ORDER OF THE STATE OF WISCONSIN
NATURAL RESOURCES BOARD
REPEALING, RENUMBERING AND AMENDING RULES

The Wisconsin Natural Resources Board adopts an order to **repeal** NR 445 subch. II; to **renumber** NR 445 subch. III; and to **amend** NR 406.04(3)(e), 407.03(2)(d), 407.14(1)(intro) and (1m)(e), 445.02(5)(a)(intro.), 445.07 Table A, 445.08(3)(c)Note, (6)(d)1. and 2.(intro.) and a. and (10)(b), and 445.09(1)(e)1.(intro.) and 2.(intro.) relating to hazardous air pollutant emissions associated with agricultural waste and affecting small business.

AM-24-07

Analysis Prepared by the Department of Natural Resources

1. Statute interpreted: Sections 285.11(1), 285.13 and 285.17, Stats. The State Implementation Plan developed under s. 285.11(6), Stats., is revised.

2. Statutory Authority: Sections 285.11(1), 285.13 and 285.17, Stats.

3. Explanation of agency authority:

Section 285.11, Stats., gives the Department authority to promulgate rules consistent with ch. 285, Stats. Section 285.13, Stats., gives the Department authority to hold hearings, issue orders and examine air emission records. Section 285.17, Stats., gives the Department authority to require reporting and monitoring of air emissions.

4. Related statute or rule:

The proposed rule changes relate directly to the timeline for implementation of air permit and hazardous air pollutant requirements for emissions associated with agricultural waste, as established in chs. NR 406, 407, and 445, Wis. Adm. Code. In addition, proposed technical corrections relate to ch. NR 445, Wis. Adm. Code.

5. Plain language analysis:

This proposal is to extend the compliance deadline to July 31, 2011, for air permit and hazardous air pollutant requirements associated with agricultural waste.

Results of ongoing state and federal air monitoring studies of animal feeding operations will not be available in time to support implementation of current rules by the July 2007 and June 2008 compliance deadlines. Extension of the compliance deadline to July 31, 2011, will allow sufficient time for completion of these studies and development of compliance plans by affected sources. When the original rule language was adopted in 2004, it was anticipated that these study results would be available to support timely rule implementation.

The results of the state study will be available by mid-2008, and results of the federal study will be available by mid 2010. The study results will provide an emissions estimation methodology

for calculating emissions associated with agricultural waste, which is necessary to determine rule applicability and compliance options.

A federal consent agreement finalized in 2005 sets forth the framework for a federal air monitoring study and establishes a timeline for participating animal feeding operations to achieve compliance with federal air permit, air emission control, and air emission reporting requirements. Over 2,500 animal feeding operations located across the US have signed on to this consent agreement with the US Environmental Protection Agency. The proposed extension of the compliance deadline to July31, 2011, for compliance with state hazardous air pollutant requirements, aligns with the timeline for compliance established in the 2005 federal consent agreement for animal feeding operations. Assuming timely federal action, the consent decree deadlines would occur in Fall 2010 and Spring 2011.

Implementation of state requirements ahead of the federal timeline described above was not intended during the original development of these requirements. The proposed extension of the compliance deadline to July 31, 2011, will allow affected sources to develop compliance plans for both federal and state requirements in a coordinated fashion.

The Department does not have information documenting hazardous air emissions associated with agricultural waste that would result in ambient concentrations in excess of hydrogen sulfide and ammonia standards established in ch. NR 445. The Department consulted with Wisconsin Department of Health and Family Services during the development of this proposal.

In addition, this proposal includes the following minor technical corrections to ch. NR 445.

- An obsolete subchapter is proposed to be repealed and the remaining subchapter renumbered. References to the remaining subchapter are proposed to be changed to reflect this renumbering. Rule language referencing the repealed subchapter is proposed to be amended to maintain the existing 10-year grace period for control equipment installed prior to July 1, 2004. These changes were anticipated during the 2004 rule update.

- Table A is proposed to be amended to list the annual standards for Butyl Cellosolve, 2-Butoxyethanol, and EGBE. Emission thresholds, standards and control requirements for all sources of hazardous air contaminants are established in Table A of ch. NR 445. These three chemical names, Butyl Cellosolve and 2-Butoxyethanol, and EGBE are synonyms for the same chemical compound. The fourth chemical name for this same chemical compound is Ethylene Glycol Monobutyl Ether. The current version of Table A lists all four chemical names. However, the annual standards are only listed under Ethylene Glycol Monobutyl Ether. The proposal is to list the same annual standards under the synonym names as well. These four compounds and the associated Table A values are identical. The addition of the annual standards for the three synonyms to Table A serves merely to clarify the existing applicable requirements; it does not represent the addition of new compounds or standards to the table.

- Table A is proposed to be amended to clarify the listings for chromium.

- Rule language is proposed to be amended to remove incorrect references to two federal standards related to Tier 2 nonroad engines.

- Rule language is proposed to be amended to reflect the adoption of federal standards for Tier 4 nonroad engines. This change does not affect applicable emission standards; the new federal particulate emission standard for Tier 4 nonroad engines regulated under ch. NR 445 (100 horsepower and larger) is the same as the 0.01 grams per brake horsepower−hour particulate emission standard referenced in the current version of ch. NR 445. This change was anticipated during the original development of this portion of the rule, but the federal standard had not yet been adopted at that time.

- A style change is proposed for each table in NR 445, specifically each entry is proposed to be numbered sequentially. This will facilitate future updates to these tables.

6. Summary of, and comparison with, existing or proposed federal regulation:

The rule changes proposed herein do not affect existing federal permit requirements. This proposal only affects the timeline for implementation of state-only permit requirements and emission limits for sources of hazardous air pollutant emissions associated with agricultural waste.

The DNR is not aware of any new or proposed federal regulations pertaining to air permit requirements or air emission limits for sources of air emissions associated with agricultural waste.

Under the federal Clean Air Act, new and existing major stationary sources of federally regulated air pollutant emissions are subject to federal air permit requirements. Included are permit requirements under the federal "Prevention of Significant Deterioration" and "Non-Attainment Area" New Source Review programs, along with the applicable requirements for "Best Available Control Technology", and "Lowest Achievable Emission Rate" technology and offsets, respectively. Emissions associated with agricultural waste are not categorically exempt from these requirements.

Under the federal Clean Air Act, 188 hazardous air pollutants are regulated through National Emission Standards for Hazardous Air Pollutants (NESHAPs) established by industry sector. No such standards have been established specifically for agricultural waste. Furthermore, ammonia and hydrogen sulfide, two air pollutants associated with agricultural waste, are not regulated as federal hazardous air pollutants under the Clean Air Act.

Hazardous air pollutants associated with agricultural waste are regulated under the federal Comprehensive Environmental Response, Compensation, and Liability Act, and the federal Emergency Planning and Community Right-to-Know Act. These federal regulations include reporting requirements for releases of hazardous air pollutants to the air.

A federal consent agreement finalized in 2005 sets forth the framework for a federal air monitoring study and establishes a timeline for participating animal feeding operations to achieve compliance with federal air permit, air emission control, and air emission reporting requirements. Over 2,500 animal feeding operations located across the US have signed on to this consent agreement with the US Environmental Protection Agency. The proposed extension of the compliance deadline to July 2011, for compliance with state hazardous air pollutant requirements, aligns with the timeline for compliance established in the 2005 federal consent agreement for animal feeding operations. Assuming timely federal action, the consent decree deadlines would occur in Fall 2010 and Spring 2011.

7. Comparison with similar rules in adjacent states:

A summary of similar rules in Minnesota, Iowa, Illinois, and Michigan is provided below.

In brief, Minnesota and Iowa have established air quality standards for hydrogen sulfide that apply to livestock operations; these standards are more restrictive than Wisconsin's. However, neither state engages in the review and issuance of air permits for livestock operations. Illinois and Michigan have adopted a siting standards approach to regulating livestock operations, similar to the Wisconsin siting standards for new and expanding livestock operations established in ATCP 51. As in Illinois and Michigan, the Wisconsin siting standards of ATCP 51 include odor standards and set back requirements. As in Wisconsin, the siting standards are administered by the Department of Agriculture in Illinois and Michigan.

Minnesota

For the past ten years, the Minnesota Pollution Control Agency has conducted environmental assessments of new and expanding livestock operations. The assessment includes an air quality dispersion modeling analysis of odor, hydrogen sulfide and ammonia impacts, using the CALPUFF model. Air emission estimates are developed based on manure chemistry for input into the model.

Minnesota has established ambient air quality standards for hydrogen sulfide. These standards are more restrictive the Wisconsin standard. The Minnesota ambient air quality standard for hydrogen sulfide is 70.0 micrograms per cubic meter, half-hour average not to be exceeded over 2 times per year; and 42.0 micrograms per cubic meter half-hour average not to be exceeded over 2 times in any 5 consecutive days.

The Wisconsin ambient air quality standard for hydrogen sulfide is significantly higher, 335 micrograms per cubic meter, over a 24-hour average at the property boundary. Furthermore, in Wisconsin, the use of best management practices as approved by the Department of Natural Resources is an alternative compliance demonstration method for sources of hazardous air pollutant emissions associated with agricultural waste.

The Minnesota Pollution Control Agency has not engaged in review and issuance of air pollution control permits for livestock operations.

Iowa

In 2002, the Iowa Legislature directed the Iowa Department of Natural Resources (Iowa DNR) to perform a field study to determine airborne levels of ammonia, hydrogen sulfide, and odor near animal feeding operations. The Iowa DNR then established a health based standard for hydrogen sulfide to compare against monitoring data to determine if levels pose a risk to public health. If levels measured at separated locations such as homes, public areas, schools, or religious buildings pose health risks, the DNR may develop plans and programs to reduce emissions at animal feeding operations.

The Iowa DNR health effects standard for hydrogen sulfide is 30 ppb (42.0 micrograms per cubic meter) daily maximum one-hour average concentration, not to be exceeded more than seven times per year. This is more restrictive than the Wisconsin ambient air quality standard for hydrogen sulfide of 335 micrograms per cubic meter, over a 24-hour average at the property boundary. Furthermore, in Wisconsin, the use of best management practices as approved by the Department

of Natural Resources is an alternative compliance demonstration method for sources of hazardous air pollutant emissions associated with agricultural waste.

In 2004, the Iowa DNR Animal Feeding Operations Technical Workgroup published a report on technologies to reduce air emissions from livestock operations. The report outlines "best management practices" which if adopted by producers will benefit the air quality on the farms themselves, at nearby residences, and overall environment by reducing air emissions. In addition, the report includes recommendations on the characterization of air emissions from animal feeding operations and dispersion model that can be used to estimate the concentrations of pollutants near animal feeding operations.

Illinois

The Illinois Livestock Management Facilities Act, adopted in 1996 and amended in 1998 and 1999, is administered by the Illinois Department of Agriculture. The Act establishes requirements for the design, construction and operation of livestock management and livestock waste-handling facilities. It also establishes specific procedures and criteria for the siting of such facilities and outlines the public information meeting process. The Livestock Management Facilities Act establishes eight siting criteria that must be met by a new livestock management or waste-handling facility. These siting criteria include odor control plans and set back distances, but do not specifically address emissions of hydrogen sulfide or ammonia.

The Illinois EPA involvement with livestock operations is limited, mainly to investigation of odor complaints. The Illinois EPA air toxics rule does not include any standards for hydrogen sulfide or ammonia.

