

APPENDIX 3

Appendix

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APPENDIX 3

Hazardous Air Contaminants Without an Accepted Ambient  
Concentration Requiring Application of Best  
Commercially Available Control Technology

2-Aminoanthraquinone  
4-Aminodiphenyl  
0-Anisidine and o-anisidine hydrochloride  
1,3 - Butadiene  
Cadmium and cadmium compounds  
Carbon tetrachloride  
Chloroform  
p-Cresidine  
2, 4 - Diaminoanisole sulfate  
2, 4 - Diaminotoluene  
Di (2-ethylhexyl) phthalate  
1,2 - Dibromo-3-chloropropane (DBCP)  
1,2 - Dibromoethane (EDB)  
p-Dichlorobenzene  
3, 3 - Dichlorobenzidine  
1,2 - Dichloroethane (EDC)  
1,1 - Dimethylhydrazine  
3,3' - Dimethoxybenzidine (ortho-dianisidine)  
4-Dimethylaminoazobenzene  
3,3 - Dimethylbenzidine  
Dimethylcarbamoyl chloride  
1,4 - Dioxane  
Epichlorohydrin  
Ethylene oxide

Ethylene thiourea

Hexachlorobenzene (HCB)

Hexachlorobutadiene

Hexamethyl phosphoramide

Hydrazine and hydrazine sulfate

Hydrazobenzene

Lindane and other hexachlorocyclohexane isomers

4,4' - Methylenebis (2-chloroaniline) (MOCA)

4,4' - Methylenebis (n,n-dimethyl) benzeamine

Methyl hydrazine

Methyl iodide

4-Nitrodiphenyl

2-Nitropropane

N-phenyl-beta-naphthylamine

Phenylhydrazine

Propane sultone

B-Propiolactone

Propylenimine

Thiourea

Urethane

Vinyl cyclohexane dioxide

Polycyclic Organic Matter

(2-acetylaminofluorene, benz (a) anthracene, benzo (a) pyrene, benzo (b) fluoranthene, chrysene, dibenz (a,h) acridine, dibenz (a,j) acridine, dibenz (a,h) anthracene, 7H-dibenzo (c,g) carbazole, dibenzo (a,h) pyrene, dibenzo (a,i) pyrene, ideno (1,2,3-cd) pyrene)

Manufacture of Pharmaceuticals

(Actinomycin D, adriamycin, chloramphenicol, cisplatin,

dacarbazine, dienoestrol, ethinyloestradiol, iron dextran complex, mestranol, metronidazole, norethisterone, oestradiol, oestrogens and progestins, oestrone, phenazopyridine and phenazopyridine hydrochloride, phenytoin and sodium salt of phenytoin, propylthiouracil, reserpine, selenium sulfide streptozotocin, tris (1-azirindinyl) phosphine sulfide, uracil mustard)

**Gasoline**

APPENDIX 4

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## APPENDIX 4

### Hazardous Air Contaminants Without an Accepted Ambient Concentration Requiring Application of Reasonably Available Control Technology

#### Nitrosoamines

(bischloroethyl, nitrosoourea, 1-(2-chloroethyl)-3-cyclohexyl-  
1-nitrosoourea (CCNU), 5-nitro-o-ansidine, N-Nitroso-N-  
ethylurea, N-Nitroso-methylurea, N-Nitrosodi-n-butylamine,  
N-Nitrosodiethanolamine, N-Nitrosodiethylamine,  
N-Nitrosodimethylamine, p-Nitrosodiphenylamine,  
N-Nitrosodi-n-propylamine, N-Nitrosomethylvinylamine,  
N-Nitrosomorphine, N-Nitrosornicotine, N-Nitrosopiperidine,  
N-Nitrosopyperolidine, N-Nitrososarcosine)

STATE OF WISCONSIN

COURT OF APPEALS

Case No. 1000

March 15, 1994

Page 1

IN RE: [Illegible]

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**CORRESPONDENCE / MEMORANDUM****STATE OF WISCONSIN**

DATE: March 22, 1985

FILE REF: 4500

TO: Jim Rickun - AIR/3

FROM: Bill Adamski - AIR/3 <sup>BA</sup>

SUBJECT: Modeling to Estimate Lowest Toxic (TLV) Pollutant Emission Rate That Would Initiate A Permit Analysis

Background

A concern facing the Hazardous Emissions Task Force is resolving the charge of which sources of toxic emissions should be exempt from permit requirements. In particular, the Task Force would like to determine the worst case, minimum emission rate for any of its 364 Threshold Limit Value (TLV) pollutants that would necessitate a refined analysis of the source's process(es) that result in the toxic emissions. The development of this screening procedure, derived below, represents a first approximation for assessing toxics air pollution impacts, and may be subject to modification at a later date.

Earlier, the Task Force decided that the allowable toxic emission amounts should be dependent upon a known quantity such as a pollutant's TLV. The TLV-Time Weighted Average (TLV-TWA) concentration was established as a maximum allowable concentration for a normal 8-hour work day and a 40-hour work week during which nearly all workers may be repeatedly exposed day after day, without adverse effect (1).

The Task Force has developed a rule-of-thumb criterion for estimating any acute toxic pollutant's acceptable ambient concentration (AAC). The Task Force's AAC criterion is set at one percent (1%) of the pollutant's TLV being the maximum allowable 24-hour concentration standard. When any pollutant's TLV, as shown in (1), is designated with a "C" (for ceiling, not to be exceeded), the Task Force set the AAC (1% of the TLV) as the standard for the 1-hour maximum allowable concentration. Similar AAC values have also been used by the State of Michigan in its toxic control efforts.

Worst-Case Scenario and Dispersion Model Selection

The acute toxic compound, ammonia (NH<sub>3</sub>), was selected as the test pollutant because of its relative simplicity and common occurrence. The relevant characteristics of NH<sub>3</sub> are as follows:

- Molecular Wt: 17
  - Spec. gravity: 0.77 at 0°C (a liquid)
  - TLV: 18 milligrams/cubic meter (mg/m<sup>3</sup>)
  - AAC: 1% TLV = 180 micrograms/m<sup>3</sup> (180 ug/m<sup>3</sup>)
- Note: 1g = 10<sup>3</sup> mg = 10<sup>6</sup> ug

To simulate worst case dispersion conditions, the input parameters that were employed in this study were as follows:

1. Stack height: 3.5m (11.5 ft)
2. Stack diameter: 0.305m (1.0 ft)
3. Stack gas exit vel: 6.47 meters/second (m/s) (corresponds to a flow rate of 1,000 ft<sup>3</sup>/min through a stack of 0.305m diameter)
4. Stack gas exit temperature: 293°K (68°f)
5. NH<sub>3</sub> emission rate: 0.01 grams/sec (g/s) (0.0794 lbs/hr, 0.348 tons/yr)
6. Receptor Grid
  - 5 concentric circles, each containing 36 radials (10° separation), with a receptor located at each intersection of a radial and a circle (180 receptors total)
  - the stack was set at the center of the concentric rings
  - the ring distances from center (stack location): 5m, 10m, 20m, 30m, 40m
7. Assume flat terrain for stack and all receptors
8. Urban dispersion coefficients
9. 1977 Green Bay National Weather Service data (hourly, including calm winds).

The model chosen for use in this study was the U.S. Environmental Protection Agency's (U.S. EPA's) RAM model. The RAM model is a gaussian point source model that can use urban dispersion coefficients, which often predict higher ground-level concentrations than when rural coefficients are employed.

The RAM model does not predict concentrations during conditions of aerodynamic downwash. However, the RAM model does allow for receptors to be set in close to the stack, which is not possible when using downwash model algorithms [unpredictable dynamics in the downwash wake cavity region]. After testing the above data with both RAM and a downwash model, it was determined that the RAM model predicted higher worst-case concentrations, using the NWS's 1977 Green Bay hourly meteorological data. These hourly meteorological data included the adjusted wind speed value (1.0 m/s) for those hours that had calms reported. Including calm-adjusted wind speeds further enhanced this worst case modeling scenario.

