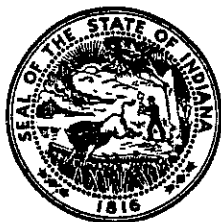


**Air Pollution Control
Regulations APC 1 through 7**



Air Pollution Control Board
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PREFACE

New installations or new potential sources of air pollution shall, after the effective date of the regulations, meet the specifications and limits contained in the regulations. All persons must comply within one year with Regulation APC 2. Existing installations which are sources of air pollution must within one year submit a program and timetables to comply with Regulations APC 3, APC 4, APC 5, APC 6 and APC 7. The Board may at its discretion grant a variance from the rules or regulations if it finds that: (1) the emissions occurring or proposed to occur do not endanger or tend to endanger human health or safety; and (2) compliance with the rules or regulations from which variance is sought would produce serious hardship without equal or greater benefits to the public.

DEFINITIONS

The following terms as used in the Rules and Regulations shall, unless the context otherwise requires, have the following meanings:

AIR CONTAMINANT—Particulate matter, dust, fumes, gas, mist, smoke or vapor, or any combination thereof, but excluding uncombined water.

AIR CONTAMINANT SOURCE—Any and all sources of emission of air contaminants, whether privately- or publicly-owned or operated. Without limiting the generality of the foregoing, this term includes all types of business, commercial and industrial plants, works, shops and stores; and hydrocarbon combustion plants, power generating plants, and steam heating plants and stations, building and other structures of all types, including single and multiple family residences, apartments, houses, office buildings, hotels, restaurants, schools, hospitals, churches, and other institutional buildings, aircraft, automobiles, trucks, tractors, buses and other motor vehicles, garages and vending and service locations and stations, railroad locomotives, ships, boats and other waterborne craft, portable fuel-burning equipment, incinerators of all types, indoor and outdoor, refuse dumps and piles, and all stack and other chimney outlets from any of the foregoing.

AIR POLLUTION—Presence in the outdoor atmosphere of one or more air contaminants in sufficient quantities and of such characteristics and duration as to be injurious to human, plant or animal life or to property, or which unreasonably interfere with the enjoyment of life and property.

ASME—The American Society of Mechanical Engineers.

ASTM—The American Society for Testing and Materials.

AUXILIARY FUEL FIRING EQUIPMENT—Equipment to supply additional heat, by the combustion of an auxiliary fuel, for the purpose of attaining temperatures sufficiently high

(a) to dry and ignite the waste material, (b) to maintain ignition thereof, and (c) to promote complete combustion of combustible solids, vapors, and gases.

BACKYARD INCINERATION—The burning of material originating on the premises of single and multiple family residences.

BLAST FURNACE—The furnace and equipment used in the smelting process in which primarily oxygen is removed from the ore and molten metal produced with gas as a by-product. The furnace and equipment consist of, but are not limited to, the furnace proper, charging equipment, stoves, bleeders, gas dust catcher, gas-cleaning devices and other auxiliaries pertinent to the process.

BOARD—The Air Pollution Control Board of the State of Indiana.

BASIC OXYGEN FURNACE (BOF)—A furnace in which the melting and refining of iron are accomplished by the high velocity addition of large quantities of high purity oxygen to the atmosphere above the surface of the metal bath. The metal is held in a tiltable vessel with a basic refractory lining. Such a furnace includes furnace proper, oxygen lance, scrap and flux charging units, iron transfer units, gas collecting and cleaning equipment and stacks and any other auxiliaries pertinent to the process.

BRITISH THERMAL UNIT—The quantity of heat required to raise one pound of water from 59 degrees F. to 60 degrees F. (Abbreviated B.T.U., BTU or Btu.)

BY-PRODUCT COKE PLANT—A plant used in connection with the distillation process to produce coke in which the volatile matter is expelled, collected, and recovered. Such plant consists of, but is not limited to, coal and coke handling equipment, by-product chemical plant and other equipment associated with and attendant to the coking chambers or ovens making up a single battery operated and controlled as a single unit.

