

Chapter NR 400

AIR POLLUTION CONTROL DEFINITIONS

NR 400.01 Applicability; purpose.
NR 400.02 Definitions.

NR 400.03 Units and abbreviations.

Note: Chapter 285, Stats., directs the department of natural resources to organize a comprehensive program to enhance the quality, management and protection of the state's air resources. Chapters NR 400 to 499 are the central part of that program. Chapter 285, Stats., also addresses the role of county government in establishing local air pollution control programs in cooperation with the department.

The objectives of these rules are to maintain standards of air quality at a level which will provide adequate protection to public health and welfare, and prevent detrimental effects on property and our environment.

Nothing in chs. NR 400 to 499 or in ch. 285, Stats., prohibits a county or local jurisdiction from adopting more restrictive ordinances where local conditions indicate their need. Chapters NR 400 to 499, all or in part, may be adopted by reference by a county or municipality.

It is the department's policy to seek reasonable uniformity among local air pollution control ordinances in order to make the statewide comprehensive program more effective and less complicated for all persons concerned.

Chapters NR 400 to 499 are subject to periodic revision to reflect changing state and federal mandates, advancing control technology, increasing knowledge of the effect on human health of sub-acute long term exposure to air pollutants, and increased knowledge of the effect of pollutants on plant life, animal life, soils and water resources.

NR 400.01 Applicability; purpose. (1) APPLICABILITY.

This chapter applies to terms, units and abbreviations used in chs. NR 400 to 499. In addition to the definitions in this chapter, other definitions may be included in individual chapters or sections in chs. NR 401 to 499 which are applicable to terms, units or abbreviations used in those respective chapters or sections. If an individual chapter or section defines a term which is also defined in this chapter, the definition contained in the individual chapter or section shall apply within that chapter or section, rather than the definition in this chapter.

(2) PURPOSE. This chapter is adopted under ss. 285.11 and 285.13, Stats., to establish a set of definitions for terms commonly used throughout chs. NR 400 to 499. Individual chapters or sections in chs. NR 401 to 499 may contain additional definitions for terms unique to an individual chapter or section or to a specified series of chapters.

History: Cr. Register, September, 1986, No. 369, eff. 10-1-86; am. Register, February, 1990, No. 410, eff. 3-1-90; am. (1), Register, April, 1995, No. 472, eff. 5-1-95; correction in (2) made under s. 13.93 (2m) (b) 7., Stats., Register, 1996, No. 492; am. (1) and (2), Register, March, 1997, No. 495, eff. 4-1-97.

NR 400.02 Definitions. (1) "Acid rain allowance" or "allowance" means an authorization by the administrator under the acid rain program to emit up to one ton of sulfur dioxide during or after a specified calendar year.

(2) "Acid rain phase I affected unit" means any unit listed in Table A of 42 USC 7651c. These are:

- (a) Wisconsin Power and Light – Edgewater generating station unit 4.
- (b) Dairyland Power Cooperative – Genoa generating station unit 3.
- (c) Wisconsin Power and Light – Nelson Dewey generating station units 1 and 2.
- (d) Wisconsin Electric Power Company – North Oak Creek generating station units 1, 2, 3 and 4 and South Oak Creek generating station units 5, 6, 7 and 8.
- (e) Wisconsin Public Service Corporation – Pulliam generating station unit 8.

(3) "Acid rain program" means the national sulfur dioxide and nitrogen oxides air pollution control and emissions reduction program established in accordance with title IV of the act (42 USC 7651 to 7651o) and 40 CFR parts 72 to 78.

(4) "Acid rain provision" means any provision of an operation permit implementing an applicable requirement of the acid rain program.

(5) "Act" means the federal clean air act, as defined in s. 285.01 (19), Stats.

(6) "Actual emissions" means the total emissions generated by a facility over a specified period of time taking into account any reductions made by a control device or technique.

(7) "Actual operation" means, for purposes of nonmetallic mineral quarrying or mining, the number of calendar days on which there is operation of any blasting, drilling or other movement or transfer of naturally occurring rock at a quarry or mine.

(8) "Actual production" means, for purposes of nonmetallic mineral quarrying or mining, sales amount in tons of nonmetallic mineral as measured at the quarry or mine.

(9) "Administrator" means the administrator of the EPA or designee.

(10) "Affected source" means a stationary source that includes one or more affected units that are subject to an emissions reduction requirement or emissions limitation under the acid rain program.

(11) "Affected unit" means an emissions unit that is subject to any emissions reduction requirement or emissions limitation under the acid rain program.

(12) "Air contaminant" has the meaning given in s. 285.01 (1), Stats.

(13) "Air contaminant source" has the meaning given in s. 285.01 (2), Stats.

(14) "Air curtain destructor" has the meaning given in s. 289.51, Stats.

(15) "Air pollutant" means an air contaminant as defined in s. 285.01 (1), Stats.

(16) "Air pollution" means the presence in the atmosphere of one or more air contaminants in such quantities and of such duration as is or tends to be injurious to human health or welfare, animal or plant life, or property, or would unreasonably interfere with the enjoyment of life or property.

(17) "Air pollution control permit" has the meaning given in s. 285.01 (4), Stats.

(18) "Air quality control region" or "AQCR" means an area designated under 42 USC 7407 or s. NR 404.03 in which a plan to maintain or achieve air standards is implemented on a regional basis. Air quality control regions include both interstate and intrastate regions.

(19) "Air region" means an area such as an AQCR designated pursuant to federal or Wisconsin laws in which a program to maintain or achieve air standards is implemented on a regional basis.

(20) "Allocation of the available air resource" has the meaning designated in s. 285.01 (5), Stats.

(21) "Allowable emission" has the meaning given in s. 285.01 (7), Stats.

(22) "Alternate designated representative" means a responsible natural person, authorized by the owners and operators of an affected source and of all affected units at the source to act in lieu of the designated representative, as evidenced by a certificate of representation submitted in accordance with 40 CFR 72.22, who

may act on behalf of the designated representative to represent and legally bind each owner and operator, as a matter of federal law, in matters pertaining to the acid rain program.

(23) "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 satisfaction to produce, in specific cases, results adequate for the department's determination of compliance.

(24) "Ambient air" means the portion of the atmosphere external to buildings and to which the general public has access.