To: Jim Rickun - March 22, 1985

3.

### Model Results and Calculations

Using the RAM model with the data listed in the previous section, the highest 1-hour  $\text{NH}_3$  concentration was predicted to be  $37.59 \text{ ug/m}^3$ , the 24-hour  $\text{NH}_3$  maximum was  $22.86 \text{ ug/m}^3$ . From the  $\text{NH}_3$  characteristics, data inputs and these results, the following data and calculations are presented.

1. Gas flow rate (G):  $0.472 \text{ m}^3/\text{s}$  ( $1,000 \text{ ft}^3/\text{min}$ ) (given).
2.  $\text{NH}_3$  emission rate ( $Q_0$ ):  $0.01 \text{ g/s}$  ( $0.0794 \text{ lb/hr}$ ) (given).
3.  $\text{NH}_3$  concentration at stack ( $C_s = Q_0/G$ ):  $21194 \text{ ug/m}^3$ .
4. RAM-predicted highest 1-hour  $\text{NH}_3$  ground-level conc ( $C_1$ ):  $37.59 \text{ ug/m}^3$ .
5. RAM-predicted highest 24-hour  $\text{NH}_3$  ground-level conc ( $C_{24}$ ):  $22.86 \text{ ug/m}^3$ .
6. 1-hour worst case stack to ground dilution factor ( $D_1 = C_s/C_1$ ):  $563.3$ .
7. 24-hour worst case stack to ground dilution factor ( $D_{24} = C_s/C_{24}$ ):  $926.3$ .
8.  $\text{NH}_3$  TLV =  $18 \text{ mg/m}^3 = 18,000 \text{ ug/m}^3$  (given).
9.  $\text{NH}_3$  AAC =  $180 \text{ ug/m}^3$  (given).

The maximum allowable stack concentration ( $C_s$ ) that would result in the worst-case ground concentration being  $C_{WC} = \text{AAC} = (0.01)$  (TLV) would be based upon the given TLV and dilution factor (D), as follows:

$$10. \frac{C_s}{D} = C_{WC} \text{ (units: } \text{ug/m}^3\text{)} = \text{AAC} = (0.01) \text{ (TLV, units: } \text{ug/m}^3\text{)}$$

$$= (10^{-2}) \text{ (TLV, units: } \text{ug/m}^3\text{)}$$

$$= (10) \text{ (TLV, units: } \text{mg/m}^3\text{)}$$

$$11. C_s \text{ (units: } \text{ug/m}^3\text{)} = (10) (D, \text{ dimensionless}) \text{ (TLV, units = } \text{mg/m}^3\text{)}$$

To convert from concentration units ( $\text{ug/m}^3$ ) to emission rate units ( $\text{g/s}$ ), multiply  $C_s$  by the stack gas flow rate (G, units:  $\text{m}^3/\text{s}$ ) and a mass conversion factor, as follows:

$$12. Q_{\text{max}} \text{ (units: } \text{g/s)} = (C_s \text{ units: } \text{ug/m}^3) (G)$$

$$= (10) (D) (G, \text{ units: } \text{m}^3/\text{s}) \text{ (TLV, units: } \text{mg/mg}^3) (1\text{g}/10^6 \text{ ug, a conversion fa}$$

TO: Jim Rickun - March 22, 1985

4.

$$13a. Q_{\max} \text{ (units g/s)} = (10^{-5}) (D) (G \text{ units: m}^3/\text{s}) (\text{TLV, units: mg/m}^3)$$

or

$$13b. Q_{\max} \text{ (units: lb/hr)} = (10^{-5}) (D) (G) (\text{TLV}) (1 \text{ lb}/453.6 \text{ g}) (3600\text{s/hr}) = (7.94) (10^{-5}) (D) (G) (\text{TLV})$$

Assuming the previously described modeling assumptions, inputs and results represent reasonably worst-case conditions, the maximum allowable 1-hour and 24-hour emission rates ( $Q_1 \max$ ,  $Q_{24} \max$ ) for a toxic pollutant with an established TLV would be calculated as follows:

Maximum allowable 1-hour Emission Rate (if TLV is designated with "C")

$$14. Q_1 \max \text{ (units: g/s)} = (10^{-5}) (D_1) (G \text{ units: m}^3/\text{s}) (\text{TLV, units: mg/m}^3).$$

$$15. Q_1 \max \text{ (units: g/s)} = (10^{-5}) (563.3) (0.472 \text{ m}^3/\text{s}) (\text{TLV, units: mg/m}^3).$$

$$16a. Q_1 \max \text{ (units: g/s)} = (0.00266) (\text{TLV, units: mg/m}^3).$$

$$16b. Q_1 \max \text{ (units: lbs/hr)} = (0.0211) (\text{TLV, units mg/m}^3)$$

- for NH<sub>3</sub>:

$$17a. Q_1 \max \text{ (g/s)} = (0.00266) (18) = 0.0479 \text{ g/s.}$$

$$17b. Q_1 \max \text{ (lb/hr)} = (0.0211) (18) = 0.380 \text{ lbs/hr}$$

Maximum allowable 24-hour Emission Rate (no "C" designation for TLV)

$$18. Q_{24} \max = (10^{-5}) (D_{24}) (\text{TLV})$$

$$19. Q_{24} \max \text{ (units: g/s)} = (10^{-5}) (926.3) (0.472 \text{ m}^3/\text{s}) (\text{TLV, units: mg/m}^3)$$

$$20a. Q_{24} \max \text{ (units: g/s)} = (0.00437) (\text{TLV, units: mg/m}^3)$$

or

$$20b. Q_{24} \max \text{ (units: lbs/hr)} = (0.0347) (\text{TLV, units: mg/m}^3)$$

- for NH<sub>3</sub>:

$$21a. Q_{24} \max \text{ (units: g/s)} = (0.00437) (18) = 0.0787 \text{ g/s}$$

$$21b. Q_{24} \max \text{ (units: lbs/hr)} = (0.0347) (18) = 0.625 \text{ lbs/hr}$$

TO: Jim Rickun - March 22, 1985

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Conclusion

Based upon this study, a hazardous pollutant's maximum emission rate(s), below which the pollutant would be exempt from permit requirements, would be calculated as follows:

Q1 max (units: g/s) = (0.00266) (TLV, units: mg/m<sup>3</sup>) (eq 16a) } one-hour  
Q1 max (units: lb/hr) = (0.0211) (TLV, units: mg/m<sup>3</sup>) (eq 16b) } concentrations

Q24 max (units: g/s) = (0.00437) (TLV, units: mg/m<sup>3</sup>) (eq 20a) } 24-hour  
Q24 max (units: lbs/hr) = (0.0347) (TLV, units: mg/m<sup>3</sup>) (eq 20b) } concentrations

The more generalized equation 13 can be employed if different modeling parameters and results are applied.

These equations are based on the previously-described assumptions, model inputs and RAM model use. As stated earlier, these results are tentative and unofficial. The eventual toxic emission rate threshold for permit exemption may be different.

- (1) American Conference of Governmental Hygienists, 1984: Threshold Limit Values for Chemical Substances in the Work Environment. Adopted by the ACGIH for 1984-1985. 116 pages.

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Form 1100-1  
Rev. 11-82

**NATURAL RESOURCES BOARD AGENDA ITEM**

Item No. \_\_\_\_\_

**SUBJECT:** Authorization for hearing on revisions to Sections NR 406.04, NR 407.03 and NR 445.02-.05, Wis. Adm. Code, pertaining to revision of emission limitations and permit exemption criteria for sources of hazardous air contaminants.

**FOR** February 1987 **BOARD MEETING**  
(month)

**TO BE PRESENTED BY:** James S. Rickun - Bureau of Air Management

**SUMMARY:**

The proposed rules revise the permit exemption requirements in s. NR 406.04 and s. NR 407.03, Wisconsin Administrative Code, for new and existing sources of hazardous air contaminants. The revisions specify emissions rates (in pounds per hour) for 361 hazardous substances and annual material use levels (in pounds per year) or trace contaminant concentrations in materials used (in parts per million) for an additional 133 hazardous substances. If a source emits or uses materials above the specified rates, levels or concentrations, the source will be required to obtain an air pollution control permit.

