MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

AIR QUALITY DIVISION

PART 4. EMISSION LIMITATIONS AND PROHIBITIONS—SULFuR BEARING COMPOUNDS

(By authority conferred on the director of environmental quality by sections 5503 and 5512 of 1994 PA 451, MCL 324.5503 and 324.5512, and Executive Reorganization Order Numbers 1995-16, MCL 324.99903, 2009-31, MCL 324.99919 and 2011-1, MCL 324. 99921)

PART 4. EMISSION LIMITATIONS AND PROHIBITIONS—SULFuR BEARING COMPOUNDS

R 336.1401 Emission of sulfur dioxide from power plants.

Rule 401. (1) In a power plant, it is unlawful for a person to burn fuel that does not comply with the sulfur content limitation of table 41 or which, when burned, results in sulfur dioxide (SO_2) emissions exceeding an equivalent emission rate as shown in table 41. In a power plant located in Wayne county, it is unlawful for a person to burn fuel that does not comply with the sulfur content limitation of table 42 and unlawful to cause or permit a discharge into the atmosphere from fuel-burning equipment SO_2 in excess of the SO_2 concentration limit shown in table 42.

(2) Tables 41 and 42 read as follows:

TABLE 41

Fuel and SO_2 Emission Limitations for Power Plants

Plant Capacity[a]	Maximum Average Sulfur Content in Fuel[b, e] (Percent by Weight)	Equivalent Emission Rates			
		Parts per Million by Volume (ppmv) Corrected to 50% Excess Air[e]		Pounds of SO_2 per Million Btu of Heat Input[e]	
		Solid Fuel[c] (12,000 Btu/lb)	Liquid Fuel[d] (18,000 Btu/lb)	Solid Fuel[c] (12,000 Btu/lb)	Liquid Fuel[d] (18,000 Btu/lb)
0-500,000 lbs Steam per Hour Plant Capacity	1.5	890	630	2.5	1.67
Greater than 500,000 lbs Steam per Hour Plant Capacity	1.0	590	420	1.67	1.11
(a) The total steam production capacity of all coal- and oil-burning equipment in a power plant as of August 17, 1971.					

(b) "Maximum average sulfur content in fuel" means the average sulfur content in all fuels burned at any 1 time in a power plant. The sulfur content shall be calculated on the basis of 12,000 Btu per pound for solid fuels and 18,000 Btu per pound for liquid fuels.
(c) Solid fuels include both pulverized coal and all other coal.
(d) Liquid fuels include distillate oil (No. 1 and No. 2), heavy oil (No. 4, No. 5, and No. 6), and crude oil.
(e) A person shall sample, analyze, calculate, and record for each day of operation for each unit at the power plant, the sulfur content of the fuel combusted or the fuel's equivalent SO_2 emission rate in accordance with as-fired fuel sampling and analysis procedures found in appendix A of 40 CFR part 60; in particular the "Standard Test Methods for Sulfur in Petroleum Products:" ASTM D129-01, D1266-98, or D1552-01 and the "Standard Test Methods for Total Sulfur in the Analysis of Coal and Coke:" ASTM D3177-89 or D4239-02; as referenced in 40 C.F.R. part 60.17, adopted by reference in R 336.1802a. Records shall be kept, including the identification of the power plant, days of operation, and maximum sulfur content of fuel combusted for each day of operation. Records shall be maintained on site for 5 years and submitted to the department upon written request.

TABLE 42

Fuel and SO_2 Concentration Limitations for Power Plants Located in Wayne County

Fuel Type	Maximum Weight Percent Sulfur Content in Fuel[a & b] Limitations for Fuel-Burning Equipment	SO_2 ppmv Emission Rates Corrected to 50% Excess Air [b]
Pulverized Coal	1.00	550
Other Coal	0.75	420
Distillate Oil Nos. 1 & 2	0.30	120
Used Oil	1.00	300
Crude and Heavy Oil Nos. 4, 5, & 6	1.00	400
(a) "Maximum weight percent sulfur content in fuel" means the maximum weight percent sulfur content in all fuels burned at any 1 time in a power plant.		
(b) A person shall sample, analyze, calculate, and record for each day of operation for each unit at the power plant, the sulfur content of the fuel combusted and the fuel's equivalent SO_2 emission rate in accordance with as-fired fuel sampling and analysis procedures found in appendix A of 40 CFR part 60; in particular the "Standard Test Methods for Sulfur in Petroleum Products:" ASTM D129-01, D1266-98, or D1552-01 and the "Standard Test Methods for Total Sulfur in the Analysis of Coal and Coke:" ASTM D3177-89 or D4239-02; as referenced in 40 C.F.R. part 60.17, adopted by reference in R 336.1802a. Records shall be kept, including the identification of the power plant, days of operation, and maximum sulfur content of fuel combusted for each day of operation. Records shall be maintained on site for 5 years and submitted to the department upon written request.		