(25) "Ambient air increment" or "air increment" means the maximum allowable increase in concentration of an air contaminant above the base line concentration of the air contaminant.

(26) "Applicable requirement" means all of the following as they apply to emissions units at a source, including requirements that have been promulgated or approved by EPA or the department through rulemaking at the time of permit issuance but for which compliance is required after the date of permit issuance:

(a) Any standard or other requirement provided for in the applicable implementation plan approved or promulgated by EPA through rulemaking in 40 CFR part 52.

(b) Any term or condition of any construction permit issued pursuant to ch. NR 405, 406 or 408 or to regulations approved or promulgated by EPA through rulemaking under title I of the act (42 USC 7401 to 7515).

(c) Any standard or other requirement under section 111 of the act (42 USC 7411).

(d) Any standard or other requirement under section 112 of the act (42 USC 7412).

(e) Any standard or other requirement of the acid rain program.

(f) Any requirements established pursuant to section 504 (b) or section 114 (a) (3) of the act (42 USC 7661c (b) or 7414 (a) (3)).

(g) Any standard or other requirement governing solid waste incineration, under section 129 of the act (42 USC 7429).

(h) Any standard or other requirement for consumer and commercial products, under section 183 (e) of the act (42 USC 7511b (e)).

(i) Any standard or other requirement for tank vessels, under section 183 (f) of the act (42 USC 7511b (f)).

(j) Any standard or other requirement of the regulations promulgated to protect stratospheric ozone under title VI of the act (42 USC 7671 to 7671q), unless the administrator has determined that the requirements need not be contained in an operation permit.

(k) Any national ambient air quality standard or increment or visibility requirement under part C of title I of the act (42 USC 7470 to 7492).

(L) Any emission limit or other requirement in ch. 285, Stats., or chs. NR 400 to 499.

(m) Any source-specific emission limitation established pursuant to ch. 285, Stats., or rules promulgated thereunder.

(27) "Approved" means approved by the department of natural resources.

(28) "Baseline concentration" has the meaning given in s. 285.01 (11), Stats.

(29) "Basic emissions unit" means the smallest collection of equipment which in combination emits or is capable of emitting any air contaminant.

(30) "Belt conveyor" means a conveying device that transports material from one location to another by means of an endless belt that is carried on a series of idlers and routed around a pulley at each end.

(31) "Best available control technology" has the meaning given in s. 285.01 (12), Stats.

(32) "Biweekly" means any 14-day period of time.

(33) "Boiler" means any device with an enclosed combustion chamber in which fuel is burned to heat a liquid for the primary purpose of producing heat or power by indirect heat transfer.

(34) "Breakdown" means a sudden failure of emission control or emission monitoring equipment to function as a result of wear, failure to repair, breakage, unavoidable damage, or other unintentional causes.

(35) "Bucket elevator" means a conveying device for grain, minerals or other materials consisting of a head and foot assembly which supports and drives an endless single or double strand chain or belt to which buckets are attached.

(36) "Bulk gasoline plant" means a gasoline storage and distribution facility which receives gasoline from bulk terminals, stores it in stationary storage tanks, and subsequently distributes it to gasoline dispensing facilities.

(36m) "Business day" means any day except Saturday, Sunday or a state holiday as designated in s. 230.35 (4) (a), Stats.

(37) "Capacity" means, for purposes of nonmetallic mineral processing, the cumulative rated capacity of all initial crushers that are part of a processing plant.

(38) "Capture efficiency" means the weight per unit time of an air contaminant entering a capture system and delivered to a control device divided by the weight per unit time of the air contaminant generated by the source, expressed as a percentage.

(39) "Capture system" means the equipment (including hoods, ducts, fans, etc.) used to contain, capture, or transport an air contaminant to a control device.

(40) "Coal" means all solid fuels classified as anthracite, bituminous, subbituminous or lignite by ASTM designation D388-99e, incorporated by reference in s. NR 484.10 (7).

(41) "Coal-derived fuel" means any fuel, whether in a solid, liquid or gaseous state, produced by the mechanical, thermal or chemical processing of coal, such as pulverized coal, coal refuse, liquified or gasified coal, washed coal, chemically cleaned coal, coal-oil mixtures and coke.

(42) "Coin-operated dry cleaning machine" means a dry cleaning machine that is operated by the customer by placing articles into the machine, turning the machine on, and removing articles from the machine.

(43) "Cold cleaning" means the batch process of cleaning and removing soils from metal surfaces by spraying, brushing, flushing or immersion while maintaining the solvent below its boiling point. Wipe cleaning is not included in this definition.

(44) "Commence construction" means to engage in a program of on-site construction, including a site clearance, grading, dredging or landfilling specifically designed for a stationary source in preparation for the fabrication, erection or installation of the building components of the stationary source.

(45) "Commence modification" means to engage in a program of on-site modification which may include site clearance, grading, dredging or landfilling in preparation for a specific modification of a stationary source.

(45m) "Contact adhesive" means an adhesive that is applied to 2 substrates, dried and mated under only enough pressure to result in good contact. The bond is immediate and sufficiently strong to hold pieces together without further clamping, pressure or airing.

(46) "Control device" means equipment used to destroy or remove air contaminants in a gas stream exiting a capture system prior to emission.

(47) "Control efficiency" means the percentage by which a control device or technique reduces the emissions from a stationary source.

(48) "Control system" means any number of control devices, including condensers, which are designed and operated to reduce the quantity of air contaminants emitted to the atmosphere.

(49) "Conveyorized non-vapor degreasing" means the continuous process of cleaning and removing soils from metal surfaces by operating with non-vaporized solvents.

(50) "Conveyorized vapor degreasing" means the continuous process of cleaning and removing soils from metal surfaces by operating with vaporized solvents.

(51) "Crusher" means a machine used to crush any nonmetallic minerals, and includes, but is not limited to, the following types: jaw, gyratory, cone, roll, rod mill, hammermill and impactor.

(52) "Day" means a 24-hour period beginning at midnight.

(53) "Department" means the department of natural resources, state of Wisconsin.

(54) "Designated representative" means a responsible natural person authorized by the owners and operators of an affected source and of all affected units at the source, as evidenced by a certificate of representation submitted in accordance with 40 CFR 72.20 to 72.25, to represent and legally bind each owner and operator, as a matter of federal law, in matters pertaining to the acid rain program.