The rules define "hazardous air contaminant" (referencing a list of 494 substances), "Best Commercially Available Control Technology" (for use in controlling suspected carcinogens) and "Lowest Hazardous Emission Rate" (for use in controlling known human carcinogens).

The revisions also establish general emission limitations (expressed as ambient concentration impacts) for the 351 substances grouped as acute hazardous air contaminants, and three control technology levels for sources which emit or use another 133 substances which are either known or suspected carcinogens.

Since utilities, platers, the coatings industry, the paper industry, dry cleaners, gasoline service stations, hospitals, chemical and drug manufacturers, foundries and others are potentially affected by the proposed rules, controversy may occur. Points of possible controversy include the level of health protection provided by the rules and their economic impact.

**RECOMMENDATION:**

The Board authorize the Department to conduct public hearings on revisions to NR 406.04, NR 407.03 and NR 445.02-.05, Wis. Adm. Code, pertaining to revisions of emission limitations and permit exemption criteria for sources of hazardous air contaminants.

**LIST OF ATTACHED REFERENCE MATERIAL:**

No <input type="checkbox"/> Fiscal Estimate Required	Yes <input checked="" type="checkbox"/> Attached
No <input type="checkbox"/> Environmental Assessment or Impact Statement Required	Yes <input checked="" type="checkbox"/> Attached
No <input type="checkbox"/> Background Memo	Yes <input checked="" type="checkbox"/> Attached

**APPROVED:**

<u>Donald F. Theiler</u> Bureau Director	Donald F. Theiler	<u>2/3/87</u> Date
<u>Lyman F. Wible</u> Administrator	Lyman F. Wible	<u>2/4/87</u> Date
<u>C.D. Besadry</u> Secretary	C.D. Besadry	<u>2-10-87</u> Date

cc: Tom Steidl - LC/5  
Marcia Penner - LC/5  
Carol Turner - LC/5  
Judy Scullion - AD/5  
Penny Kanable - AM/3

**RESPONSE / MEMORANDUM**

FILE REF: 4510

DATE: February 9, 1987

TO: C. D. Besadny - AD/5

FROM: Donald Theiler - AM/3 *DT*

SUBJECT: Background memo to the February, 1987 Green Sheet requesting Board authorization for the Department to conduct a public hearing on proposed hazardous air contaminant emission limitations and proposed hazardous emissions criterion for exemption from permitting requirements.

These rules are proposed in response to the final recommendations of the Hazardous Emissions Task Force. The Task Force was formed in May 1983, at the request of the Air Pollution Control Council because of concern over health risk prompted by a lack of direction in hazardous air pollution control at the federal level. The Hazardous Emissions Task Force was formed to advise the Department on procedures relating to hazardous air contaminants which may be needed to adequately protect the health and welfare of the citizens of the state. On July 24, 1985, the Task Force approved recommendations for the regulation of hazardous air emissions. Specifically, the Task Force made recommendations on a definition of the term hazardous air contaminant, the adequacy of existing regulations for 1,1,1-trichloroethane and methylene chloride, and which sources of hazardous emissions should be exempt from permitting requirements. The proposed rules basically embody the Task Force recommendations and address application and administration features uncovered as a result of public information meetings and a source assessment survey conducted by the Bureau of Air Management.

The proposed rules address several issues consonant with the subject of hazardous air emissions. First, it is very difficult to determine whether or not a specific compound is sufficiently toxic to warrant its inclusion in a list that calls for special consideration and control. This problem is emphasized by the U.S. EPA's inability to develop a comprehensive program under section 112 of the Clean Air Act (since 1970 the Agency has listed only eight substances as hazardous air pollutants and established emission standards for six of them). Rather than emulating the federal approach, which is exceedingly long, cumbersome and extremely resource intensive, the proposed rules rely upon the work of others (International Agency for Research on Cancer, National Toxicology Program, American Conference of Governmental Industrial Hygienists) to characterize the toxicity or carcinogenicity of a substance.

Second, the proposed rules differ in approach from those of several other states concerning treatment of known or suspected carcinogens. The proposed rules distinguish between carcinogenic and non-carcinogenic contaminants.

This is done because there is no known safe level of exposure for carcinogenic substances. Thus, rather than establishing threshold exposure limits for cancer causing contaminants, as some other states have attempted, the proposed rules employ technology based controls which are more stringent if the compound is a known human carcinogen. The use of risk assessment techniques to establish emission limits, an approach taken by some other states, has been employed within the proposed rules for use only in assessing control technology variance requests.

Lastly, the proposed rule resolves the issue surrounding the adequacy of existing regulations for 1,1,1-trichloroethane and methylene chloride (see Board History).

### Summary

The proposed rules consist of four component parts; definition, emission limitations, permit exemption criteria and compliance timeframes.

The definition of a hazardous air contaminant proposed within the rule embodies the definition of a hazardous air pollutant contained in Section 112 of the Clean Air Act, with one important exception. Unlike the federal definition, which is based solely on human health impacts, the definition of a hazardous air contaminant proposed within the rule has been expanded to allow for substances which may pose a significant threat to the environment (e.g., atmospheric deposition to the Great Lakes).

Several emission limitations (expressed as ambient concentration impacts) are proposed for 361 substances grouped as acute hazardous air contaminants, and three control technology levels are proposed for sources which use or emit another 133 substances which are either known or suspected carcinogens.

Permit exemption requirements are proposed for new or modified sources (s. NR 406.04) and existing sources (s. NR 407.03) of hazardous air contaminants. These permit exemptions specify emission rates (in pounds per hour) for the acute contaminants and annual material use levels (in pounds per year) or trace contaminant concentrations in materials used (in parts per million) for known or suspected carcinogens. If a source emits or uses materials above the specified rates, levels or concentrations, the source will be required to obtain an air pollution control permit.

The proposed rules also establish compliance dates for sources subject to the proposed emission limits. Sources of carcinogens will have one year to submit a compliance plan to the department. If compliance is based on materials, substitution a year is allotted for compliance, if capital expenditures are necessary, two years are allotted. Sources of acute contaminants will have six months after mandatory operating permit issuance to submit a plan, one year thereafter to comply if materials substitution is the method used or two years if capital expenditures are necessary.

### Policy Implications

The proposed rules modify existing policy in that control of hazardous air contaminants will be more systematic and prospective in nature. Instead of issuing specific emission limitations, based largely on discovery of hazardous emission situations involving public health implications, the proposed rule establishes a list of hazardous air contaminants and specifies whether sources are exempt from permitting requirements, based on hazardous air contaminant considerations, and establishes an threshold exposure limits or control requirement for specific hazardous air contaminants.

### Board History

The Natural Resources Board has dealt with the issue of control of hazardous air contaminants before. In 1981 the Department had initially proposed to include 1,1,1-trichloroethane and methylene chloride in Reasonably Available Control Technology (RACT) regulations for controlling precursors of ozone. This proposal resulted in considerable controversy. Industrial representatives contended that they would be at a competitive disadvantage, since other states had exempted the compounds from RACT regulations. The environmental community argued the compounds were suspect carcinogens, and exempting them from RACT regulations would encourage their use. As a compromise the Board in July, 1982, exempted the two compounds from RACT but required users to register use of the compounds with the Department. It was this issue which led to the creation of the Hazardous Emissions Task Force.

In March, 1986, staff of the Bureau of Air Management summarized the Task Force recommendations including presentation of draft rules, in an information item to the Natural Resources Board. At the Board's direction staff conducted six public information meetings at locations in each district during June, 1986. These meetings resulted in a significant amount of comment, however few comments provided quantitative information on the cost impacts of the draft rule. In fact, one often-heard comment was that potentially affected entities did not have the capability to assess the cost implications of the draft rule.