(3) The following provisions apply to persons in Wayne county:

(a) The maximum weight percent sulfur content in fuel limitations for fuel-burning equipment provisions of table 42 of this rule shall not apply to any person who uses a

combination of fuels in such ratios as to meet the SO_2 concentration limitations specified in table 42 and has obtained written approval from the department for this exemption. The allowable concentration limit will be based on the value in the table for the fuel having the higher allowable concentration limit.

(b) The maximum weight percent sulfur content in fuel limitations for fuel-burning equipment provisions of table 42 of this rule shall not apply to any person who has received an installation permit from the department on a control device to desulfurize the stack gases and the control device is installed and operating properly.

(4) Instead of conducting daily as-fired fuel sampling and analysis pursuant to subrule (2) of this rule, a person at any power plant equipped with a SO_2 continuous emissions monitoring system (CEMS) may compute and record the daily equivalent emission rates as determined by the SO_2 CEMS. The SO_2 CEMS shall be calibrated, maintained, and operated in accordance with the procedures in 40 CFR 60.13(d), (e), (f), and (h) and in performance specification 2, appendix B of 40 CFR part 60 or 40 CFR part 75 excluding the data substitution outlined in subpart D, adopted by reference in R 336.1802a. Records shall be maintained on site for 5 years and submitted to the department upon written request.

History: 1980 AACS; 2002 AACS; 2008 AACS 2013 AACS.

R 336.1401a Definitions.

Rule 401a. As used in this part:

(a) "Power plant" means a single structure devoted to steam or electric generation, or both, and may contain multiple boilers.

(b) “Sulfur recovery plant” means any plant that recovers elemental sulfur from any gas stream.

(c) “Used oil” means any fuel that is produced from used oil, as defined in R 299.9109(p).

History: 2008 AACS 2013 AACS

R 336.1402 Emission of SO_2 from fuel-burning equipment at a stationary source other than power plants.

Rule 402. (1) For fuel burning equipment at a stationary source other than a power plant it is unlawful for a person to cause or allow the emission of SO_2 from the combustion of any coal or oil fuel in excess of 1.7 pounds per million Btu of heat input for oil fuel or in excess of 2.4 pounds per million Btu of heat input for coal fuel.

(2) The provisions of subrule (1) of this rule do not apply to fuel-burning equipment at a stationary source that is unable to comply with the specified emission limits because of SO_2 emissions caused by the presence of sulfur in other raw materials charged to the fuel-burning equipment. This exception shall apply if at any time the actual SO_2 emission rate exceeds the expected theoretical SO_2 emission rate from fuel burning. The expected theoretical SO_2 emission rate shall be based on the quantity of fuel burned and the average sulfur content of the fuel.

(3) For fuel burning equipment at a stationary source located in Wayne county other than a power plant, it is unlawful for a person to burn fuel that does not comply with the sulfur content limitation of table 43 and unlawful to cause or allow a discharge into the atmosphere from fuel burning equipment SO_2 in excess of the SO_2 concentration limit shown in table 43.

(4) Table 43 reads as follows:

Table 43

Fuel and SO_2 Concentration Limitations for Fuel Burning Equipment[(c)] at a Stationary Source Located in Wayne County Other than a Power Plant

Fuel Type	Maximum Weight Percent Sulfur Content in Fuel[(a, b)] Limitations for Fuel-Burning Equipment	SO_2 ppmv Emission Rates Corrected to 50% Excess Air[b]
Coal	0.75	420
Distillate Oil Nos. 1 & 2	0.30	120
Used Oil	1.0	300
Crude and Heavy Oil Nos. 4, 5, & 6	1.00	400
(a) The determination of sulfur content (percent by weight) of fuel shall be carried out in accordance with -the "Standard Test Methods for Sulfur in Petroleum Products:" ASTM D129-01, D1266-98, or D1552-01 and the "Standard Test Methods for Total Sulfur in the Analysis of Coal and Coke:" ASTM D3177-89 or D4239-02; as referenced in 40 C.F.R. part 60.17 adopted by reference in R 336.1802a.		
(b) Records shall be kept, including the identification of the fuel burning equipment, days of operation, and maximum sulfur content of fuel combusted for each day of operation. Records shall be maintained on site for 5 years and submitted to the department upon written request.		
(c) For table 43, fuel burning equipment includes residential and commercial space and water heating. The maximum weight percent sulfur content in fuel and SO_2 ppmv emission rate limitations for distillate, crude, and heavy oils listed above also apply to these units.		