(55) "Direct source" means any stationary source which may directly result in the emission of any air contaminant at a fixed location.

Note: Examples are a foundry, a grain elevator, a gravel or stone quarry, a paper mill, a power plant or the demolition of a building.

(56) "Emergency electric generator" means an electric generator whose purpose is to provide electricity to a facility if normal electrical service is interrupted and which is operated no more than 200 hours per year.

(57) "Emission" means a release, whether directly or indirectly, of any air contaminant to the atmosphere.

(58) "Emission limitation" or "emission standard" has the meaning given in s. 285.01 (16), Stats.

(59) "Emission point" means any individual opening at a fixed location through which air contaminants are emitted.

(60) "Emission reduction option" has the meaning given in s. 285.01 (17), Stats.

(61) "Emissions unit" means any part of a stationary source which emits or is capable of emitting any air contaminant.

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

(63) "Facility" means an establishment—residential, commercial, institutional or industrial—which emits or causes emissions of air contaminants.

(64) "Federally enforceable" means all limitations and conditions which are enforceable by the administrator, including those requirements developed pursuant to chs. NR 440 and 446 to 449, and under sections 111 and 112 of the act (42 USC 7411 and 7412), requirements within any applicable state implementation plan, any permit requirements established pursuant to ch. NR 405, requirements in construction permits issued under ch. NR 406 or 408 and requirements in operation permits issued pursuant to ch. NR 407 and title V of the act which are designated as federally enforceable.

Note: Permit or state implementation plan limitations generally considered federally enforceable are limitations on the allowable capacity of the equipment, requirements for the installation, operation and maintenance of pollution control equipment, limits on hours of operation and restrictions on amounts of materials combusted, stored or produced. To be federally enforceable, restrictions on operation, production or emissions must reflect the shortest practicable time period, in no event for a period in excess of 30 days, and they must be tied to other enforceable operating restrictions at the source. General limitations on potential to emit, such as yearly limits in tons per year, by themselves, are not considered federally enforceable. The use of hourly, daily, weekly or monthly rolling averages are generally acceptable. Any federally enforceable limitations or conditions must be practically enforceable, ensure continuous compliance with the restrictions and include adequate testing, monitoring and recordkeeping procedures in an applicable federally issued permit, in a federally

approved state implementation plan or in a permit issued under the state implementation plan.

(65) "Fixed capital cost" means the capital needed to provide all of the depreciable components of a stationary source.

(66) "Fixed plant" means any nonmetallic mineral processing plant at which the processing equipment is attached or clamped by a cable, chain, turnbuckle, bolt or other means, except electrical connections, to any anchor, slab or structure including bedrock.

(67) "Fossil fuel" means natural gas, petroleum, coal or any form of solid, liquid or gaseous fuel derived from such material.

(68) "Fossil fuel-fired" means the combustion of fossil fuel or any derivative of fossil fuel, alone or in combination with any other fuel, without regard to the percentage of fossil fuel consumed in any calendar year.

(69) "Fuel" means any solid, liquid or gaseous materials used to produce useful heat or power by burning.

(70) "Fuel oil" means any petroleum-based fuel, including diesel fuel or petroleum derivatives such as oil tar, as defined in ASTM D396-02, incorporated by reference in s. NR 484.10 (8), and any recycled or blended petroleum products or petroleum by-products used as a fuel whether in a liquid, solid or gaseous state.

(71) "Fugitive emission" means an emission from any emission point within a facility other than a flue or stack.

(72) "Gasoline" means any petroleum distillate or petroleum distillate/alcohol blend having a Reid vapor pressure of 27.6 kilopascals or greater which is used as a fuel for internal combustion engines.

(73) "Gasoline dispensing facility" means any site where gasoline is dispensed to motor vehicle gasoline tanks from stationary storage tanks.

(74) "Graphic arts" means any printing operations described by 2-digit major group 27 in the Standard Industrial Classification Manual, 1987, incorporated by reference in s. NR 484.05 (1).

(75) "Grinding mill" means a machine used for the wet or dry fine crushing of any nonmetallic mineral. Grinding mills include, but are not limited to, the following types: hammer, roller, rod, pebble and ball, and fluid energy. The grinding mill includes the air conveying system, air separator or air classifier, where such systems are used.

(76) "Halogenated hazardous air pollutant compound" or "halogenated HAP compound" means methylene chloride (CAS no. 75-09-2), perchloroethylene (CAS no. 127-18-4), trichloroethylene (CAS no. 79-01-6), 1,1,1-trichloroethane (CAS no. 71-55-6), carbon tetrachloride (CAS no. 56-23-5) or chloroform (CAS no. 67-66-3).

(77) "Halogenated hazardous air pollutant solvent" or "halogenated HAP solvent" means any solvent that contains a halogenated HAP compound or a combination of halogenated HAP compounds, in a total concentration greater than 5% by weight. The concentration of these compounds in the solvent may be determined using Method 18 of Appendix A, 40 CFR part 60, incorporated by reference in s. NR 484.04 (16), material safety data sheets or engineering calculations.

(78) "Hazardous air pollutants listed under section 112(b) of the act" means the federally regulated air pollutants included in the list in section 112(b)(1) of the act (42 USC 7412(b)(1)) as revised by 40 CFR part 63 Subpart C.

(79) "Heat input" means the total gross calorific value per unit of time of all fuels being burned, where gross calorific value of a fuel is measured by ASTM Method D240-02, D1826-94 or D5865-02, incorporated by reference in s. NR 484.10 (4), (26) and (55g). Where the test method gives a higher and a lower heating value, heat input is calculated in Btu per hour using the higher heating value of the fuel.

(80) "Highway" has the meaning given it in s. 340.01 (22), Stats.

(81) "Hour" means any 3,600 second period.

(82) "Implementation plan" means a plan adopted to implement, maintain and enforce air standards within the state, an air region, or a portion of the state or region.

(83) "Incinerator" means a combustion apparatus designed for high temperature operation in which solid, semisolid, liquid, or gaseous combustible wastes are ignited and burned to produce solid and gaseous residues containing little or no combustible material.

(84) "Increase in the net amount of emissions" has the same meaning as the phrase "net emissions increase" which is defined in s. NR 405.02 (24).