Michigan

In simple terms, air emissions from livestock operations located in Michigan are not regulated under the Michigan Department of Natural Resources air toxics and air permit rules, so long as they comply with the Generally Accepted Agricultural and Management Practices (GAAMPs) as administered by the Michigan Department of Agriculture.

The Michigan legislature passed into law the Michigan Right to Farm Act (Act 93 of 1981), which requires the establishment of GAAMPs. These practices are written to provide uniform, statewide standards and acceptable management practices based on sound science. These practices can serve producers in the various sectors of the industry to compare or improve their own managerial routines. New scientific discoveries and changing economic conditions may require necessary revision of the GAAMPs. The GAAMPs were developed with industry, university, and multi-governmental agency input. As agricultural operations continue to change, new practices may be developed to address the concerns of the neighboring community. Agricultural producers who voluntarily follow these practices are provided protection from public or private nuisance litigation under the Right to Farm Act.

8. Summary of factual data and analytical methodologies used and how any related findings support the regulatory approach chosen:

See items 6 and 7 above.

9. Analysis and supporting documents used to determine effect on small business or in preparation of economic impact report:

None. A formal analysis of the effect of the proposed rule changes on small business has not been conducted because the changes include only a compliance deadline extension and several minor non-controversial technical corrections to existing rule language. Preparation of an economic impact report has not been requested.

10. Effect on small business:

The proposed compliance deadline extension to July 31, 2011, will allow small business additional time to determine rule applicability and achieve compliance. The proposed compliance deadline aligns with a federal consent decree deadlines (Fall 2010 and Spring 2011), simplifying regulatory timelines for small business. This federal consent agreement finalized in 2005 sets forth the framework for a federal air monitoring study and establishes a timeline for participating animal feeding operations to achieve compliance with federal air permit, air emission control, and air emission reporting requirements. Over 2,500 animal feeding operations located across the US have signed on to this consent agreement with the US Environmental Protection Agency. The proposed extension will enable small business to use the results of ongoing state and federal studies to guide their emission estimates and compliance method decisions. The results of these state and federal studies are expected in mid-2008 and mid-2010, respectively.

The proposed minor technical corrections are not expected to affect small business.

11. Agency contact person: Eileen F. Pierce, telephone 608-275-3296, email eileen.pierce@wisconsin.gov.

SECTION 1. NR 406.04(3)(e) is amended to read:

NR 406.04(3)(e) For the purposes of determining emissions under sub. (2) (f), the owner or operator of a source is not required to consider emissions of hazardous air contaminants associated with agricultural waste prior to ~~July 31, 2007~~ July 31, 2011.

SECTION 2. NR 407.03(2)(d) is amended to read:

NR 407.03(2)(d) The maximum theoretical emissions from the source for any hazardous air contaminant listed in Table A, B or C of s. NR 445.07 do not exceed the emission rate listed in the table for the hazardous air contaminant for the respective stack height. For the purposes of determining emissions under this paragraph, the owner or operator of a source is not required to consider emissions of hazardous air contaminants associated with agricultural waste prior to ~~July 31, 2007~~ July 31, 2011.

SECTION 3. NR 407.14(1)(intro.) and (1m)(e) are amended to read:

NR 407.14(1)(intro.) MANDATORY REVISIONS. Except for a change in an applicable requirement that is due to an addition of, or revision to, a hazardous air contaminant standard or control requirement in subch. ~~III~~ II of ch. NR 445, the department shall revise an operation permit for any of the following reasons:

(1m)(e) A change in the applicable requirement is due to an addition of, or revision to, a hazardous air contaminant standard or control requirement in subch. ~~III~~ II of ch. NR 445.

SECTION 4. NR 445.02(5)(a)(intro.) is amended to read:

NR 445.02(5)(a)(intro.) A reasonable search and inquiry conducted by the owner or operator to identify and quantify emissions of hazardous air contaminants at the facility and determine which, if any, are subject to regulation under the provisions in subch. ~~III~~ II and provisions identified in s. NR 445.06(1)(a) to (e). The search and inquiry is reasonable if it entails an investigation of all facility operations that the owner or operator determines are likely to cause emissions of any hazardous air contaminant based on a substance listed in this chapter being any of the following:

SECTION 5. NR 445 subchapter II is repealed.

SECTION 6. NR 445 subchapter III is renumbered subchapter II.

SECTION 7. NR 445.07 Table A is amended to read:

Table A
Emission Thresholds, Standards and Control Requirements for All Sources of Hazardous Air Contaminants

Hazardous Air Contaminant	CAS Number	Thresholds for Emission Points[1] (expressed as lbs/hr or lbs/yr)				Ambient Air Standard (per time period in column (h) expressed as micrograms per cubic meter)	Time Period for Standard and Threshold	Control Requirement
		Emissions from Stacks <25 ft	Emissions from Stacks 25 to <40 ft	Emissions from Stacks 40 to <75 ft	Emissions from Stacks ≥75 ft			
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
Acetaldehyde	75-07-0	3.36	10.7	20.6	55.3	4,504	1 Hr	N/A
		808	3,318	7,900	27,845	N/A	Annual	BACT
Acetic acid	64-19-7	1.32	5.12	10.3	39.8	589	24 Hr Avg	N/A
Acetic anhydride	108-24-7	1.12	4.36	8.79	33.9	501	24 Hr Avg	N/A
Acetonitrile	75-05-8	3.61	14	28.3	109	1,612	24 Hr Avg	N/A
Acetophenone	98-86-2	2.64	10.3	20.7	79.7	1,179	24 Hr Avg	N/A
Acrolein	107-02-8	0.0171	0.0545	0.105	0.281	22.9	1 Hr	N/A
Acrylamide	79-06-1	0.00161	0.00626	0.0126	0.0486	0.72	24 Hr Avg	N/A
		1.37	5.62	13.4	47.1	N/A	Annual	BACT
Acrylic acid	79-10-7	178	730	1,738	6,126	1	Annual	N/A
		0.317	1.23	2.48	9.56	141	24 Hr Avg	N/A
Acrylonitrile	107-13-1	26.1	107	256	901	N/A	Annual	BACT
Adipic acid	124-04-9	0.269	1.04	2.11	8.11	120	24 Hr Avg	N/A
Adiponitrile	111-69-3	0.475	1.85	3.72	14.3	212	24 Hr Avg	N/A
Aflatoxins	1402-68-2	2.43	10	23.8	83.9	N/A	Annual	LAER
Allyl alcohol	107-18-6	0.0638	0.248	0.5	1.93	28.5	24 Hr Avg	N/A
Allyl chloride	107-05-1	0.168	0.653	1.32	5.07	75.1	24 Hr Avg	N/A
Allyl glycidyl ether	106-92-3	0.251	0.974	1.97	7.57	112	24 Hr Avg	N/A
Aluminum alkyls and soluble salts, as Al	7429-90-5	0.107	0.417	0.842	3.24	48	24 Hr Avg	N/A
Aluminum pyro powders, as Al	7429-90-5	0.269	1.04	2.11	8.11	120	24 Hr Avg	N/A
o-Aminoazotoluene (2-Aminoazotoluene)	97-56-3	1.62	6.64	15.8	55.7	N/A	Annual	BACT
4-Aminobiphenyl	92-67-1	0.296	1.22	2.9	10.2	N/A	Annual	LAER
Ammonia	7664-41-7	17,769	73,000	173,810	612,587	100	Annual	N/A
		0.935	3.63	7.33	28.2	418	24 Hr Avg	N/A
Ammonium perfluorooctanoate	3825-26-1	0.000537	0.00209	0.00421	0.0162	0.24	24 Hr Avg	N/A
Aniline	62-53-3	0.409	1.59	3.21	12.4	183	24 Hr Avg	N/A
o-Anisidine and o-anisidine hydrochloride (mixtures and isomers)	29191-52-4	44.4	183	435	1,531	N/A	Annual	BACT
		0.0271	0.105	0.212	0.817	12.1	24 Hr Avg	N/A
Antimony and compounds, as Sb	7440-36-0	0.0269	0.104	0.211	0.811	12	24 Hr Avg	N/A
Antimony trioxide	1309-64-4	35.5	146	348	1,225	0.2	Annual	N/A
Arsenic, elemental and inorganic compounds, as As	7440-38-2	0.413	1.7	4.04	14.2	N/A	Annual	LAER
Arsine	7784-42-1	0.00856	0.0333	0.0671	0.258	3.83	24 Hr Avg	N/A
		8.88	36.5	86.9	306	0.05	Annual	N/A
Asbestos, all forms	1332-21-4	2.43	10	23.8	83.9	N/A	Annual	LAER
Aziridine (Ethylenimine)	151-56-4	0.0473	0.184	0.371	1.43	21.1	24 Hr Avg	N/A
Barium, soluble compounds, as Ba	7440-39-3	0.0269	0.104	0.211	0.811	12	24 Hr Avg	N/A
Benz(a)anthracene	56-55-3	16.2	66.4	158	557	N/A	Annual	BACT