(5) The following provisions apply to persons in Wayne county:

(a) The maximum weight percent sulfur content in fuel limitations for fuel-burning equipment provisions of table 43 of this rule shall not apply to a person who uses a combination of fuels in such ratios as to meet the SO_2 concentration limitations specified in table 43 and has obtained written approval from the department for this exemption. The allowable concentration limit will be based on the value in the table for the fuel having the higher allowable concentration limit.

(b) The maximum weight percent sulfur content in fuel limitations for fuel-burning equipment provisions of table 43 of this rule shall not apply to a person who has received an installation permit from the department for a control device to desulfurize the stack gases and the control device is installed and operating properly.

History: 1980 AACS; 2008 AACS 2013 AACS.

R 336.1403 Oil- and natural gas-producing or transporting facilities and natural gas-processing facilities; emissions; operation.

Rule 403. (1) Except as provided in subrule (3) of this rule, it is unlawful for a person to cause or allow the emission of sour gas from an oil- or natural gas-producing or transporting facility or a natural gas- processing facility without burning or equivalent control of hydrogen sulfide and mercaptans.

(2) Except as provided in subrule (3) of this rule, sour gas that is burned at an oil- or natural gas-producing or transporting facility or at a natural gas-processing facility shall be burned in a properly engineered flare, incinerator, or other combustion system with elevated discharge to the atmosphere. If the flare, incinerator, or other combustion system

burns sour gas in such volume and with such hydrogen sulfide concentration that the daily quantity of hydrogen sulfide in the gas is less than 28 pounds, then it shall be equipped with either a pilot flame which will burn continuously when gas flows to the flare, incinerator, or other combustion system or with an automatic ignition system, unless otherwise authorized by the department. If the flare, incinerator, or other combustion system burns sour gas in such volume and with such hydrogen sulfide concentration that the daily quantity of hydrogen sulfide in the gas is 28 pounds or more, then it shall be equipped with a continuously burning pilot flame and a mechanism which will operate, upon failure of the pilot flame, to shut off the flow of gas, unless otherwise authorized by the department.

(3) The provisions of subrules (1) and (2) of this rule do not apply to either of the following:

(a) Crude oil-producing facilities that serve a well or group of wells which attained an average production level of 10 or less barrels per day per well before January 1, 1978, unless the department has received 1 complaint of odors regarding the facility, and the owner or operator is unable to or fails to demonstrate, to the satisfaction of the department, that the uncontrolled hydrogen sulfide and mercaptan emissions do not cause an odor nuisance or health hazard.

(b) A vessel or a battery of vessels that releases a total daily volume of vapors of less than 5,000 standard cubic feet, if the owner or operator demonstrates both of the following:

(i) Combustion of the vapors is not economically reasonable.

(ii) The uncontrolled release of the vapors will not cause a violation of the provisions of R 336.1901.

(4) A person shall not cause or allow the emission of sulfur dioxide from a new sweetening facility, unless such emissions are controlled using the best available control technology.

(5) The operator of a sour gas-, crude-, or condensate-sweetening facility-ty shall do all of the following:

(a) Monitor the mass flow rate of hydrogen sulfide either entering the plant or going to the waste gas flare or flares on a periodic schedule specified by the department. The monitoring program shall include a determination of the hydrogen sulfide concentration

using colorimetric detector tubes or their equivalent and a determination of the volumetric gas flow rate. The monitoring data shall be submitted to the department in an acceptable format within 30 days following the end of the month in which the data were collected.

(b) Provide fencing, warning signs, or other measures as necessary to warn or deter unauthorized individuals from entering the plant property or buildings. Signs shall read: "Danger--Poison Gas," with at least 1 sign on each side of the plant property.

(c) Provide control of malodorous emissions from any pressure relief valve or valves, storage tanks, and dehydrator vent or vents by burning or equivalent control.

(d) Conduct a program of continuous monitoring of concentrations of hydrogen sulfide in any building enclosing a sweetening process. The sensor shall be placed as close to process equipment as practicable. The system shall be designed, installed, and maintained to provide a visual alarm when the hydrogen sulfide concentration is more than 50 ppm.

