.

(3) Initiate on-site construction or installation of emission control equipment no later than March 1, 1980.

(4) On-site construction or installation of emission control equipment shall be completed no later than January 1, 1981.

(5) Final compliance shall be achieved no later than March 1, 1981.

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 61:100. Existing insulation of magnet wire operations.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of volatile organic compound emissions from existing insulation of magnet wire operations.

Section 1. Applicability. The provisions of this regulation shall apply to each affected facility commenced before the classification date defined below.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given to them in 401 KAR 50:010.

(1) "Affected facility" means a coating line for insulation of magnet wire.

(2) "Applicator" means the mechanism or device used to apply the coating, including but not limited to a coating bath.

(3) "Coating die" means the device, located between the applicator and the drying oven, which scrapes off excess coating and leaves a thin film of desired thickness.

(4) "Magnet wire" means wire used in such equipment as electrical motors, generators, and transformers which carries an electrical current.

(5) "Coating line" means a series of equipment and/or opertions used to apply, dry, or cure any coatings containing volatile organic compounds. This shall include, but is not limited to:
(a) Mixing operations;
(b) Process storage;
(c) Applicators;
(d) Drying operations including coating die area evaporation, oven drying, baking, curing, and polymerization;
(e) Clean up operations;
(f) Leaks, spills and disposal of volatile organic compounds;
(g) Processing and handling of recovered volatile organic compounds;
(h) For the purposes of determining compliance with this regulation, if any equipment or operation could be considered to be a part of more than one (1) coating line, its volatile organic compound emissions shall be assigned to each coating line of which it is a part proportionally to the throughput of volatile organic compound it receives from or distributes to each coating line;
(i) If any portion of the series of equipment and/or operations qualify for an exemption according to Section 6, then that portion shall be considered to be a separate coating line.
(6) "Volatile organic compounds" means chemical compounds of carbon (excluding methane, ethane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides, and ammonium carbonate) which have a vapor pressure greater than one tenth (0.1) mm of Hg at conditions of twenty (20) degrees Celsius and 760 mm of Hg.
(7) "Process storage" means mixing tanks, holding tanks, and other tanks, drums, or other containers which contain surface coatings, volatile organic compounds, or recovered volatile organic compounds; but does not mean storage tanks which are subject to 401 KAR 59:050 or 401 KAR 61:050.
(8) "Classification date" means the effective date of this regulation.
(9) "Volatile organic compounds net input" means the total amount of volatile organic compounds input to the affected facility minus the amount of volatile organic compounds that are not emitted into the atmosphere. Volatile organic compounds that are prevented from being emitted to the atmosphere by the use of control devices shall not be subtracted from the total for the purposes of determining volatile organic compound net input. When the nature of any operation or design of equipment is such as to permit more than one (1) interpretation of this definition, the interpretation that results in the minimum value for allowable emission shall apply.

Section 3. Standard for Volatile Organic Compounds. No person shall cause, allow, or permit an affected facility to discharge into the atmosphere more than fifteen (15) percent by weight of the volatile organic compounds net input into the affected facility.

Section 4. Compliance. (1) In all cases the design of any control system is subject to approval by the department.
(2) Compliance with the standard in Section 3 shall be demonstrated by a material balance except in those cases where the department determines that a material balance is not possible. For those cases where a material balance is not possible, compliance will be determined based upon an engineering analysis by the department of: the control system design, control device efficiency, control system capture efficiency and any other factors that could influence the performance of the system. If so requested by the department, performance tests as specified by the department shall be conducted in order to determine the efficiency of the control device.
(3) With the prior approval of the department, the owner or operator may elect to effect such changes in the affected facility as are necessary to qualify for an exemption under Section 6.
(4) Whenever deemed necessary by the department, the department shall obtain samples of the coatings used at an affected facility to verify that the coatings meet the requirements in Section 6. The following methods of analyses, filed by reference in 401 KAR 50:015, for coatings shall be used as applicable except in those cases where the department determines that other methods would be more appropriate:
(a) ASTM D 1644-75 Method A;
(b) ASTM D 1475-60(74);
(c) ASTM D 2369-73; or
(d) Federal Standard 141 a, Method 4082.1.

Section 5. Compliance Timetable. The owner or operator of an affected facility shall be required to complete the following:
(1) Submit a final control plan for achieving compliance with this regulation no later than May 1, 1979.
(2) Award the control system contract or the exempt coatings and any accompanying process change contracts no later than December 1, 1979.
(3) Initiate on-site construction or installation of emission control equipment or process changes for exempt coatings no later than June 1, 1980.
(4) On-site construction or installation of emission control equipment or process changes for exempt coatings shall be completed no later than December 1, 1980.
(5) Final compliance shall be achieved no later than March 1, 1981.

Section 6. Exemptions. Any affected facility shall be exempt from the provisions of Section 3 if the volatile organic compound content of the coating is less than 0.20 kilograms per liter of coating (1.7 pounds per gallon), excluding water, delivered to the applicators associated with the coating line.

EUGENE F. MOONEY, Secretary
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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 61:105. Existing metal furniture surface coating operations.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of volatile organic compound emissions from existing metal furniture surface coating operations.

Section 1. Applicability. The provisions of this regulation shall apply to each affected facility commenced before the classification date defined below.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given to them in 401 KAR 50:010.

(1) "Affected facility" means a coating line for indoor and/or outdoor metal furniture.

(2) "Applicator" means the mechanism or device used to apply the coating, including but not limited to: dipping, spraying, or flowcoating.

(3) "Flashoff area" means the space between the applicator and the oven.

(4) "Prime coat" means the first film of coating applied in a two (2) coat operation which is responsible for protecting the surface from corrosion and providing for good adhesion of the topcoat.

(5) "Topcoat" means the final film of coating applied in a two (2) coat operation to obtain desired aesthetic effects.

(6) "Single coat" means a single film coating applied directly to the metal substrate omitting the prime coat.

(7) "Coating line" means a series of equipment and/or operations used to apply, dry, or cure any prime, topcoat or single coatings containing volatile organic compounds. This shall include, but is not limited to:

(a) Mixing operations;
(b) Process storage;
(c) Applicators;
(d) Drying operations including, but not limited to, flashoff area evaporation, oven drying, baking, curing, and polymerization;
(e) Clean up operations;
(f) Leaks, spills and disposal of volatile organic compounds;
(g) Processing and handling of recovered volatile organic compounds;
(h) For the purposes of determining compliance with this regulation, if any equipment or operation could be considered to be a part of more than one (1) coating line, its volatile organic compound emissions shall be assigned to each coating line of which it is a part proportionally to the throughput of volatile organic compound it receives from or distributes to each coating line;
(i) If any portion of the series of equipment and/or operations qualify for an exemption according to Section 6, then that portion shall be considered to be a separate coating line.

(8) "Volatile organic compound" means chemical compounds of carbon (excluding methane, ethane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides, and ammonium carbonate) which have a vapor pressure greater than one-tenth (0.1) mm of Hg at conditions of twenty (20) degrees Celsius and 760 mm of Hg.

(9) "Process storage" means mixing tanks, holding tanks, and other tanks, drums, or other containers which contain surface coatings, volatile organic compounds, or recovered volatile organic compounds; but does not mean storage tanks which are subject to 401 KAR 59:050 or 401 KAR 61:050.

(10) "Metal furniture" means household and business items including but not limited to: tables, chairs, waste baskets, beds, desks, lockers, benches, shelving, file cabinets, lamps and room dividers.

(11) "Classification date" means the effective date of this regulation.

(12) "Volatile organic compounds net input" means the total amount of volatile organic compounds input to the affected facility minus the amount of volatile organic compounds that are not emitted into the atmosphere. Volatile organic compounds that are prevented from being emitted to the atmosphere by the use of control devices shall not be subtracted from the total for the purposes of determining volatile organic compound net input. When the nature of any operation or design of equipment is such as to permit more than one (1) interpretation of this definition, the interpretation that results in the minimum value for allowable emission shall apply.

Section 3. Standard for Volatile Organic Compounds. No person shall cause, allow, or permit an affected facility to discharge into the atmosphere more than fifteen (15) percent by weight of the volatile organic compounds net input into the affected facility.

Section 4. Compliance. (1) In all cases the design of any control system is subject to approval by the department.

(2) Compliance with the standard in Section 3 shall be demonstrated by a material balance except in those cases where the department determines that a material balance is not possible. For those cases where a material balance is not possible, compliance will be determined based upon an engineering analysis by the department of: the control system design, control device efficiency, control system capture efficiency, and any other factors that could influence the performance of the system. If so requested by the department, performance tests as specified by the department shall be conducted in order to determine the efficiency of the control device.

(3) With the prior approval of the department, the owner or operator may elect to effect such changes in the effected facility as are necessary to qualify for an exemption under Section 6.

(4) Whenever deemed necessary by the department, the department shall obtain samples of the coating used at an affected facility to verify that the coatings meet the requirements in Section 6. The following methods of analyses, filed by reference in 401 KAR 50:015, for coatings shall be used as applicable except in those cases where the department determines that other methods would be more appropriate:

(a) ASTM D 1644-75 Method A;
(b) ASTM D 1475-60(74);
(c) ASTM D 2369-73; or
(d) Federal Standard 141 a, Method 4082.1.

Section 5. Compliance Timetable. The owner or

operator of an affected facility shall be required to complete the following:

(1) Submit a final control plan for achieving compliance with this regulation no later than May 1, 1979.

(2) Award the control system contract or the exempt coatings and any accompanying process change contracts no later than September 1, 1979.

(3) Initiate on-site construction or installation of emission control equipment or process changes for exempt coatings no later than January 1, 1980.

(4) On-site construction or installation of emission control equipment or process changes for exempt coatings shall be completed no later than January 1, 1981.

(5) Final compliance shall be achieved no later than April 1, 1981.

Section 6. Exemptions. Any affected facility shall be exempt from the provisions of Section 3 if the volatile organic compound content of the coating is less than 0.36 kilograms per liter of coating (3.0 pounds per gallon), excluding water, delivered to the applicators associated with the prime, single or topcoat coating line.

EUGENE F. MOONEY, Secretary
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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 61:110. Existing large appliance surface coating operations.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of volatile organic compound emissions from existing large appliance surface coating operations.

Section 1. Applicability. The provisions of this regulation shall apply to each affected facility commenced before the classification date defined below.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given to them in 401 KAR 50:010.

(1) "Affected facility" means a coating line for large appliances such as, but not limited to: doors, cases, lids, panels and interior support parts of residential and commercial washers, dryers, ranges, refrigerators, freezers, water heaters, dishwashers, trash compactors, and air conditioners.

(2) "Applicator" means the mechanism or device used to apply the coating, including but not limited to dipping or spraying.

(3) "Flashoff area" means the space between the applicator and the oven.

(4) "Prime coat" means the first film of coating applied in a two (2) coat operations.

(5) "Topcoat" means the final film of coating applied in a two (2) coat operation.

(6) "Single coat" means a single film coating applied directly to the metal substrate omitting the prime coat.

(7) "Coating line" means a series of equipment and/or operations used to apply, dry, or cure any prime, topcoat or single coatings containing volatile organic compounds. This shall include, but is not limited to:

(a) Mixing operations;
(b) Process storage;
(c) Applicators;
(d) Drying operations including, but not limited to, flashoff area evaporation, oven drying, baking, curing, and polymerization;
(e) Clean up operations;
(f) Leaks, spills and disposal of volatile organic compounds;
(g) Processing and handling of recovered volatile organic compounds;
(h) For the purposes of determining compliance with this regulation, if any equipment or operation could be considered to be a part of more than one (1) coating line, its volatile organic compound emissions shall be assigned to each coating line of which it is a part proportionally to the throughput of volatile organic compound it receives from or distributes to each coating line;
(i) If any portion of the series of equipment and/or operations qualify for an exemption according to Section 6, then that portion shall be considered to be a separate coating line.

(8) "Volatile organic compounds" means chemical compounds of carbon (excluding methane, ethane, carbor monoxide, carbon dioxide, carbonic acid, metallic carbides, and ammonium carbonate) which have a vapor pressure greater than one-tenth (0.1) mm of Hg at conditions of twenty (20) degrees Celsius and 760 mm of Hg.

(9) "Process storage" means mixing tanks, holding tanks, and other tanks, drums, or other containers which contain surface coatings, volatile organic compounds, or recovered volatile organic compounds; but does not mean storage tanks which are subject to 401 KAR 59:050 or 401 KAR 61:050.

(10) "Classification date" means the effective date of this regulation.

(11) "Volatile organic compounds net input" means the total amount of volatile organic compounds input to the affected facility minus the amount of volatile organic compounds that are not emitted into the atmosphere. Volatile organic compounds that are prevented from being emitted to the atmosphere by the use of control devices shall not be subtracted from the total for the purposes of determining volatile organic compound net input. When the nature of any operation or design of equipment is such as to permit more than one (1) interpretation of this definition, the interpretation that results in the minimum value for allowable emission shall apply.

Section 3. Standard for Volatile Organic Compounds. No person shall cause, allow, or permit an affected facility to discharge into the atmosphere more than fifteen (15) percent by weight of the volatile organic compounds net input into the affected facility.

Section 4. Compliance. (1) In all cases the design of any control system is subject to approval by the department.

(2) Compliance with the standard in Section 3 shall be

demonstrated by a material balance except in those cases where the department determines that a material balance is not possible. For those cases where a material balance is not possible, compliance will be determined based upon an engineering analysis by the department of: the control system design, control device efficiency, control system capture efficiency, and any other factors that could influence the performance of the system. If so requested by the department, performance tests as specified by the department shall be conducted in order to determine the efficiency of the control device.

(3) With the prior approval of the department, the owner or operator may elect to effect such changes in the affected facility as are necessary to qualify for an exemption under Section 6.

(4) Whenever deemed necessary by the department, the department shall obtain samples of the coatings used at an affected facility to verify that the coatings meet the requirements in Section 6. The following methods of analyses, filed by reference in 401 KAR 50:015, for coatings shall be used as applicable except in those cases where the department determines that other methods would be more appropriate:

(a) ASTM D 1644-75 Method A;
(b) ASTM D 1475-60(74);
(c) ASTM D 2369-73; or
(d) Federal Standard 141 a, Method 4082.1.

Section 5. Compliance Timetable. The owner or operator of an affected facility shall be required to complete the following:

(1) Submit a final control plan for achieving compliance with this regulation no later than October 1, 1979.

(2) Award the control system contract or the exempt coatings and accompanying process change contracts no later than January 1, 1980.

(3) Initiate on-site construction or installation of emission control equipment or process changes for exempt coatings no later than March 1, 1980.