CARBONACEOUS FUEL—Any form of combustible matter—solid, liquid, vapor or gas, consisting primarily of carbon containing compounds in either fixed or volatile form which are burned primarily for their heat content.

CATALYTIC CRACKING UNIT—A unit composed of a reactor, regenerator and fractionating tower which is used to convert certain petroleum fractions into more valuable products by passing the material at elevated temperature through a bed of catalyst in the reactor. Coke deposits produced on the catalyst during cracking are removed by burning off in the regenerator.

COMBUSTION FOR INDIRECT HEATING—The combustion of fuel to produce usable heat that is to be transferred through a heat-conducting materials barrier or by a heat storage

medium to a material to be heated so that the material being heated is not contacted by, and adds no substance to the products of combustion.

ELECTRIC FURNACE—A furnace in which the melting and refining of metals are accomplished by means of electric energy.

ENGINEER—Any person meeting the requirements as set forth in Chapter 148, Acts of 1935, Indiana General Assembly, as amended, and who is registered under the Act as a Professional Engineer. He shall be the person who designed or is responsible for the design of the equipment or air pollution control devices and preparation of the plan documents.

EQUIPMENT—Fuel-burning, combustion or process devices or apparatus including incinerators, fuel-burning equipment, refuse-burning equipment used for the burning of fuel or other combustible material from which the products of combustion are emitted. Also this shall include apparatus which generates heat and may emit products of combustion; and manufacturing chemical, metallurgical, pyro-processing, or mechanical processes which may emit smoke, particulate matter or other air contaminants. Processes are defined as equipment according to this regulation.

EXCESS AIR—That air supplied in addition to the theoretical quantity necessary for complete combustion of all fuel and/or combustible waste material present.

EXISTING EQUIPMENT—Equipment under construction, installed or operated on the effective date of the regulations. Any existing equipment which subsequent to the effective date of these regulations is altered, repaired or rebuilt at a cost of 30% or more of its replacement value shall be deemed new equipment. The cost of air pollution control equipment and of its installation is not to be included as a cost of altering, repairing or rebuilding existing equipment.

FOUNDRY CUPOLA—A stack-type furnace used for melting of metals consisting of, but not limited to, furnace proper tuyeres, fans or blowers, tapping spout, charging equipment, gas-cleaning devices and other auxiliaries.

FOUNDRY OPEN HEARTH—An open hearth furnace as defined herein but used in the foundry industry.

GARBAGE—Animal and vegetable matter such as that originating in houses, kitchens, restaurants and hotels, produce markets, food service and processing establishments, and greenhouses.

GAS-CLEANING DEVICE—Facility designed to remove air contaminants from equipment exhaust gases.

HEATING AND REHEATING FURNACE—A furnace in which metal is heated to permit shaping or forming, or to achieve specific physical properties.

HEATING VALUE—The heat released by combustion of one pound of waste or fuel measured in BTU's on an as received basis.

INCINERATOR—Combustion apparatus designed for high temperature operation in which solid, semi-solid, liquid, or gaseous combustible wastes are ignited and burned efficiently and from which the solid residues contain little or no combustible material.

OPEN BURNING—Any burning of combustible materials wherein the products of combustion are emitted directly into the open air without passing through a stack or chimney.

OPEN HEARTH FURNACE—A furnace in which the melting and refining of metal is accomplished by the application of heat to a saucer-type or shallow hearth in an enclosed chamber. Such furnace consists of, but is not limited to, the furnace proper, checkers, flues, and stack and may include a waste heat boiler, an oxygen lance, and other auxiliaries pertinent to the process.

PARTICULATE MATTER—Any material, except water, that exists in a finely divided form as a liquid or solid.

PERSON—Any individual, partnership, co-partnership, firm, company, corporation, association, joint stock company, trust, estate, political subdivision, or any other legal entity, or their legal representative, agent, or assigns.

POLITICAL SUBDIVISION—Any municipality, city, incorporated town, village, county, township, district or authority, or any portion or combination of two or more thereof.

PROCESS—Any action, operation, or treatment and the equipment used in connection therewith, and all methods or forms of manufacturing or processing that may emit air contaminants.