(85) "Indirect source" means any stationary source which attracts or may attract mobile source activity or on which mobile source activity is conducted, thus resulting in the indirect emissions of any air contaminant, at or on the indirect source itself, attributable to the motor vehicles or the mobile source activity. Such indirect sources include, but are not limited to highways and roads; parking facilities; retail, commercial and industrial facilities; recreation, amusement, sports and entertainment facilities; airports, bus terminals and train stations; office and government buildings; and educational facilities.

(86) "Industrial sand mine" means any mine, pit or quarry to which the standard industrial classification (SIC) category number 1446 applies. The SIC category for a source is determined by reference to the Standard Industrial Classification Manual, 1987, which is incorporated by reference in s. NR 484.05 (1).

(87) "Infectious waste" has the meaning given in s. 287.07 (7) (c) I. c., Stats.

Note: For more detailed information on what the department treats as infectious waste, see subch. II of ch. NR 526.

(88) "Intersection" has the meaning given in s. 340.01 (25), Stats.

(89) "Kraft pulp" means any pulp produced with an alkaline sulfide solution containing sodium hydroxide and sodium sulfide for a cooking liquor.

(90) "Laboratory" means a facility or portion of a multi-use facility which does not produce a product for regular commercial use or sale and which is used primarily for scientific or technical experimentation or observation of matter for the purpose of research, development, quality assurance, analysis or teaching.

(91) "Ledge rock quarry" means any open pit to which the standard industrial classification (SIC) category number 1411, 1422, 1423, or 1429 applies where drilling and blasting is required to extract the nonmetallic mineral. The SIC category for a source is determined by reference to the Standard Industrial Classification Manual, 1987, which is incorporated by reference in s. NR 484.05 (1).

(92) "Light-duty trucks" means any motor vehicles rated at 3864 kilograms (8500 pounds) gross weight or less which are designed primarily for the purpose of transporting goods and materials, or derivatives of such vehicles.

(93) "Lowest achievable emission rate" has the meaning given in s. 285.01 (23), Stats.

(94) "Malfunction" means any sudden failure of air pollution control equipment or process equipment or of a process to operate in a normal or usual manner. Failures that are caused entirely or in part by poor maintenance, careless operation or any other preventable upset condition or preventable equipment breakdown are not malfunctions.

(95) "Maximum theoretical emissions" means the quantity of air contaminants that theoretically could be emitted by a stationary source without control devices based on the design capacity or maximum production capacity of the source. When determining annual maximum theoretical emissions, a source shall be presumed to operate 8,760 hours per year unless its physical design precludes 8,760 hours of operation per year. Where a source's physical design restricts the number of hours it may operate,

annual maximum theoretical emissions shall be calculated taking this restriction into account. In determining the maximum theoretical emissions of VOCs for a source, the design capacity or maximum production capacity shall include the use of raw materials, coatings and inks with the highest VOC content used in practice by the source. Realistic operating conditions shall be taken into account in determining emissions under this subsection.

(96) "Metropolitan county" means a county which has been designated as either a metropolitan statistical area or a primary metropolitan statistical area by the federal office of management and budget in Metropolitan Areas, 1993, incorporated by reference in s. NR 484.05 (3).

Note: The 20 Wisconsin counties which have been so designated are the counties of Brown, Calumet, Chippewa, Dane, Douglas, Eau Claire, Kenosha, La Crosse, Marathon, Milwaukee, Outagamie, Ozaukee, Pierce, Racine, Rock, Sheboygan, St. Croix, Washington, Waukesha and Winnebago.

(97) "Minor source" means any stationary source which is not a major source.

Note: Definitions for "major source" which apply in different situations are given in ss. NR 405.02 (22), 407.02 (4), 408.02 (21), 411.02 (5), 460.02 (24), 468.20 (2) (L) and 468.30 (2) (g).

(98) "Mobile source" means any motor vehicle, vessel, aircraft or equipment other than a semistationary source which is capable of emitting any air contaminant while moving or idling on the ground or in the water. Mobile sources include automobiles, motorcycles, trucks, buses, snowmobiles, motorboats, steamships, earthmoving equipment, locomotives and aircraft.

(99) "Modification" means any physical change in, or change in the method of operation of, a stationary source that increases the amount of emissions of an air contaminant or that results in the emission of an air contaminant not previously emitted. A modification does not include any changes identified in s. NR 406.04 (4).

(101) "Modified indirect source" means an indirect source the modification of which is commenced after July 1, 1975, or after the date of issuance of the last air pollution control permit or plan approved to the source, whichever is later.

(102) "Motor vehicle" or "vehicle" means every self-propelled device, except railroad trains, by which any person or property is or may be transported or drawn upon a highway.

(103) "Municipality" has the meaning given in s. 285.01 (28), Stats.

(104) "Natural gas" means a naturally occurring fluid mixture of hydrocarbons containing little or no sulfur such as methane, ethane or propane, produced in geological formations beneath the earth's surface, and maintaining a gaseous state at standard atmospheric temperature and pressure conditions.

(105) "New direct or portable source" means a direct or portable source, the construction or modification of which is commenced after April 1, 1972, or the effective date of promulgation of an emission limit which applies.

(106) "New indirect source" means an indirect source, the construction of which is commenced after July 1, 1975.

(107) "Nitrogen oxides" or "NO_x" means all oxides of nitrogen except nitrous oxide.

(108) "Nonattainment area" has the meaning given in s. 285.01 (30), Stats.

(109) "Nonmetallic mineral" means any of the following minerals or any mixture of which more than half the weight is any combination of the following minerals:

(a) Crushed and broken stone, including limestone, dolomite, granite, traprock, sandstone, quartz, quartzite, marl, marble, slate, shale, oil shale and shell.

(b) Sand and gravel.

(c) Clay including kaolin, fireclay, bentonite, Fuller's earth, Ball clay and common clay.

(d) Rock salt.

(e) Gypsum.

(f) Sodium compounds, including sodium carbonate, sodium chloride and sodium sulfate.

(g) Pumice.

(h) Gilsonite.

(i) Talc and pyrophyllite.

(j) Boron, including borax, kernite and colemanite.

(k) Barite.

(L) Fluorospar.

(m) Feldspar.

(n) Diatomite.

(o) Perlite.

(p) Vermiculite.

(q) Mica.

(r) Kyanite, including andalusite, sillimanite, topaz and dumortierite.