(4) On-site construction or installation of emission control equipment or process changes for exempt coatings shall be completed no later than October 1, 1981.

(5) Final compliance shall be achieved no later than January 1, 1982.

Section 6. Exemptions. (1) Any affected facility shall be exempt from the provisions of Section 3 if the volatile organic compound content of the coating is less than 0.34 kilograms per liter of coating (2.8 pounds per gallon), excluding water, delivered to the applicators associated with the prime, single or topcoat coating line.

(2) Repair coating operations for the purpose of repairing scratches and nicks that occur during assembly shall be exempt from the provisions of Section 3.

EUGENE F. MOONEY, Secretary
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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 61:120. Existing fabric, vinyl and paper surface coating operations.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of volatile organic compound emissions from existing fabric, vinyl or paper surface coating operations.

Section 1. Applicability. The provisions of this regulation shall apply to each affected facility commenced before the classification date defined below.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given to them in 401 KAR 50:010.

(1) "Affected facility" means a coating line for fabric, vinyl, or paper.

(2) "Applicator" means the mechanism or device used to apply the coating including but not limited to: roll, knife, or rotogravure coater.

(3) "Flashoff area" means the space between the applicator and the oven.

(4) "Coating line" means a series of equipment and/or operations used to apply, dry, or cure any coatings containing volatile organic compounds. This shall include, but is not limited to:

(a) Mixing operations;
(b) Process storage;
(c) Applicators;
(d) Drying operations including, but not limited to, flashoff area evaporation, oven drying, baking, curing, and polymerization;
(e) Clean up operations;
(f) Leaks, spills and disposal of volatile organic compounds;
(g) Processing and handling of recovered volatile organic compounds;
(h) For the purposes of determining compliance with this regulation, if any equipment or operation could be considered to be a part of more than one (1) coating line, its volatile organic compound emissions shall be assigned to each coating line of which it is a part proportionally to the throughput of volatile organic compound it receives from or distributes to each coating line;
(i) If any portion of the series of equipment and/or operations qualify for an exemption according to Section 6, then that portion shall be considered to be a separate coating line.

(5) "Volatile organic compounds" means chemical compounds of carbon (excluding methane, ethane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides, and ammonium carbonate) which have a vapor pressure greater than one-tenth (0.1) mm of Hg at conditions of twenty (20) degress Celsius and 760 mm of Hg.

(6) "Process storage" means mixing tanks, holding tanks, and other tanks, drums, or other containers which contain surface coatings, volatile organic compounds, or recovered volatile organic compounds; but does not mean

storage tanks which are subject to 401 KAR 59:050 or 401 KAR 61:050.

(7) "Fabric coating" means the coating of a textile substrate to impart properties that are not initially present, such as strength, stability, water or acid repellancy, or appearance.

(8) "Vinyl coating" means the coating of vinyl coated fabric or vinyl sheets which includes decorative or protective topcoats or printing.

(9) "Paper coating" means the coating of paper (but does not include the printing of paper), pressure sensitive tapes regardless of substrate, related web coating processes on plastic film such as typewriter ribbons, photographic film, magnetic tape, and decorative coatings on metal foil such as gift wrap and packaging.

(10) "Knife coating" means the application of a coating material to a substrate by means of drawing the substrate beneath a knife that spreads the coating evenly over the full width of the substrate.

(11) "Roll coating" means the application of a coating material to a substrate by means of hard rubber or steel rolls.

(12) "Rotogravure coating" means the application of a coating material to a substrate by means of a roll coating technique in which the pattern to be applied is etched on the coating roll. The coating material is picked up in these recessed areas and is transferred to the substrate.

(13) "Classification date" means the effective date of this regulation.

(14) "Volatile organic compounds net input" means the total amount of volatile organic compounds input to the affected facility minus the amount of volatile organic compounds that are not emitted into the atmosphere. Volatile organic compounds that are prevented from being emitted to the atmosphere by the use of control devices shall not be subtracted from the total for the purposes of determining volatile organic compound net input. When the nature of any operation or design of equipment is such as to permit more than one (1) interpretation of this definition, the interpretation that results in the minimum value for allowable emission shall apply.

Section 3. Standard for Volatile Organic Compounds. No person shall cause, allow, or permit an affected facility to discharge into the atmosphere more than fifteen (15) percent by weight of the volatile organic compounds net input into the affected facility.

Section 4. Compliance. (1) In all cases the design of any control system is subject to approval by the department.

(2) Compliance with the standard in Section 3 shall be demonstrated by a material balance except in those cases where the department determines that a material balance is not possible. For those cases where a material balance is not possible, compliance will be determined based upon an engineering analysis by the department of: the control system design, control device efficiency, control system capture efficiency, and any other factors that could influence the performance of the system. If so requested by the department, performance tests as specified by the department shall be conducted in order to determine the efficiency of the control device.

(3) With the prior approval of the department, the owner or operator may elect to effect such changes in the affected facility as are necessary to qualify for an exemption under Section 6.

(4) Whenever deemed necessary by the department, the department shall obtain samples of the coatings used at an affected facility to verify that the coatings meet the requirements in Section 6. The following methods of analyses, filed by reference in 401 KAR 50:015, for coatings shall be used as applicable except in those cases where the department determines that other methods would be more appropriate:

(a) ASTM D 1644-75 Method A;
(b) ASTM D 1475-60(74);
(c) ASTM D 2369-73; or
(d) Federal Standard 141 a, Method 4082.1.

Section 5. Compliance Timetable. The owner or operator of an affected facility shall be required to complete the following:

(1) Submit a final control plan for achieving compliance with this regulation no later than May 1, 1979.

(2) Award the control system contract or the exempt coatings and any accompanying process change contracts no later than September 1, 1979.

(3) Initiate on-site construction or installation of emission control equipment or process changes for exempt coatings no later than January 1, 1980.

(4) On-site construction or installation of emission control equipment or process changes for exempt coatings shall be completed no later than January 1, 1981.

(5) Final compliance shall be achieved no later than April 1, 1981.

Section 6. Exemptions. (1) Any affected facility coating fabric or paper shall be exempt from the provisions of Section 3 if the volatile organic compound content of the coating is less than 0.35 kilograms per liter of coating (2.9 pounds per gallon), excluding water, delivered to the applicators associated with the coating line.

(2) Any affected facility coating vinyl shall be exempt from the provisions of Section 3 if the volatile organic compound content of the coating is less than 0.45 kilograms per liter of coating (3.8 pounds per gallon) excluding water, delivered to the applicators associated with the coating line.

EUGENE F. MOONEY, Secretary
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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 61:125. Existing can surface coating operations.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of volatile organic compound emissions from existing can surface coating operations.

Section 1. Applicability. The provisions of this regulation shall apply to each affected facility commenced before the classification date defined below.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given to them in 401 KAR 50:010.

(1) "Affected facility" means a coating line for cans.

(2) "Applicator" means the mechanism or device used to apply the coating, including but not limited to spray or roller.

(3) "Flashoff area" means the space between the applicator and the oven.

(4) "End sealing compound" means a synthetic rubber compound which is coated onto can ends and functions as a gasket when the end is assembled on the can.

(5) "Exterior base coating" means a coating applied to the exteior of a can to provide exterior protection to the metal and background for the lithographic or printing operation.

(6) "Interior base coating" means a coating applied by roller coater or spray to the interior of a can to provide a protective lining between the can metal and product.

(7) "Interior body spray" means a coating sprayed on the interior of the can body to provide a protective film between the product and the can.

(8) "Overvarnish" means a coating applied directly over ink to reduce the coefficient of friction, to provide gloss and to protect the finish against abrasion and corrosion.

(9) "Three (3) piece can side-seam spray" means a coating sprayed on the exterior and interior of a welded, cemented or soldered seam to protect the exposed metal.

(10) "Two (2) piece can exterior end coating" means a coating applied by roller coating or spraying to the exterior end of a can to provide protection to the metal.

(11) "Coating line" means a series of equipment and/or operations used to apply, dry, or cure any coatings containing volatile organic compounds. This shall include, but is not limited to:

(a) Mixing operations;

(b) Process storage;

(c) Applicators;

(d) Drying operations including but not limited to: flashoff area evaporation, oven drying, baking, curing, and polymerization;

(e) Clean up operations;

(f) Leaks, spills and disposal of volatile organic compounds;

(g) Processing and handling of recovered volatile organic compounds;

(h) For the purposes of determining compliance with this regulation, if any equipment or operation could be considered to be a part of more than one (1) coating line, its volatile organic compound emissions shall be assigned to each coating line of which it is a part proportionally to the throughput of volatile organic compound it receives from or distributes to each coating line;

(i) If any portion of the series of equipment and/or operations qualify for an exemption according to Section 6, then that portion shall be considered to be a separate coating line.

(12) "Volatile organic compounds" means chemical compounds of carbon (excluding methane, ethane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides, and ammonium carbonate) which have a vapor pressure greater than one tenth (0.1) mm of Hg at conditions of twenty (20) degrees Celsius and 760 mm of Hg.

(13) "Process storage" means mixing tanks, holding tanks, and other tanks, drums, or other containers which contain surface coatings, volatile organic compounds, or recovered volatile organic compounds; but does not mean storage tanks which are subject to 401 KAR 59:050 or 401 KAR 61:050.

(14) "Classification date" means the effective date of this regulation.

(15) "Volatile organic compounds net input" means the total amount of volatile organic compounds input to the affected facility minus the amount of volatile organic compounds that are not emitted into the atmosphere. Volatile organic compounds that are prevented from being emitted to the atmosphere by the use of control devices shall not be subtracted from the total for the purposes of determining volatile organic compound net input. When the nature of any operation or design of equipment is such as to permit more than one (1) interpretation of this definition, the interpretation that results in the minimum value for allowable emission shall apply.

Section 3. Standard for Volatile Organic Compounds. No person shall cause, allow, or permit an affected facility to discharge into the atmosphere more than fifteen (15) percent by weight of the volatile organic compounds net input into the affected facility.

Section 4. Compliance. (1) In all cases the design of any control system is subject to approval by the department.

(2) Compliance with the standard in Section 3 shall be demonstrated by a material balance except in those cases where the department determines that a material balance is not possible. For those cases where a material balance is not possible, compliance will be determined based upon an engineering analysis by the department of: the control system design, control device efficiency, control system capture efficiency, and any other factors that could influence the performance of the system. If so requested by the department, performance tests as specified by the department shall be conducted in order to determine the efficiency of the control device.

(3) With the prior approval of the department, the owner or operator may elect to effect such changes in the affected facility as are necessary to qualify for an exemption under Section 6.

(4) Whenever deemed necessary by the department, the department shall obtain samples of the coatings used at an affected facility to verify that the coatings meet the requirements in Section 6. The following methods of analyses, filed by reference in 401 KAR 50:015, for coatings shall be used as applicable except in those cases where the department determines that other methods would be more appropriate:

(a) ASTM D 1644-75 Method A;

(b) ASTM D 1475-60(74);

(c) ASTM D 2369-73; or

(d) Federal Standard 141 a, Method 4082.1.

Section 5. Compliance Timetable. The owner or operator of an affected facility shall be required to complete the following:

(1) Submit a final control plan for achieving compliance with this regulation no later than May 1, 1979.

(2) Award the control system contract or the exempt coatings and any accompanying process change contracts no later than September 1, 1979.

(3) Initiate on-site construction or installation of emission control equipment or process changes for exempt

coatings no later than January 1, 1980.
(4) On-site construction or installation of emission control equipment or process changes for exempt coatings shall be completed no later than January 1, 1981.
(5) Final compliance shall be achieved no later than April 1, 1981.

Section 6. Exemptions. Any affected facility shall be exempt from the provisions of Section 3 if the volatile organic compound content of the coating is:
(1) Less than 0.34 kilograms per liter of coating (2.8 pounds per gallon), excluding water, delivered to the applicators associated with the sheet base coat (exterior and interior) and overvarnish or, two (2) piece can exterior (basecoat and overvarnish) coating lines;
(2) Less than 0.51 kilograms per liter of coating (4.2 pounds per gallon), excluding water, delivered to the applicators associated with two (2) and three (3) piece can interior body spray or two (2) piece can exterior end (spray or roll coat) coating lines;
(3) Less than 0.66 kilograms per liter of coating (5.5 pounds per gallon), excluding water, delivered to the applicators associated with the three (3) piece can side-seam spray coating line;
(4) Less than 0.44 kilograms per liter of coating (3.7 pounds per gallon), excluding water, delivered to the applicators associated with the end sealing compound coating line.

EUGENE F. MOONEY, Secretary
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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 61:130. Existing coil surface coating operations.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of volatile organic compound emissions from existing coil surface coating operations.

Section 1. Applicability. The provisions of this regulation shall apply to each affected facility commenced before the classsification date defined below.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given to them in 401 KAR 50:010.
(1) "Affected facility" means a coating line for metal sheets or strips that comes in rolls or coils.
(2) "Applicator" means the mechanism or device used to apply the coating, including but not limited to: roller or spray.
(3) "Quench area" means a chamber where the hot metal exiting the oven is cooled by either a spray of water or a blast of air followed by water cooling.
(4) "Prime coat" means the first film of coating applie in a two (2) coat operation which is responsible for protecting the surface from corrosion and providing for good adhesion of the topcoat.
(5) "Topcoat" means the final film of coating applied in a two (2) coat operation to obtain desired aesthetic effects.
(6) "Single coat" means a single film coating applied directly to the metal substrate omitting the prime coat.
(7) "Coating line" means a series of equipment and/or operations used to apply, dry, or cure any prime, topcoat or single coatings containing volatile organic compounds. This shall include, but is not limited to:
(a) Mixing operations;
(b) Process storage;
(c) Applicators;
(d) Drying operations including but not limited to quench area oven drying, baking, curing, and polymerization;
(e) Clean up operations;
(f) Leaks, spills and disposal of volatile organic compounds;
(g) Processing and handling of recovered volatile organic compounds;
(h) For the purposes of determining compliance with this regulation, if any equipment or operation could be considered to be a part of more than one (1) coating line, its volatile organic compound emissions shall be assigned to each coating line of which it is a part proportionally to the throughput of volatile organic compound it receives from or distributes to each coating line;
(i) If any portion of the series of equipment and/o operations qualify for an exemption according to Section 6, then that portion shall be considered to be a separate coating line.
(8) "Volatile organic compounds" means chemical compounds of carbon (excluding methane, ethane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides, and ammonium carbonate) which have a vapor pressure greater than one tenth (0.1) mm of Hg at conditions of twenty (20) degrees Celsius and 760 mm of Hg.
(9) "Process storage" means mixing tanks, holding tanks, and other tanks, drums, or other containers which contain surface coatings, volatile organic compounds, or recovered volatile organic compounds; but does not mean storage tanks which are subject to 401 KAR 59:050 or 401 KAR 61:050.
(10) "Classification date" means the effective date of this regulation.
(11) "Volatile organic compounds net input" means the total amount of volatile organic compounds input to the affected facility minus the amount of volatile organic compounds that are not emitted into the atmosphere. Volatile organic compounds that are prevented from being emitted to the atmosphere by the use of control devices shall not be subtracted from the total for the purposes of determining volatile organic compound net input. When the nature of any operation or design of equipment is such as to permit more than one (1) interpretation of this definition, the interpretation that results in the minimum value for allowable emission shall apply.