PROCESS WEIGHT—The total weight of all materials introduced into any source operation. Solid fuels charged will be considered as part of the process weight but liquid and gaseous fuels and combustion air will not.

PROCESS WEIGHT RATE—(a) For continuous or long-run, steady-state source 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 a cyclical or batch source operation, 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.

When the nature of any process or operation or the design of any 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.

REFUSE—Includes garbage, rubbish and trade wastes.

RINGELMANN CHART—The chart published and described in the U. S. Bureau of Mines Information Circular 8333, and on which are illustrated graduated shades of gray to black for use in estimating the light-obscuring power of smoke.

RUBBISH—Solids not considered to be highly flammable or explosive such as, but not limited to, rags, old clothing, leather, rubber, carpets, wood, excelsior, plastics, paper, ashes, tree branches, yard trimmings, furniture, tin cans, glass, crockery, masonry, and other similar materials.

SALVAGE OPERATIONS—Any business, trade or industry engaged in whole or part in salvaging or reclaiming any product or material, such as, but not limited to, metals, chemicals, shipping containers, or drums.

SINTERING PLANT—The plant used in connection with the process of fusing fine particles of metallic ores causing agglomeration of such particles. Such plant consists of, but is not limited to, sintering machines, handling facilities, wind boxes, stack and other auxiliaries pertinent to the process.

SMOKE—Small gas-borne particles resulting from incomplete combustion, consisting predominantly, but not exclusively, of carbon, ash and other combustible material, that form a visible plume in the air.

SMOKE MONITOR—A device using a light source and a light detector which can automatically measure and record the light-obscuring power of smoke at a specific location in the flue or stack of a source. Measuring and recording to be at intervals of not less than 15 seconds.

SOURCE OPERATION—The last operation preceding the emission of an air contaminant, which operation: (a) results in the separation of the air contaminant from the process materials or in the conversion of the process materials into air contaminants, and (b) is not an air pollution abatement operation.

STACK OR CHIMNEY—A flue, conduit or opening permitting particulate, or gaseous emission into the open air, or constructed or arranged for such purpose.

STANDARD CONDITIONS—A gas temperature of 70 degrees Fahrenheit and a gas pressure of 14.7 pounds per square inch absolute (psia).

STANDARD CUBIC FOOT (SCF)—The standard cubic foot is a measure of the volume of one cubic foot of gas at standard conditions.

STANDARD METROPOLITAN STATISTICAL AREA (SMSA)—The county which has at least one city with a population of at least 50,000 and the contiguous counties which contain the suburban areas for these cities.

TECHNICAL SECRETARY—The Technical Secretary of the Air Pollution Control Board of the State of Indiana.

THEORETICAL AIR—The exact amount of air required to supply the required oxygen for complete combustion of a given quantity of a specific fuel or waste.

TRADE WASTE—All solid or liquid material or rubbish resulting from construction, building operations, or the prosecution of any business, trade or industry such as, but not limited to, plastic products, chemicals, cinders and other forms of solid or liquid waste materials.

REGULATION APC 1

Reports, Plans and Specifications

Any person planning to construct a new installation which will or might reasonably be expected to become a source of air pollution or make modifications to an existing installation which will or might reasonably be expected to increase the amount or change the effect or the character of air contaminants discharged, so that such installation may be expected to become a source of air pollution, or planning to install an air-cleaning device shall submit a report, plans and specifications for approval prior to initiation of construction.

The following listed installations are exempted from the submission of reports, plans and specifications:

- a. Comfort heating equipment, boilers, water heaters, air heaters, and steam generators with a rated capacity of less than one million BTU per hour.
- b. Fuel-burning equipment and incinerators used singly or jointly by occupants of dwellings containing four or less apartment units.
- c. Comfort ventilating systems.
- d. Unit space heaters.
- e. Vacuum-cleaning systems used exclusively for commercial or residential housekeeping.
- f. Laboratory hoods which exhaust to outer air.
- g. Exhaust systems for controlling steam and heat.
- h. Fuel-burning equipment using as fuel only natural gas, or L.P. gas, or a mixed gas distributed by a utility in accordance with the rules of the Public Service Commission of the State of Indiana.