Hazardous Air Contaminant	CAS Number	Thresholds for Emission Points[1] (expressed as lbs/hr or lbs/yr)				Ambient Air Standard (per time period in column (h) expressed as micrograms per cubic meter)	Time Period for Standard and Threshold	Control Requirement
		Emissions from Stacks <25 ft	Emissions from Stacks 25 to <40 ft	Emissions from Stacks 40 to <75 ft	Emissions from Stacks ≥75 ft			
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
Benzene	71-43-2	228	936	2,228	7,854	N/A	Annual	LAER
Benzidine	92-87-5	0.0265	0.109	0.259	0.914	N/A	Annual	LAER
Benzo(b)fluoranthene	205-99-2	2.43	10	23.8	83.9	N/A	Annual	BACT
Benzo(j)fluoranthene	205-82-3	2.43	10	23.8	83.9	N/A	Annual	BACT
Benzo(k)fluoranthene	207-08-9	2.43	10	23.8	83.9	N/A	Annual	BACT
Benzo(a)pyrene	50-32-8	1.62	6.64	15.8	55.7	N/A	Annual	BACT
Benzotrichloride	98-07-7	2.43	10	23.8	83.9	N/A	Annual	BACT
Benzoyl chloride	98-88-4	0.215	0.684	1.31	3.53	287	1 Hr	N/A
Benzoyl peroxide	94-36-0	0.269	1.04	2.11	8.11	120	24 Hr Avg	N/A
Benzyl acetate	140-11-4	3.3	12.8	25.9	99.6	1,474	24 Hr Avg	N/A
Benzyl chloride	100-44-7	0.278	1.08	2.18	8.4	124	24 Hr Avg	N/A
Beryllium and beryllium compounds, as Be	7440-41-7	0.74	3.04	7.24	25.5	N/A	Annual	BACT
		3.55	14.6	34.8	123	0.02	Annual	N/A
Biphenyl	92-52-4	0.0678	0.263	0.531	2.05	30.3	24 Hr Avg	N/A
Bis(2-chloroethyl)ether (Dichloroethyl ether)	111-44-4	1.57	6.1	12.3	47.4	702	24 Hr Avg	N/A
Bis(2-dimethylaminoethyl) ether (DMAEE)	3033-62-3	0.0176	0.0684	0.138	0.531	7.87	24 Hr Avg	N/A
Bis(2-ethyl hexyl) phthalate (Diethyl hexyl phthalate)	117-81-7	0.269	1.04	2.11	8.11	120	24 Hr Avg	N/A
Bismuth telluride, as Bi_2Te_3: Se-doped	1304-82-1	0.269	1.04	2.11	8.11	120	24 Hr Avg	N/A
Borates, tetra, sodium salts, decahydrate	1303-96-4	0.269	1.04	2.11	8.11	120	24 Hr Avg	N/A
Borates, tetra, sodium salts, pentahydrate	1303-96-4	0.0537	0.209	0.421	1.62	24	24 Hr Avg	N/A
Boron tribromide	10294-33-4	0.765	2.44	4.69	12.6	1,025	1 Hr	N/A
Boron trifluoride	7637-07-2	0.207	0.66	1.27	3.4	277	1 Hr	N/A
Bromine	7726-95-6	0.0351	0.136	0.275	1.06	15.7	24 Hr Avg	N/A
Bromine pentafluoride	7789-30-2	0.0384	0.149	0.301	1.16	17.2	24 Hr Avg	N/A
Bromodichloromethane	75-27-4	48	197	470	1,656	N/A	Annual	BACT
Bromodiphenyls (Polybrominated biphenyls; PBBs)	59536-65-1	0.207	0.849	2.02	7.12	N/A	Annual	BACT
Bromoform	75-25-2	0.278	1.08	2.18	8.38	124	24 Hr Avg	N/A
1,3-Butadiene	106-99-0	6.35	26.1	62.1	219	N/A	Annual	BACT
2-Butoxyethanol (Ethylene glycol monobutyl ether; EGBE; Butyl Cellosolve)	111-76-2	2,309,939	9,490,000	22,595,238	79,636,364	13,000	Annual	N/A
		5.19	20.2	40.7	157	2,320	24 Hr Avg	
n-Butyl acrylate	141-32-2	0.563	2.19	4.41	17	252	24 Hr Avg	N/A
n-Butylamine	109-73-9	1.12	3.56	6.84	18.4	1,496	1 Hr	N/A
n-butyl alcohol (n-Butanol)	71-36-3	11.3	36	69.3	186	15,157	1 Hr	N/A
Butylated hydroxyanisole (BHA)	25013-16-5	31,173	128,070	304,929	1,074,715	N/A	Annual	BACT
Butyl Cellosolve (2-Butoxyethanol; ethylene glycol monobutyl ether; EGBE)	111-76-2	2,309,939	9,490,000	22,595,238	79,636,364	13,000	Annual	N/A
		5.19	20.2	40.7	157	2,320	24 Hr Avg	
tert-Butyl chromate, as Cr	1189-85-1	0.00747	0.0238	0.0457	0.123	10	1 Hr	N/A
		0.148	0.608	1.45	5.1	N/A	Annual	LAER
n-Butyl glycidyl ether (BGE)	2426-08-6	7.15	27.8	56.1	216	3,195	24 Hr Avg	N/A
n-Butyl lactate	138-22-7	1.61	6.24	12.6	48.5	717	24 Hr Avg	N/A
o-sec-Butylphenol	89-72-5	1.65	6.41	12.9	49.8	737	24 Hr Avg	N/A
p-tert-Butyltoluene	98-51-1	0.326	1.26	2.55	9.83	145	24 Hr Avg	N/A

Hazardous Air Contaminant	CAS Number	Thresholds for Emission Points[1] (expressed as lbs/hr or lbs/yr)				Ambient Air Standard (per time period in column (h) expressed as micrograms per cubic meter)	Time Period for Standard and Threshold	Control Requirement
		Emissions from Stacks <25 ft	Emissions from Stacks 25 to <40 ft	Emissions from Stacks 40 to <75 ft	Emissions from Stacks ≥75 ft			
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
C.I. Basic Red 9 monohydrochloride	569-61-9	25	103	245	863	N/A	Annual	BACT
Cadmium and cadmium compounds, as Cd	7440-43-9	0.987	4.06	9.66	34	N/A	Annual	LAER
Calcium cyanamide	156-62-7	0.0269	0.104	0.211	0.811	12	24 Hr Avg	N/A
Calcium hydroxide	1305-62-0	0.269	1.04	2.11	8.11	120	24 Hr Avg	N/A
Calcium oxide	1305-78-8	0.107	0.417	0.842	3.24	48	24 Hr Avg	N/A
Camphor (synthetic)	76-22-2	0.669	2.6	5.24	20.2	299	24 Hr Avg	N/A
Caprolactam (aerosol and vapor)	105-60-2	1.24	4.83	9.74	37.5	555	24 Hr Avg	N/A
Carbon black	1333-86-4	0.188	0.73	1.47	5.68	84	24 Hr Avg	N/A
Carbon disulfide	75-15-0	124,381	511,000	1,216,667	4,288,112	700	Annual	N/A
		1.67	6.5	13.1	50.5	747	24 Hr Avg	N/A
Carbon tetrabromide	558-13-4	0.0729	0.283	0.571	2.2	32.6	24 Hr Avg	N/A
Carbon tetrachloride	56-23-5	118	487	1,159	4,084	N/A	Annual	BACT
Carbonyl fluoride	353-50-4	0.29	1.13	2.27	8.76	130	24 Hr Avg	N/A
Catechol (Pyrocatechol)	120-80-9	1.21	4.7	9.48	36.5	540	24 Hr Avg	N/A
Cellosolve (2-Ethoxyethanol; EGEE)	110-80-5	0.99	3.85	7.76	29.9	442	24 Hr Avg	N/A
		35,538	146,000	347,619	1,225,175	200	Annual	N/A
Cellosolve acetate (2-Ethoxyethyl acetate; EGEEA)	111-15-9	1.45	5.64	11.4	43.8	649	24 Hr Avg	N/A
Refractory ceramic fibers (respirable size)		2.43	10	23.8	83.9	N/A	Annual	BACT
Cesium hydroxide	21351-79-1	0.107	0.417	0.842	3.24	48	24 Hr Avg	N/A
Chlordecone (Kepone)	143-50-0	0.386	1.59	3.78	13.3	N/A	Annual	BACT
Chlorendic acid	115-28-6	68.3	281	668	2,356	N/A	Annual	BACT
Chlorinated diphenyl oxide	55720-99-5	0.0269	0.104	0.211	0.811	12	24 Hr Avg	N/A
Chlorinated paraffins (C12; 60% chlorine)	108171-26-2	71.1	292	695	2,450	N/A	Annual	BACT
Chlorine	7782-50-5	0.0779	0.303	0.611	2.35	34.8	24 Hr Avg	N/A
Chlorine dioxide	10049-04-4	0.0148	0.0576	0.116	0.447	6.62	24 Hr Avg	N/A
Chlorine trifluoride	7790-91-2	0.0282	0.0899	0.173	0.464	37.8	1 Hr	N/A
2-Chloroacetophenone	532-27-4	0.017	0.066	0.133	0.513	7.59	24 Hr Avg	N/A
Chlorobenzene (Monochlorobenzene)	108-90-7	2.47	9.61	19.4	74.7	1,105	24 Hr Avg	N/A
o- Chlorobenzylidene malononitrile	2698-41-1	0.0288	0.0917	0.176	0.473	38.6	1 Hr	N/A
1-Chloro-1,1-difluoroethane (Hydrochlorofluorocarbon-142b; HCFC-142b; R-142b)	75-68-3	8,884,381	36,500,000	86,904,762	306,293,706	50,000	Annual	N/A
Chlorodifluoromethane (Hydrochlorofluorocarbon-22; HCFC-22; R-22)	75-45-6	8,884,381	36,500,000	86,904,762	306,293,706	50,000	Annual	N/A
Chlorodiphenyls (Polychlorinated biphenyls; PCBs)	1336-36-3	0.0269	0.104	0.211	0.811	12	24 Hr Avg	N/A
		0.1	0.1	0.1	0.1	N/A	Annual	BACT
1-Chloro-2,3-epoxypropane (Epichlorohydrin)	106-89-8	0.102	0.395	0.797	3.07	45.4	24 Hr Avg	N/A
		178	730	1,738	6,126	1	Annual	N/A
		1,481	6,083	14,484	51,049	N/A	Annual	BACT
Chloroethane (Ethyl chloride)	75-00-3	14.2	55.1	111	428	6,333	24 Hr Avg	N/A
		1,776,876	7,300,000	17,380,952	61,258,741	10,000	Annual	N/A
Chloroform	67-66-3	2.62	10.2	20.6	79.2	1,172	24 Hr Avg	N/A
		77.3	317	756	2,663	N/A	Annual	BACT

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(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
Chloromethane (Methyl chloride)	74-87-3	5.55	21.5	43.5	167	2,478	24 Hr Avg	N/A
beta-Chloroprene	126-99-8	2.43	10	23.8	83.9	N/A	Annual	LAER
		1.95	7.56	15.2	58.7	869	24 Hr Avg	N/A
o-Chlorostyrene	2039-87-4	15.2	59.2	119	460	6,802	24 Hr Avg	N/A
o-Chlorotoluene	95-49-8	13.9	54	109	420	6,213	24 Hr Avg	N/A
Chromium (metal) and compounds other than ~~Chromium~~ chromium (VI) , as Cr	7440-47-3	0.0269	0.104	0.211	0.811	12	24 Hr Avg	N/A
Chromium (VI): ~~Chromic~~ chromic acid mists and dissolved Cr (VI) aerosols, as Cr	7440-47-3	1.42	5.84	13.9	49	0.008	Annual	N/A
		0.148	0.608	1.45	5.1	N/A	Annual	LAER
Chromium (VI): compounds and particulates , as Cr	7440-47-3	17.8	73	174	613	0.1	Annual	N/A
		0.148	0.608	1.45	5.1	N/A	Annual	LAER
Chromyl chloride, as Cr	14977-61-8	0.148	0.608	1.45	5.1	N/A	Annual	LAER
		0.00851	0.0331	0.0667	0.257	3.8	24 Hr Avg	N/A
Cobalt, elemental, and inorganic compounds, as Co	7440-48-4	0.00107	0.00417	0.00842	0.0324	0.48	24 Hr Avg	N/A
Coke oven emissions		2.87	11.8	28	98.8	N/A	Annual	LAER
Copper and compounds, dusts and mists, as Cu	7440-50-8	0.0537	0.209	0.421	1.62	24	24 Hr Avg	N/A
Copper and compounds, fume, as Cu	7440-50-8	0.0107	0.0417	0.0842	0.324	4.8	24 Hr Avg	N/A
p-Cresidine	120-71-8	41.3	170	404	1,425	N/A	Annual	BACT
Cresol (mixtures and isomers)	1319-77-3	1.19	4.62	9.31	35.9	531	24 Hr Avg	N/A
Crotonaldehyde	4170-30-3	0.0642	0.205	0.393	1.06	86	1 Hr	N/A
Cumene (Isopropyl benzene)	98-82-8	13.2	51.3	103	399	5,899	24 Hr Avg	N/A
Cyanamide	420-04-2	0.107	0.417	0.842	3.24	48	24 Hr Avg	N/A
Cyanides, (inorganics), as CN	143-33-9	0.373	1.19	2.29	6.13	500	1 Hr	N/A
Cyanogen	460-19-5	1.14	4.44	8.96	34.5	511	24 Hr Avg	N/A
Cyanogen chloride	506-77-4	0.0563	0.179	0.345	0.926	75.4	1 Hr	N/A
Cyclohexanol	108-93-0	11	42.7	86.2	332	4,916	24 Hr Avg	N/A
Cyclohexanone	108-94-1	5.17	20.1	40.5	156	2,311	24 Hr Avg	N/A
Cyclohexylamine	108-91-8	2.18	8.46	17.1	65.8	973	24 Hr Avg	N/A
Cyclonite	121-82-4	0.0269	0.104	0.211	0.811	12	24 Hr Avg	N/A
Cyclopentadiene	542-92-7	10.9	42.3	85.4	329	4,866	24 Hr Avg	N/A
Danthron (1,8-Dihydroxyanthroquinone)	117-10-2	80.8	332	790	2,784	N/A	Annual	BACT
DBCP (1,2-Dibromo-3-chloropropane)	96-12-8	0.935	3.84	9.15	32.2	N/A	Annual	BACT
DDT (Dichlorodiphenyltrichloroethane)	50-29-3	0.0537	0.209	0.421	1.62	24	24 Hr Avg	N/A
		18.3	75.3	179	632	N/A	Annual	BACT
Diacetone alcohol	123-42-2	12.8	49.6	100	385	5,701	24 Hr Avg	N/A
2,4-Diaminoanisole sulfate	39156-41-7	480	1,973	4,698	16,556	N/A	Annual	BACT
2,4-Diaminotoluene (Toluene-2,4-diamine)	95-80-7	1.62	6.64	15.8	55.7	N/A	Annual	BACT
Diazomethane	334-88-3	0.0185	0.0718	0.145	0.558	8.25	24 Hr Avg	N/A
Dibenz(a,h)acridine	226-36-8	16.2	66.4	158	557	N/A	Annual	BACT
Dibenz(a,j)acridine	224-42-0	16.2	66.4	158	557	N/A	Annual	BACT
Dibenz(a,h)anthracene	53-70-3	1.48	6.08	14.5	51	N/A	Annual	BACT
7H-Dibenzo(c,g)carbazole	194-59-2	1.62	6.64	15.8	55.7	N/A	Annual	BACT