In October, 1986, staff presented to the Natural Resources Board a summary of public information meeting comments, as well as potential staff recommended rule changes resulting from a review of comments. In an effort to address the comment that sources couldn't assess the impacts of the rule, the Bureau of Air Management in conjunction with the Wisconsin Association of Manufacturers and Commerce and the Federation of Environmental Technologists, has conducted a limited source assessment survey of 30 randomly selected sources in representative industrial categories within Wisconsin.

The Board has been involved with the issue of control of toxic substances with various department units (e.g., hazardous waste, groundwater). Board hearing authorization is also being requested for toxic substance control in surface waters. The two rule packages are very similar and consistent in general approach. These similarities include:

TO: C. D. Besadny - February 9, 1987

4.

1. The state rules are pre-empted by federal limits when established in Federal Regulations (e.g., maximum concentration levels in water supply and national emissions standards for hazardous air pollutants in air).
2. Both the air rule and the surface water rule establish ambient safe levels for acute toxic compounds based on uncertainty factors, which can be used in regulatory programs by back calculating to emission or discharge values.
3. The objectives of both rules are to establish protective levels of toxicants in the environment.
4. For chronic toxic compounds (carcinogens) both programs will use risk assessments, but in a different fashion. The air rules prescribe technology based controls with emission limits derived from the good operation of this technology and incorporate risk assessment within a variance procedure. The surface water rules establish discharge limits based on a risk assessment directly, with the technology determined by the stringency of the discharge limit. (Risk assessment and risk management are also employed in establishing maximum concentration levels in the Water Supply program which is not the subject of rulemaking at this time.)

#### Rule Development

In developing these proposed rules, the Department has received assistance from the Hazardous Emissions Task Force (see Report of Recommendations Hazardous Emissions Task Force to the Wisconsin Department of Natural Resources, July 1985) and the Wisconsin Association of Manufacturers and Commerce and the Federation of Environmental Technologists in conducting the source assessment survey. To date, there has been only one inquiry from legislators (Representative David Clarenbach regarding consistency with proposed community right-to-know legislation) and no inquiry from the Governor's office regarding this rule proposal.

#### Impacted Community

New and existing stationary sources located throughout the state which emit a hazardous air contaminant listed in Table 1 of proposed s. NR 445.03, Wis. Adm. Code, in amounts greater than the levels identified in Table 1 will be required to apply for a new source or mandatory operating permit respectively. If after analysis of the sources emissions the Department finds the source will not, by itself, exceed 1% of the Threshold Limit Value for the contaminant off-source property, a permit, without requiring control, will be issued. If the department finds the source, as a result of its emissions, will exceed 1% of the Threshold Limit Value for the contaminant, the source will be required to incorporate controls which will reduce its impact to less than the 1% concentration. In any case emission limits will be established in the permit for each contaminant which triggered the need to obtain a permit.

New and existing sources located throughout the state which use or emit hazardous air contaminants listed in Tables 2, 3, and 4 of proposed s. NR 445.03 in amounts greater than those levels specified will be required to apply for a new source or mandatory operating permit and control emissions of the hazardous air contaminant through application of control technology specified in proposed s. NR 445.03.

Based on a limited source assessment survey, 30 sources representing 30 different industrial categories, almost half when analyzed at maximum potential uncontrolled (24 hours/day 365 days/year operation) exceeded acceptable concentrations or emissions of acute or carcinogenic substances. Included within this category are sources representing appliance manufacturing, chemical manufacturing, meat processing, gasoline, retailing, incinerators (pathological and municipal), industrial boilers, lime kilns, metal plating, pesticide manufacturing, petroleum refining, plastics or resin manufacturing, and wood products manufacturing. The majority of these sources could comply with the rule's limitations at minor cost through material substitution, minor stack height increases to eliminate downwash, or limits on production at rates less than the source's maximum to produce but more than this current production. The survey also indicated that where a source has control equipment required for criteria pollutants, that the equipment is usually sufficient to control emissions of hazardous air contaminants to acceptable levels. Other than two categories, oil refining and incineration which will require extensive further analysis, the cost impacts of the rule should be acceptable and even within the oil refining and incineration categories the impacts may not be burdensome.

#### Small Business Analysis

Based on the survey of 30 potentially affected sources, upon the analysis of staff and the results of the public informational hearings the impact on small business is expected to be minimal. An exception to this evaluation could occur if the Federal Government fails to establish vapor recovery requirements at existing and new gasoline service stations within 3 years. In that case the requirement to implement such control, at the state level would occur.

As described above sources will be required to apply for permits and if necessary control emissions. Compliance and reporting requirements cannot be made less stringent as this would be contrary to the statutory objective of establishing hazardous emissions standards needed to provide adequate protection for public health or welfare. Except for the 361 hazardous substances listed in Table 1, the proposed rule has incorporated a simplified reporting procedure, in that permit application requirements are based on the amount of hazardous air contaminants used by a source. This approach was incorporated in the belief that a source could easily identify the amount of such material it uses, rather than having to establish the emissions of such materials and is consistent with the use/inventory requirements contained in the community right-to-know provisions of the recently enacted Superfund reauthorization.

JR:cn/3357C

Environmental assessment of proposed revisions to renumber ss. NR 406.04(2)(d), (f) and (g), NR 407.03(2)(c) and (e), NR 445.02(3), NR 445.04, and NR 445.05; repeal ss. 406.04(2)(e), NR 407.03(2)(d) and NR 407.03(2)(f), repeal and recreate ss. NR 445.03; amend ss. NR 406.04(2)(g) and NR 407.03(2)(f); and create ss. NR 406.04(2)(d) and (f), NR 407.03(2)(c) and (e), NR 445.02(e), (4) and (5), and NR 445.04 and NR 445.05 of the Wis. Adm. Code pertaining to emission limitations and permit exemption criteria for sources of hazardous air contaminants.

I. EIS Recommendation (this decision is not final until approved by the Director of the Bureau of Environmental Analysis and Review (BEAR)).

Based on the results of six public information meetings, subsequent staff analysis and rule modifications, results of a recently undertaken survey of 30 sources conducted by the Department, and case-by-case determinations for new sources in which the impacts have not been significant, the following analysis of the expected impacts of revisions to renumber ss. NR 406.04(2)(d), (f) and (g), NR 407.03(2)(c) and (e), NR 445.02(3), NR 445.04, and 445.05; repeal ss. 406.04(2)(e), NR 407.03(2)(d) and NR 407.03(2)(f), repeal and recreate ss. NR 445.03; amend ss. NR 406.04(2)(g) and NR 407.03(2)(f); and create ss. NR 406.04(2)(d) and (f), NR 407.03(2)(c) and (e), NR 445.02(3), (4) and (5), and NR 445.04 and NR 445.05 is of sufficient scope and detail to conclude that this is not a major action which would significantly affect the quality of the human environment.

Like the current rule (NR 154.19) this rule revision is designed to protect the health and welfare of citizens of the state from potentially harmful hazardous air contaminants. This proposed revision differs from the current rule because it is a preventative approach to hazardous air contaminant regulation, which is structured to prevent problems from happening rather than allowing them to occur and using corrective enforcement measures under NR 154.19.

Many potential sources of hazardous air contaminants already employ some control technology (based on control of criteria pollutants) but complete compliance with hazardous emission limits cannot be determined until all mandatory operating permits have been issued. These proposed rules should not have intermedia cumulative regulatory effects since cooperative agreements regarding permitting of incinerators and air strippers already exists between the Bureau's of Air Management, Solid Waste Management and Water Supply. Additionally, potential overlap with federal regulations has been eliminated by exempting from permit requirements those sources subject to National Emissions Standards for Hazardous Air Pollutants.

The major impacts of the proposed rules will be in the areas of public health and economic impacts. Decreased emissions of hazardous air contaminants will result in improved public health. The total economic impacts of the proposed rule cannot be quantitatively estimated prior to implementation. However, adverse economic impacts for various sources

will be limited by several provisions of the proposed rules. For sources of known human carcinogens, the rule provides a variance procedure with an economic risk cap as well as an associated public health risk cap. For sources of potential carcinogens, the rule requires available control technology which should limit economic impacts to levels experienced by others in the industry or other industries using similar processes. For the other 361 hazardous air contaminants listed which require ambient concentrations not exceed 1% of the Threshold Limit Value (TLV), economic impacts should be limited because control below the TLV values are typically already required under OSHA for worker health and safety (the 1% allows for dilution/dispersion to the property line).