Reports, plans and specifications filed for approval shall include the following:

- a. Expected composition of effluent stream both before and after any cleaning device, including emission rate, concentration, volume and temperature.
- b. Expected physical characteristics of particulates.

- c. Size, type and performance characteristics of air-cleaning devices.
- d. The location and elevation of the emission point and other factors relating to dispersion and diffusion of the air contaminant in the outer air, and the relation of the emission to nearby structures, window openings, and other information necessary to appraise the possible effects of the effluent.
- e. When necessary to ascertain compliance, the location of planned sampling points and the tests to be made of the completed installation by the owner.
- f. Any other reasonable and pertinent information that may be required by the Board.

Any information relating to secret processes, methods of manufacture, or production submitted in connection with reports, plans and specifications or testing shall be protected communications and shall not be released or made public without the express permission of the person supplying the information.

The Board, at its discretion, may accept in lieu of detailed plans and specifications a certificate that the proposed air pollution control device will operate in accordance with the emission limitations of the Rules and Regulations.

REGULATION APC 2

Open Burning

No person shall conduct a salvage operation by open burning except on written approval of the Board. The Board must seek advice and guidance of local authorities before issuing such approval.

No person shall burn any refuse in any open fire except as follows:

- a. Camp fires and fires used solely for recreation purposes where such fires are properly controlled by a responsible person.
- b. Backyard incineration.
- c. Burning of rubbish on a farm, derived from an agricultural operation, when the prevailing winds, at the time of burning, are away from populated areas and no nuisance is created.
- d. Open burning, in remote areas, of highly explosive or other dangerous materials for which there is no other known method of disposal or for special purposes when approved by the Board.

The exceptions apply in all areas where they are not prohibited by local ordinances or by other officials having jurisdiction such as local fire officials.

REGULATION APC 3

Smoke and Other Visible Emissions

The Ringelmann Chart shall be used for grading the light-obscuring power of smoke. No person shall operate any combustion installation so as to produce, cause, suffer or allow smoke to be emitted, the appearance, density or shade of which is darker than No. 2 of the Ringelmann Chart. When cleaning a fire or blowing tubes, smoke which is not darker than a No. 3 Ringelmann Chart may be emitted for a period or periods not exceeding five minutes in any 60-minute period, such emissions shall not be permitted on more than six occasions during any 24-hour period. When building a new fire, smoke not darker than a No. 3 Ringelmann Chart may be emitted not to exceed ten minutes on one occasion per day. The Board, at its discretion, may accept an extension of the time period and number of such time periods per day.

When a breakdown of equipment or a change of fuel results in smoke darker than a No. 2 of the Ringelmann Chart, the Board shall be notified immediately.

The opacity of any color equivalent to the Ringelmann Chart may be used as prima-facie evidence in determining process emissions but may be refuted by approved stack emission tests or other evidence acceptable to the Board.

REGULATION APC 4

Combustion for Indirect Heating

Emission of particulate matter from the combustion of fuel for indirect heating shall be limited by the ASME Standard No. APS-1, dated June 15, 1966, "Recommended Guide for the Control of Dust Emission-Combustion for Indirect Heat Exchangers." For purposes of this Regulation, the maximum allowable emission shall be calculated using equation (15) in this Standard with a maximum downwind ground level dust concentration of 50 micrograms per cubic meter for a 30- to 60-minute time period. Figure 2 of the Standard may be used to estimate allowable emissions. However, irrespective of stack height, the maximum allowable emission for any stack shall be 0.6 pounds for new equipment and 0.8 pounds for existing equipment of particulates per million BTU input.

REGULATION APC 5

Process Operations

No person shall operate any process so as to produce, cause, suffer or allow particulate matter to be emitted in excess of the amount shown in the following table. Exceptions are combustion for indirect heating, incinerators, open burning, existing cement kilns, existing catalytic cracking units, and existing foundries.