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Dibenzo(a,e)pyrene	192-65-4	1.62	6.64	15.8	55.7	N/A	Annual	BACT
Dibenzo(a,h)pyrene	189-64-0	0.162	0.664	1.58	5.57	N/A	Annual	BACT
Dibenzo(a,i)pyrene	189-55-9	0.162	0.664	1.58	5.57	N/A	Annual	BACT
Dibenzo(a,l)pyrene	191-30-0	0.162	0.664	1.58	5.57	N/A	Annual	BACT
Diborane	19287-45-7	0.00608	0.0236	0.0477	0.184	2.72	24 Hr Avg	N/A
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	0.935	3.84	9.15	32.2	N/A	Annual	BACT
1,2-Dibromoethane (Ethylene dibromide; EDB)	106-93-4	8.08	33.2	79	278	N/A	Annual	BACT
2-N-Dibutylaminoethanol	102-81-8	0.19	0.74	1.49	5.75	85.1	24 Hr Avg	N/A
Dibutylphenyl phosphate	2528-36-1	0.189	0.733	1.48	5.7	84.3	24 Hr Avg	N/A
Dibutyl phthalate (Di-n-butyl phthalate)	84-74-2	0.269	1.04	2.11	8.11	120	24 Hr Avg	N/A
o-Dichlorobenzene (1,2-Dichlorobenzene)	95-50-1	8.07	31.4	63.3	244	3,608	24 Hr Avg	N/A
p-Dichlorobenzene (1,4-Dichlorobenzene)	106-46-7	162	664	1,580	5,569	N/A	Annual	BACT
		142,150	584,000	1,390,476	4,900,699	800	Annual	N/A
		3.23	12.5	25.3	97.5	1,443	24 Hr Avg	N/A
3,3'-Dichlorobenzidine	91-94-1	5.23	21.5	51.1	180	N/A	Annual	BACT
1,3-Dichloro-5,5-dimethyl hydantoin	118-52-5	0.0107	0.0417	0.0842	0.324	4.8	24 Hr Avg	N/A
Dichlorodiphenyltrichloroethane (DDT)	50-29-3	18.3	75.3	179	632	N/A	Annual	BACT
		0.0537	0.209	0.421	1.62	24	24 Hr Avg	N/A
1,1-Dichloroethane (Ethylidene dichloride)	75-34-3	21.7	84.5	170	656	9,715	24 Hr Avg	N/A
1,2-Dichloroethane (Ethylene dichloride; EDC)	107-06-2	68.3	281	668	2,356	N/A	Annual	BACT
		2.17	8.45	17	65.6	971	24 Hr Avg	N/A
Dichloroethyl ether (Bis(2-chloroethyl)ether)	111-44-4	1.57	6.1	12.3	47.4	702	24 Hr Avg	N/A
1,1-Dichloroethylene (Vinylidene chloride)	75-35-4	1.06	4.14	8.35	32.2	476	24 Hr Avg	N/A
1,2-Dichloroethylene	540-59-0	42.6	166	334	1,286	19,033	24 Hr Avg	N/A
Dichloromethane (Methylene chloride)	75-09-2	9.33	36.2	73.1	282	4,168	24 Hr Avg	N/A
		3,781	15,532	36,981	130,338	N/A	Annual	BACT
1,1-Dichloro-1-nitroethane	594-72-9	0.633	2.46	4.96	19.1	283	24 Hr Avg	N/A
1,2-Dichloropropane (Propylene dichloride)	78-87-5	18.6	72.3	146	562	8,318	24 Hr Avg	N/A
		711	2,920	6,952	24,503	4	Annual	N/A
Dicyclopentadiene	77-73-6	1.45	5.64	11.4	43.8	649	24 Hr Avg	N/A
Diethanolamine	111-42-2	0.107	0.417	0.842	3.24	48	24 Hr Avg	N/A
Diethylamine	109-89-7	0.803	3.12	6.3	24.3	359	24 Hr Avg	N/A
2-Diethylaminoethanol	100-37-8	0.515	2	4.04	15.5	230	24 Hr Avg	N/A
Diethylene triamine	111-40-0	0.227	0.881	1.78	6.84	101	24 Hr Avg	N/A
Diethyl hexyl phthalate (Bis(2-ethyl hexyl) phthalate; Di-sec-octyl phthalate; DEHP)	117-81-7	0.269	1.04	2.11	8.11	120	24 Hr Avg	N/A
Diethyl phthalate	84-66-2	0.269	1.04	2.11	8.11	120	24 Hr Avg	N/A
Diethyl sulfate	64-67-5	2.43	10	23.8	83.9	N/A	Annual	BACT
1,4-Diethylene oxide (1,4-Dioxane)	123-91-1	3.87	15	30.3	117	1,730	24 Hr Avg	N/A
		231	948	2,257	7,956	N/A	Annual	BACT
1,1-Difluoroethane	75-37-6	7,107,505	29,200,000	69,523,810	245,034,965	40,000	Annual	N/A
Diglycidyl ether (DGE)	2238-07-5	0.0286	0.111	0.224	0.863	12.8	24 Hr Avg	N/A

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Diglycidyl resorcinol ether	101-90-6	3.63	14.9	35.5	125	N/A	Annual	BACT
1,8-Dihydroxyanthroquinone (Danthron)	117-10-2	80.8	332	790	2,784	N/A	Annual	BACT
Diisobutyl ketone	108-83-8	7.81	30.4	61.2	236	3,490	24 Hr Avg	N/A
Diisopropylamine	108-18-9	1.11	4.32	8.71	33.6	497	24 Hr Avg	N/A
N,N-Dimethyl acetamide	127-19-5	1.91	7.44	15	57.8	855	24 Hr Avg	N/A
Dimethylamine	124-40-3	0.495	1.92	3.88	14.9	221	24 Hr Avg	N/A
4-Dimethylaminoazobenzene	60-11-7	1.37	5.62	13.4	47.1	N/A	Annual	BACT
Dimethylaniline (N,N-Dimethylaniline)	121-69-7	1.33	5.17	10.4	40.2	595	24 Hr Avg	N/A
Dimethyl benzene (Xylene (mixtures and isomers); Xylol)	1330-20-7	23.3	90.6	183	704	10,421	24 Hr Avg	N/A
3,3'-Dimethylbenzidine (o-Tolidine)	119-93-7	2.43	10	23.8	83.9	N/A	Annual	BACT
Dimethyl carbamoyl chloride	79-44-7	0.48	1.97	4.7	16.6	N/A	Annual	BACT
Dimethylethoxysilane	14857-34-2	0.114	0.445	0.897	3.46	51.1	24 Hr Avg	N/A
N,N-Dimethylformamide	68-12-2	1.61	6.24	12.6	48.5	717	24 Hr Avg	N/A
		5,331	21,900	52,143	183,776	30	Annual	N/A
1,1-Dimethylhydrazine	57-14-7	2.43	10	23.8	83.9	N/A	Annual	BACT
Dimethylphthalate	131-11-3	0.269	1.04	2.11	8.11	120	24 Hr Avg	N/A
Dimethyl sulfate	77-78-1	2.43	10	23.8	83.9	N/A	Annual	BACT
		0.0277	0.108	0.217	0.836	12.4	24 Hr Avg	N/A
Dinitolmide	148-01-6	0.269	1.04	2.11	8.11	120	24 Hr Avg	N/A
Dinitrobenzene (mixtures and isomers)	528-29-0	0.0554	0.215	0.434	1.67	24.8	24 Hr Avg	N/A
Dinitrotoluene (mixtures and isomers)	25321-14-6	0.0107	0.0417	0.0842	0.324	4.8	24 Hr Avg	N/A
1,4-Dioxane (1,4-Diethylene oxide)	123-91-1	231	948	2,257	7,956	N/A	Annual	BACT
		3.87	15	30.3	117	1,730	24 Hr Avg	N/A
Dioxins and Furans, chlorinated (2,3,7,8-Tetrachlorodibenzo-p-dioxin), as equivalents	1746-01-6	0.0001	0.0001	0.0001	0.0001	N/A	Annual	LAER
Direct Black 38 (Benzidine-based dye)	1937-37-7	0.846	3.48	8.28	29.2	N/A	Annual	BACT
Direct Blue 6 (Benzidine-based dye)	2602-46-2	0.846	3.48	8.28	29.2	N/A	Annual	BACT
Disperse Blue 1	2475-45-8	1,367	5,615	13,370	47,122	N/A	Annual	BACT
Disulfiram	97-77-8	0.107	0.417	0.842	3.24	48	24 Hr Avg	N/A
Divinyl benzene (mixtures and isomers)	1321-74-0	2.86	11.1	22.4	86.3	1,278	24 Hr Avg	N/A
EGBE (2-Butoxyethanol; Ethylene glycol monobutyl ether; butyl cellosolve)	111-76-2	2,309,939	9,490,000	22,595,238	79,636,364	13,000	Annual	N/A
		5.19	20.2	40.7	157	2,320	24 Hr Avg	
EGEE (2-Ethoxyethanol; Ethylene glycol monoethyl ether; cellosolve)	110-80-5	0.99	3.85	7.76	29.9	442	24 Hr Avg	N/A
		35,538	146,000	347,619	1,225,175	200	Annual	N/A
EGEEA (2-Ethoxyethyl acetate; Ethylene glycol monoethyl ether acetate; Cellosolve acetate)	111-15-9	1.45	5.64	11.4	43.8	649	24 Hr Avg	N/A
EGME (2-Methoxyethanol; Methyl Cellosolve)	109-86-4	0.836	3.25	6.55	25.2	373	24 Hr Avg	N/A
EGMEA (2-Methoxyethyl acetate; Methyl Cellosolve acetate)	110-49-6	1.3	5.04	10.2	39.2	580	24 Hr Avg	N/A
Epichlorohydrin (1-Chloro-2,3-epoxypropane)	106-89-8	178	730	1,738	6,126	1	Annual	N/A
		0.102	0.395	0.797	3.07	45.4	24 Hr Avg	N/A