Section 3. Standard for Volatile Organic Compounds. No person shall cause, allow, or permit an affected facility to discharge into the atmosphere more than fifteen (15)

percent by weight of the volatile organic compounds net input into the affected facility.

Section 4. Compliance. (1) In all cases the design of any control system is subject to approval by the department.

(2) Compliance with the standard in Section 3 shall be demonstrated by a material balance except in those cases where the department determines that a material balance is not possible. For those cases where a material balance is not possible, compliance will be determined based upon an engineering analysis by the department of: the control system design, control device efficiency, control system capture efficiency, and any other factors that could influence the performance of the system. If so requested by the department, performance tests as specified by the department shall be conducted in order to determine the efficiency of the control device.

(3) With the prior approval of the department, the owner or operator may elect to effect such changes in the affected facility as are necessary to qualify for an exemption under Section 6.

(4) Whenever deemed necessary by the department, the department shall obtain samples of the coatings used at an affected facility to verify that the coatings meet the requirements in Section 6. The following methods of analyses, filed by reference in 401 KAR 50:015, for coatings shall be used as applicable except in those cases where the department determines that other methods would be more appropriate:

(a) ASTM D 1644-75 Method A;
(b) ASTM D 1475-60(74);
(c) ASTM D 2369-73; or
(d) Federal Standard 141 a, Method 4082.1.

Section 5. Compliance Timetable. The owner or operator of an affected facility shall be required to complete the following:

(1) Submit a final control plan for achieving compliance with this regulation no later than May 1, 1979.

(2) Award the control system contract or the exempt coatings and any accompanying process change contracts no later than September 1, 1979.

(3) Initiate on-site construction or installation of emission control equipment or process changes for exempt coatings no later than January 1, 1980.

(4) On-site construction or installation of emission control equipment or process changes for exempt coatings shall be completed no later than January 1, 1981.

(5) Final compliance shall be achieved no later than April 1, 1981.

Section 6. Exemptions. Any affected facility shall be exempt from the provisions of Section 3 if the volatile organic compound content of the coating is less than 0.31 kilograms per liter of coating (2.6 pounds per gallon), excluding water, delivered to the applicators associated with the prime, single or topcoat coating line.

EUGENE F. MOONEY, Secretary
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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 61:135. Selected existing petroleum refining processes and equipment.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of hydrocarbon emissions from selected existing petroleum refining processes and equipment.

Section 1. Applicability. The provisions of this regulation shall apply to each affected facility commenced before the classification date defined below.

Section 2. Definitions. (1) "Affected facility" means vacuum producing systems and process unit turnarounds associated with a petroleum refinery.

(2) "Vacuum producing systems" means equipment which produces a partial vacuum in a vessel.

(3) "Process unit turnaround" means the shutting down, depressurization and purging of a process unit or vessel.

(4) "Classification date" means the effective date of this regulation.

Section 3. Standard for Hydrocarbons. The owner or operator of an affected facility shall install, operate, and maintain all equipment necessary to accomplish the following:

(1) Vacuum producing systems. All gaseous hydrocarbons emitted from condensers, hot wells, vacuum pumps, and accumulators be collected and vented to a firebox, flare or other control device of equivalent efficiency as determined by the department.

(2) Process unit turnaround. The gaseous hydrocarbons purged from a process unit or vessel shall be vented to a firebox, flare, or other control device of equivalent efficiency as determined by the department until the pressure in the process unit is less than five (5) psig.

Section 4. Monitoring and Reporting Requirements. (1) The owner or operator shall:

(a) Keep a record of each process unit turnaround;

(b) Record the approximate hydrocarbon concentration when the hydrocarbons were first discharged to the atmosphere;

(c) Record the approximate total quantity of hydrocarbons emitted to the atmosphere.

(2) The owner or operator shall retain these records for at least two (2) years and submit them to the department upon request.

Section 5. Compliance Timetable. The owner or operator of an affected facility shall be required to complete the following:

(1) Submit a final control plan for achieving compliance with this regulation no later than May 1, 1979.

(2) Award the control device contract no later than September 1, 1979.

(3) Initiate on-site construction or installation of emission control equipment no later than March 1, 1980.
(4) On-site construction or installation of emission control equipment shall be completed no later than October 1, 1980.
(5) Final compliance shall be achieved no later than January 1, 1981.

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DEPARTMENT FOR NATURAL RESOURCES ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 61:140. Existing by-product coke manufacturing plants.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement and control of air pollution. This regulation provides for the control of emissions from existing by-product coke manufacturing plants.

Section 1. Applicability. The provisions of this regulation are applicable to each affected facility commenced before the classification date defined below.

Section 2. Definitions. As used in this regulation all terms not defined herein shall have the meaning given them in 401 KAR 50:010 and 401 KAR 61:005.
(1) "Affected facility" means a by-product coke oven battery.
(2) "Classification date" means April 9, 1972.
(3) "Coke oven battery" means a number of slot-type coking chambers arranged side by side.
(4) "Charging" means the process of conveying coal and dropping it into a coke oven through the charging holes or ports located on top of the oven.
(5) "Coking" means the destructive distillation of coal in the absence of oxygen.
(6) "Coke" means a solid form of carbon resulting from the destructive distillation of coal.
(7) "Coke oven" means a refractory lined, heated, slot-type chamber in which coke is produced.
(8) "Chuck door" means the port for the leveling bar.
(9) "Leveling bar" means a structured steel bar pushed back and forth horizontally through the chuck door and used to eliminate the peaks in the coal charged in the oven.
(10) "Collecting main" means the horizontal manifold connected to the standpipes used to conduct the volatile materials to the by-products plant.
(11) "Larry car" means the apparatus used to charge coal into an empty oven. It is also known as a charging car.
(12) "Pusher machine" means a large apparatus which travels on rails alongside the battery and used to remove doors and push coke from the ovens.
(13) "Gooseneck" means a short curved cast iron refractory lined pipe that conveys the volatiles from the standpipe to the collector main.
(14) "Standpipe" means a short vertical refractory lined pipe which conducts volatiles from an oven through the gooseneck to the collector main.
(15) "Quench" means the process whereby water is used to cool the hot coke.
(16) "Quenching car" means an apparatus used to convey hot coke to the quenching tower. It is also known as a wharf car.
(17) "Charging period" means for larry car charging systems, the period of time commencing when the first hopper gate is opened and ending when the last topside port lid is replaced. The charging period includes the period of time during which the port lid is reopened in order to sweep spilled coal into the oven.
(18) "Total coke oven doors" means push and side coke doors with the chuck doors considered to be part of the push side doors.

Section 3. Standards for Particulate Matter. No person subject to the provisions of this regulation shall cause, suffer or allow particulate matter to be discharged to the atmosphere from each affected facility or operation of a by-product coke oven battery except as follows:
(1) Coke oven charging: No visible emissions during the charging cycle from the control equipment, the charging ports, the larry cars or the open chuck door, with an opacity greater than twenty (20) percent for a period or periods aggregating more than two (2) minutes in any consecutive sixty (60) minutes.

(2) Battery topside leaks: The number of leaks (any visible emissions except for steam or non-smoking flame) at any time shall not exceed five (5) percent of the total number of potential leaks on the battery topside. The total number of potential leaks on the battery topside is equal to the number of operating ovens multiplied by the number of charging lids and standpipes per oven.
(3) Doors: No visible emission, except non-smoking flame, from more than ten (10) percent of the total coke oven doors on a battery.
(4) Combustion stack: No visible emission (other than water mist or vapor) shall exceed twenty (20) percent opacity from any coke oven combustion stack.
(5) Pushing: At least eight-five (85) percent of the total particulate matter generated by the pushing operation shall be captured by the control device and the captured emissions cleaned further such that the emission rate from the control device in no case exceeds 0.030 pounds of filterable particulate per ton of coke pushed, averaged over a number of pushes.
(6) Quenching: No visible emissions, except water vapor or mist shall exceed an opacity of twenty (20) percent during the quenching operations. No process water shall be used for quenching and the quench water shall be at least equal to or better than the quality of the water in the river or stream from which it is drawn. The quench tower draft shall be adequate to ensure that all visible quenching gases exit through the quench tower baffles.

Section 4. Standard for Sulfur Dioxide. Coke oven gas shall not be burned or discharged unless it contains a concentration of sulfur compounds (expressed as sulfur dioxide) that will result in emissions of no more than ninety-five (95) pounds of equivalent sulfur dioxide per million cubic feet of coke oven gas produced. Included in this are

all sulfur compounds, expressed as sulfur dioxide, emitted from sulfur recovery equipment used to process the sulfur compounds removed from coke oven gas.

Section 5. Test Methods and Procedures. (1) Except as provided in 401 KAR 50:045, and subsections (2) and (3) of this section, performance tests used to demonstrate compliance with Sections 3 and 4 shall be conducted according to the following methods (filed by reference in 401 KAR 50:015):

(a) Reference Method 9 for combustion stack opacity;

(b) Reference Method 5 for the particulate mass emission rate for pushing emissions. The front half of the sampling train shall be used to determine the particulate emissions rate with possible modifications to allow high volume sampling and reduced probe-filter temperatures.

(2) Determination of sulfur in coke oven gas. Cleaned coke oven gas and any Claus plant tail gas shall to be sampled for hydrogen sulfide, carbonylsuflide, and carbon disulfide by gas chromatograph separation and flame photometric or thermal conductivity detection. Alternate methods may be approved by the department. Clean gas and tail gas flow shall be measured by in-line continuous orifice, venturi or elbow tap flow meters. Compliance testing shall consist of simultaneous measurement of sweet (clean) coke oven gas and sulfur recovery tail gas concentrations and flows. Four (4) samples per hour shall be acquired for concentration and flows during a four (4) hour test period. Compliance shall be determined from the arithmetic average of the sixteen (16) values calculated by using the formula in Appendix A of this regulation.

(3) Determination of visible emissions during the oven charging period:

(a) Principle. The visible emissions emitted from charging systems and oven ports are to be determined visually by an observer who is familiar with coke oven battery operations. Observations for sixty (60) consecutive minutes as specified by the emission standard are required unless the standard is exceeded in a fewer number of charges.

(b) Procedure. The observer is to stand such that he has a good view of the oven being charged. Upon observing any visible emission exceeding twenty (20) percent opacity, an accumulative stopwatch is started. The watch is stopped when the visible emission drops below twenty (20) percent and is restarted when the visible emission reappears at over twenty (20) percent opacity. The observer is tc continue this procedure for the entire charging period. Visible emissions may occur simultaneously from several points during a charge; e.g., from around all drop sleeves at the same time. In this case, the visible emissions are timed collectively, not independently. Also, visible emissions may start from one (1) source immediately after another source stops. This will be timed as one (1) continuous visible emission. The following visible emissions are not to be timed:

1. Visible emissions from burning coal spilled on top of the oven or oven lid during charging;

2. Visible emissions that drift from the top of a larry car hopper, but have already been timed as a visible emission from the drop sleeve below the hopper. When the slide gate closes on a larry car hopper after the coal has been added to the oven, the gate may not provide an airtight seal. On occasion a puff of smoke observed at the drop sleeve shrouds will be forced past the slide gate up into the larry car hopper. From there the smoke may drift from the top of the larry car hopper over a much longer period than it was visible at the shroud. However, if the larry car hopper does not have a slide gate or the slide gate is left open or only partially closed, visible emissions may quickly pass through the larry car hopper without being observed at the shroud. In this case, the emissions from the larry car hopper will appear as a strong surge of smoke and shall be timed.

(c) Recording charging emissions. The time recorded on the stop watch is the total time that visible emissions exceeding twenty (20) percent opacity were observed during the charge. For any consecutive sixty (60) minutes, one (1) value of the seconds of visible emissions over twenty (20) percent opacity as measured by the stopwatch shall be recorded.

(4) Determination of visible emissions from coke oven topside leaks:

(a) Principle. The visible emissions produced from leaking offtake systems, and topside lids are determined visually by an observer who is familiar with coke oven battery operations.

(b) Procedure. The observer shall inspect the coke oven battery by travelling the length of the battery topside at a steady pace, pausing only to make appropriate entries on the inspection report. Travel at a normal walking pace one (1) length of coke oven battery shall constitute a run taking approximately four (4) minutes (for a seventy (70) oven battery) to complete. In performing a run, the observer shall walk the centerline of the battery looking far enough ahead (two (2) or four (4) ovens) of his travel to easily see the oven lids, offtake systems, or collection mains. If the emissions to be inspected cannot be observed from the battery centerline, an alternative location may be used (e.g., a catwalk). During any one (1) run, the observer shall record the number of total visible emissions from oven lids, offtake systems, and collection mains. The total number of leaks from the topside shall be recorded on the inspection report sheet. The following emissions shall not be recorded:

1. Visible emissions from lids and standpipe caps that are opened during a decarbonization period or charging period.

2. Visible emissions caused by maintenance work in progress at an oven.

3. Steam emissions; this includes steam caused by the vaporization of wet luting material.

(c) Determination of percent topside leaks. The total number of leaks shall be observed during a run and then the percent of topside leaks shall be determined by using the formula given in Appendix B to this regulation.

(5) Door inspection procedure:

(a) Observation. The inspector shall make his observations of door emissions from a location as close to the battery as safety and visibility conditions permit, but generally outside of the pusher machine or hot car tracks. The inspector may move to a closer observation point to determine the source of an emission. The inspector shall start the inspection procedure with an oven at either end of the battery and on either the push side or the coke side of the battery. The inspector shall observe and record any visible emission from the door. Visible emissions from the sealing edge around the perimeter of a door, or, in the case of the pusher side, from the door and the chuck door will be considered as door emissions. Visible emissions from structural leaks, such as buckstay or lintel leaks, will not be considered as door emissions. The inspector will then move to the adjacent door and check for door emissions in a like manner. The inspector will continue this procedure down the entire length of the battery. If a temporary machine obstruction occurs blocking his view of a series of ovens,

he may bypass those ovens and continue down the remainder of the battery, returning to check the bypassed ovens when he has completed that side of the battery. After the inspector has observed the doors on one side of a battery, he shall then proceed directly to the oppposite side of the battery and again start at one end of the battery repeating the same procedure as for the previous side.