(110) “Nonmetallic mineral processing plant” means any combination of equipment that is used to crush or grind any non-metallic mineral wherever located, including but not limited to lime plants, power plants, steel mills, asphalt concrete plants and portland cement plants.

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

Note: 20% opacity is equal to one unit on the Ringlemann Chart.

(112) “Open top vapor degreasing” means the batch process of cleaning and removing soils from metal surfaces by condensing hot solvent vapor on the colder metal parts.

(113) “Operator” means any person who leases, controls, operates or supervises a facility, an air contaminant source, or air pollution control equipment.

(114) “Organic compound” means a compound of carbon excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides, metallic carbonates and ammonium carbonate.

(115) “Overall emission reduction efficiency” means the weight per unit time of an air contaminant removed by a control device divided by the weight per unit time of the air contaminant generated by the source, expressed as a percentage.

(116) “Ozone” means an allotropic form of oxygen found in the atmosphere which is a photochemical oxidant that oxidizes compounds not readily oxidized by oxygen alone; ozone is a secondary pollutant resulting from the conversion of oxygen in the presence of sunlight and such precursors as volatile organic compounds and nitrogen oxides.

(117) “Ozone season” means the period from May 1 through September 30 of any year.

(118) “Particulate” or “particulate matter” means any airborne finely divided solid or liquid material with an aerodynamic diameter smaller than 100 micrometers.

(119) “Particulate matter emissions” means all finely divided solid or liquid material, other than uncombined water, emitted to the ambient air as measured by an applicable reference method or an equivalent or alternative method specified by the department.

(120) “Parts per million” or “ppm” means parts of a contaminant per million parts of gas by volume.

(121) “Performance test” means measurements of emissions or other procedures used for the purpose of determining compliance with a standard of performance.

(122) “Permit” means any air pollution control permit issued by the department under s. 285.60, Stats.

(123) “Person” means any individual, corporation, company, cooperative, operator, tenant, lessee, syndicate, partnership, co-partnership, firm, association, trust, estate, public or private institution, joint stock company, political subdivision of the state of Wisconsin, state agency, interstate agency, federal agency, or any legal successor, representative, agent or agency of the foregoing.

(124) “PM₁₀ emissions” means finely divided solid or liquid material, with an aerodynamic diameter less than or equal to a nominal 10 micrometers, emitted to the ambient air as measured by an applicable reference method or an equivalent or alternative method specified by the department.

(125) “Portable plant” means, with reference to any nonmetallic mineral processing plant, any plant that is mounted on any chassis or skids and may be moved by the application of a lifting or pulling force. In addition, there may be no cable, chain, turnbuckle, bolt or other means, except electrical connections, by which any piece of equipment is attached or clamped to any anchor, slab or structure, including bedrock, that would have to be removed prior to the application of a lifting or pulling force for the purpose of transporting the unit.

(126) “Portable source” means any facility, installation, operation or equipment which may directly result in the emission of any air contaminant only while at a fixed location but is capable of being transported to a different location. A portable source is a type of direct stationary source.

Note: Examples are a portable asphalt plant, a portable package boiler or a portable air curtain destructor.

(127) “Potential to emit” means the maximum capacity of a stationary source to emit any air contaminant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air contaminant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation is enforceable by the administrator.

(128) “Process line” means one or more actions or unit operations which must function simultaneously or in sequence in order to manufacture or modify a product.

Note: For example, a spray booth, conveyor and drying oven are considered a process line.

(129) “Reasonably available control technology” or “RACT” means that which provides the lowest emission rate that a particular source is capable of achieving by the application of control technology that is reasonably available considering technological and economic feasibility. Such technology may previously have been applied to similar, but not necessarily identical, source categories.

(130) “Reconstruction” means the removal of components of a stationary source and the substitution of those components with similar new components to such an extent that the fixed capital cost of the new components exceeds 50% of the fixed capital cost that would be required to construct a comparable entirely new stationary source. The term “reconstruction” does not apply to minor or indirect sources.

(131) “Reference method” means any method of sampling and analyzing for an air pollutant as described in Appendix A of 40 CFR part 60, Appendix B of 40 CFR part 61 or Appendix A of 40 CFR part 63, incorporated by reference in s. NR 484.04 (13), (23), and (25).

(132) “Relocation” means the removal of a stationary source from one location and the siting of the stationary source at a different location.

(133) “Remediation” means the removal of a contaminant from a solid or liquid material.

(134) “Replacement of a source” means the physical dismantling of a stationary source and the substitution of that source with a stationary source which is similar in operating capacity and function.

(135) “Residual fuel oil” means an industrial fuel oil of grade No. 4, 5 or 6, as determined by the specifications in ASTM D396-02, incorporated by reference in s. NR 484.10 (8).

(136) “Responsible official” means one of the following:

(a) For a corporation, one of the following:

1. A president, secretary, treasurer or vice-president of the corporation in charge of a principal business function.

2. Any other person who performs similar policy or decision-making functions for the corporation.

3. A duly authorized representative of a person listed in subd. 1. or 2. if the representative is responsible for the overall operation of one or more manufacturing, production or operating facilities applying for or subject to a permit and the representative is approved in advance by the department.

(b) For a partnership or sole proprietorship: a general partner or the proprietor, respectively.

(c) For a municipality, or a state, federal or other public agency: either a principal executive officer or ranking elected official. For the purposes of this paragraph, a principal executive officer of a federal agency includes the chief executive officer having responsibility for the overall operations of a principal geographic unit of the agency, for example, a regional administrator of EPA.

(d) Notwithstanding pars. (a), (b) and (c), for affected sources, the designated representative.

(137) "Ringlemann Chart" means the chart published by the U.S. bureau of mines in which are illustrated graduated shades of grey to black for use in estimating the shade or density of smoke.

Note: One unit on the Ringlemann Chart equals 20% opacity. The Ringlemann Chart is published as Figure 1 in "Fundamentals of Smoke Abatement," December 1950, bureau of mines Information Circular 7588, which is incorporated by reference in s. NR 484.06 (2).

(138) "Road" means the entire width between boundary lines of any way open to the public for vehicular travel.

(139) "Roadway" has the meaning given it in s. 340.01 (54), Stats.