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(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
		1,481	6,083	14,484	51,049	N/A	Annual	BACT
1,2-Epoxybutane (1,2-Butylene oxide)	106-88-7	3,554	14,600	34,762	122,517	20	Annual	N/A
Erionite (Zeolites)	66733-21-9	2.43	10	23.8	83.9	N/A	Annual	LAER
Ethanamine (Ethylamine)	75-04-7	0.495	1.92	3.88	14.9	221	24 Hr Avg	N/A
Ethanolamine	141-43-5	0.403	1.56	3.16	12.2	180	24 Hr Avg	N/A
2-Ethoxyethanol (Ethylene glycol monoethyl ether; EGEE; Cellosolve)	110-80-5	35,538	146,000	347,619	1,225,175	200	Annual	N/A
		0.99	3.85	7.76	29.9	442	24 Hr Avg	N/A
2-Ethoxyethyl acetate (Ethylene glycol monoethyl ether acetate; EGEEA; Cellosolve acetate)	111-15-9	1.45	5.64	11.4	43.8	649	24 Hr Avg	N/A
Ethyl acrylate	140-88-5	1.1	4.27	8.62	33.2	491	24 Hr Avg	N/A
Ethylamine (Ethanamine)	75-04-7	0.495	1.92	3.88	14.9	221	24 Hr Avg	N/A
Ethyl amyl ketone	541-85-5	7.04	27.4	55.2	213	3,146	24 Hr Avg	N/A
Ethyl benzene	100-41-4	23.3	90.6	183	704	10,421	24 Hr Avg	N/A
		177,688	730,000	1,738,095	6,125,874	1,000	Annual	N/A
Ethyl bromide	74-96-4	1.2	4.65	9.38	36.1	535	24 Hr Avg	N/A
Ethyl tert-butyl ether (ETBE)	637-92-3	1.12	4.36	8.8	33.9	501	24 Hr Avg	N/A
Ethyl butyl ketone	106-35-4	12.5	48.7	98.3	379	5,604	24 Hr Avg	N/A
Ethyl carbamate (Urethane)	51-79-6	6.13	25.2	59.9	211	N/A	Annual	BACT
Ethyl chloride (Chloroethane)	75-00-3	1,776,876	7,300,000	17,380,952	61,258,741	10,000	Annual	N/A
		14.2	55.1	111	428	6,333	24 Hr Avg	N/A
Ethyl cyanoacrylate	7085-85-0	0.055	0.214	0.431	1.66	24.6	24 Hr Avg	N/A
Ethylene chlorohydrin	107-07-3	0.246	0.783	1.51	4.04	329	1 Hr	N/A
Ethylenediamine	107-15-3	1.32	5.13	10.3	39.9	590	24 Hr Avg	N/A
Ethylene dibromide (EDB; 1,2-Dibromoethane)	106-93-4	8.08	33.2	79	278	N/A	Annual	BACT
Ethylene dichloride (EDC; 1,2-Dichloroethane)	107-06-2	2.17	8.45	17	65.6	971	24 Hr Avg	N/A
		68.3	281	668	2,356	N/A	Annual	BACT
Ethylene glycol monobutyl ether (2-Butoxyethanol; EGBE; butyl cellosolve)	111-76-2	2,309,939	9,490,000	22,595,238	79,636,364	13,000	Annual	N/A
		5.19	20.2	40.7	157	2,320	24 Hr Avg	N/A
Ethylene glycol monoethyl ether (2-Ethoxyethanol; EGEE; cellosolve)	110-80-5	35,538	146,000	347,619	1,225,175	200	Annual	N/A
		0.99	3.85	7.76	29.9	442	24 Hr Avg	N/A
Ethylene glycol monoethyl ether acetate (2-Ethoxyethyl acetate; EGEEA; Cellosolve Acetate)	111-15-9	1.45	5.64	11.4	43.8	649	24 Hr Avg	N/A
Ethylene glycol vapor and aerosol	107-21-1	7.47	23.8	45.7	123	10,000	1 Hr	N/A
Ethylene oxide	75-21-8	20.2	83	198	696	N/A	Annual	LAER
Ethylene thiourea	96-45-7	137	562	1,337	4,712	N/A	Annual	BACT
Ethylenimine (Aziridine)	151-56-4	0.0473	0.184	0.371	1.43	21.1	24 Hr Avg	N/A
Ethylidene dichloride (1,1-Dichloroethane)	75-34-3	21.7	84.5	170	656	9,715	24 Hr Avg	N/A
Ethylidene norbornene	16219-75-3	1.84	5.85	11.2	30.2	2,458	1 Hr	N/A
N-Ethylmorpholine	100-74-3	1.27	4.92	9.92	38.2	565	24 Hr Avg	N/A
Ethyl silicate	78-10-4	4.58	17.8	35.9	138	2,045	24 Hr Avg	N/A
Fenamiphos	22224-92-6	0.00537	0.0209	0.0421	0.162	2.4	24 Hr Avg	N/A
Flour dust (inhalable fraction)		0.0269	0.104	0.211	0.811	12	24 Hr Avg	N/A

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Fluorides, (inorganics), as F		0.134	0.522	1.05	4.05	60	24 Hr Avg	N/A
Fluorine	7782-41-4	0.0835	0.324	0.654	2.52	37.3	24 Hr Avg	N/A
Formaldehyde	50-00-0	137	562	1,337	4,712	N/A	Annual	BACT
Formamide	75-12-7	0.99	3.84	7.76	29.9	442	24 Hr Avg	N/A
Formic acid	64-18-6	0.506	1.96	3.96	15.3	226	24 Hr Avg	N/A
Furan	110-00-9	2.43	10	23.8	83.9	N/A	Annual	BACT
Furfural	98-01-1	0.422	1.64	3.31	12.7	189	24 Hr Avg	N/A
Furfuryl alcohol	98-00-0	2.16	8.37	16.9	65.1	963	24 Hr Avg	N/A
Germanium tetrahydride	7782-65-2	0.0337	0.131	0.264	1.02	15	24 Hr Avg	N/A
Glutaraldehyde	111-30-8	0.0153	0.0487	0.0936	0.251	20.5	1 Hr	N/A
Glycidol	556-52-5	0.325	1.26	2.55	9.83	145	24 Hr Avg	N/A
		2.43	10	23.8	83.9	N/A	Annual	BACT
Graphite (all forms except graphite fiber)	7782-42-5	0.107	0.417	0.842	3.24	48	24 Hr Avg	N/A
Hexachlorobenzene (HCB)	118-74-1	0.000107	0.000417	0.000842	0.00324	0.048	24 Hr Avg	N/A
		3.86	15.9	37.8	133	N/A	Annual	BACT
Hexachloroethane	67-72-1	0.52	2.02	4.08	15.7	232	24 Hr Avg	N/A
		444	1,825	4,345	15,315	N/A	Annual	BACT
Hexachloronaphthalene	1335-87-1	0.0107	0.0417	0.0842	0.324	4.8	24 Hr Avg	N/A
Hexamethyl phosphoramide	680-31-9	2.43	10	23.8	83.9	N/A	Annual	BACT
Hexamethylene-1,6-diisocyanate (HDI)	822-06-0	1.78	7.3	17.4	61.3	0.01	Annual	N/A
		0.00185	0.00718	0.0145	0.0558	0.826	24 Hr Avg	N/A
n-Hexane	110-54-3	35,538	146,000	347,619	1,225,175	200	Annual	N/A
		9.47	36.8	74.2	286	4,230	24 Hr Avg	N/A
1,6- Hexanediamine	124-09-4	0.128	0.496	1	3.85	57	24 Hr Avg	N/A
1-Hexene	592-41-6	5.55	21.6	43.5	167	2,478	24 Hr Avg	N/A
Hexone (Methyl isobutyl ketone; MIBK)	108-10-1	11	42.7	86.2	332	4,916	24 Hr Avg	N/A
sec-Hexyl acetate	108-84-9	15.8	61.5	124	478	7,078	24 Hr Avg	N/A
Hexylene glycol	107-41-5	9.02	28.7	55.2	148	12,083	1 Hr	N/A
Hydrazine and hydrazine sulfate	302-01-2	0.363	1.49	3.55	12.5	N/A	Annual	BACT
		0.000704	0.00274	0.00552	0.0213	0.315	24 Hr Avg	N/A
Hydrochloric acid (Hydrogen chloride; Muriatic acid)	7647-01-0	0.557	1.77	3.41	9.15	746	1 Hr	N/A
		3,554	14,600	34,762	122,517	20	Annual	N/A
Hydrogenated terphenyls	61788-32-7	0.265	1.03	2.08	7.99	118	24 Hr Avg	N/A
Hydrogen bromide	10035-10-6	0.741	2.36	4.54	12.2	993	1 Hr	N/A
Hydrogen chloride (Hydrochloric acid; Muriatic acid)	7647-01-0	3,554	14,600	34,762	122,517	20	Annual	N/A
		0.557	1.77	3.41	9.15	746	1 Hr	N/A
Hydrogen cyanide	74-90-8	0.388	1.24	2.38	6.38	520	1 Hr	N/A
Hydrogen fluoride (Hydrofluoric acid)	7664-39-3	0.183	0.584	1.12	3.01	246	1 Hr	N/A
Hydrogen peroxide	7722-84-1	0.0747	0.29	0.586	2.26	33.4	24 Hr Avg	N/A
Hydrogen sulfide	7783-06-4	0.749	2.91	5.87	22.6	335	24 Hr Avg	N/A
Hydroquinone	123-31-9	0.107	0.417	0.842	3.24	48	24 Hr Avg	N/A
2-Hydroxypropyl acrylate	999-61-1	0.143	0.555	1.12	4.32	63.9	24 Hr Avg	N/A