The proposed rules do not preclude future actions or options of federal, state or local governments, since these rules do not set any precedent for source permitting but rather incorporate the approach to control of hazardous air contaminants within the existing permitting process. The only impacts which may be irreversible would be the health impacts resulting from those emissions allowed under the proposed rule.

As with all rules designed to reduce the introduction of toxic substances into the environment, this rule will be accompanied by an expected amount of controversy. However, based on rule modifications incorporated after public information meetings, the degree of controversy should be reduced.

As a provision designed to protect public health and welfare the cumulative effects, environmental risk, precedent and controversy of the proposed rules are not significant. Therefore, an environmental impact statement is not required prior to final action by the Department to promulgate this rule.

\_\_\_\_\_  
Evaluator's Name

\_\_\_\_\_  
Date

\_\_\_\_\_  
Don Theiler, Bureau of Air Management

\_\_\_\_\_  
Date

Certified to be in compliance with WEPA\*

\_\_\_\_\_  
Director, BEAR (or designee)

\_\_\_\_\_  
Date

\* If you believe you have a right to challenge this decision, you should know that Wisconsin Statutes and Administrative Codes establish time periods within which requests to review Department decisions must be filed. For judicial review of a decision pursuant to ss. 227.52 and 227.53, Wis. Stats., you have 30 days after service of the decision to file your petition for review. The respondent in an action for judicial review is



## II. History and Background

See background memorandum, pages 1-6. The remaining portions of NR 445 are being developed concurrently with this proposal and will replace NR 154.19.

## III. Description of the Rule Revision

### A. What the rule revision is supposed to accomplish.

The purpose of the proposed rules is to establish a definition of a hazardous air contaminant and also establish permit and control requirements for sources of hazardous air contaminants to provide adequate protection for public health and welfare.

### B. Key studies, assumptions or policies that helped shape the rule revision.

These rules are proposed in response to the Report of Recommendations of the Hazardous Emissions Task Force to the Wisconsin Department of Natural Resources. In July, 1985, the Task Force forwarded recommendations on a definition of the term "hazardous air contaminant," emission limitations for hazardous air contaminants, the adequacy of existing regulations for 1,1,1-trichloroethane and methylene chloride, and which sources of hazardous emissions should be exempt from permitting requirements.

The de minimus limits for permit requirements contained in Table 1 of the proposed rule are based on a RAM dispersion model application for a 11 1/2 foot stack with a 1 foot diameter and a 1000 cu. ft/minute stack gas exit velocity per the March 22, 1985, memo by Adamski (contained in Appendix 5 of the Task Force Report), or similar dispersion modeling for 25 foot stack heights. The use limits for permit requirements for contaminants contained in Tables 2 and 4 of the proposed rule were based on Task Force recommendations believed to protect public health yet minimize requirements for very small users of these substances.

### C. Major provisions of the proposed rule.

These proposed rules revise the hazardous air contaminant criterion for determining whether new or modified sources and existing stationary sources of air pollution are exempted from requirements to obtain air pollution control permits under s. NR 406.04 and s. NR 407.03, Wis. Adm. Code, respectively. The revisions specify emission rates (in pounds per hour) for 361 hazardous substances and annual material use levels (in pounds per year) or trace contaminant concentrations in materials used (in parts per million) for an additional 133 hazardous substances. If a source emits or uses materials above the listed rates, levels or concentrations, the source will be required to obtain an air pollution control permit. For instance, sources which emit hazardous contaminants in amounts greater than the pound per hour amounts listed in Table 1 of the proposed rule would be required to apply for an air pollution control permit. Sources which use more than 25 pounds per year or

contaminants listed in Table 2, or use raw materials containing more than 1,000 parts per million of these contaminants, or facilities which emit more than 100 pounds per year of these contaminants would be required to apply for an air pollution control permit. Similarly, sources which use more than 1,000 pounds per year or facilities which emit more than 500 pounds per year of contaminants listed on Tables 3 and 4 would be required to apply for a permit.

The rules also create three new definitions. The first defines the term "hazardous air contaminant" and identifies a list of 494 substances of hazardous air contaminants. The second definition establishes a level of control technology (Best Commercially Available Control Technology) for use in controlling sources of suspected carcinogenic substance emissions. The third definition establishes a level of control technology (Lowest Hazardous Emission Rate) for use in controlling sources of known human carcinogenic substance emissions.

Lastly, these revisions establish general emission limitations (expressed as ambient concentration impacts) for 361 essentially acute hazardous substances, and three levels of control technology application requirements for sources which emit or use another 133 substances which are either known or suspected carcinogens.

D. Exemptions provided by the proposed rules.

The proposed rules do not regulate the emission of all substances known to be hazardous, nor do the rules propose permitting of all sources of these substances. For example, mobile sources are not required to obtain permits under this rule. However, mobile sources (cars, trucks) are required to have devices for the control of criteria pollutants under federal and state law.

Similarly, not all hazardous substances are defined as hazardous air contaminants under the rule. Based on the recommendations of the Hazardous Emissions Task Force, the rule limits emissions of substances classified by the International Agency for Research on Cancer and/or the National Toxicology Program as having sufficient evidence of carcinogenicity from studies of humans or experimental animals. Likewise, the proposed rule only limits emissions of approximately half of the substances which the American Conference of Governmental Industrial Hygienists identified for control in the workplace. These exemptions were based on the following eight criteria used by the Hazardous Emissions Task Force:

1. Substances which the Hazardous Emissions Task Force believes the only use within Wisconsin are in such small quantities as not to pose a threat to public health and welfare.
2. Inert gases or vapors which when present in high concentrations act primarily as simple asphyxiants without other significant physiologic effects.

3. Inert dusts which, unlike fibrogenic dusts, have a long history of little adverse effect on the lung and do not produce significant organic disease or toxic effect when workplace exposures are kept under reasonable control.

4. Substances, in vapor or gaseous form, for which the American Conference of Governmental Industrial Hygienists has ascribed a threshold limit value - time weighted average greater than 99 parts per million (ppm) with a few minor exceptions.

These exceptions include acetaldehyde; 1,1-dichloroethane; 1,2-dichloroethane; ethyl benzene; ethyl formate; methyl formate; methyl methacrylate; methylene chloride; nitroethane; nitromethane; stoddard solvent; tetrahydrofuran; toluene and xylene. The majority of these substances have TLV's of 100 ppm and are used in commerce.

5. Criteria pollutants or hazardous pollutants for which national emission standards have been established.

6. Substances, in particulate form, for which the American Conference of Governmental Industrial Hygienists has ascribed a threshold limit value - time weighted average equal to or greater than 10 milligrams per cubic meter.

7. Substances possessing an explosive nature which require safety procedures precluding ambient concentrations which would present hazardous concerns.

8. Substances which are recognized or suspected to have carcinogenic or cocarcinogenic potential by the American Conference of Governmental Industrial Hygienists.

#### IV. Affected Environment

##### A. Physical or biological environment affected by the proposed rules.

The public health and welfare of citizens of the state will be protected through the establishment of emission limitations for hazardous air contaminants. The flora, fauna and water resources of the state will also benefit from reduced atmospheric loading of hazardous air contaminants since the proposed definition of a hazardous air contaminant also includes those contaminants that may pose a significant threat to the environment.

Most of the hazardous air contaminants included in Tables 1-4 can be classified into broader categories of volatile organic compounds (VOCs) or particulate matter (PM). Current requirements for control of criteria pollutants include control of VOCs (NR 154.13) and PM (NR 154.11). Most sources which emit more than 10 tons per year and are located in an 18 county southeastern Wisconsin area, 100 tons elsewhere in the state, and certain other sources with emissions as low as 2 tons per year (other direct sources) are already controlling VOC emissions. Many of these sources have substituted the raw materials they use with less volatile raw materials, while others

have installed incinerators, recycling systems, or other post process control devices to reduce VOC emissions. These devices also serve to reduce emissions of hazardous air contaminants which are VOCs.