(140) "Rolling 12 month average" means, with reference to only ledge rock quarries and industrial sand mines, a monthly average calculated each month by adding the total actual production of the preceding 12 calendar months, and dividing the total by 12. If a new quarry has been in existence for less than 12 calendar months, then the average shall be calculated by adding the total actual production since initial operation, and dividing the total by the number of calendar months subsequent to and including the month of initial operation.

(141) "Screening operation" means a device for separating material according to size by passing undersize material through one or more mesh surfaces, screens or similar surfaces in series, and retaining oversize material on the mesh surfaces, screens or similar surfaces. Screening operation includes any grizzly, rotating screen or deck type screen. Screening operation does not include washers that are designed to remove unwanted or unnecessary material from the product.

(142) "Secretary" means the secretary of the department of natural resources, state of Wisconsin.

(143) "Semistationary source" means any facility, operation or equipment that has the capability of emitting any air contaminant while moving, but generally does not emit while moving.

Note: Examples are diesel cranes, air compressors and electric generators such as those used at construction sites.

(144) "Shutdown" means the cessation of operation of a direct or portable source or of emission control equipment.

(145) "Smoke" means all products of combustion of sufficient density to be observable, including but not limited to carbon, dust, fly ash, and other particles, but not including uncombined water.

(146) "Solvent" means organic materials which are liquid at standard conditions and which are used as solvers, viscosity reducers, or cleaning agents.

(147) "Stack" means any device or opening designed or used to emit air contaminants to the ambient air.

(148) "Standard conditions" means a temperature of 20°C (293 K, 68°F) and a pressure of 760 millimeters of mercury (101.3 kPa, 29.92 in Hg).

(149) "Standard industrial classification code" or "SIC code" means the series of codes which classify facilities according to the type of economic activity in which they are engaged, as described in the Standard Industrial Classification Manual, 1987, incorporated by reference in s. NR 484.05 (1).

(150) "Standard pressure" means a pressure of 760 millimeters of mercury (29.92 inches of mercury).

(151) "Standard temperature" means a temperature of 20°C (68°F).

(152) "Startup" means the setting in operation of a facility or its emission control equipment for any purpose which produces emissions.

(153) "Stationary source" has the meaning given in s. 285.01 (41), Stats.

(154) "Storage bin" means a facility for storage, including surge bins, for nonmetallic minerals prior to further processing or loading.

(155) "Technological infeasibility" means incapable of being accomplished or carried out as a matter of practicality; i.e., technically impracticable rather than technically impossible.

(156) "Temperature sensor" means a thermometer or thermocouple used to measure temperature.

(157) "Thermal evaporation unit" means any device which uses temperatures greater than 140°F to assist in evaporating organic compounds from soil or water.

(158) "Threshold limit value" means the airborne concentration of substances, which represents exposure conditions under which it is believed that nearly all workers may be repeatedly exposed to day after day without adverse health effects.

(159) "Total reduced sulfur" or "TRS" means the sum of any sulfur containing compounds in which the oxidation state of sulfur is less than zero.

Note: Common examples of such compounds are hydrogen sulfide, carbonyl sulfide, dimethyl sulfide, carbon disulfide, and mercaptans.

(160) "Transfer point" means a point in a conveying operation where a nonmetallic mineral is transferred to or from a belt conveyor except where the nonmetallic mineral is being transferred to a stockpile from a belt conveyor.

(161) "Uncombined water" means water not chemically or physically bound to another materials.

(162) "Volatile organic compound" or "VOC" means any organic compound which participates in atmospheric photochemical reactions. This includes any such organic compound other than the following compounds, which have been determined to have negligible photochemical reactivity:

- (a) Methane.
- (b) Ethane.
- (c) Methylene chloride (Dichloromethane).
- (d) 1,1,1-Trichloroethane (Methyl chloroform).
- (e) Trichlorofluoromethane (CFC-11).
- (f) Dichlorodifluoromethane (CFC-12).
- (g) Chlorodifluoromethane (HCFC-22).
- (h) Trifluoromethane (HFC-23).
- (i) 1,1,2-Trichloro-1,2,2-trifluoroethane (CFC-113).
- (j) 1,2-Dichloro-1,1,2,2-tetrafluoroethane (CFC-114).
- (k) Chloropentafluoroethane (CFC-115).
- (L) 1,1,1-Trifluoro-2,2-dichloroethane (HCFC-123).
- (m) 2-Chloro-1,1,1,2-tetrafluoroethane (HCFC-124).
- (n) Pentafluoroethane (HFC-125).
- (o) 1,1,2,2-Tetrafluoroethane (HFC-134).
- (p) 1,1,1,2-Tetrafluoroethane (HFC-134a).
- (q) 1,1-Dichloro-1-fluoroethane (HCFC-141b).
- (r) 1-Chloro-1,1-difluoroethane (HCFC-142b).
- (s) 1,1,1-Trifluoroethane (HFC-143a).
- (t) 1,1-Difluoroethane (HFC-152a).

- (u) Parachlorobenzotrifluoride (PCBTf).
- (v) Cyclic, branched or linear completely methylated siloxanes.
- (w) Acetone.
- (x) 3,3-Dichloro-1,1,1,2,2-pentafluoropropane (HCFC-225ca).
- (xa) 1,3-Dichloro-1,1,2,2,3-pentafluoropropane (HCFC-225cb).
- (xb) 1,1,1,2,3,4,4,5,5-Decafluoropentane (HFC 43-10mee).
- (xc) Difluoromethane (HFC-32).
- (xd) Ethylfluoride (HFC-161).
- (xe) 1,1,1,3,3,3-Hexafluoropropane (HFC-236fa).
- (xf) 1,1,2,2,3-Pentafluoropropane (HFC-245ca).
- (xg) 1,1,2,3,3-Pentafluoropropane (HFC-245ea).
- (xh) 1,1,1,2,3-Pentafluoropropane (HFC-245eb).
- (xi) 1,1,1,3,3-Pentafluoropropane (HFC-245fa).
- (xj) 1,1,1,2,3,3-Hexafluoropropane (HFC-236ea).
- (xk) 1,1,1,3,3-Pentafluorobutane (HFC-365mfc).
- (xL) Chlorofluoromethane (HCFC-31).
- (xm) 1-Chloro-1-fluoroethane (HCFC-151a).
- (xn) 1,2-Dichloro-1,1,2-trifluoroethane (HCFC-123a).
- (xo) 1,1,1,2,2,3,3,4,4-Nonafluoro-4-methoxybutane (C₄F₉OCH₃).
- (xp) 2-(Difluoromethoxymethyl)-1,1,1,2,3,3,3-heptafluoropropane ((CF₃)₂CF₂OCH₃).
- (xq) 1-Ethoxy-1,1,2,2,3,3,4,4,4-nonafluorobutane (C₄F₉OC₂H₅).
- (xr) 2-(Ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane ((CF₃)₂CF₂OCH₂C₂H₅).
- (y) Methyl acetate.
- (z) Perfluorocarbon compounds which fall into the following classes:

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

Note: The test methods used to measure VOC are specified in s. NR 439.06 (3).