(b) Determination of percent leaking doors. The total number of leaking doors shall be observed on both sides of the coke oven battery and then the percent of leaking doors shall be determined using the formula given in Appendix C to this regulation.

(6) Determination of quenching visible emissions. The inspector shall make his observations of quenching emissions from a position where he can observe the quench plume. The inspector observes all emissions from the time the wharf car enters the quench tower until the time it leaves the tower after the quench. The maximum opacity of the plume observed against a contrasting background is recorded. If water vapor or mist is present, the opacity is determined after the water vapor or mist is no longer visible in the plume.

Section 6. Compliance Timetable. The owner or operator shall demonstrate compliance with Section 3(5) on or before December 31, 1980. Compliance with all other provisions of this regulation shall have been demonstrated on or before the effective date of this regulation.

APPENDIX A TO 401 KAR 61:085

Formula for determining sulfur compounds (expressed as SO_2) contained in coke oven gas.

$$\text{Sulfur compounds in coke oven gas} = \frac{C_{swg}V_{swg} + C_{tg}V_{tg}}{V_{fg}}$$

Where:

C_{swg} = the concentration of total reduced sulfur in the sweet gas expressed as SO_2;

C_{tg} = the concentration of total reduced sulfur in the tail gas expressed as SO_2;

V_{swg}, V_{tg}, V_{fg} = flow rates of sweet gas, tail gas and foul gas, respectively.

APPENDIX B TO 401 KAR 61:085

Formula for determining percent topside leaks.

$$\text{Percent topside leaks} = \frac{\text{total number of leaks observed during run}}{\text{total number of potential leaks}} \times 100$$

Where:

Total number of potential leaks = Number of operating ovens x (charging lids/oven + standpipes/oven).

APPENDIX C TO 401 KAR 61:085

Formula for determining the percent door leaks.

$$\text{Door leaks (\%)} = \frac{\text{total number of leaking doors observed}}{2 \times \text{number of operating ovens in the battery}} \times 100$$

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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 61:145. Existing petroleum refineries.

RELATES TO: KRS Chapter 224
PURSUANT TO:KRS 13.083, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of emissions from existing petroleum refineries.

Section 1. Applicability. The provisions of this regulation shall apply to each affected facility commenced before the classification date defined below.

Section 2. Definitions. As used in this regulation, all terms not defined herein shall have the meaning given them in 401 KAR 50:010 and 401 KAR 61:005.

(1) "Affected facility" means sulfur recovery units, fluid catalytic cracking unit regenerators, fluid catalytic cracking unit incinerator waste heat boilers and fuel gas combustion devices at a petroleum refinery in any county classified VA with respect to sulfur dioxide.

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

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

(4) "Process gas" means any gas generated by a petroleum refinery process unit, except fuel gas and process upset gas as defined in this section.

(5) "Fuel gas" means any gas which is generated by a petroleum refinery process unit and which is combusted, including any gaseous mixture of natural gas and fuel gas which is combusted.

(6) "Process upset gas" means any gas generated by a petroleum refinery process unit as a result of startup, shutdown, upset or malfunction.

(7) "Refinery process unit" means any segment of the petroleum refinery in which a specific processing operation is conducted.

(8) "Fuel gas combustion device" means any equipment, such as process heaters, boilers and flares used to combust fuel gas, but does not include fluid coking unit and fluid catalytic cracking unit incinerator-waste heat boilers or facilities in which gases are combusted to produce sulfur or sulfuric acid.

(9) "Classification date" means the effective date of this regulation.

Section 3. Standard for Carbon Monoxide. No owner or operator subject to the provisions of this regulation shall discharge or cause the discharge into the atmosphere from the fluid catalytic cracking unit catalyst regenerator any gases which contain carbon monoxide in excess of 0.050 percent by volume.

Section 4. Standard for Sulfur Dioxide. (1) No owner or operator subject to the provisions of this regulation shall burn in any fuel gas combustion device any fuel gas which

contains hydrogen sulfide in excess of 230 mg/dscm (0.10 gr/dscf), except as provided in subsection (2) of this section. The combustion of process upset gas in a flare, or the combustion in a flare of process gas or fuel gas which is released to the flare as a result of relief valve leakage, is exempt from this section.

(2) The owner or operator may elect to treat the gases resulting from the combustion of fuel gas in a manner which limits the release of sulfur dioxide to the atmosphere if it is shown to the satisfaction of the department that this prevents sulfur dioxide emission as effectively as compliance with the requirements of subsection (1) of this section.

(3) (a) No owner or operator subject to the provisions of this regulation shall discharge or cause the discharge into the atmosphere from any fluid catalyst cracking unit regenerator or from any fluid cracking unit incinerator waste heat boiler sulfur dioxide in excess of 150 pounds per hour.

(b) In those instances in which auxilliary liquid or solid fossil fuels are burned in the fluid catalytic cracking unit incinerator-waste heat boiler, sulfur dioxide in excess of that permitted by paragraph (a) of this subsection may be emitted except that the incremental rate of sulfur dioxide emissions shall not exceed 0.80 lbs/million BTU of heat input attributable to such liquid or solid fuel.

(4) No owner or operator subject to the provisions of this regulation shall discharge or cause the discharge into the atmosphere from any Claus sulfur recovery plant any gases containing in excess of:

(a) 0.025 percent by volume of sulfur dioxide at zero (0) percent oxygen on a dry basis if emissions are controlled by an oxidation control system, or a reduction control system followed by incineration; or

(b) 0.030 percent by volume of reduced sulfur compounds and 0.0010 percent by volume of hydrogen sulfide calculated as sulfur dioxide at zero (0) percent oxygen on a dry basis if emissions are controlled by a reduction control system not followed by incineration.

Section 5. Monitoring and Reporting. (1) For any fluid catalytic cracking unit catalyst regenerator which is subject to Section 3 and which utilizes an incinerator-waste heat boiler to combust the exhaust gases from the catalyst regenerator, the owner or operator shall record daily the rate of combustion of liquid or solid fossil fuels (liters/hr or kilograms/hr) and the hours of operation during which liquid or solid fossil fuels are combusted in the incinerator-waste heat boiler.

(2) For the purpose of reports under 401 KAR 61:005 periods of excess emissions that shall be reported are defined as follows:

(a) Carbon monoxide. All hourly periods during which the average carbon monoxide concentration in the gases discharged into the atmosphere from any fluid catalytic cracking unit catalyst regenerator subject to Section 4 exceeds 0.050 percent by volume.

(b) Sulfur dioxide:

1. Any three (3) hour period during which the average concentration of hydrogen sulfide in any fuel gas combusted in any fuel gas combustion device subject to Section 4(1) exceeds 230 mg/dscm (0.10 gr/dscf), if compliance is achieved by removing hydrogen sulfide from the fuel gas before it is burned; or any three (3) hour period during which the average concentration of sulfur dioxide in the gases discharged into the atmosphere from any fuel gas combustion device subject to Section 4(2) exceeds the level specified in Section 4(2) if compliance is achieved by removing sulfur dioxide from the combusted fuel gases.

2. Any twelve (12) hour period during which the average concentration of sulfur dioxide in the gases discharged into the atmosphere from any Claus sulfur recovery plant subject to Section 4(4) exceeds 250 ppm at zero (0) percent oxygen on a dry basis if compliance with Section 4(4) is achieved through the use of an oxidation control system or a reduction control system followed by incineration; or any twelve (12) hour period during which the average concentration of hydrogen sulfide or reduced sulfur compounds in the gases discharged into the atmosphere of any Claus sulfur plant subject to Section 4(4) exceeds ten (10) ppm or 300 ppm, respectively, at zero (0) percent oxygen and on a dry basis if compliance is achieved through the use of a reduction control system not followed by incineration.

(c) Any six (6) hour period during which the average emissions (arithmetic average of six (6) contiguous one (1) hour periods) of sulfur dioxide as measured by a continuous monitoring system exceed the standard under Section 4.

Section 6. Test Methods and Procedures (filed by reference in 401 KAR 50:015). (1) For the purpose of determining compliance with Section 3, the integrated sample technique of Reference Method 10 shall be used. The sample shall be extracted at a rate proportional to the gas velocity at a sampling point near the centroid of the duct. The sampling time shall not be less than sixty (60) minutes.

(2) For the purpose of determining compliance with Section 4(1), (2) and (3), Reference Method 11 shall be used to determine the concentration of hydrogen sulfide and Reference Method 6 shall be used to determine the concentration of sulfur dioxide.

(a) If Reference Method 11 is used, the gases sampled shall be introduced into the sampling train at approximately atmospheric pressure. Where refinery fuel gas lines are operating at pressures substantially above atmosphere, this may be accomplished with a flow control valve. If the line pressure is high enough to operate the sampling train without a vacuum pump, the pump may be eliminated from the sampling train. The sample shall be drawn from a point near the centroid of the fuel gas line. The minimum sampling time shall be ten (10) minutes and the minimum sampling volume 0.01 dscm (0.35 dscf) for each sample. The arithmetic average of two (2) samples of equal sampling time shall contitute one (1) run. Samples shall be taken at approximately one (1) hour intervals. For most fuel gases, sample times exceeding twenty (20) minutes may result in depletion of the collection solution, although fuel gases containing low concentrations of hydrogen sulfide may necessitate sampling for longer periods of time.

(b) If Reference Method 6 is used, Reference Method 1 shall be used for velocity traverses and Reference Method 2 for determining velocity and volumetric flow rate. The sampling site for determining sulfur dioxide concentration by Reference Method 6 shall be the same as for determining volumetric flow rate by Reference Method 2. The sampling point in the duct for determining sulfur dioxide concentration by Reference Method 6 shall be at the centroid of the cross section if the cross sectional area is less than five (5) square meters (fifty-four (54) square feet) or at a point no closer to the walls than one (1) meter (thirty-nine (39) inches) if the cross sectional area is five (5) square meters or more and the centroid is more than one (1) meter from the wall. The sample shall be extracted at a rate proportional to the gas velocity at the sampling point. The minimum sampling time shall be ten (10) minutes and the

minimum sampling volume 0.01 dscm (0.35 dscf) for each sample. The arithmetic average of two (2) samples of equal sampling time shall constitute one (1) run. Samples shall be taken at approximately one (1) hour intervals.

(3) For the purpose of determining compliance with Section 4(4), Reference Method 6 shall be used to determine the concentration of sulfur dioxide and Reference Method 15 shall be used to determine the concentration of sulfur dioxide and reduced sulfur compounds.

(a) If Reference Method 6 is used, the procedure outlined in subsection (2)(b) of this section shall be followed except that each run shall span a minimum of four (4) consecutive hours of continuous sampling. A number of separate samples may be taken for each run, provided the total sampling time of these samples adds up to a minimum of four (4) consecutive hours. Where more than one (1) sample is used, the average sulfur dioxide concentration for the run shall be calculated as the time weighted average of the sulfur dioxide concentration for each sample according to the formula in Appendix A of this regulation.

(b) If Reference Method 15 is used, each run shall consist of sixteen (16) samples taken over a minimum of three (3) hours. The sampling point shall be at the centroid of the cross section of the duct if the cross sectional area is less than five (5) square meters (fifty-four (54) square feet) or at a point no closer to the walls than one (1) meter (thirty-nine (39) inches) if the cross sectional area is five (5) square meters or more and the centroid is more than one (1) meter from the wall. To insure minimum residence time for the sample inside the sample lines, the sampling rate shall be at least three (3) liters/minute (0.1 cfm). The sulfur dioxide equivalent for each run shall be calculated as the arithmetic average of the sulfur dioxide equivalent of each sample during the run. Reference Method 4 shall be used to determine the moisture content of the gases. The sampling point for Reference Method 4 shall be adjacent to the sampling point for Reference Method 15. The sample shall be extracted at a rate proportional to the gas velocity at the sampling point. Each run shall span a minimum of four (4) consecutive hours of continuous sampling. A number of separate samples may be taken for each run provided the total sampling time of these samples adds up to a minimum of four (4) consecutive hours. Where more than one (1) sample is used, the average moisture content for the run shall be calculated as the time weighted average of the moisture content of each sample according to the formula in Appendix B of this regulation.

Section 7. Compliance Timetable. (1) The owner or operator of a sulfur recovery plant shall be required to complete the following:

(a) Submit a final control plan for achieving compliance with Section 4(4) no later than May 1, 1979.

(b) Award the control system contract no later than June 1, 1979.

(c) Initiate on-site construction or installation of emission control equipment by October 1, 1980.

(d) On-site construction or installation of emission control equipment shall be completed no later than May 1, 1981.

(e) Final compliance shall be achieved no later than July 1, 1981.

(2) The owner or operator shall be required to demonstrate compliance with all other provisions of this regulation no later than the effective date of this regulation.

APPENDIX A TO 401 KAR 61:145
Time weighted average of
SO_2 concentration

$$C_R = \sum_{i=1}^{N} C_{Si} \frac{t_{Si}}{T}$$

Where:
C_R = SO_2 concentration for the run.
N = Number of samples.
C_{Si} = SO_2 Concentration for sample i.
t_{si} = Continuous sampling time of sample i.
T = Total continuous sampling time of all N samples.

APPENDIX B TO 401 KAR 61:145
Equation for the time weighted
average of the moisture content.

$$B_{WO} = \sum_{i=1}^{N} B_{Si} \frac{t_{si}}{T}$$

Where:
B_{wo} = Proportion by volume of water vapor in the gas stream for the run.
N = Number of samples.
B_{si} = Proportion by volume of water vapor in the gas stream for the sample i.
t_{si} = Continuous sampling time for sample i.
T = Total continuous sampling time of all N samples.

EUGENE F. MOONEY, Secretary
ADOPTED: November 14, 1978
RECEIVED BY LRC: November 14, 1978 at 9 a.m.
PUBLIC HEARING: Information is on page 335.

DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 63:005. Open burning.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of open burning.

Section 1. Applicability. The provisions of this regulation are applicable to all open burning as defined in Section 2.

Section 2. Definitions. Terms used in this regulation not defined herein shall have the meaning given to them in 401 KAR 50:010.

(1) "Garbage" means putrescible animal and vegetable matter accumulated by a family in residence in the course of ordinary day to day living.

(2) "Household rubbish" means waste material and trash, not to include garbage, normally accumulated by a family in a residence in the courses of ordinary day to day living.