Similarly, regulations already exist for process, fuel burning and fugitive sources of particulate matter. These sources typically use baghouses, electrostatic precipitators, cyclones or other post-process controls to reduce emissions of hazardous air contaminants which are particulates (although the relative control efficiency of these systems may not be the same for hazardous air contaminants as for general particulate matter).

Current regulation of hazardous pollutants is contained in NR 154.19. The general limitation contained in this section is not prospective in approach and historically has been applied after a hazardous situation has been identified. Three relatively recent examples of NR 154.19 enforcement includes an electroplating facility in Beloit which was limited for emissions of chromium, an incinerator in Arlington which was limited for emissions of hydrochloric acid, and an aluminum smelting operation in Manitowoc which was limited for emissions of hydrochloric acid due to local corrosive impacts.

Lastly, the proposed rules will have impacts in the control of hazardous air contaminants beyond those impacts which have resulted from limited EPA regulatory activity in this area. To date, the U.S. Environmental Protection Agency has imposed hazardous air pollutant emission standards for asbestos, beryllium, mercury and vinyl chloride only. Sources covered under these regulations will be exempt from regulation under the proposed rule.

- B. Units of government, industries, organizations and other parties affected by the proposed rule.

Without a complete inventory of sources statewide for the 494 hazardous air contaminants identified within the proposed rule it is impossible to specifically identify those units of government, industries, organizations and other parties which would be directly affected.

Any attempt to quantify the impacts of the proposed rule would require individual case-by-case analyses and would be extremely expensive and time consuming because of the large number of sources potentially subject to the rule. In an effort to obtain impact information the Bureau of Air Management conducted six public information meetings throughout the state in June, 1986. In addition, the Bureau of Air Management in cooperation with the Wisconsin Association of Manufacturers and Commerce and the Federation of Environmental Technologists has engaged in a limited source assessment survey of 30 sources within the following industrial categories:

Sources for Toxics SurveySIC Codes

Appliance Manufacturing	I 3631-3639
Asphalt Plant	I 2951
Automobile Manufacturing	I 3711
Chemical Manufacture	I 2819
Construction or Agricultural Equipment Manufacture	I 3523, 3524, 3531, 3537
Dry Cleaner	I 7216
Electrical Components	I 3671-3679
Food Processing - Brewing	I 2082
Food Processing - Meat Processing	I 2013
Food Processing - Yeast	I 2099
Foundry Iron - Cupola	I 3321
Foundry Iron - Electrical Melting	I 3321
Foundry Iron - Nonferrous Alloy	I 3361, 3362, 3369
Gas Station	I 5541
Incinerator - Municipal	I 4953
Incinerator - Pathological	I 8062
Industrial Boiler - Oil	I Any Large Boiler
Leather Coating	I 3111
Lime Kiln	I 3274
Metal Plating	I 3471
Metal Products - Coating, Painting and Lubricants	I Major Group 34
Paper Making	I 2611, 2621
Pesticide Manufacture or Blending	I 2879
Petroleum Refining	I 2911
Plastics or Resin Manufacture	I 2821, 2822
Portland Cement Manufacture or Transshipment Point	I 3241
Power Plant - Coal	I 4911
Printing	I 2754
Wood Furniture	I 2511
Wood Products - Chip Board or Plywood	I 2431, 2492, 2499
Wood Stove	I NA

Although only preliminary results of the survey are available some inferences can be drawn. First, we believe the proposed rules will not significantly expand the number of sources required to obtain a mandatory operating permit. Second, approximately half the sources analyzed in the survey at their potential to emit (24 hours per day/365 days per year) have the ability to exceed either the 1% of TLV for acute hazardous contaminants or the pound year use limitations for carcinogens. For the majority of these sources simple process modifications, increases in stack height to prevent downwash conditions, or limiting hours of operation to less than the sources potential (yet more than current actual hours of operation) would be sufficient to reduce the impact to acceptable levels. Additionally, based on discussions with representatives of the Wisconsin Department of Agriculture, Trade and Consumer Protection and direct mailing of the draft rule and public information meetings notice to agricultural associations, we do not anticipate that farmers will be directly impacted by the rule.

## V. Environmental Consequences

### A. Anticipated direct and indirect impacts on the physical and biological environment.

The proposed rule will result in emission reductions of acute and chronic hazardous air contaminants from sources of these emissions which are of sufficient size to pose a threat to human health or welfare. The proposal will also aid in identifying situations which given the proposed limitations have a potential to create adverse health and environmental impacts. The Department does not anticipate a massive increase in hazardous materials to be disposed of elsewhere (other media) since the largest sources of hazardous air contaminants typically already employ pollution control measures for criteria pollutants. Additionally, the Department anticipates that the proposed rules will not discourage incineration as a disposal method, by raising the cost to incinerate to extreme levels but will ensure incinerators meet minimum control efficiency standards. The Department anticipates no other discernible direct or indirect impacts on the physical or biological environment.

### B. Anticipated direct and indirect economic impacts.

See discussion in B above and fiscal note.

### C. Anticipated direct and indirect impacts on (1) social or cultural environments, (2) the regional availability of energy, and (3) other features not previously addressed.

The Department anticipates no discernible impacts on the social or cultural environments, regional availability of energy, or other direct or indirect impacts resulting from the proposed rules.

## VI. Alternatives and Their Impacts

### A. Impacts of not implementing the proposed rule.

The impact of not implementing the proposed rule would be a continuation of the present approach of enforcement after adverse health impacts had already been incurred. Thus the approach to controlling hazardous air contaminants would be less prospective. New sources seeking to locate within the state would not have a uniform set of criteria to evaluate for permitting and siting decisions, and existing sources would be controlled only through resource intensive enforcement actions.

### B. Major changes to the rule which would satisfy known or obvious concerns of interested parties.

Where possible, within its mission of protecting public health and the environment, the rule has been changed from its draft form to satisfy known or obvious concerns of interested parties expressed in comments received at and after public information meetings. These changes include raising the trace contaminant in raw material permitting threshold from 500 ppm to 1,000 ppm; lowering the emission limit for

PCB's from 25 lbs/year to 2 lbs/year; allowing sources to use mass balance or other use/consumption methods to determine emissions and compliance; changing pound/hour emission rates for permit application requirements to rates based on a 25 foot release height; exempting emissions from nondiscrete emission points; and providing staggered timeframes (with reasonable limits) for compliance.

There are however, two concerns raised by interested parties which have not resulted in changes to the rule. The first concern is the regulation of acute hazardous air contaminants when the federal government has not regulated these contaminants. In fact, the U.S. Environmental Protection Agency does regulate a small number of these acute contaminants as criteria pollutants. In addition, the results of the limited source assessment survey performed by the Bureau of Air Management indicated that fully half of the sources assessed had the potential to emit in concentrations to exceed safe levels of these contaminants in ambient air.

The second concern regards exempting existing sources from permitting because Wisconsin does not have "toxics problems." Again, the results of the survey demonstrate that many existing sources have the potential to cause problems if not limited by legally binding requirements. Thus, the Department believes these changes cannot be incorporated within the rule.

#### C. Reasonable alternatives to the proposed rule.

The proposed rule is based on the recommendations of the Hazardous Emissions Task Force. The Task Force, in their deliberations, weighed and evaluated alternative approaches to hazardous air contaminant control and made recommendations as to the design and construct of a hazardous air contaminant control program for the state.

In addition to considering the alternative approaches to control of hazardous substances taken by the U.S. Environmental Protection Agency and some other states (see paragraphs 2 and 3 of background memo of January 22, 1987 from Donald Theiler to C. D. Besadny), the Task Force explored the development of a methodology (incorporating appropriate safety factors based on the identified no observable adverse effect level [NOAEL]) and then having the Department apply this procedure to lists of chemicals and promulgate emission limits.