(163) "Year" or "yearly" means any consecutive 12-month period of time.

History: Cr. (7), (8), (17), (18), (32), (34), (53) and (60), (64) renum. from NR 404.01 (7), remainder renum. from NR 154.01 and am. (1), (2), (3), (94) and (96), Register, September, 1986, No. 369, eff. 10-1-86; cr. (46m), Register, January, 1987, No. 373, eff. 2-1-87; am. (66), Register, September, 1987, No. 381, eff. 10-1-87; emerg. am. (66), eff. 10-1-87; r. (14) and (91), cr. (47e), (55e) and (80s), am. (59) and (69), renum. (98) to be NR 406.02 (12); (5e), (17m), (43m), (46s), (53e) and (53s) renum. from NR 410.02 (1), NR 406.02 (3), (4) and (6) and NR 410.02 (4) and (5) and am. (46s), Register, April, 1988, No. 388, eff. 5-1-88; am. (66), renum. (77) to be NR 445.02 (9m), cr. (66m), (69m) and (77), Register, December, 1988, No. 396, eff. 1-1-89; r. (1), (22), (25), (30), (43), (47), (48), (52), (73) and (85), am. (2), (3), (5e), (8), (17), (18), (32), (34), (40), (45), (53), (55), (60), (70), (77), (95), (96) and (100), (11m), (16e), (21e), (21m), (22), (26m), (51m) and (72) renum. from NR 420.02 (3), (4), (7), 422.02 (6), 421.02 (2), 420.02 (12), 421.02 (5) and 419.02 (5) renum. (36), (71) and (72) to be NR 422.02 (12s), 420.02 (29m) and 420.02 (29p), Register, February, 1990, No. 410, eff. 3-1-90; (4m) and (43) renum. from NR 440.02 (4) and 440.64 (2) (d), Register, September, 1990, No. 417, eff. 10-1-90; am. (4), (26), (31), (66) and (80), cr. (78m) and (98), renum. (16) to be NR 406.02 (1), Register, August, 1991, No. 428, eff. 9-1-91; am. (50), r. (13), (5s), (60m), (80m) and (98m), renum. from NR 404.02 (1), NR 415.02 (4) and (7), NR 429.02 (2) and am., renum. (46s), (47e) and (51m) to be (47), (48) and (52), (37), (82), (92) and (101) to be NR 417.02 (1), 449.02 (10m), (11m) and (18), Register, May, 1992, No. 437, eff. 6-1-92; emerg. am. (55), eff. 11-15-92; (39m) renum. from NR 405.02 (14) and am., cr. (43e) and (53m), r. (53e), r. and recr. (55), am. (100), Register, May, 1993, No. 449, eff. 6-1-93; cr. (1), (1j), (26e) and (91), (59m) renum. from NR 101.03 (13) and am., Register, June, 1993, No. 450, eff. 7-1-93; cr. (1b), (1e), (1m), (1q), (8m), (11q), (28m), (30), (36), (43b), (53e), (68m), (71) and (80e), am. (53m), Register, December, 1993, No. 456, eff. 1-1-94; cr. (1k), (1L), (17s), (21c), (21k), (26s), (40e), (47m), (51m), (60e), (60i), (69s), (81m), (96m) and (98s), Register, June, 1994, No. 462, eff. 7-1-94; cr. (98g), Register, December, 1994, No. 468, eff. 1-1-95; am. (43e), (47m), (51m), (77), (80) and (91), Register, February, 1995, No. 470, eff. 3-1-95; renum. (1) to (1a), renum. (1), (1c), (1v) from NR 407.02 (1), (2), (4), am. (1b), (1q), (39m), r. (11m), (15), (16e), (21), (36), (49), (74), cr. (22e), (22m), (40m), (40s), (41m), (57m), Register, April, 1995, No. 472, eff. 5-1-95; cr. (18m), (22s), (97m) and (101), am. (47) and (54), Register, June, 1995, No. 474, eff. 7-1-95; am. (98), Register, August, 1995, No. 476, eff. 9-1-95; am. (41), (77), (79) and (90), (53p) renum. from NR 411.02 (6), r. (60m), (60m) renum. from NR 440.02 (21), renum. (100) (u) to be

(100) (w), cr. (100) (u) and (v), Register, December, 1995, No. 480, eff. 1-1-96; am. (43e), (80e) (a) (intro.), renum. (100) (w) to be (100) (x), cr. (100) (w), Register, June, 1996, No. 486, eff. 7-1-96; am. (39m), Register, December, 1996, No. 492, eff. 1-1-97; corrections made under s. 13.93 (2m) (b) 7., Stats., Register, December, 1996, No. 492; am. (43e) and (43d), renum. s. NR 423.02 (3) (3m), (4) and (8) to be s. NR 400.02 (22v), (26o) (26q) and (60s), Register, March, 1997, No. 495, eff. 4-1-97; renum. (43b) to be (43a), cr. (43b), Register, December, 1997, No. 504, eff. 1-1-98; renum. (1a) to (99), (100) (intro.) and (a) to (x) and (101) to be (2) to (162) (intro.) and (a) to (t) and (163) and am. and renumbered, (40), (55), (70), (77), (122), (124), (126), (131) and (139), cr. (74), (78), (87), (162) (x), (xa), (xb), (xc), (xd), (xe), (xi), (xg), (xh), (xi), (xj), (xk), (xL), (xm), (xn), (xo), (xp), (xq), (xr) and (y), am. (3), Register, October, 1999, No. 526, eff. 11-1-99; cr. (36m), Register, August, 2000, No. 536, eff. 9-1-00; cr. (45m), Register, January, 2001, No. 541, eff. 2-1-01; corrections made under s. 13.93 (2m) (b) 7., Stats., Register, January, 2001, No. 541; **CR 02-146: am. (40), (70), (79) and (135) Register October 2003 No. 574, eff. 11-1-03.**