(e) Automatically begin a safe and orderly shutdown of all process inflow streams to the facility if the concentration of hydrogen sulfide is more than 100 ppm in any building enclosing a sweetening process. Full operation may be resumed only after successful corrective measures have been applied.

(f) Automatically commence shut-in of the facility within 1 second after extinguishment of the flare flame, unless otherwise authorized by the department. Operation of the facility shall not continue unless corrective measures taken to reignite the flame are successful.

(6) A new sweetening facility shall not be installed at a distance of less than 1,300 feet from an existing residence, unless otherwise authorized by the department. Such authorization shall depend upon a satisfactory showing by a permit applicant that an odor nuisance shall not result from a lesser setback distance.

History: 1980 AACS; 1989 AACS; 2002 AACS.

R 336.1404 Emission of SO_2 and sulfuric acid mist from sulfuric acid plants.

Rule 404. (1) It is unlawful for a person to cause or allow the emission of sulfuric acid mist from any sulfuric acid plant in excess of 0.50 pounds per ton of acid produced, the production being expressed as 100% sulfuric acid.

(2) It is unlawful for a person in Wayne county to cause or allow SO_2 emissions into the atmosphere from any sulfuric acid plant to exceed 6.5 pounds per ton of acid produced.

(3) Compliance with this rule shall be demonstrated using 40 C.F.R part 60, appendix A, reference test method no. 8, adopted by reference in R 336.2004(1)(l).

History: 1980 AACS; 2008 AACS 2013 AACS.

R 336.1405 Emissions from sulfur recovery plants located within Wayne county.

Rule 405. At sulfur recovery plants located in Wayne county, a person shall not cause or allow the emission into the atmosphere of sulfur dioxide, sulfur trioxide, or

sulfuric acid from any such sulfur recovery plant to exceed 0.01 pounds per pound of sulfur produced.

History: 2008 AACS.

R 336.1406 Hydrogen sulfide emissions from facilities located within Wayne county.

Rule 406. (1) A person in Wayne county shall not cause or allow the combustion of any refinery process gas stream that contains hydrogen sulfide in a concentration of greater than 100 grains per 100 cubic feet of gas without removal of the hydrogen sulfide in excess of this concentration.

(2) When the odor of hydrogen sulfide is found to exist beyond the property line of a source, a person in Wayne county shall not cause or allow the concentration of hydrogen sulfide to exceed 0.005 parts per million by volume for a maximum period of 2 minutes.

History: 2008 AACS.

R 336.1407. Sulfur compound emissions from sources located within Wayne county and not previously specified.

Rule 407. Both of the following apply to process and fuel burning equipment at a stationary source located within Wayne county to which the provisions of R 336.1401 to R 336.1406 do not apply.

(a) A person shall not cause or allow the emission into the atmosphere gases with a concentration of SO_2 greater than 300 parts per million by volume, which shall be corrected to 50% excess air.

(b) A person shall not cause or allow the emission into the atmosphere gases with a concentration of sulfuric acid or sulfur trioxide or a combination thereof greater than 15 milligrams per cubic meter, which shall be corrected to 50% excess air.

History: 2008 AACS; 2013 AACS.

R 336.1420. Applicability determinations, definitions, and permitting requirements under CAIR SO_2 trading program.

Rule 420. (1) As used in this rule, "CAIR" means clean air interstate rule.

(2) The provisions of 40 C.F.R. §97.202, §97.220 to §97.224 and the opt-in provisions of 40 C.F.R. §97.280 to §97.288 (2011) are adopted by reference in this rule and are applicable to these rules. Copies of 40 C.F.R. §97.202, §97.220 to §97.224, and §97.280 to §97.288 are available for inspection and purchase at the Department of Environmental Quality, Air Quality Division, 525 West Allegan Street, P.O. Box 30260, Lansing, Michigan 48909-7760, at a cost as of the time of adoption of this rule of $76.00. Copies may be also obtained from the Superintendent of Documents, U.S. Government Printing Office, 732 North Capitol Street, NW, Washington, DC 20401, by calling 1-866-512-1800 or by accessing their online bookstore at http://bookstore.gpo.gov at a cost as

of the time of adoption of this rule of $66.00. The standards can be viewed and/or printed free of charge at http://ecfr.gpoaccess.gov.

(3) Each CAIR SO_2 source, as defined in 40 C.F.R. §97.202 is required to apply for a CAIR permit in accordance with 40 C.F.R. §97.220 to §97.224. This permit shall be administered in accordance with the procedural requirements of R 336.1214 and shall be incorporated into the facility's renewable operating permit as an attachment.

History: 2008 AACS; 2013 AACS.