Allowable Rate of Emission Based
on Process Weight Rate¹

Process Weight Rate		Rate of Emission	Process Weight Rate		Rate of Emission
Lbs/Hr	Tons/Hr	Lbs/Hr	Lbs/Hr	Tons/Hr	Lbs/Hr
100	0.05	0.551	16,000	8.00	16.5
200	0.10	0.877	18,000	9.00	17.9
400	0.20	1.40	20,000	10.00	19.2
600	0.30	1.83	30,000	15.00	25.2
800	0.40	2.22	40,000	20.00	30.5
1,000	0.50	2.58	50,000	25.00	35.4
1,500	0.75	3.38	60,000	30.00	40.0
2,000	1.00	4.10	70,000	35.00	41.3
2,500	1.25	4.76	80,000	40.00	42.5
3,000	1.50	5.38	90,000	45.00	43.6
3,500	1.75	5.96	100,000	50.00	44.6
4,000	2.00	6.52	120,000	60.00	46.3
5,000	2.50	7.58	140,000	70.00	47.8
6,000	3.00	8.56	160,000	80.00	49.0
7,000	3.50	9.49	200,000	100.00	51.2
8,000	4.00	10.40	1,000,000	500.00	69.0
9,000	4.50	11.20	2,000,000	1,000.00	77.6
10,000	5.00	12.00	6,000,000	3,000.00	92.7
12,000	6.00	13.60			

When the process weight exceeds 200 tons/hour, the maximum allowable emission may exceed that shown in the table, provided the concentration of particulate matter in the discharge gases to the atmosphere is less than 0.10 pounds per 1,000 pounds of gases at standard conditions.

Existing cement manufacturing operations equipped with electrostatic precipitators, bag filters, or equivalent gas-cleaning devices shall be allowed to discharge concentrations of particulate matter in accordance with $E=8.6 P^{0.67}$ below 30 tons per hour of process weight and $E=15.0 P^{0.5}$ over 30 tons per hour of process weight.

Existing petroleum catalytic cracking units equipped with cyclone separators, electrostatic precipitators, or other gas-cleaning systems shall recover 99.97% or more of the circulating catalyst or total gas-borne particulate.

¹ Interpolation of the data in this table for process weight rates up to 60,000 lbs/hr shall be accomplished by use of the equation $E=4.10 P^{0.67}$, and interpolation and extrapolation of the data for process weight rates in excess of 60,000 lbs/hr shall be accomplished by use of the equation $E=55.0 P^{0.11-40}$, where E =rate of emission in lbs/hr and P =process weight in tons/hr.

REGULATION APC 6

Existing Foundries

No person shall operate any existing foundry so as to produce, cause, suffer, or allow particulate matter to be emitted in excess of the amount shown in the following table. All new foundries shall not exceed the requirements of Regulation APC 5.

Allowable Emissions from Foundry Cupolas (Existing Emission Sources)

Process Weight Rate Lbs/Hr	Allowable Emission of Particulate Matter
	Lbs/Hr
1,000	3.05
2,000	4.70
3,000	6.35
4,000	8.00
5,000	9.65
6,000	11.30
7,000	12.90
8,000	14.00
9,000	15.50
10,000	16.65
12,000	18.70
16,000	21.60
18,000	22.80
20,000	24.00
30,000	30.00
40,000	36.00
50,000	42.00
60,000	48.00
70,000	49.00
80,000	50.50
90,000	51.60
100,000	52.60

REGULATION APC 7

Incinerators

No person shall cause or permit the emission of particulate matter from the stack or chimney of any incinerator in excess of the following:

- Incinerators with a maximum refuse-burning capacity of 1,000 or more pounds per hour, 0.4 pounds of particulate matter per 1,000 pounds of dry exhaust gas at standard conditions corrected to 50% excess air.
- All other incinerators, 0.7 pounds of particulate matter per 1,000 pounds of dry gas at standard conditions corrected to 50% excess air.
- No incinerator shall emit or produce smoke in excess of the requirements in Regulation APC 3.

All new incinerators shall be multiple chamber or equivalent incinerators.