(3) "Open burning" means the burning of any matter in such a manner that the products of combustion resulting from the burning are emitted directly into the outdoor atmosphere without passing through a stack or chimney.

Section 3. Prohibition of Open Burning. (1) No person shall cause, suffer, or allow any open burning except as follows:

(a) Fires for the cooking of food for human consumption on other than commercial premises;

(b) Fires for recreational or ceremonial purposes;

(c) Small fires set by construction and other workers for comfort heating purposes providing excessive or unusual smoke is not created;

(d) Fires set for the purpose of weed abatement, disease, and pest prevention;

(e) Fires set for prevention of a fire hazard, including the disposal of dangerous materials where no safe alternative is available;

(f) Fires set for the purpose of bona fide instruction and training of public and industrial employees in the methods of fighting fires;

(g) Fires set for recognized agricultural, silvicultural, range, and wildlife management practices;

(h) Fires set by individual home owners for burning of leaves except in cities greater than 8,000 population located in a Priority I Region;

(i) Fires for disposal of household rubbish, not to include garbage, originating at dwellings of five (5) family units or less, which fires are maintained by an occupant of the dwelling at the dwelling, except in cities greater than 8,000 population located in a Priority I Region;

(j) Fires set for the purpose of disposing of accidental spills or leaks or crude oil, petroleum products or other organic materials, and the disposal of absorbent material used in their removal, where no other economically feasible means of disposal is available and practical and provided permission is obtained from the department prior to burning;

(k) Fires set for disposal of natural growth for land clearing, and trees and tree limbs felled by storms, provided that no extraneous material such as tires or heavy oil which tend to produce dense smoke are used to cause ignition or aid combustion and the burning is done on sunny days with mild winds. In regions classified Priority I with respect to particulate matter, the emissions from such fires shall not be equal to or greater than forty (40) percent opacity.

(2) The open burning specified in subsection (1) of this section is permitted only if it does not conflict with local ordinance. Where necessary, permission shall be obtained from the fire department fire district having jurisdiction at the place of burning.

EUGENE F. MOONEY, Secretary
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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 63:010. Fugitive emissions.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of fugitive emissions.

Section 1. Applicability. The provisions of this regulation are applicable to each affected facility as defined in Section 2.

Section 2. Definitions. Terms used in this regulation not defined herein shall have the meaning given to them in 401 KAR 50:010.

(1) "Affected facility" means an apparatus, operation, or road which emits or may emit fugitive emissions provided that the fugitive emissions from such facility are not elsewhere subject to an opacity standard within the regulations of the Division of Air Pollution.

(2) "Continuous operation" means any operation which operates uninterrupted for any period of time greater than one (1) minute duration.

(3) "Fugitive emissions" means the emissions of any air contaminant into the open air other than from a stack or air pollution control equipment exhaust.

(4) "Intermittent operation" means any operation which operates at intervals equal to or less than one (1) minute duration.

(5) "Open air" means the air outside buildings, structures, and equipment.

(6) "Classification date" means the effective date of this regulation.

Section 3. Standards for Fugitive Emissions. (1) No person shall cause, suffer, or allow any material to be handled, processed, transported, or stored; a building or its appurtenances to be constructed, altered, repaired, or demolished, or a road to be used in such a manner as to allow:

(a) Visible emissions from any continuous operation equal to or greater than twenty (20) percent opacity. An average opacity will be determined by recording the opacity from the affected facility every fifteen (15) seconds for three (3) consecutive minutes and dividing the sum of the recordings by the number of observations. Except for the above averaging time and corresponding number of observations, all other procedures of Method 9 of Appendix A to 40 CFR 60, filed by reference in 401 KAR 50:015, shall apply;

(b) Visible emissions from intermittent operations equal to or greater than twenty-five (25) percent for one (1) minute. An average opacity will be determined by recording the opacity from the affected facility every fifteen (15) seconds for one (1) minute and dividing the sum of the recordings by the number of observations. Except for the above averaging time and corresponding number of observations, all other procedures of Method 9 of Appendix A to 40 CFR 60 shall apply;

(c) Visible fugitive emissions beyond the property line of the property on which the emissions originate.

(2) Visible emissions in excess of those specified in any one (1) paragraph of subsection (1) of this section or any combination of those paragraphs shall constitute a violation of the standard.

(3) In addition to subsections (1) and (2) of this section, when dust, fumes, gases, mist, odorous matter, vapors, or any combination thereof escape from a building or equipment in such a manner and amount as to cause a nuisance or to violate any regulation, the department may order that the building or equipment, in which processing and storage are done, be tightly closed and ventilated in such a way that all air and gases and air or gas-borne material leaving the building or equipment are treated by removal or destruction of air contaminants before discharge to the open air to such degree as to alleviate such nuisance or violation.

(4) The provisions of subsections (1) and (2) of this section shall not apply to agricultural practices, such as tilling of land or application of fertilizers, which take place on a farm.

Section 4. Additional Requirements. In addition to the requirements of Section 3, the following shall apply:

(1) At all times when in motion, open bodied trucks transporting materials likely to become airborne shall be covered.

(2) Agricultural practices, and such as tilling of land or application of fertilizers, which take place on a farm shall be conducted in such a manner as to not create a nuisance to others residing in the area.

(3) Paved roadways shall be maintained in a clean condition.

(4) Earth or other material on a paved street which has been transported thereto by trucking or earth moving equipment or erosion by water shall be promptly removed.

EUGENE F. MOONEY, Secretary
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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 63:015. Flares.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of flares.

Section 1. Applicability. The provisions of this regulation are applicable to each affected facility which means flares as defined in Section 2.

Section 2. Definitions. Terms used in this regulation not defined herein shall have the meaning given to them in 401 KAR 50:010.

(1) "Classification date" means April 9, 1972.

(2) "Flare" means a device at the tip of a stack or other opening used for the disposal of waste gas streams by combustion.

Section 3. Standard for Particulate matter. (1) No person shall cause, suffer, or allow the emission into the open air of particulate matter from any flare which is greater then twenty (20) percent opacity.

EUGENE F. MOONEY, Secretary
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DEPARTMENT FOR NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 63:020. Potentially hazardous matter or toxic substances.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of emission of potentially hazardous matter and toxic substances.

Section 1. Applicability. The provisions of this regulation are applicable to each affected facility which emits or may emit potentially hazardous matter or toxic substances as defined in Section 2, provided such emissions are not elsewhere subject to the provisions of the regulations of the Division of Air Pollution.

Section 2. Definitions. Terms used in this regulation not defined herein shall have the meaning given to them in 401 KAR 50:010.

(1) "Classification date" means April 9, 1972.

(2) "Potentially hazardous matter or toxic substances" means matter which 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.

Section 3. Control of Potentially Hazardous Matter and Toxic Substances. Persons responsible for a source from which hazardous matter or toxic substances may be emitted shall provide the utmost care and consideration, in the handling of these materials, to the potentially harmful effects of the emissions resulting from such activities. No owner or operator shall allow any affected facility to emit potentially hazardous matter or toxic substances in such quantities or duration as to be harmful to the health and welfare of humans, animals and plants. Evaluation of such facilities as to adequacy of controls and/or procedures and emission potential will be made on an individual basis by the department.

EUGENE F. MOONEY, Secretary
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DEPARTMENT FOR NATURAL RESOURCES
AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 63:025. Asphalt paving operations.

RELATES TO: KRS Chapter 224
PURSUANT TO: KRS 13.082, 224.033
NECESSITY AND FUNCTION: KRS 224.033 requires the Department for Natural Resources and Environmental Protection to prescribe regulations for the prevention, abatement, and control of air pollution. This regulation provides for the control of volatile organic compound emissions due to asphalt paving operations.

Section 1. Applicability. This regulation is applicable to all asphalt paving operations except as provided in Section 4.

Section 2. Definitions. Terms used in this regulation not defined herein shall have the meaning given to them in 401 KAR 50:010.

(1) "Asphalt paving operations" means 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, sealants, etc.

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

(3) "Cutback asphalt" means asphalt cement which has been liquefied by blending with volatile organic compounds (diluents). Upon exposure to atmospheric conditions the diluents evaporate, leaving the asphalt cement to perform its function.

(4) "Emulsified asphalt" means an emulsion of asphalt cement, volatile organic compounds, and water which contains a small amount of an emulsifying agent; a heterogeneous system containing two (2) 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.

(5) "Maintenance operation" means patching of holes and breaks in pavement as is necessary for safety.

(6) "Penetrating prime coat" means an application of low-viscosity liquid asphalt to an absorbent surface. It is used to prepare an untreated base for an asphalt surface. The prime penetrates the base and plugs the voids, hardens the top, and helps bind it to the overlying asphalt course. It also reduces the necessity of maintaining an untreated base course prior to placing the asphalt pavement.

(7) "Unacceptable emulsion asphalt" means any emulsion asphalt which yields more then fifteen (15) percent by volume of oil distillate when tested according to AASHTO T 59-78, Sections 7 to 9, filed by reference in 401 KAR 50:015.

(8) "Volatile organic compounds" means chemical compounds of carbon (excluding methane, ethane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides, and ammonium carbonate) which have a vapor pressure greater than one-tenth (.1) mm of Hg at conditions of twenty (20) degrees Celsius and 760 mm of Hg.

Section 3. Standard for Volatile Organic Compounds. On or after April 1, 1980, no person shall use, or sell for use, manufacture, mix, or store cutback asphalts or unacceptable emulsion asphalts for asphalt paving operations.

Section 4. Exemptions. The provisions of this regulation shall not apply to the following asphalt paving operations:

(1) Application of penetrating prime coat;
(2) Dust suppression operations;
(3) Maintenance operations during the months of November, December, January, February and March.

EUGENE F. MOONEY, Secretary
ADOPTED: November 14, 1978
RECEIVED BY LRC: November 14, 1978 at 9 a.m.
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DEPARTMENT FOR NATURAL RESOURCES
AND ENVIRONMENTAL PROTECTION
Bureau of Environmental Protection
Division of Air Pollution

401 KAR 65:005. Liquefied petroleum gas carburetion systems.

RELATES TO: KRS Chapter 224, 234
PURSUANT TO: KRS 13.082, 224.033, 224.021, 234.321
NECESSITY AND FUNCTION: KRS 234.321 requires the Department for Natural Resources and Environmental Protection to establish emission standards for liquefied petroleum gas carburetion systems. This regulation complies with that requirement.

Section 1. General Provisions. (1) Applicability. This regulation is applicable only to motor vehicles utilizing liquefied petroleum gas for fuel which are required to be equipped with carburetion systems approved by the department in order to be eligible for tax exemptions as set forth in KRS 234.321.

(2) Definitions. As used in this regulation, all terms not defined herein shall have the meaning given them in 401 KAR 50:010.

(a) "Exhaust emissions" means substances emitted to the atmosphere from any opening downstream from the exhaust port of a motor vehicle engine.

(b) "Light duty vehicle" means any motor vehicle either designed primarily for transportation of property and rated at 6,000 pounds gross vehicle weight or less or designed primarily for transportation for persons and having a capacity of twelve (12) persons or less.

(c) "Heavy duty vehicle" means any motor vehicle either designed primarily for transportation of property and rated at more than 6,000 pounds gross vehicle weight or designed primarily for transportation of persons and having a capacity of more than twelve (12) persons.

(d) "Gross vehicle weight" means the manufacturer's gross weight rating.

(3) Vehicle modification to use liquefied petroleum gas:

(a) In addition to all other standards or requirements imposed, any modification of a motor vehicle which allows that vehicle to use liquefied petroleum gas (LPG) for fuel shall not in its operation and function, or malfunction:

1. Cause any emission into the ambient air of any noxious or toxic matter that would not be emitted in the operation of such motor vehicle or motor vehicle engine operating without such a modification; or

2. Cause any unsafe condition which may endanger the motor vehicle, or its occupants or other persons or property.

(b) In cases where a modification of a vehicle has been made which enables gasoline and/or liquefied petroleum gas to be used as fuel, evidence satisfactory to the department must be presented to the department that the modification will not cause increased emissions by the vehicle when that vehicle is being fueled by gasoline.

(c) The reactivity of the exhaust gases must not be increased by any modification to a carburetion system, which modification allows the use of liquefied petroleum gas as a fuel.

(4) Application for approval:

(a) An application for approval of any carburetion system which uses liquefied petroleum gas may be made to the department by any manufacturer.

(b) The application shall be in writing, signed by an authorized representative of the manufacturer, and shall include the following:

1. Identification and description of the carburetion systems, vehicles and engines with respect to which approval is required.

2. A complete description of all modifications and additions to the engine or vehicle.

3. Emission data on such vehicles and engines tested in accordance with the applicable exhaust emission test procedures.

4. A description of tests performed to ascertain compliance with the general standards, and the result of such test.

5. A statement listing the name and location of the testing facility, its qualifications to perform such tests, a certification that such testing facility was at the time the test was performed, approved to conduct such tests by the U. S. Environmental Protection Agency.

6. A statement of recommended maintenance procedures and equipment necessary to assure that the carburetion system, vehicle and engine in operation conform to the requirements of this regulation, and a description of the program for training of personnel for such maintenance.

7. An agreement that any modifications made to the system in the field will be properly identified and reported to the department. To meet this requirement, the model number shall be permanently marked on the carburetor. An adhesive label listing the information in subparagraphs 8 to 12 of this paragraph shall be furnished for installation on the air cleaner.

8. Manufacturer's name and address.

9. Accepted by the Department for Natural Resources and Environmental Protection for use on engine sizes . . . Cubic inch to . . . cubic inch.

10. Spark timing.

11. Idle speed.

12. Mixture adjustment (if used).

(c) If, after a review of the data submitted by the manufacturer, the department determines that a carburetion system to use liquefied petroleum gas conforms to this regulation, it will issue an approval with respect to such system.

Section 2. Standards for Exhaust Emissions. The applicable exhaust emission standards for liquefied petroleum gas carburetion systems are as follows: Light duty vehicles:

(1) Hydrocarbons emissions shall not exceed 0.41 grams per vehicle mile.

(2) Carbon monoxide emissions shall not exceed 3.4 grams per vehicle mile.

Section 3. Test Procedures for Vehicle and Engine Exhaust Emissions. (1) The department will approve carburetion systems which a manufacturer has successfully tested at a facility which is determined to be qualified for performing such testing by the U. S. Environmental Protection Agency. All testing procedures shall be conducted in accordance with the procedures established by the department.

(2) At least one (1) vehicle in each engine displacement class for which the exemption is sought must be tested for emission data. Each manufacturer, however, must accumulate data on a minimum of two (2) vehicles for each carburetor model to qualify for approval.