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Indeno(1,2,3-cd)pyrene	193-39-5	16.2	66.4	158	557	N/A	Annual	BACT
Indium	7440-74-6	0.00537	0.0209	0.0421	0.162	2.4	24 Hr Avg	N/A
Iodine	7553-56-2	0.0775	0.247	0.475	1.27	104	1 Hr	N/A
Iodomethane (Methyl iodide)	74-88-4	0.624	2.42	4.89	18.8	279	24 Hr Avg	N/A
Iron oxide dust and fume, as Fe	1309-37-1	0.269	1.04	2.11	8.11	120	24 Hr Avg	N/A
Iron salts, soluble, as Fe		0.0537	0.209	0.421	1.62	24	24 Hr Avg	N/A
Isobutyl alcohol	78-83-1	8.14	31.6	63.8	246	3,638	24 Hr Avg	N/A
Isooctyl alcohol	26952-21-6	14.3	55.6	112	432	6,392	24 Hr Avg	N/A
Isophorone	78-59-1	2.11	6.72	12.9	34.7	2,826	1 Hr	N/A
Isophorone diisocyanate	4098-71-9	0.00244	0.00949	0.0191	0.0737	1.09	24 Hr Avg	N/A
Isoprene	78-79-5	2.43	10	23.8	83.9	N/A	Annual	BACT
2-Isopropoxyethanol	109-59-1	5.72	22.2	44.8	173	2,556	24 Hr Avg	N/A
Isopropylamine	75-31-0	0.649	2.52	5.09	19.6	290	24 Hr Avg	N/A
Isopropyl benzene (Cumene)	98-82-8	13.2	51.3	103	399	5,899	24 Hr Avg	N/A
Isopropyl glycidyl ether	4016-14-2	12.8	49.6	100	385	5,702	24 Hr Avg	N/A
N-Isopropylaniline	768-52-5	0.594	2.31	4.66	17.9	265	24 Hr Avg	N/A
Kaolin	1332-58-7	0.107	0.417	0.842	3.24	48	24 Hr Avg	N/A
Kepone (Chlordecone)	143-50-0	0.386	1.59	3.78	13.3	N/A	Annual	BACT
Ketene	463-51-4	0.0462	0.179	0.362	1.39	20.6	24 Hr Avg	N/A
Lead acetate, as Pb	301-04-2	22.2	91.3	217	766	N/A	Annual	BACT
Lead phosphate, as Pb	7446-27-7	148	608	1,448	5,105	N/A	Annual	BACT
Maleic anhydride	108-31-6	0.0215	0.0837	0.169	0.65	9.63	24 Hr Avg	N/A
Manganese, elemental and inorganic compounds, as Mn	7439-96-5	0.0107	0.0417	0.0842	0.324	4.8	24 Hr Avg	N/A
Mercury, as Hg, alkyl compounds	7439-97-6	0.000537	0.00209	0.00421	0.0162	0.24	24 Hr Avg	N/A
Mercury, as Hg, aryl compounds	7439-97-6	0.00537	0.0209	0.0421	0.162	2.4	24 Hr Avg	N/A
Mercury, as Hg, inorganic forms including metallic mercury	7439-97-6	53.3	219	521	1,838	0.3	Annual	N/A
		0.00134	0.00522	0.0105	0.0405	0.6	24 Hr Avg	N/A
Mesityl oxide	141-79-7	3.23	12.6	25.4	97.6	1,445	24 Hr Avg	N/A
Methacrylic acid	79-41-4	3.78	14.7	29.7	114	1,690	24 Hr Avg	N/A
2-Methoxyethanol (Methyl Cellosolve; EGME)	109-86-4	0.836	3.25	6.55	25.2	373	24 Hr Avg	N/A
2-Methoxyethyl acetate (MethylCellosolve acetate; EGMEA)	110-49-6	1.3	5.04	10.2	39.2	580	24 Hr Avg	N/A
4-Methoxyphenol	150-76-5	0.269	1.04	2.11	8.11	120	24 Hr Avg	N/A
Methyl acrylate	96-33-3	0.378	1.47	2.97	11.4	169	24 Hr Avg	N/A
Methylacrylonitrile	126-98-7	0.147	0.573	1.16	4.45	65.9	24 Hr Avg	N/A
Methylamine	74-89-5	0.341	1.33	2.67	10.3	152	24 Hr Avg	N/A
Methyl n-amyl ketone	110-43-0	12.5	48.7	98.3	379	5,604	24 Hr Avg	N/A
N-Methyl aniline	100-61-8	0.118	0.457	0.923	3.55	52.6	24 Hr Avg	N/A
2-Methyl aziridine (Propylenimine; Propylene imine)	75-55-8	0.251	0.975	1.97	7.57	112	24 Hr Avg	N/A
		2.43	10	23.8	83.9	N/A	Annual	BACT
Methyl n-butyl ketone	591-78-6	1.1	4.27	8.62	33.2	492	24 Hr Avg	N/A
Methyl Cellosolve (2-Methoxyethanol; EGME)	109-86-4	0.836	3.25	6.55	25.2	373	24 Hr Avg	N/A

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Methyl Cellosolve acetate (2-Methoxyethyl acetate; EGMEA)	110-49-6	1.3	5.04	10.2	39.2	580	24 Hr Avg	N/A
Methyl chloride (Chloromethane)	74-87-3	5.55	21.5	43.5	167	2,478	24 Hr Avg	N/A
5-Methyl chrysene	3697-24-3	1.62	6.64	15.8	55.7	N/A	Annual	BACT
Methyl 2-cyanoacrylate	137-05-3	0.0488	0.19	0.383	1.47	21.8	24 Hr Avg	N/A
Methylcyclohexanol	25639-42-3	12.5	48.7	98.3	379	5,604	24 Hr Avg	N/A
o-Methylcyclohexanone	583-60-8	12.3	47.9	96.6	372	5,505	24 Hr Avg	N/A
Methylene bisphenyl isocyanate (Methylene diphenyl isocyanate; MDI)	101-68-8	0.00275	0.0107	0.0215	0.083	1.23	24 Hr Avg	N/A
		107	438	1,043	3,676	0.6	Annual	N/A
Methylene chloride (Dichloromethane)	75-09-2	9.33	36.2	73.1	282	4,168	24 Hr Avg	N/A
		3,781	15,532	36,981	130,338	N/A	Annual	BACT
4,4'-Methylene bis(2-chloroaniline) (MOCA)	101-14-4	4.13	17	40.4	142	N/A	Annual	BACT
Methylene bis(4-cyclohexylisocyanate)	5124-30-1	0.00288	0.0112	0.0226	0.087	1.29	24 Hr Avg	N/A
4,4'-Methylenedianiline (and dihydrochloride)	101-77-9	0.0436	0.169	0.341	1.31	19.5	24 Hr Avg	N/A
		3.86	15.9	37.8	133	N/A	Annual	BACT
Methyl ethyl ketone peroxide	1338-23-4	0.108	0.343	0.659	1.77	144	1 Hr	N/A
Methyl formate	107-31-3	14.3	55.5	112	431	6,385	24 Hr Avg	N/A
Methyl hydrazine	60-34-4	0.00101	0.00393	0.00793	0.0306	0.452	24 Hr Avg	N/A
Methyl iodide (Iodomethane)	74-88-4	0.624	2.42	4.89	18.8	279	24 Hr Avg	N/A
Methyl isoamyl ketone	110-12-3	12.5	48.7	98.3	379	5,605	24 Hr Avg	N/A
Methyl isobutyl carbinol	108-11-2	5.61	21.8	44	169	2,507	24 Hr Avg	N/A
Methyl isobutyl ketone (MIBK; Hexone)	108-10-1	11	42.7	86.2	332	4,916	24 Hr Avg	N/A
Methyl isocyanate	624-83-9	0.00251	0.00974	0.0196	0.0757	1.12	24 Hr Avg	N/A
Methyl methacrylate	80-62-6	124,381	511,000	1,216,667	4,288,112	700	Annual	N/A
		11	42.7	86.2	332	4,914	24 Hr Avg	N/A
α-Methyl styrene	98-83-9	13	50.4	102	392	5,800	24 Hr Avg	N/A
Methyl tert-butyl ether (MTBE)	1634-04-4	7.75	30.1	60.7	234	3,462	24 Hr Avg	N/A
		533,063	2,190,000	5,214,286	18,377,622	3,000	Annual	N/A
MIBK (Methyl isobutyl ketone; Hexone)	108-10-1	11	42.7	86.2	332	4,916	24 Hr Avg	N/A
Mirex	2385-85-5	0.348	1.43	3.41	12	N/A	Annual	BACT
Molybdenum, as Mo, metal and insoluble compounds	7439-98-7	0.537	2.09	4.21	16.2	240	24 Hr Avg	N/A
Molybdenum, as Mo, soluble compounds	7439-98-7	0.269	1.04	2.11	8.11	120	24 Hr Avg	N/A
Monochlorobenzene (chlorobenzene)	108-90-7	2.47	9.61	19.4	74.7	1,105	24 Hr Avg	N/A
Morpholine	110-91-8	3.83	14.9	30	116	1,710	24 Hr Avg	N/A
MTBE (Methyl tert-butyl ether)	1634-04-4	533,063	2,190,000	5,214,286	18,377,622	3,000	Annual	N/A
		7.75	30.1	60.7	234	3,462	24 Hr Avg	N/A
Muriatic acid (Hydrogen chloride; Hydrochloric acid)	7647-01-0	3,554	14,600	34,762	122,517	20	Annual	N/A
		0.557	1.77	3.41	9.15	746	1 Hr	N/A
Mustard gas	505-60-2	2.43	10	23.8	83.9	N/A	Annual	LAER
Naphthalene	91-20-3	2.82	10.9	22.1	85	1,258	24 Hr Avg	N/A
2-Naphthylamine	91-59-8	2.43	10	23.8	83.9	N/A	Annual	LAER
Nickel and compounds, as Ni	7440-02-0	6.83	28.1	66.8	236	N/A	Annual	BACT

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Nickel carbonyl, as Ni	13463-39-3	6.83	28.1	66.8	236	N/A	Annual	BACT
		0.0188	0.0729	0.147	0.566	8.38	24 Hr Avg	N/A
Nickel subsulfide, as Ni	12035-72-2	3.7	15.2	36.2	128	N/A	Annual	LAER
Nitric acid	7697-37-2	0.277	1.08	2.17	8.36	124	24 Hr Avg	N/A
Nitrilotriacetic acid	139-13-9	1,185	4,867	11,587	40,839	N/A	Annual	BACT
p-Nitroaniline	100-01-6	0.161	0.626	1.26	4.86	72	24 Hr Avg	N/A
Nitrobenzene	98-95-3	0.27	1.05	2.12	8.17	121	24 Hr Avg	N/A
p-Nitrochlorobenzene	100-00-5	0.0346	0.134	0.271	1.05	15.5	24 Hr Avg	N/A
Nitroethane	79-24-3	16.5	64.1	129	498	7,369	24 Hr Avg	N/A
Nitrogen mustards (2,2'-Dichloro-N-methyldiethylamine)	51-75-2	2.43	10	23.8	83.9	N/A	Annual	BACT
Nitromethane	75-52-5	2.68	10.4	21	81	1,198	24 Hr Avg	N/A
1-Nitropropane	108-03-2	4.89	19	38.4	148	2,186	24 Hr Avg	N/A
2-Nitropropane	79-46-9	2.43	10	23.8	83.9	N/A	Annual	BACT
		1.96	7.6	15.3	59.1	875	24 Hr Avg	N/A
1-Nitropyrene	5522-43-0	16.2	66.4	158	557	N/A	Annual	BACT
N-Nitrosodi-n-butylamine	924-16-3	1.11	4.56	10.9	38.3	N/A	Annual	BACT
N-Nitrosodiethanolamine	1116-54-7	2.22	9.13	21.7	76.6	N/A	Annual	BACT
N-Nitrosodiethylamine	55-18-5	0.0413	0.17	0.404	1.42	N/A	Annual	BACT
N-Nitrosodimethylamine	62-75-9	0.127	0.521	1.24	4.38	N/A	Annual	BACT
N-Nitrosodi-n-propylamine	621-64-7	0.888	3.65	8.69	30.6	N/A	Annual	BACT
N-Nitroso-N-ethylurea	759-73-9	0.231	0.948	2.26	7.96	N/A	Annual	BACT
N-Nitroso-N-methylurea	684-93-5	0.0523	0.215	0.511	1.8	N/A	Annual	BACT
N-Nitrosomethylvinylamine	4549-40-0	2.43	10	23.8	83.9	N/A	Annual	BACT
N-Nitrosomorpholine	59-89-2	0.935	3.84	9.15	32.2	N/A	Annual	BACT
N'-Nitrosonornicotine	16543-55-8	2.43	10	23.8	83.9	N/A	Annual	BACT
N-Nitrosopiperidine	100-75-4	0.658	2.7	6.44	22.7	N/A	Annual	BACT
N-Nitrosopyrrolidine	930-55-2	2.91	12	28.5	100	N/A	Annual	BACT
N-Nitrososarcosine	13256-22-9	2.43	10	23.8	83.9	N/A	Annual	BACT
Nitrotoluene (mixtures and isomers)	88-72-2	0.603	2.34	4.72	18.2	269	24 Hr Avg	N/A
Nitrous oxide	10024-97-2	4.84	18.8	37.9	146	2,160	24 Hr Avg	N/A
Octachloronaphthalene	2234-13-1	0.00537	0.0209	0.0421	0.162	2.4	24 Hr Avg	N/A
Oxalic acid	144-62-7	0.0537	0.209	0.421	1.62	24	24 Hr Avg	N/A
p,p'-Oxybis(benzenesulfonyl hydrazide)	80-51-3	0.00537	0.0209	0.0421	0.162	2.4	24 Hr Avg	N/A
Pentachloronaphthalene	1321-64-8	0.0269	0.104	0.211	0.811	12	24 Hr Avg	N/A
Pentachloronitrobenzene (Quintobenzene; PCNB)	82-68-8	0.0269	0.104	0.211	0.811	12	24 Hr Avg	N/A
Pentachlorophenol (PCP)	87-86-5	0.0269	0.104	0.211	0.811	12	24 Hr Avg	N/A
Pentyl Acetate (mixtures and isomers)	628-63-7	14.3	55.6	112	432	6,390	24 Hr Avg	N/A
Perchloroethylene (Tetrachloroethylene)	127-18-4	301	1,237	2,946	10,383	N/A	Annual	BACT
		9.11	35.4	71.4	275	4,069	24 Hr Avg	N/A
Perchloromethyl mercaptan	594-42-3	0.0408	0.159	0.32	1.23	18.2	24 Hr Avg	N/A
Perfluoroisobutylene	382-21-8	0.00611	0.0195	0.0374	0.1	8.18	1 Hr	N/A
Persulfates (ammonium, potassium, sodium)	7727-54-0	0.00537	0.0209	0.0421	0.162	2.4	24 Hr Avg	N/A