When this approach was presented to the Wisconsin Industrial Coalition (early in the Task Force deliberation efforts) the Coalition expressed grave concerns regarding the "workability of this formula approach". Based on the Coalition's reaction, the Task Force discontinued further pursuit of the formula approach.

The Department has not considered any alternatives to the Task Force recommendations embodied within the proposed rules.

9133S  
2/1/87

1983 Session

FISCAL ESTIMATE

AD-MBA 23 (Re. 11/82)

LRB or Bill No./Adm. Rule No.

ORIGINAL  UPDATED  
 CORRECTED  SUPPLEMENTAL

Amendment No. if Applicable

Subject Proposed revisions to renumber ss. NR 406.04(2)(d), (f) and (g), NR 407.03(2)(c) and (e), NR 445.02(3), NR 445.04, and NR 445.05; repeal ss. NR 406.04(2)(e).

Fiscal Effect (continued on attached sheet)

State:  No State Fiscal Effect

Check columns below only if bill makes a direct appropriation or affects a sum sufficient appropriation

- Increase Existing Appropriation  Increase Existing Revenues
- Decrease Existing Appropriation  Decrease Existing Revenues
- Create New Appropriation

- Increase Costs - May Be Possible to Absorb Within Agency's Budget  Yes  No
- Decrease Costs

Local:  No local government costs

- 1  Increase Costs
  - Permissive  Mandatory
- 2  Decrease Costs
  - Permissive  Mandatory

- 3  Increase Revenues
  - Permissive  Mandatory
- 4  Decrease Revenues
  - Permissive  Mandatory

5. Types of Local Governmental Units Affected
- Towns  Villages  Cities
  - Counties  Others \_\_\_\_\_

Fund Sources Affected

GPR  FED  PRO  PRS  SEG  SEG-S

Affected Ch. 20 Appropriations

Assumptions Used in Arriving at Fiscal Estimate

The primary purpose of the proposed rules is to protect public health and welfare which will result in decreased health maintenance costs and increased human productivity. The proposed rules revise the hazardous air contaminant criterion for determining whether new or modified sources and existing stationary sources of air pollution are exempted from requirements to obtain air pollution control permits. The proposed rule specifies emission rates or material usage to determine the need for air pollution permits for 494 substances. Sources which emit or use these materials in amounts greater than the listed rates will be required to obtain an air pollution control permit. The proposed rule also establishes threshold exposure limitations for 361 acute hazardous substances, and three levels of control technology application requirements for sources which emit or use another 133 substances which are either known or suspected carcinogens. Although it is extremely difficult to assess the economic impacts of the proposed rule, several qualitative observations can be made.

Sources which exceed either the emission rate or materials use criteria will be required to obtain an air pollution control permit. This would entail a review of chemicals purchased and used by the source, and possibly a calculation (mass balance or other) of emissions of these proposed contaminants. Costs to complete this data gathering phase can be expected to be minor, since sources usually keep records of materials purchased and are required to develop material use inventories under the community right-to-know provisions of the recently enacted Superfund Amendments and Reauthorization Act. In addition, most sources are required to obtain mandatory operating permits and thus only those sources who would otherwise be exempt from permitting requirements might incur this

Long Range Fiscal Implications

Agency/Prepared by (Name & Phone No.)

Joe Polasek - 6-2794

Authorized Signature Telephone No

*Joe Polasek*

Date

2/2/87

Form 1100-1  
Rev. 11-82

NATURAL RESOURCES BOARD AGENDA ITEM

Item No. \_\_\_\_\_

**SUBJECT:** Adoption of Order AM-9-87 - revision of ss. NR 406.04, 407.03 and 445.02-.05, Wis. Adm. Code, pertaining to emission limitations and permit exemption criteria for sources of hazardous air contaminants.

**FOR** February 1988 **BOARD MEETING**  
(month)

**TO BE PRESENTED BY:** Donald F. Theiler  
James S. Rickun

**SUMMARY:**

These rules revise the hazardous air contaminant criteria for determining whether new or modified sources and existing stationary sources of air pollution are exempt from requirements to obtain air pollution control permits. The revisions specify emission rates (in pounds per hour) for acute contaminants and annual emission rates (in pounds per year) for known or suspected carcinogens. If a source emits hazardous air contaminants in excess of the listed rates, the source will be required to obtain an air pollution control permit.

Emission limitations (expressed as ambient concentration impacts) are established for acute contaminants, and two control technology levels are proposed for sources which emit more than specified amounts of known or suspected carcinogens. A more restrictive technology would be required for the emissions of known human carcinogens.

The revisions establish delayed compliance dates for existing sources subject to the emission limits. Five definitions, specific to this chapter of administrative code, are also included.

Last, these revisions incorporate a review procedure for modifying acceptable ambient concentrations for acute contaminants, adding or deleting contaminants, and reviewing requests for an alternate emission limit for acute contaminants emitted on a limited basis.

**RECOMMENDATION:**

The Board adopt revisions to NR 406.04, NR 407, and NR 445, Wisconsin Administrative Code, pertaining to revisions of emission limitations and permit exemption criteria for sources of hazardous air contaminants.

**LIST OF ATTACHED REFERENCE MATERIAL:**

- |   |  |
|---|--|
| No <input type="checkbox"/> Fiscal Estimate Required                              | Yes <input checked="" type="checkbox"/> Attached |
| No <input type="checkbox"/> Environmental Assessment or Impact Statement Required | Yes <input checked="" type="checkbox"/> Attached |
| No <input type="checkbox"/> Background Memo                                       | Yes <input checked="" type="checkbox"/> Attached |

**APPROVED:**

<u>Donald F. Theiler</u> Bureau Director	<u>2/22/88</u> Date
<u>Lyman F. Wible</u> Administrative	<u>2/22/88</u> Date
<u>C.D. Besadny</u> Secretary	<u>2-22-88</u> Date

cc: T. Steidl - LC/5  
C. Turner - LC/5  
M. Penner - LC/5  
J. Scullion - AD/5  
P. Kanable - AM/3

Date: February 22, 1988

File Ref: 4500

To: C.D. Besadny - AD/5

From: Donald Theiler - AM/3

Subject: Outstanding Issues on the Hazardous Air Emissions Rules

Since the public hearings on the proposed hazardous air emission rules 15 meetings with the Industry Air Coalition and environmental groups have been conducted to try to develop a set of rules which would meet the concerns expressed by industry during the hearings while continuing to provide adequate protection to the citizens of the state. A large number of changes have already been made to the proposed rules to account for industry concerns, however, there still remain a limited number of issues on which we have not yet been able to reach agreement. They are as follows:

1. Service Station Exemption

A. Industry Request:

A desire has been expressed by industry to exempt gasoline service stations from regulation as it relates to benzene emissions, a known human carcinogen.

B. Staff position:

All sources regardless of category who emit more than 300 pounds of benzene per year would be required to institute lowest achievable emission rate technology. It is our understanding that only very large service stations may be potentially affected by this rule. Those would be service stations pumping more than one and a half million gallons of gasoline per year if they have load-in (Stage 1) vapor recovery equipment or one million gallons per year if they lack this load-in vapor recovery equipment. There is no reason to provide a blanket exemption for these very large stations (estimated to not exceed 4 percent of all the stations in the state) and it is, therefore, not recommended.

2. Wood and Black Liquor Exemption

A. Industry Request:

A desire has been expressed on the part of industry to exempt facilities burning wood and/or "black" liquor derived from the wood pulping process from the requirement to apply for a permit.

B. Staff position:

We do not have any data which would support this type of exemption.

We did indicate to the industry representatives that if such data were forthcoming, we would consider such a request. This can be done at any time.

### 3. Delayed Compliance Order Extensions

#### A. Industry Request:

A request has been made to provide for the possibility for indefinite extensions to delayed compliance orders for the control of acute hazardous emissions which come under regulation in 1992. (Table 4 in the proposed rules.)