Displacement Classes

Class	Engine Displacement
A	Under 140 Cubic Inches
B	140-200 Cubic Inches
C	200-250 Cubic Inches
D	250-300 Cubic Inches
E	300-375 Cubic Inches
F	Over 375 Cubic Inches

(3) Carburetion systems shall be installed in accordance with manufacturer's specifications and instructions in order to qualify for the exemption.

Section 4. 401 KAR 3:080 is hereby repealed.

EUGENE F. MOONEY, Secretary
ADOPTED: November 14, 1978
RECEIVED BY LRC: November 14, 1978 at 9 a.m.
PUBLIC HEARING: Information is on page 335.

EDUCATION AND ARTS CABINET
Department of Education
Bureau of Instruction

704 KAR 3:310. Requirements for high school diploma.

RELATES TO: KRS 156.160
PURSUANT TO: KRS 13.082, 156.030, 156.070, 156.160
NECESSITY AND FUNCTION: KRS 156.160(3) requires that upon the recommendation of the Superintendent of Public Instruction, the State Board for Elementary and Secondary Education shall adopt rules and regulations relating to the minimum requirements for graduation from the courses offered in all common schools. This regulation relates to the establishment of requirements necessary for entitlement to a high school diploma.

Section 1. All students shall meet the following minimum unit requirements for high school graduation.

(1)(a) Language arts—3;
(b) Social studies (including one (1) unit in U.S. History)—2;
(c) Mathematics—2;
(d) Science—2;
(e) Health—½;
(f) Physical education—½.
(2)(a) Required—10;
(b) Elective—8;
(c) Total—18.

Section 2. Each student who satisfactorily completes the requirements of Section 1 and any additional requirements established by the local board of education shall be awarded a graduation diploma.
(1) The diploma represents the satisfactory completion of a prescribed course of study based on the minimum graduation requirements.
(2) The governing board of each school district shall award the diploma.

Section 3. A local board of education may allow a child whose parents or guardian present a certificate from a licensed physician to the effect that because of the child's physical condition, participation in the one-half (½) unit physical education course is not in the best interest of the child, to substitute a physical education course which is within the capabilities of the child as specified by the child's physician.

Section 4. Nothing in this regulation shall be interpreted as prohibiting any local governing board, superintendent, principal or teacher from awarding special recognition to students.

JAMES B. GRAHAM
Superintendent of Public Instruction
ADOPTED: September 5, 1978
RECEIVED BY LRC: October 27, 1978 at 10:30 a.m.
SUBMIT COMMENT OR REQUEST FOR HEARING TO: Mr. Fred Schultz, Secretary, Kentucky State Board for Elementary and Secondary Education, 17th Floor, Capital Plaza Tower, Frankfort, Kentucky 40601.

PUBLIC PROTECTION AND REGULATION CABINET
Department of Alcoholic Beverage Control

804 KAR 4:125. Certain premises not be licensed for malt beverage sales.

RELATES TO: KRS 243.280
PURSUANT TO: KRS 13.082, 241.060
NECESSITY AND FUNCTION: KRS 243.280 was amended by the 1978 Legislature to prohibit the issuance of a retail beer license to businesses from which gasoline and lubricating oil are sold, or automotive repairing conducted, unless an inventory on the premises is maintained in the amount of not less than $5,000 of food, groceries, and related products valued at cost. This regulation is necessary to provide a guide to applicants and existing licensees as to what items will be considered as food, groceries, or related products in determining the $5,000 inventory required.

Section 1. The following definitions shall apply to KRS 243.280(2):
(1) Food: All meats, fruits, vegetables, bakery items, and all products in boxes, cans, or bottles that are intended for human consumption.
(2) Groceries: All snack items that are intended for human consumption, including candy and gum; all products for restaurant or fast food services on the premises or for "take-out orders."
(3) Related products: Paper products and picnic supplies; household cleaning products; animal food; and other items for which the applicant or licensee requests and receives approval in writing of the Malt Beverage Administrator upon good cause shown.
(4) Cost: The price paid for the item by the retailer to the wholesaler.

Section 2. The cost of malt beverages located upon the premises shall not be used to determine the $5,000 inventory required by KRS 243.280(2).

BERNARD KEENE, Chairman
ADOPTED: October 11, 1978
APPROVED: MIKE HELTON, Secretary
RECEIVED BY LRC: October 25, 1978 at 3 p.m.
SUBMIT COMMENT OR REQUEST FOR HEARING TO: Alcoholic Beverage Control Board, 123 Walnut Street, Frankfort, Kentucky 40601.

PUBLIC PROTECTION AND REGULATION CABINET
Department of Mines and Minerals
Division of Miner Training, Education and Certification

805 KAR 7:070. Reporting procedures and record maintenance.

RELATES TO: KRS 351.102, 351.105
PURSUANT TO: KRS 351.105, 351.106
NECESSITY AND FUNCTION: KRS 351.102 requires the Board of Miner Training, Education and Certification to establish criteria and standards for a program of training and education for underground coal miners. KRS 351.106 empowers the Commissioner of the Department of Mines and Minerals to promulgate regulations necessary to implement the program of education and training. This regulation sets forth the reporting procedures and record maintenance necessary to implement and administer such program.

Section 1. Reporting requirements. (1) The operator of each underground coal mine shall make, or cause to be made at his direction, a monthly report to the department on forms prescribed by the commissioner.
(2) Each monthly report shall be mailed to the department no later than fifteen (15) days subsequent to the last day of each month.
(3) A copy of the last monthly report submitted to the department shall be posted in a conspicuous place on the mine premises.

Section 2. Information to be reported monthly. (1) Each monthly report shall contain the following information:

(a) Identification of each person that accumulated a total of sixteen (16) hours of annual retraining since the first day of the prevailing calendar year, during that month;

(b) Identification of each newly-hired miner who received eight (8) hours of mine specific training in accordance with 805 KAR 7:040, during that month;

(c) Identification of each experienced miner re-hired by the operator during that month who had received the mine specific training set forth in 805 KAR 7:040 within the twelve (12) preceding months;

(d) Identification of each miner who has completed his fifth shift under production during that month after receiving in the current calendar year twenty (20) hours of training for a new work assignment as set forth in 805 KAR 7:050, and the particular work assignment for which the training was received; and

(e) Identification of each miner qualified in the preceding calendar year who completed his fifth shift under production in the performance of a particular work assignment since the first day of the prevailing calendar year during that month.

(2) For purposes of this regulation, the accumulation of eight (8) hours in performance of a particular work assignment shall be deemed to be equivalent to the completion of one (1) shift of work.

(3) The operator shall report the information required by this regulation as it pertains to each person employed by the operator during the reported month regardless of whether that person is so employed at the time of submission of the monthly report.

(4) If, during any month, none of the events required to be reported occur, then the operator need not submit any report for that month.

Section 3. Record Maintenance. (1) The operator shall maintain upon the mine premises current and accurate records of the following:

(a) The dates on which annual retraining sessions were conducted by the operator, the persons receiving the annual retraining on those dates, and the subjects covered by each annual retraining session;

(b) The name of each miner newly-hired during the prevailing calendar year, the date on which he was hired, and the date on which he received eight (8) hours of mine specific training; and

(c) The particular work assignments for which each miner is qualified to perform pursuant to 805 KAR 7:050, and the basis for such qualifications.

(2) The operator shall maintain upon the mine premises a copy of all monthly reports submitted to the department during the preceding twelve (12) months.

H. N. KIRKPATRICK, Commissioner
ADOPTED: November 7, 1978
APPROVED: DONALD N. RHODY, Secretary
RECEIVED BY LRC: November 13, 1978 at 2 p.m.
PUBLIC HEARING: A hearing on this regulation will be held by the Department of Mines and Minerals at 10 a.m. Tuesday, December 12, 1978, at the University of Kentucky Law School Courtroom, Lexington, Kentucky. All interested persons are invited to attend and participate.

DEPARTMENT FOR HUMAN RESOURCES
Bureau for Social Services

905 KAR 1:131. Design and construction of juvenile detention centers.

RELATES TO: KRS 208.130
PURSUANT TO: KRS 130.082, 194.050
NECESSITY AND FUNCTION: This regulation serves to provide the minimum standards necessary for the design and construction of juvenile detention facilities. It is necessary under terms of KRS 208.130.

Section 1. Definitions. The following definitions shall apply to all regulations and standards for construction of all juvenile detention centers:

(1) "Department" means the Department for Human Resources.

(2) "Bureau" means the Bureau for Social Services.

(3) "Division" means Division for Field Services.

(4) "Commissioner" means Commissioner for the Bureau for Social Services.

(5) "Juvenile detention facility branch" means staff assigned to facility development and maintenance as designated by the commissioner.

(6) "Juvenile detention facility" means any municipal, county, or regional facility used by a municipality, county, or district for the detention of juveniles remanded there by the juvenile session of district court.

(7) "Juvenile" means a boy or girl who has not reached his or her eighteenth (18) birthday.

(8) "Resident" means a juvenile who is lawfully detained in a detention facility.

(9) "Sleeping room" means a facility used to confine one (1) resident during "lights out" hours or for private study during the day.

(10) "Day space" means an area in the facility used to confine a group of residents during the day or until lights out.

(11) "Detoxification isolation," and/or "security room" means a temporary holding area which is a separate area used for the temporary or emergency detention of one resident.

(12) "Multi-purpose areas" shall mean a large common area within the facility to be used for various organized activities.

Section 2. Construction and Renovation Planning Procedures. (1) Any construction utilizing federal funds must meet the specifications and regulations set forth by the National Clearinghouse for Criminal Justice Planning and Architecture, which may differ from Kentucky's standards. If more information is required concerning this type construction, the Clearinghouse should be contacted directly at the University of Illinois, Department of Architecture, 505 East Green, Suite 200, Urbana-Champaign, Illinois, 61820 (Phone Number (217) 333-0312).

(2) The following procedure will take place in the planning of construction projects:

(a) The juvenile detention branch office shall be contacted prior to any remodeling, renovation, or development of new construction plans, to arrange a preliminary meeting among the interested parties, the architect, or the chief designer.

(b) Plans and specifications shall be submitted to the bureau at the following stages.

1. Completion of programming as work progresses;

2. Completion of schematic drawings;
3. Completion of preliminary drawings;
4. Fifty (50) percent completion on working drawings;
5. Completion of working drawings and specifications.

Section 3. Code Compliance. (1) The facility shall comply with all federal, state and local laws and ordinances as well as the applicable national life safety codes.

(2) The facility shall conform to applicable zoning ordinances.

Section 4. Capacity of Facility. (1) The regular bed capacity, excluding special purpose beds, shall not exceed forty-five (45), except by permission of high density population areas. Facilities planned in such areas shall apply to the detention facility branch for permission to waive this requirement.

(2) No unit of beds in the facility shall exceed fifteen (15).

Section 5. Facility Breakdown by Areas. (1) Intake. The area shall provide for operations, administration, booking and receiving, temporary holding, visitation, conference, private interview, shower, vault and personal property storage, weapon storage, medical exam, and janitorial storage spaces.

(2) Resident entrance. The area shall be convenient to routes of access and separate from the visitors entrance. Vehicular sally ports are unnecessary but roofing of the entrance is desirable.

(3) Public entrance. The area shall be comfortable, well lighted, easily maintained and sized according to facility capacity. The area should present a lobby type atmosphere.

(4) Housing. Single resident sleeping rooms shall have the required amount of day space containing a shower and toilet facilities available in their immediate vicinity. Program staff shall also be stationed in close proximity to sleeping and day space. Room groupings will allow for classification and separation of different types of residents.

(5) Kitchen. The kitchen shall be of sufficient size to adequately house and provide for maximum efficiency of all required food preparation equipment. All equipment including freezers, dishwashers, ranges and ovens should be commercial quality.

(6) Indoor recreation. Sufficient recreation space shall be provided to allow for gymnasium type exercises and games in larger facilities housing twenty-six (26) or more residents. Smaller facilities shall contain a large multipurpose area with room for games, arts and crafts, library, religious services, and other indoor activities.

(7) Outdoor recreation. Sufficient outdoor space for exercises and games shall be provided near the facility. A portion of the space shall be paved for use after rain.

(8) Storage. Sufficient space shall be provided for the storage of clothing, linens, blankets, mattresses, activity equipment, records and files, office supplies, school supplies, church equipment, food (equal to fifty (50) percent the kitchen area), cleaning materials, maintenance tools and supplies, and janitor space. Shelving is preferred over walk-in closets.

(9) All facilities shall provide at least two (2) temporary holding areas for detoxification, isolation, or security purposes. Facilities with a capacity of twenty-six (26) to forty-five (45) residents shall provide for at least ten (10) percent of the total beds as special purpose rooms, i.e., detoxification, isolation, or security purposes.

Section 6. Space Requirements. (1) Temporary holding areas shall have sixty (60) square feet of floor space with an eight (8) foot ceiling.

(2) Individual sleeping rooms shall have seventy (70) square feet of floor space with an eight (8) foot ceiling.

(3) Day space shall have thirty (30) square feet of floor space per resident with an eight (8) foot ceiling.

(4) A gymnasium with a full junior high basketball court shall be provided in facilities with a capacity of twenty-six (26) residents and larger.

(5) There shall be a multi-purpose area for facilities with a capacity of twenty-five (25) and fewer residents which shall have 100 square feet of floor space per resident with a ten (10) foot ceiling.

(6) There shall be provided a medical exam room which shall have seventy (70) square feet of floor space with an eight (8) foot ceiling.

(7) Dining room space, where applicable, shall have fifteen (15) square feet of floor space per resident, during occupancy, with a ten (10) foot ceiling.

(8) A school room, where applicable, as determined by the Kentucky Department of Education, shall be provided. It shall be large enough to accommodate the students attending class at the facility.

(9) There shall be provided a visiting room/conference room with one-hundred twenty (120) square feet of floor space and with an eight (8) foot ceiling.

(10) Each resident shall have personal property storage which shall consist of eight (8) inches of hanging space and four (4) square feet of shelving. Sufficient janitorial storage for each area shall be provided.

(11) Corridors shall be seven (7) feet wide with ceilings eight (8) feet high. Ninety (90) degree turns in corridors shall be approved only upon special application to the Detention Center Branch.

Section 7. Mechanical. (1) Detoxification isolation/security rooms (temporary holding rooms) shall have one (1) stainless combination plumbing fixture.

(2) In individual sleeping rooms plumbing shall be optional.

(3) Day space shall have one (1) water closet per eight (8) residents, one (1) lavatory per eight (8) residents, and one (1) shower.