Hazardous Air Contaminant	CAS Number	Thresholds for Emission Points[1] (expressed as lbs/hr or lbs/yr)				Ambient Air Standard (per time period in column (h) expressed as micrograms per cubic meter)	Time Period for Standard and Threshold	Control Requirement
		Emissions from Stacks <25 ft	Emissions from Stacks 25 to <40 ft	Emissions from Stacks 40 to <75 ft	Emissions from Stacks ≥75 ft			
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
PGME (Propylene glycol monomethyl ether)	107-98-2	355,375	1,460,000	3,476,190	12,251,748	2,000	Annual	N/A
Phenol	108-95-2	1.03	4.02	8.1	31.2	462	24 Hr Avg	N/A
Phenolphthalein	77-09-8	2.43	10	23.8	83.9	N/A	Annual	BACT
Phenylenediamine (mixtures and isomers)	106-50-3	0.00537	0.0209	0.0421	0.162	2.4	24 Hr Avg	N/A
Phenyl ether vapor	101-84-8	0.374	1.45	2.93	11.3	167	24 Hr Avg	N/A
Phenyl glycidyl ether (PGE)	122-60-1	0.033	0.128	0.259	0.996	14.7	24 Hr Avg	N/A
Phenylhydrazine	100-63-0	0.0238	0.0923	0.186	0.717	10.6	24 Hr Avg	N/A
Phenyl mercaptan	108-98-5	0.121	0.47	0.949	3.65	54.1	24 Hr Avg	N/A
Phosgene	75-44-5	0.0217	0.0844	0.17	0.656	9.71	24 Hr Avg	N/A
Phosphine	7803-51-2	0.0224	0.0871	0.176	0.677	10	24 Hr Avg	N/A
Phosphoric acid	7664-38-2	0.0537	0.209	0.421	1.62	24	24 Hr Avg	N/A
		1,777	7,300	17,381	61,259	10	Annual	N/A
Phosphorus (yellow)	7723-14-0	0.00544	0.0212	0.0427	0.164	2.43	24 Hr Avg	N/A
Phosphorus oxychloride	10025-87-3	0.0337	0.131	0.264	1.02	15.1	24 Hr Avg	N/A
Phosphorus pentachloride	10026-13-8	0.0457	0.178	0.359	1.38	20.4	24 Hr Avg	N/A
Phosphorus pentasulfide	1314-80-3	0.0537	0.209	0.421	1.62	24	24 Hr Avg	N/A
Phosphorus trichloride	7719-12-2	0.0604	0.234	0.473	1.82	27	24 Hr Avg	N/A
Phthalic anhydride	85-44-9	0.325	1.26	2.55	9.82	145	24 Hr Avg	N/A
Picric acid	88-89-1	0.00537	0.0209	0.0421	0.162	2.4	24 Hr Avg	N/A
Platinum (metal)	7440-06-4	0.0537	0.209	0.421	1.62	24	24 Hr Avg	N/A
Platinum, soluble salts, as Pt	7440-06-4	0.000107	0.000417	0.000842	0.00324	0.048	24 Hr Avg	N/A
Polybrominated biphenyls (PBBs; Bromodiphenyls)	59536-65-1	0.207	0.849	2.02	7.12	N/A	Annual	BACT
Polychlorinated biphenyls (PCBs; Chlorodiphenyls; Arochlor)	1336-36-3	0.0269	0.104	0.211	0.811	12	24 Hr Avg	N/A
		0.1	0.1	0.1	0.1	N/A	Annual	BACT
Potassium hydroxide	1310-58-3	0.149	0.476	0.914	2.45	200	1 Hr	N/A
1,3-Propane sultone	1120-71-4	2.58	10.6	25.2	88.8	N/A	Annual	BACT
Propargyl alcohol	107-19-7	0.123	0.479	0.965	3.72	55	24 Hr Avg	N/A
β-Propiolactone	57-57-8	0.444	1.83	4.35	15.3	N/A	Annual	BACT
		0.0792	0.308	0.62	2.39	35.4	24 Hr Avg	N/A
Propionic acid	79-09-4	1.63	6.32	12.8	49.1	727	24 Hr Avg	N/A
Propylene dichloride (1,2-Dichloropropane)	78-87-5	711	2,920	6,952	24,503	4	Annual	N/A
		18.6	72.3	146	562	8,318	24 Hr Avg	N/A
Propylene glycol monomethyl ether (PGME)	107-98-2	355,375	1,460,000	3,476,190	12,251,748	2,000	Annual	N/A
Propylene oxide	75-56-9	5,331	21,900	52,143	183,776	30	Annual	N/A
		2.55	9.91	20	77	1,140	24 Hr Avg	N/A
		480	1,973	4,698	16,556	N/A	Annual	BACT
Propylenimine (2-Methyl aziridine; Propylene imine)	75-55-8	0.251	0.975	1.97	7.57	112	24 Hr Avg	N/A
		2.43	10	23.8	83.9	N/A	Annual	BACT
Pyridine	110-86-1	0.77	2.99	6.04	23.2	344	24 Hr Avg	N/A
Pyrocatechol (Catechol)	120-80-9	1.21	4.7	9.48	36.5	540	24 Hr Avg	N/A
Quintobenzene (Pentachloronitrobenzene)	82-68-8	0.0269	0.104	0.211	0.811	12	24 Hr Avg	N/A
Resorcinol	108-46-3	2.42	9.4	19	73	1,081	24 Hr Avg	N/A

Hazardous Air Contaminant	CAS Number	Thresholds for Emission Points[1] (expressed as lbs/hr or lbs/yr)				Ambient Air Standard (per time period in column (h) expressed as micrograms per cubic meter)	Time Period for Standard and Threshold	Control Requirement
		Emissions from Stacks <25 ft	Emissions from Stacks 25 to <40 ft	Emissions from Stacks 40 to <75 ft	Emissions from Stacks ≥75 ft			
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
Rhodium (metal) and insoluble compounds, as Rh	7440-16-6	0.0537	0.209	0.421	1.62	24	24 Hr Avg	N/A
Rhodium, soluble compounds, as Rh	7440-16-6	0.000537	0.00209	0.00421	0.0162	0.24	24 Hr Avg	N/A
Safrole	94-59-7	28.2	116	276	972	N/A	Annual	BACT
Selenium and compounds, as Se	7782-49-2	0.0107	0.0417	0.0842	0.324	4.8	24 Hr Avg	N/A
Silicon tetrahydride (Silane)	7803-62-5	0.353	1.37	2.77	10.7	158	24 Hr Avg	N/A
Sodium azide, as sodium azide or hydrazoic acid vapor	26628-22-8	0.0218	0.0696	0.134	0.359	29.3	1 Hr	N/A
Sodium bisulfite	7631-90-5	0.269	1.04	2.11	8.11	120	24 Hr Avg	N/A
Sodium hydroxide	1310-73-2	0.149	0.476	0.914	2.45	200	1 Hr	N/A
Sodium metabisulfite	7681-57-4	0.269	1.04	2.11	8.11	120	24 Hr Avg	N/A
Stoddard solvent (Mineral spirits)	8052-41-3	30.8	119	241	929	13,742	24 Hr Avg	N/A
Strong inorganic acid mists containing sulfuric acid (>35% by weight)	7664-93-9	2.43	10	23.8	83.9	N/A	Annual	BACT
Styrene, monomer	100-42-5	4.58	17.8	35.9	138	2,045	24 Hr Avg	N/A
		177,688	730,000	1,738,095	6,125,874	1,000	Annual	N/A
Sulfometuron methyl	74222-97-2	0.269	1.04	2.11	8.11	120	24 Hr Avg	N/A
Sulfur monochloride	10025-67-9	0.412	1.31	2.53	6.78	552	1 Hr	N/A
Sulfur tetrafluoride	7783-60-0	0.033	0.105	0.202	0.542	44.2	1 Hr	N/A
Sulfuric acid	7664-93-9	0.0537	0.209	0.421	1.62	24	24 Hr Avg	N/A
Sulprofos	35400-43-2	0.0537	0.209	0.421	1.62	24	24 Hr Avg	N/A
Talc, containing no asbestos fibers	14807-96-6	0.107	0.417	0.842	3.24	48	24 Hr Avg	N/A
Tantalum, metal and oxide dusts, as Ta	7440-25-7	0.269	1.04	2.11	8.11	120	24 Hr Avg	N/A
TCDD (2,3,7,8-Tetrachlorodibenzo-p-dioxin), as equivalents	1746-01-6	0.0001	0.0001	0.0001	0.0001	N/A	Annual	LAER
Tellurium and compounds, except hydrogen telluride, as Te	13494-80-9	0.00537	0.0209	0.0421	0.162	2.4	24 Hr Avg	N/A
Terphenyls	26140-60-3	0.373	1.19	2.29	6.13	500	1 Hr	N/A
2,3,7,8-Tetrachlorodibenzo-p-dioxin (Dioxin; 2,3,7,8-TCDD), as dioxin equivalents	1746-01-6	0.0001	0.0001	0.0001	0.0001	N/A	Annual	LAER
1,1,2,2-Tetrachloroethane	79-34-5	0.369	1.43	2.89	11.1	165	24 Hr Avg	N/A
Tetrachloroethylene (Perchloroethylene)	127-18-4	9.11	35.4	71.4	275	4,069	24 Hr Avg	N/A
		301	1,237	2,946	10,383	N/A	Annual	BACT
Tetrachloronaphthalene	1335-88-2	0.107	0.417	0.842	3.24	48	24 Hr Avg	N/A
1,1,1,2-Tetrafluoroethane	811-97-2	14,215,010	58,400,000	139,047,619	490,069,930	80,000	Annual	N/A
Tetrafluoroethylene	116-14-3	0.44	1.71	3.45	13.3	197	24 Hr Avg	N/A
		2.43	10	23.8	83.9	N/A	Annual	BACT
Tetrahydrofuran	109-99-9	31.7	123	248	956	14,155	24 Hr Avg	N/A
Tetranitromethane	509-14-8	0.00215	0.00837	0.0169	0.065	0.962	24 Hr Avg	N/A
		2.43	10	23.8	83.9	N/A	Annual	BACT
Thallium, elemental and soluble compounds, as Tl	7440-28-0	0.00537	0.0209	0.0421	0.162	2.4	24 Hr Avg	N/A
Thionyl chloride	7719-09-7	0.363	1.16	2.23	5.97	487	1 Hr	N/A
Thiourea	62-56-6	84.6	348	828	2,917	N/A	Annual	BACT
Tin organic compounds, as Sn	7440-31-5	0.00537	0.0209	0.0421	0.162	2.4	24 Hr Avg	N/A