NR 400.03 Units and abbreviations. Abbreviations and symbols of units of measure used in chs. NR 400 to 499 are defined as follows:

(1) System international (SI) units of measure:

- (a) A – ampere
- (am) g – gram
- (b) Hz – hertz
- (bm) J – joule
- (c) K – degree Kelvin
- (cm) kg – kilogram
- (d) kPa – kilo pascal (1.0 kPa = 0.15 psia)
- (dm) m – meter
- (e) m² – square meter
- (em) m³ – cubic meter
- (f) mg – milligram—10⁻³ gram
- (fm) Mg – megagram—10⁶ gram
- (g) mm – millimeter—10⁻³ meter
- (gm) mol – mole
- (h) MW – megawatt
- (hm) MWe – megawatt electrical
- (i) N – newton
- (im) ng – nanogram—10⁻⁹ gram
- (j) nm – nanometer—10⁻⁹ meter
- (jm) Pa – pascal
- (k) s – second
- (km) V – volt
- (L) W – watt
- (Lm) µg – microgram—10⁻⁶ gram
- (m) Ω – ohm

(2) Other units of measure:

- (a) Btu – British thermal unit
- (am) °C – degree Celsius (centigrade)
- (b) cc – cubic centimeters
- (bm) cfm – cubic feet per minute
- (c) Ci – curie
- (cm) d – day
- (d) dcf – dry cubic feet
- (dm) dcm – dry cubic meters
- (e) dscf – dry cubic feet at standard conditions
- (em) dscm – dry cubic meters at standard conditions
- (f) eq – equivalent
- (fm) °F – degree Fahrenheit
- (g) ft – foot
- (gm) ft² – square feet
- (h) ft³ – cubic feet
- (hm) gal – gallon
- (i) gr – grain
- (im) hr – hour
- (j) in or " – inch
- (jm) in Hg – inches of mercury

- (k) in H₂O – inches of water
 (km) l – liter
 (L) lb – pound
 (Lm) lpm – liter per minute
 (m) mil – 10⁻³ in
 (mm) min – minute
 (n) ml – milliliter—10⁻³ liter
 (nm) mmBtu – million Btu
 (ns) MPH – miles per hour
 (o) mrem – millirem—10⁻³ rem
 (om) oz – ounce
 (p) pCi – picocurie—10⁻¹² curie
 (pm) ppm or ppmv – parts per million (by volume)
 (q) psia – pounds per square inch absolute
 (qm) psig – pounds per square inch gauge
 (r) °R – degree Rankine
 (rg) tpy – tons per year
 (rm) v/v – volume per volume
 (s) yd² – square yards
 (sm) yr – year
 (t) µl – microliter—10⁻⁶ liter
 (tm) µm – micrometer—10⁻⁶ meter (micron)
- (3) Chemical nomenclature:**
 (a) Be – beryllium
 (b) CdS – cadmium sulfide
 (c) CO – carbon monoxide
 (d) CO₂ – carbon dioxide
 (e) HCl – hydrochloric acid
 (f) Hg – mercury
 (g) H₂O – water
 (h) H₂S – hydrogen sulfide
 (i) H₂SO₄ – sulfuric acid
 (j) N₂ – nitrogen
 (k) NO – nitric oxide
 (L) NO₂ – nitrogen dioxide
 (m) NO_x – nitrogen oxides
 (n) O₂ – oxygen
 (o) Pb – lead
 (p) SO₂ – sulfur dioxide
 (q) SO₃ – sulfur trioxide
 (r) SO_x – sulfur oxides
- (4) Miscellaneous:**
 (a) API – American Petroleum Institute, 1220 L Street NW, Washington DC 20005
 (am) AQCR – air quality control region
 (b) ASME – American Society of Mechanical Engineers, 345 E 47th Street, New York NY 10017
 (bm) ASTM – American Society for Testing and Materials, 1916 Race Street, Philadelphia PA 19103
 (c) avg – average
 (cm) BACT – best available control technology
 (cs) CAS no. – Chemical Abstracts Service registry number
 (d) CEM – continuous emission monitor
 (dg) CERCLA – federal comprehensive environmental response, compensation and liability act
 (dm) CFC – chlorofluorocarbon
 (e) CFR – code of federal regulations
 (em) DOE – United States department of energy
 (f) EPA – United States environmental protection agency
 (fm) FC – fluorocarbon
 (g) FR – federal register
 (gm) GACT – generally available control technology
 (gs) HAP – hazardous air pollutant
 (h) HCFC – hydrochlorofluorocarbon
 (hm) HFC – hydrofluorocarbon
 (i) I.D. – inside diameter
 (im) LAER – lowest achievable emission rate
 (j) MACT – maximum achievable control technology
 (jm) MSDS – material safety data sheet
 (k) O.D. – outside diameter
 (ke) OSHA – United States occupational safety and health administration
 (km) PM₁₀ – particulate matter with an aerodynamic diameter ≤ 10 µm
 (ks) PSD – prevention of significant deterioration
 (L) RACT – reasonably available control technology
 (Lm) rpm – revolutions per minute
 (m) SIC – standard industrial classification
 (mm) TRS – total reduced sulfur
 (n) TSP – total suspended particulates
 (nm) USC – United States Code
 (o) VOC – volatile organic compound
 (om) ≥ – greater than or equal to
 (p) ≤ – less than or equal to
 (pm) % – percent
 (q) ± – plus or minus
- History:** Cr. Register, April, 1995, No. 472, eff. 5-1-95; am. (2), Register, December, 1995, No. 480, eff. 1-1-96; correction made under s. 13.93 (2m) (b) 1., Stats., Register, December, 1995, No. 480; cr. (4) (cs) and (gs), Register, March, 1997, No. 495, eff. 4-1-97; cr. (4) (ke), Register, September, 1997, No. 501, eff. 10-1-97; cr. (2) (ns), (rg), (4) (dg) and (ks), Register, October, 1999, No. 526, eff. 11-1-99.