(4) Multi-purpose areas shall have one (1) water closet, one (1) lavatory, one (1) floor drain and one (1) water fountain.

(5) Each gymnasium shall have one (1) restroom for facility residents and one (1) dressing room for visitors, which shall contain a water closet, lavatory, and shower with floor drains, where required. One (1) water fountain shall be provided.

(6) Medical exam room shall have one (1) lavatory fitted with gooseneck faucet and blade handles.

(7) School rooms shall have access to a water fountain.

(8) Visiting-conference rooms shall have water fountain accessible.

(9) Janitorial room shall have one (1) mop sink on each floor.

(10) Corridor floor drains shall be located outside each day space or resident area that contains plumbing fixtures. One (1) floor drain and hose bib shall be provided outside temporary holding room areas. Day space and holding room floors shall slope at one-fourth (¼) inch per ten (10) feet toward floor drains.

Section 8. Electrical Requirements. (1) Lighting in the intake area shall provide for thirty (30) foot candles at desk levels. Sufficient receptacles and phone jacks to meet programming needs and applicable electric codes shall be provided.

(2) Lighting in the public entry/lobby shall be thirty (30) foot candles for reading purposes.

(3) Lighting in housing shall be from secure fixtures, and shall provide for thirty (30) foot candles at desk top elevation capable of reduction to two (2) foot candles with a master override. Recessed security fixtures are not necessary. No light fixture shall be wall mounted. One (1) receptable shall be located in each room with master override.

(4) Lighting in day spaces shall be from secure fixtures and shall provide thirty (30) foot candles at table top elevation during day and two (2) foot candles during lights-out with master override.

(5) Lighting in the medical exam room shall be capable of providing seventy (70) foot candles at table top elevation. Wall receptacles shall be provided according to appropriate electrical code requirements.

(6) Lighting in kitchen shall provide seventy (70) foot candles, and dining areas shall provide thirty (30) foot candles at table top elevation. Necessary receptacles for programmed equipment shall be provided.

(7) Lighting in school rooms shall provide for thirty (30) foot candles at table and desk top elevations.

(8) Lighting in the visiting-conference room shall be capable of producing thirty (30) foot candles at table top elevation.

(9) Lighting in storage areas shall provide for twenty (20) foot candles.

(10) Lighting in corridors shall be capable of providing twenty (20) foot candles during day and two (2) foot candles at night. Receptacles for buffers shall be provided along corridor walls.

Section 9. Heating, Ventilation and Air Conditioning. (1) The mechanical room shall be planned to permit repair and replacement of equipment, satisfactory cleaning and care, and provide for combustion air, where needed. All mechanical equipment shall be remote from security areas.

(2) Where roof areas are used to house major mechanical and electrical components, a set of stairs shall be provided. Walkways shall be provided on the roof from roof access point to each piece remote from security areas.

(3) The heating system shall be of ample capacity and so installed as to ensure uniform temperature of no less than sixty-five (65) degrees to be maintained in all occupied rooms when the outside temperature is zero degrees. The air-conditioning system (if provided) shall be of ample capacity and so installed as to ensure uniform temperature not to exceed eighty-five (85) degrees, fifty (50) percent relative humidity being maintained in all occupied rooms when outside temperature is ninety-five (95) degrees db, seventy-eight (78) degrees wb.

(4) Mechanical ventilation system in security areas shall provide eight (8) air exchanges per hour or thirty (30) CFM per resident during occupied periods, whichever is greater. A minimum of ten (10) percent of this amount shall be outside air. Mechancial ventilation systems shall be capable of maximum utilization of outside air for ventilating and cooling purposes. Air shall be introduced in such a manner as not to produce drafts.

(5) All wiring, conduit and controls shall be inaccessible to residents.

(6) There shall be no space type heaters nor sources of open flame accessible to residents.

(7) No air handling diffuser shall be larger than eight (8) inches in diameter or if rectangular one (1) dimension shall not exceed four (4) inches.

Section 10. Building Materials Specifications. (1) Concrete used in structural situations, walls, floors, etc., shall be 4,000 PSI; all other concrete shall be a minimum of 3,000 PSI. Masonry blocks should be stack jointed to allow for reinforcement and grouting. Pre-cast panels shall be reinforced with number four (4) rod. All masonry walls shall be a minimum of six (6) inches; all perimeter walls shall be reinforced. Approved curing techniques shall be used.

(2) Glazing to be considered in design shall be one-fourth (¼) inch tempered, thirteen-sixteenths (13/16) inch security, one and three sixteenths (1 and 3/16) inch bullet resistant, and one-fourth (¼) inch wire glass. All openings with both dimensions larger than five (5) inches shall utilize thirteen-sixteenth (13/16) inch security or one-fourth (¼) inch tempered glass. One-fourth (¼) inch tempered glass requires sufficient mullions to break the panel down into five (5) inch openings. Exterior window mullion units shall be cast into the wall. Windows shall account for eight (8) percent of exterior walls in housing areas.

(3) Finishes on interior walls and ceilings shall be epoxy and/or enamel.

(4) Floors shall be troweled smooth concrete, and/or terrazzo and/or quarry tile and/or other approved material equal or superior to the former.

(5) No juvenile detention facility will be approved for the confinement of juveniles if such facility is located in or attached to buildings of less than fire-resistant construction, unless the confinement area is separated by an approved masonry fire wall.

(6) No juvenile detention facility shall be located on any floor of any county courthouse or local municipal building other than the first floor above ground.

Section 11. Equipment. (1) Telephone jacks shall be accessible to all day spaces.

(2) Beds located in housing and temporary rooms shall be cast in place, or of pre-cast concrete, or mounted steel fabricated units. Units shall be at least sixteen (16) inches above floor elevation and at least twenty-seven (27) inches by seventy-five (75) inches.

(3) Mattresses shall be twenty-seven (27) inches by seventy-five (75) inches by three (3) inches in dimensions, constructed of cotton which has been treated with boric acid, and contained in a waterproof ticking. The mattress shall be issued in a washable cotton cover.

(4) All doors opening into booking or control areas of juvenile detention facilities shall be hollow metal security doors, unless other exterior security is provided, i.e, sally port, controlled gate, or fencing.

(5) Exit doors shall be hollow metal security-type doors and must be keyed on both sides.

(6) Sally port doors, where applicable, shall be security-type and installed in accordance with approved plans and specifications.

(7) Pipe chase access doors and/or plates must be approved plate or hollow metal security-type in inmate access area according to approved plans and specifications.

(8) There will be at least two (2) complete sets of facility keys. One (1) set of keys not in use shall be stored in a safe place but accessible to supervisory personnel for use in an emergency.

(9) Mirrors shall be provided above all lavatories. They shall be stainless steel and securely mounted for the residents' protection.

(10) Metal or masonry shelving shall be provided in sleeping rooms. Shelves shall be located five (5) feet above floor elevation. Shelving shall be eight (8) inches deep and total forty-eight (48) inches in length. No hooks will be used.

(11) Floor drains located in all housing areas shall be fitted with covers fastened by security screws.

(12) Shower facilities shall be no less than thirty (30) inches by thirty (30) inches by seven (7) feet. Construction shall be masonry, one-eighth (1/8) inch galvanized steel, one-eighth (1/8) inch aluminum, or similar strength stainless. The stall shall be attached to the wall or the day space in which it is installed. Floor elevation in stall shall be eight (8) inches above finished floor elevation and slope to floor drain. A curb shall extend across front of shower four (4) inches high. Top of curb shall be neatly rolled or ground smooth. Push button valve assembly and shower head shall be vandal proof and a metering valve and temperature balance mechanism shall be concealed in pipe chase. No shower shall be projected from the back wall toward the shower door.

(13) Elevators, where elevators are utilized in facility operation, shall be key-operated by staff and located so as to be under observation of supervisory personnel.

(14) Lock mechanisms shall be of approved type installed according to approved plans and specifications.

(15) Furniture, tables, benches, chairs, etc., shall be installed according to approved plans and specifications.

(16) Alarm system shall connect a manned post in the facility with a police station, sheriff's office or other official who will provide immediate assistance in the case of an emergency.

(17) Audio system, or intercom, shall be installed throughout the facility to all housing and support areas for communicating with residents and monitoring activities.

(18) Padded cells shall not be installed in a juvenile detention facility.

Section 12. Applicability to Existing Facilities. Juvenile detention facilities in existence prior to January 1, 1979, shall be exempt from the requirements of this regulation except for the provisions of Section 3(1) and (2).

CHARLES T. CAIN, Commissioner
PETER D. CONN, Secretary
ADOPTED: November 11, 1978
RECEIVED BY LRC: November 11, 1978 at 11 a.m.
SUBMIT COMMENT OR REQUEST FOR HEARING TO: Secretary for Human Resources, 275 East Main Street, Frankfort, Kentucky 40601.

DEPARTMENT FOR HUMAN RESOURCES
Bureau for Social Services

905 KAR 1:133. Operation of juvenile detention facilities.

RELATES TO: KRS 208.130(4)
PURSUANT TO: KRS 13.082, 194.050
NECESSITY AND FUNCTION: This regulation carries out the provision of KRS 208.130(4). It serves to provide the minimum standards for program operation of a juvenile detention facility whether by a local public agency, private organization, city or county government.

Section 1. Definitions. (1) "Department" means the Department for Human Resources.

(2) "Child" means any person who has not reached his eighteenth (18th) birthday.

(3) "Court" means the juvenile session of a district court.

(4) "Delinquency action" is an action brought in the interest of a child who is accused of committing a public offense, which if committed by an adult would be a crime. Only upon adjudication by the court shall the child's behavior be termed delinquent.

(5) "Status action" is any action brought in the interest of a child who is accused of committing acts, which if committed by an adult, would not be a crime. Such behavior shall not be termed criminal or delinquent, and such children shall not be considered delinquents.

(6) "Child care staff" shall mean employees of the juvenile detention facility who provide basic custodial care.

(7) "Youth counselors" shall mean the professional counseling staff of the juvenile detention facility.

Section 2. Types of Juvenile Detention Facilities. (1) Adult jails containing one or more cells or wards which are entirely separated from the sight and sound of adult prisoners and are used for the purpose of detaining children who have been determined by the juvenile court to fall under the provisions of KRS 208.120 shall be excluded from this regulation.

(2) Juvenile detention facilities attached to an adult jail and used to detain juveniles as a result of a delinquency or status action shall conform to this regulation. Existing facilities at the time of filing shall be upgraded to this regulation within one (1) year following its publication.

(3) Separate facilities used to detain juveniles as a result of a delinquency or status action shall be designated as juvenile detention facilities and shall conform to this regulation within one (1) year following its publication.

Section 3. Applicability to Construction Standards. All facilities used to detain children under the provision of KRS 208.130 shall conform to the standards of construction in 905 KAR 1:131.

Section 4. Administration of Juvenile Detention Facilities. (1) The fiscal court, with the juvenile session of the district court acting in an advisory capacity, shall appoint a person who shall serve as the person in charge of the facility and responsible for its internal management. This person shall be known as the director.

(2) The fiscal court with the juvenile session of district court advising shall develop a written policy and operations manual defining function, procedures, and responsibilities involved in the operation of all juvenile detention facilities under its jurisdiction. This shall include all applicable personnel policies and procedures.

(3) Juvenile detention facility staff shall immediately notify the trial commissioner, or the district judge having jurisdiction, of the admission of any child to the detention facility. Such notification shall include the name of the child, parents' name and address, nature of the alleged delinquency act, health of child, and any other information required by the court.

Section 5. Staff in Juvenile Detention Facilities. (1) The individual placed in charge of the facility shall be termed the director and shall have responsibility for staff supervision as well as all aspects of the program which affect the treatment of children, including the handling of behavior problems. The director shall have at least an undergraduate degree in the behavorial sciences, ministry, or related field, and possess three (3) years experience in the child welfare field.

(2) Youth counselors shall have at least an undergraduate degree, preferably in the behavorial sciences, ministry, or related field. They shall provide the intake services, assist in the provision or coordination of services necessary for each child, and other duties as assigned by the director. Designated youth counselors shall be responsible for developing a written assessment of the service needs of each child upon admission.

(3) One (1) youth counselor shall be employed for every twenty (20) children as determined by rated capacity of the detention center.

(4) Arrangements shall be made for services of a chaplain as needed.

(5) Arrangements shall be made for a licensed physician to be on call.

(6) Any volunteers who are used shall be carefully selected and work under close supervision.

(7) Child care staff shall be of good moral character. Total child care staff shall consist of both male and female staff members.

(8) At least one (1) female child care staff person for each five (5) female residents shall be on duty at all times when female residents are being held in the detention facility.

(9) There shall be sufficient child care staff employed to allow for a work week of forty (40) hours per employee. During sleeping hours there shall be no less than two (2) persons awake and on duty at all times. Child care staff shall number at least one (1) staff person for each five (5) children present during daytime and evening hours (periods other than "lights out" times).

(10) There shall be adequate support personnel to permit the facility to operate smoothly with a minimum of confusion and disruption of routine.

(11) Staff handling personal possessions of children shall be bonded in an amount not less than $1,000.

(12) Each juvenile detention facility shall have available during all admitting hours at least one (1) nursing staff person who shall provide initial physical inspections for all admissions to the facility.

(13) In facilities having a population of twenty-six (26) or more residents, there shall be a youth counselor who shall have responsibility for preparing an organized written schedule of recreation activities. The child care staff shall supervise the recreation program. In smaller facilities, this program may be part of the duties delegated to other staff members.

Section 6. Inservice Training and Staff Development for Juvenile Detention Facilities. The facility shall provide ongoing inservice training to all detention staff which shall include training in the practical routines of the job, training in specific activities, and development of special skills and methods for handling behavior incidents.

Section 7. Admission to Juvenile Detention Facilities. (1) Each child shall be given an opportunity to bathe upon admission.

(2) Changes of clothing shall be made available.

(3) Each child shall be given an initial inspection upon admission by a nurse for any observable physical or psychological problems. The results of the above inspection shall be recorded. The child shall be provided with necessary services as indicated. If upon such inspection there is an indication of any communicable disease, the child shall be immediately placed in isolation. If as a result of such inspection, it is determined that any child's physical or psychological condition is such that the child presents a danger to himself/herself or to others within the facility, then the child shall be isolated from the others. Such a child shall be observed at least every fifteen (15) minutes during this isolation. All observations shall be recorded in a log and signed.

(4) The child's personal property shall be removed, signed for, and safely stored for him until his release.

(5) Any child whose vital signs (blood pressure, pulse, and respiration) are abnormal or who has other observable conditions which may require medical attention shall be examined by a physician immediately.