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		Emissions from Stacks <25 ft	Emissions from Stacks 25 to <40 ft	Emissions from Stacks 40 to <75 ft	Emissions from Stacks ≥75 ft			
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
Tin, metal, oxides and inorganic compounds, except tin hydride, as Sn	7440-31-5	0.107	0.417	0.842	3.24	48	24 Hr Avg	N/A
o-Tolidine (3,3'-Dimethylbenzidine)	119-93-7	2.43	10	23.8	83.9	N/A	Annual	BACT
Toluene (Toluol)	108-88-3	71,075	292,000	695,238	2,450,350	400	Annual	N/A
		10.1	39.3	79.3	306	4,522	24 Hr Avg	N/A
2,4-/2,6-Toluene diisocyanate (mixtures and isomers) (TDI)	584-84-9	162	664	1,580	5,569	N/A	Annual	BACT
		0.00191	0.00743	0.015	0.0578	0.855	24 Hr Avg	N/A
		12.4	51.1	122	429	0.07	Annual	N/A
Toluene-2,4-diamine (2,4-Diaminotoluene)	95-80-7	1.62	6.64	15.8	55.7	N/A	Annual	BACT
m- and p-Toluidine	108-44-1	0.471	1.83	3.69	14.2	210	24 Hr Avg	N/A
o-Toluidine and o-toluidine hydrochloride and mixed isomers	95-53-4	34.8	143	341	1,201	N/A	Annual	BACT
		0.471	1.83	3.69	14.2	210	24 Hr Avg	N/A
Toluol (Toluene)	108-88-3	71,075	292,000	695,238	2,450,350	400	Annual	N/A
		10.1	39.3	79.3	306	4,522	24 Hr Avg	N/A
Tributyl phosphate	126-73-8	0.117	0.455	0.917	3.53	52.3	24 Hr Avg	N/A
1,2,4-Trichlorobenzene	120-82-1	2.77	8.82	17	45.5	3,711	1 Hr	N/A
1,1,2-Trichloroethane	79-00-5	2.93	11.4	23	88.5	1,310	24 Hr Avg	N/A
Trichloroethylene (Trichloroethene)	79-01-6	888	3,650	8,690	30,629	N/A	Annual	BACT
		14.4	56.1	113	436	6,449	24 Hr Avg	N/A
Trichloronaphthalene	1321-65-9	0.269	1.04	2.11	8.11	120	24 Hr Avg	N/A
2,4,6-Trichlorophenol	88-06-2	573	2,355	5,607	19,761	N/A	Annual	BACT
1,2,3-Trichloropropane	96-18-4	2.43	10	23.8	83.9	N/A	Annual	BACT
		3.24	12.6	25.4	97.8	1,447	24 Hr Avg	N/A
Triethanolamine	102-71-6	0.269	1.04	2.11	8.11	120	24 Hr Avg	N/A
Triethylamine	121-44-8	0.222	0.864	1.74	6.71	99.3	24 Hr Avg	N/A
1,3,5-Triglycidyl-s-triazinetrione	2451-62-9	0.00269	0.0104	0.0211	0.0811	1.2	24 Hr Avg	N/A
Trimellitic anhydride	552-30-7	0.00299	0.00951	0.0183	0.0491	4	1 Hr	N/A
Trimethyl benzene (mixtures and isomers)	25551-13-7	6.6	25.6	51.7	199	2,949	24 Hr Avg	N/A
Trimethylamine	75-50-3	0.649	2.52	5.09	19.6	290	24 Hr Avg	N/A
2,4,6-Trinitrotoluene (TNT)	118-96-7	0.00537	0.0209	0.0421	0.162	2.4	24 Hr Avg	N/A
Triorthocresyl phosphate	78-30-8	0.00537	0.0209	0.0421	0.162	2.4	24 Hr Avg	N/A
Triphenyl phosphate	115-86-6	0.161	0.626	1.26	4.86	72	24 Hr Avg	N/A
Tris(2,3-dibromopropyl phosphate)	126-72-7	2.69	11.1	26.3	92.8	N/A	Annual	BACT
Tungsten, as W, metal and insoluble compounds	7440-33-7	0.269	1.04	2.11	8.11	120	24 Hr Avg	N/A
Tungsten, as W, soluble compounds	7440-33-7	0.0537	0.209	0.421	1.62	24	24 Hr Avg	N/A
Uranium (natural), soluble and insoluble compounds, as U	7440-61-1	0.0107	0.0417	0.0842	0.324	4.8	24 Hr Avg	N/A
Urethane (Ethyl carbamate)	51-79-6	6.13	25.2	59.9	211	N/A	Annual	BACT
n-Valeraldehyde	110-62-3	9.46	36.8	74.2	286	4,227	24 Hr Avg	N/A
Vanadium pentoxide, as V_2O_5, respirable dust and fume	1314-62-1	0.00269	0.0104	0.0211	0.0811	1.2	24 Hr Avg	N/A
Vinyl acetate	108-05-4	35,538	146,000	347,619	1,225,175	200	Annual	N/A
		1.89	7.35	14.8	57.1	845	24 Hr Avg	N/A

Hazardous Air Contaminant	CAS Number	Thresholds for Emission Points[1] (expressed as lbs/hr or lbs/yr)				Ambient Air Standard (per time period in column (h) expressed as micrograms per cubic meter)	Time Period for Standard and Threshold	Control Requirement
		Emissions from Stacks <25 ft	Emissions from Stacks 25 to <40 ft	Emissions from Stacks 40 to <75 ft	Emissions from Stacks ≥75 ft			
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
Vinyl bromide	593-60-2	0.117	0.456	0.921	3.55	52.5	24 Hr Avg	N/A
Vinyl chloride	75-01-4	17,769	73,000	173,810	612,587	100	Annual	N/A
		202	830	1,975	6,961	N/A	Annual	LAER
Vinyl cyclohexene dioxide (4-vinyl-1-cyclohexene diepoxide)	106-87-6	2.43	10	23.8	83.9	N/A	Annual	BACT
		0.0308	0.12	0.241	0.93	13.8	24 Hr Avg	N/A
4-Vinyl cyclohexene	100-40-3	0.0238	0.0923	0.186	0.717	10.6	24 Hr Avg	N/A
Vinyl fluoride	75-02-5	0.101	0.393	0.793	3.05	45.2	24 Hr Avg	N/A
Vinylidene chloride (1,1-Dichloroethylene)	75-35-4	1.06	4.14	8.35	32.2	476	24 Hr Avg	N/A
Vinyl toluene	25013-15-4	13	50.4	102	392	5,800	24 Hr Avg	N/A
Xylene (mixtures and isomers) (Xylol; Dimethyl benzene)	1330-20-7	23.3	90.6	183	704	10,421	24 Hr Avg	N/A
m-Xylene-α, α'-diamine	1477-55-0	0.00747	0.0238	0.0457	0.123	10	1 Hr	N/A
Xylidine (mixtures and isomers)	1300-73-8	0.133	0.517	1.04	4.02	59.5	24 Hr Avg	N/A
Yttrium metal and compounds, as Y	7440-65-5	0.0537	0.209	0.421	1.62	24	24 Hr Avg	N/A
Zeolites (Erionite)	66733-21-9	2.43	10	23.8	83.9	N/A	Annual	LAER
Zirconium and compounds, as Zr	7440-67-7	0.269	1.04	2.11	8.11	120	24 Hr Avg	N/A

SECTION 8. NR 445.08(3)(c)Note is amended to read:

NR 445.08(3)(c)Note NR 445 was not developed with the purpose of regulating emissions of hazardous air contaminants associated with agricultural waste or byproducts. The department believes that using best management practices is the preferred approach to regulate and control emissions from these types of sources. Accordingly, the department intends to participate in the development of best management practices to regulate and control emissions from such sources ~~within 36 months of July 1, 2004~~ by July 31, 2011.

SECTION 9. NR 445.08(6)(d)1. and 2.(intro.) and a. are amended to read:

NR 445.08(6)(d)1. The owner or operator of a source with emissions of hazardous air contaminants associated with agricultural waste and constructed or last modified on or after ~~July 1, 2007~~ July 31, 2011, shall achieve compliance with any applicable requirements in s. NR 445.07 in accordance with either s. NR 445.08 (2) or (3) (c) for the agricultural waste upon startup of the source.

2.(intro.) Emissions of hazardous air contaminants associated with agricultural waste from a source constructed or last modified prior to ~~July 1, 2007~~ July 31, 2011, are exempt from the requirements in this chapter until ~~July 1, 2007~~ July 31, 2011. Subsequently, the owner or operator of the source shall do both of the following if non−exempt, potential to emit emissions of a hazardous air contaminant from agricultural waste are greater than an applicable threshold in column (c), (d), (e) or (f) of Table A of s. NR 445.07:

a. Achieve compliance with applicable requirements in s. NR 445.07 in accordance with either s. NR 445.08 (2) or (3) (c) no later than ~~June 30, 2008~~ July 31, 2011.

SECTION 10. NR 445.08(10)(b) is amended to read:

NR 445.08(10)(b) The owner or operator of a source that achieved compliance with requirements ~~in subch. II~~ of this chapter by installing emission control equipment prior to July 1, 2004 may not be required to install additional control equipment to achieve compliance with this ~~subchapter~~ chapter for a period of 10 years after the installation of the control equipment or the useful life of the control equipment as determined by the department, whichever is less. For the purposes of this paragraph, increasing stack height, other dilution measures or material reformulation may not be construed as installation of emission control equipment. Material reformulation that requires substantial capital expenditures for process equipment that was carried out with prior department approval and that results in a reduction of emissions of hazardous air contaminants that is sufficient to comply with the limitations of this chapter may be construed as installation of emission control equipment under this paragraph.

SECTION 11. NR 445.09(1)(e)1.(intro.) and 2.(intro.) are amended to read:

NR 445.09(1)(e)1.(intro.) The Tier 2 particulate emission standard for nonroad engines as found in 40 CFR ~~Parts 9, 86 and~~ part 89 for an engine that meets either of the following:

2.(intro.) ~~A particulate emission standard of 0.01 grams per brake horsepower−hour~~ The Tier 4 particulate emission standard for nonroad engines as found in 40 CFR parts 1039, 1065 and 1068 for an engine that meets either of the following:

SECTION 12. STYLE CHANGES. Entries in Tables A, B and C in NR 445.07 and entries in Tables D and E in NR 445.11 are sequentially numbered within each table.

SECTION 13. EFFECTIVE DATE. This rule shall take effect on the first day of the month following publication in the Wisconsin administrative register as provided in s. 227.22 (2) (intro.), Stats.

SECTION 14. BOARD ADOPTION. This rule was approved and adopted by the State of Wisconsin Natural Resources Board on February 27, 2008.

Dated at Madison, Wisconsin _____.

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES

By_____
Matthew J Frank, Secretary

(SEAL)