(6) An effort to contact the child's parents, guardian, or other person having custody to notify them of the child's whereabouts shall be made immediately upon admission and recorded in the child's record.

Section 8. Records for Juvenile Detention Facilities. (1) The following records shall be kept for each child and maintained in individual case folders:

(a) Social history, when available.

(b) Copies of all documents relating to the child's court activity.

(c) Psychological and medical information, when available.

(d) Record of personal possessions.

(e) Record of disciplinary problems and the actions taken.

(f) A service assessment listing needs of the child and ways each need shall be met. Copies of this assessment shall be forwarded to the responsible agency upon final disposition of the child.

(2) A daily log shall be kept for recording special situations or conditions including isolation observations, staff on duty, visits, admissions, and releases. Each person on duty making an entry in the log shall sign the log after an entry is made.

(3) Records shall be kept in a locked file in the facility secure from fire and other hazards.

(4) All laws relating to confidentiality of the individual shall be strictly adhered to by all staff.

Section 9. Medical and Dental Care in Juvenile Detention Facilities. (1) Medical care shall be made available to each child as needed. Dental care by a licensed dentist shall be available as needed.

(2) Emergency or short-term medical treatment shall be provided during the child's stay in detention. Parental permission shall be secured when possible, or court permission secured in lieu thereof.

Section 10. Meals in Juvenile Detention Facilities. (1) All food shall be properly cooked and attractively served.

(2) All menus shall be approved by a qualified person.

(3) Meals shall provide basic dietary requirements as provided for in the "Food Service Code," (902 KAR 45:005), or its successor.

(4) All sections of the "Food Service Code" shall apply.

Section 11. Clothing in Juvenile Detention Facilities. When needed, appropriate clothing, in styles commonly worn by other children in the community shall be made available.

Section 12. Personal Hygiene in Juvenile Detention Facilities. (1) Personal grooming shall be encouraged.

(2) Children shall be provided with the necessary toilet articles: toothbrush, comb, linen, soap and necessary clothing.

Section 13. Rights of Children in Juvenile Detention Facilities. (1) Discipline. No dehumanizing form of discipline shall be permitted.

(a) Corporal punishment shall not be permitted.

(b) No child shall be deprived of food or visitation rights as a method of discipline.

(c) Isolation shall be permitted only where a child's illness would be a health threat to others and such use is to be considered a temporary procedure. When the child's behavior is such as to endanger himself, others, or property, isolation may be used.

(d) Isolation for behavior control is only temporary, defined as less than twenty-four (24) hours. The child must be observed visually every fifteen (15) minutes during his isolation. Each observation shall be recorded and signed by the observer.

(e) No form of slapping, spanking, paddling, belting, marching, forcing to stand rigidly in one spot, or any kind of physical abuse shall be allowed.

(f) Children shall not be allowed to discipline other children. This is solely the responsibility of staff.

(2) Work:

(a) Required tasks shall be an important part of each child's daily routine. However, priority should be given to implementation of the service plan should there be a conflict with the work schedule.

(b) Duties such as making beds, cleaning rooms and living areas, helping in kitchen and assisting in cleaning of general facility areas may be assigned to children either regularly or on a revolving basis.

(c) No child will be required to perform personal duties for staff members, cleaning or working in areas other than the detention center, or performing jobs which would replace employed staff members.

(3) Recreation:

(a) The center shall provide supervised periods of recreation in the form of vigorous sports. These shall be scaled to fit the type and size of space available.

(b) Children shall not be forced to participate in recreation activities, but encouraged to do so. Physically ill children may be excused from recreational activities which may be too strenuous for the child.

(c) Suitable equipment shall be available for such activities.

(d) Arts and crafts shall be available for children desiring such.

(e) All daytime and evening hours prior to "lights out" time shall be scheduled or supervised if unscheduled.

(f) All routines shall provide for adequate rest opportunities.

(4) Religion:

(a) Each child shall have the opportunity to worship as he or she desires and the occasion permits. Such worship shall be the responsibility of the chaplain.

(b) No coercion shall be used to secure a child's participation in any religious activities.

(5) Visits:

(a) Each child shall have the right to contact by phone an attorney, parent, or relative at reasonable times and intervals. Reasonable times shall be between 9 a.m. and 9 p.m. All calls should be routed through the office.

(b) Children shall be allowed visits by parents, friends, attorney and relatives at reasonable times and intervals. The facility shall establish rules for visitation, including the number of visitors at one interval, length of visits and hours of visitation, and post these in a prominent place for visitors, staff and residents.

(c) Children shall be allowed to correspond with parents, attorney of record, friends, and relatives. They shall be provided with writing materials, and be allowed to receive all mail. Censorship of incoming mail shall be explained to the child upon admission. Censorship shall be limited to searching incoming envelopes and packages for drugs, weapons, etc., and not to read contents of letters.

Section 14. Approval of Juvenile Detention Facilities. (1) All juvenile detention facilities shall conform to the standards set forth by the Fire Marshal, the provisions contained in the "State and Local Confinement Facilities" regulation, (902 KAR 9:010), and the "Food Service Code," (902 KAR 45:005), or the successors to any of the above, including the national life safety code.

(2) Upon approval of the above and upon meeting the requirements set forth in this regulation, as well as the provisions of 905 KAR 1:131, a juvenile detention facility may be termed "approved" as provided for in KRS 208.130.

(3) Such approved facilities shall be provided a certificate issued by the department attesting to its approval. This certificate must be displayed in a prominent location.

(4) All such approvals shall be subject to periodic inspections in order to continue certifications.

(5) Deficiencies found during such inspections or cited as a result of inspections under subsection (1) of this section shall constitute grounds for the non-certification of any facility.

(6) Deficiencies which present immediate risks of injury or harm to the children, if not corrected within seven (7) days or less, shall cause the revocation of the "approval" status of the juvenile detention facility.

(7) Deficiencies, other than those within the scope of subsection (6) of this section, not corrected within thirty (30) days, shall cause the revocation of the "approval" status of the facility.

(8) The county judge executive, the district court having jurisdiction, and the director of the juvenile detention facility shall be notified in writing of any deficiencies found as a result of an inspection. Each of the above shall be notified in writing in the event the "approval" status of the facility is revoked.

CHARLES T. CAIN, Commissioner
PETER D. CONN, Secretary

ADOPTED: October 12, 1978
RECEIVED BY LRC: November 15, 1978 at 11 a.m.
SUBMIT COMMENT OR REQUEST FOR HEARING TO: Secretary for Human Resources, 275 East Main Street, Frankfort, Kentucky 40601.

ADMINISTRATIVE REGULATION REVIEW SUBCOMMITTEE

Minutes of November 1, 1978 Meeting

(Subject to subcommittee approval at its next meeting on December 6, 1978.)

The Administrative Regulation Review Subcommittee held its regularly scheduled meeting on Wednesday, November 1, 1978 at 10 a.m., in Room 327 of the Capitol.

Minutes of the October 4 meeting were approved with the exception of Subcommittee action on 201 KAR 1:045, Board of Accountancy, on which a public hearing had been requested and the board failed to notify the Compiler as required by 1 KAR 1:010, Section 5. Present were:

Members: Representative William T. Brinkley, Chairman; Senator Donald L. Johnson and Representative Albert Robinson.

Guests: Douglas Beasey, Joseph W. Skaggs, W. O. Hubbard, Ked R. Fitzpatrick, John Cubine and Roy Butler, Department for Human Resources; Jim Shewmaker, Chairperson of Paramedic Committees; James M. Baker and Gary M. Godby, Department of Justice; Rodney P. Dempsey and Roger Petermen, Kentucky Development Finance Authority; Allan Worms, Department of Commerce; Joe Bruna, Don McCormick and Carl Kays, Department of Fish and Wildlife; Joe Moore, Department of Finance; Robert Stallings, Kentucky Real Estate Commission; Gaynelle Trevino and James R. Chadwell, Jr., Office of Auditor of Public Accounts; Bernard W. Gratzer, Joseph Ardery and Martin Glazer, Board of Accountancy; William Schmidt, Board of Medical Licensure; Al Rostal, O.A.A. of Kentucky; Ray Hatfield and Charles R. Ragan, Naegele Outdoor Advertising; B. J. Fulkerson and Richard F. Casey, Higher Education Assistance Authority; Ray Kring and William R. Reed, Department of Revenue; Charles Henry, Department of Transportation; John Williams, Jr., Lloyd F. Moody, and Kirtley B. Amos, Department of Banking and Securities; Eugene F. Perkins, Department of Housing, Buildings and Construction; Sarah S. Cochran, Robert Harrison and Fred Huggins, Department of Labor; Katie Nienaber, Kentucky Welfare Association; Charles D. Crabtree, Mary Michele Resch, Norman D. Asher, John B. Hooton, Mary A. Maple and C. D. Countin, Kentucky Credit Union League; William G. Moremen, M. Brooks Senn and William G. Grannan, Kentucky Bankers Association.

LRC Staff: Mabel D. Robertson, Garnett Evins, Deborah Herd, Joe Hood and Steve Armbrust.

Press: Maria Braden, A. P.; Dave White, WLEX-TV; Bill T. Furnish, Department of Public Information.

The subcommittee rejected, by unaminous vote, proposed regulation 808 KAR 3:040 from the Department of Banking and Securities; Credit Unions; Share draft accounts. It was pointed out by Chairman Brinkley that a bill to enact legislation permitting credit unions to have share draft accounts failed to get a favorable report by the Banking and Insurance Committee during the 1978 Regular Session of the General Assembly. Therefore, it was the consensus of the members that the regulation did not conform to legislative intent.

The following regulation was withdrawn at the request of the issuing agency:

DEPARTMENT OF JUSTICE
Bureau of State Police
Polygraph

502 KAR 20:030. Trainees.

The following regulation was deferred at the request of the issuing agency:

DEPARTMENT OF TRANSPORTATION
Bureau of Vehicle Regulation
Division of Water Enforcement

601 KAR 25:030. Registration decal.

The following regulations were deferred by the subcommittee until the December 6, 1978 meeting:

DEPARTMENT OF FINANCE
Division of Occupations and Professions
Board of Accountancy

201 KAR 1:045. Subjects of examination; grading; re-examination.

201 KAR 1:060. Granting certificates. (These regulations were received in the Compiler's office too late to give the members sufficient time to review them.)

Real Estate Commission

201 KAR 11:151. Builder as broker. (Senator Johnson asked the Commission to direct a communication to the Subcommittee answering questions raised by review.)

DEPARTMENT OF TRANSPORTATION
Bureau of Highways
Maintenance

603 KAR 3:051. Recyclers.

DEPARTMENT OF EDUCATION
Office of Superintendent

701 KAR 5:020. Elementary and secondary education hearing officer.

Bureau of Administration and Finance
School District Finance

702 KAR 3:060. Teachers' salaries payment plan.

Bureau of Pupil Personnel Services
School Terms, Attendance and Operation

703 KAR 2:020. Calendar.

703 KAR 2:050. Attendance; resident, non-resident.

Chairman Brinkley noted that the Department of Education's regulations have been deferred since September. He asked the Compiler to contact the department and request that a representative be present at the December meeting to answer questions pertaining to these regulations.

DEPARTMENT OF LABOR
Elevator Safety

803 KAR 4:010. Elevators, dumbwaiters, escalators and moving walks standards.

DEPARTMENT FOR HUMAN RESOURCES
Bureau for Social Insurance
Medical Assistance

904 KAR 1:045. Payments for mental health center services.

The following regulations were approved and ordered filed.

KENTUCKY HIGHER EDUCATION ASSISTANCE AUTHORITY

Kentucky Loan Program

11 KAR 3:020. Loan insurance program.

Kentucky Higher Education Assistance Authority

11 KAR 4:010. Board meetings.

11 KAR 4:020. Disapproval, probation, limitation, suspension or termination of eligibility to participate in authority programs.

11 KAR 4:030. Student appeals process.

DEPARTMENT OF REVENUE

Income Tax-Corporations

103 KAR 16:080. Apportionment; property factor.

DEPARTMENT OF FINANCE

Division of Occupations and Professions

Board of Medical Licensure

201 KAR 9:101. Definitions relating to paramedics (as amended).

201 KAR 9:121. Certification renewal.

Board of Registration for Professional Engineers and Land Surveyors

201 KAR 18:050. Branches of professional engineering.

DEPARTMENT OF FISH AND WILDLIFE RESOURCES

Fish

301 KAR 1:145. Gear allowed for commercial fishing.

Game

301 KAR 2:055. Pits and blinds; restrictions.

301 KAR 2:085. Seasons and limits for migratory birds.

Hunting and Fishing

301 KAR 3:021. Hunting and fishing license fees.

301 KAR 3:070. Goose harvest reporting.

DEVELOPMENT FINANCE AUTHORITY

Industrial Development

305 KAR 2:010. Tourism loans (as amended in committee).

DEPARTMENT OF JUSTICE

Bureau of State Police

Polygraph

502 KAR 20:010. Examination standards.

502 KAR 20:020. Examiners.

DEPARTMENT OF TRANSPORTATION

Bureau of Highways

Maintenance

603 KAR 3:010. Advertising devices on interstates.

DEPARTMENT OF LABOR

Occupational Safety and Health

803 KAR 2:018. Refuse collection and compaction equipment standards.

803 KAR 2:020. Adoption of 29 CFR Part 1910.

DEPARTMENT OF HOUSING, BUILDINGS AND CONSTRUCTION

Plumbing

815 KAR 20:040. Truck identification.

DEPARTMENT FOR HUMAN RESOURCES

Bureau for Health Services

Communicable Diseases

902 KAR 2:070. Rabies control.

Emergency Medical Technicians

902 KAR 13:010. Definitions.

902 KAR 13:020. Applicants' requirements; priority for training (as corrected).

902 KAR 13:030. Fees (as amended in committee).

902 KAR 13:040. Exemptions.

902 KAR 13:050. Training, examination and certification.

902 KAR 13:060. Status of certifications.

902 KAR 13:070. Instructors and trainers.

902 KAR 13:080. Authorized procedures.

902 KAR 13:090. Disciplinary actions.

Milk and Milk Products

902 KAR 50:050. Manufacturing plant requirements.

Radiology

902 KAR 100:075. Group classifications.

902 KAR 100:142. Wireline service operations.

Bureau for Social Insurance

Medical Assistance

904 KAR 1:032. Dual licensed pediatric facility services.

904 KAR 1:033. Payments for dual licensed pediatric facility services.

Unemployment Insurance

904 KAR 5:080. Reasonable time for protesting claim.

The meeting was adjourned at 1:35 p.m., to meet again on Wednesday, December 6, 1978, at 10 a.m., in Room 327 of the Capitol.