#### B. Staff position:

In the proposed rule, a source which has installed control equipment prior to 1992 and would be required to replace this equipment to come into compliance with the new emission limits coming into effect in 1992 could get an extension of their compliance deadline out to 1997 if;

- i. The source demonstrates that replacement of that equipment would be economically infeasible at that time, and
- ii. The department finds that the residual emissions would not pose a threat to public health and would not cause significant environmental harm.

The staff position is that by 1997 any capital control equipment will have exhausted its design life and should be replaced with controls which will bring all emissions down to the required level.

### 4. Review Procedures

#### A. Industry Request:

Industry sources would like an independent paid review panel composed of doctors and toxicologists appointed by the Governor to assist the department in performing the following activities:

- i. To review and recommend safe emission levels for the 165 substances proposed for regulation in 1992.
- ii. To review proposed emission levels under:

NR 445.05(1)(a)2 and NR 445.04(1)(a)2 - proposals to emit at 10% of the threshold limit values.

NR 445.04(6) and NR 445.05(7) - variances to the requirement to apply Lowest Achievable Emission Rate (LAER) technology for emissions of known human carcinogens.

NR 445.05(6)(f)2 - approvals for delayed compliance orders to extend compliance requirements out to 1997.

In each of these instances the review panel would be asked to make a recommendation on the likelihood that the proposed emission levels would pose a threat to public health or the environment.

- iii. To assist the department in reviewing proposals to emit compounds not specifically regulated in the rule which might pose a potential threat to public health or the environment. These are normally new compounds which have not yet undergone a systematic review.

B. Staff position:

The staff has not included this proposal in the proposed rule for a number of reasons:

- i. The DNR currently relies on the Department of Health and Social Services for such advice and assistance in making determinations for the protection of public health.
- ii. There are no funds currently available to pay for such an expert review panel.
- iii. The DNR cannot promulgate rules which would require the Governor to appoint such a review panel.

The rules do have a review procedure which performs the functions outlined above, but which follows our traditional reliance on the Department of Health and Social Services for advice on public health issues.

5. Lists of Carcinogens and Application of LAER

A. Industry Request:

Industry feels that the proposed list of carcinogens is too large and the application of Lowest Achievable Emission Rate technology to the significant emission of compounds which are known human carcinogens is too restrictive.

B. Staff position:

Based on the comments from industry we have limited the list of known and suspected human carcinogens to those found in the list prepared by the National Toxicology Program (NTP) of the U.S. Public Health Service. This list is prepared annually pursuant to Public Law 95-622. The list contains all substances which either are known to be carcinogens or which may reasonably be anticipated to be carcinogens and to which a significant number of persons residing in the United States are exposed.

For the purpose of this Report, "known carcinogens" are defined as those substances for which the evidence from human studies indicates that there is a causal relationship between exposure to the substance

and human cancer. Substances "which may reasonably be anticipated to be carcinogens" are defined as those for which there is limited evidence of carcinogenicity in humans or sufficient evidence of carcinogenicity in experimental animals. These are compounds which we would classify as "suspected" human carcinogens.

For known human carcinogens emitted in significant amounts we propose that sources reduce emissions to the maximum extent feasible by the application of Lowest Achievable Emission Rate (LAER) technology. This would minimize emissions of these carcinogens to the maximum extent feasible. For suspected carcinogens, those which may reasonably be anticipated to be carcinogens, the staff recommends that application of Best Available Control Technology (BACT) determined on a case-by-case taking into account the cost of controls be required for all sources. This is a lesser degree level of control than Lowest Achievable Emission Rate (LAER) technology but should still result in a significant minimization of emissions. This approach maintains the basic recommendations on carcinogens made by the Hazardous Emissions Task Force. We believe that it still remains the most reasonable approach to controlling carcinogens.

## 6. Indoor Fugitive Emissions of Carcinogens

### A. Industry Request:

Industry has suggested that the fugitive emissions of carcinogens released into the workplace be exempt from the calculation of the total amount of emissions for determination of the need to get a permit.

### B. Staff position:

The emission of these carcinogens into the workplace does not ensure that they will not be vented into the ambient air where they may be added to the total pollutant loading for that compound. If the source can demonstrate that these fugitive emissions never exit the building then they would not be subject to the regulation.

## 7. Determination of Emission Units Subject to BACT and LAER Controls

### A. Industry Request:

Industry believes that it is too restrictive to require certain units to meet Lowest Achievable Emission Rate (LAER) and Best Available Control Technology (BACT). These units are individual emission units which emit 10% or more of the de minimus amount of a carcinogen which would trigger the requirement to obtain a permit.

### B. Staff position:

The reason to control sources of carcinogens is to limit the emissions of the hazardous compounds to the extent technologically feasible. Emission units which emit 10% or more of the de minimus amounts

required for permit application are large enough to warrant the application of controls. Emission units which are less than 10% would normally be exempt from the technological control requirements.

8. Time Frames for Compliance Contingent upon DNR Plan Approval

A. Industry Request:

Industry believes that the date for achieving compliance with emission limits should be derived from the date on which the DNR approves their compliance plan rather than by the set dates listed in the proposed rules.

B. Staff position:

The staff agrees with this position for compliance plans which require the subjective determination involved in establishing Lowest Achievable Emission Rate (LAER) technology and Best Available Control Technology (BACT). We have adjusted the rule to reflect this change.

However, to meet ambient concentrations required for the acute compounds found on Tables 1, 2, and 4 of the proposed rule, no such subjective determinations are needed. Most of these limits can be easily determined by the source employing a qualified consultant to model their emissions. The department will stand ready to answer questions and lend assistance as staff resources allow, but we do not believe that any blanket DNR review and approval is needed for these compliance plans. The sources also have the ability to get a six month compliance extension if they are having trouble getting the compliance plans prepared.

9. Rural Emission Factor

A. Industry Request:

Industry wants the permit cutoff levels for sources of carcinogens in rural areas to be higher than those for sources in urban areas based on the fact that sources located in relatively flat rural areas with few surrounding tall buildings will have their emissions spread over a larger area and therefore the concentration in any one location would be less.

B. Staff position:

The staff disagrees with the notion of allowing more carcinogens in rural areas than in urban areas. Since there is no safe level of exposure for these compounds our basic strategy is to minimize the emissions wherever feasible. Allowing for greater emissions in the rural areas simply because it is rural would defeat this concept.

*BACT  
&  
LAER  
determination  
plan  
approval  
triggers  
compliance  
time frame*

10. Wastewater Treatment Plant Exemption

A. Industry Request:

Industry has requested that wastewater treatment plants receive a blanket exemption from the permitting and control requirements.

B. Staff position:

The staff has not received any information which would justify exempting wastewater treatment plants. We do recognize that if a plant were emitting significant amounts of hazardous compounds requiring control, traditional control technologies may not be appropriate in all cases and we would be willing to work with these sources in conjunction with our colleagues in the Department's Wastewater Bureau to design control strategies for this unique type of source.

SUMMARY  
RESPONSE TO COMMENTS ON PROPOSED  
HAZARDOUS AIR CONTAMINANT RULES

Issues Raised by Industry Representatives Regarding  
Proposed Hazardous Air Contaminant Emission Rules

1. Issue: Is it appropriate to use threshold limit values as a generic approach to determine permit requirements for acute hazardous emission sources?

As originally proposed, a source of acute hazardous emissions would require a permit if it emits greater than 1% of the threshold limit value (TLV) for the substance. The 1% TLV cutoff also defined the maximum emission rate allowed by the permit.

Comment: Several commenters have stated that TLVs are intended to be applied only to the work environment -- that they are not intended to be used in setting ambient air quality standards as the rules propose. In particular, they argue that TLVs are not suitable for estimating toxic effects from continuous exposures. They further argue that generically using 1% of TLV to protect public health for all acute toxics may be overly restrictive for some substances and not restrictive enough for others.

Response: The Hazardous Emissions Task Force (hereinafter referred to as the Task Force) had earlier proposed use of "toxicological extrapolation" i.e., determining acute hazardous emission limits based on extrapolation of actual toxicological studies, including safety factors based on the no observed adverse effect level for each individual substance. However, when this approach was proposed to the Wisconsin Association of Manufacturers and Commerce (WMC) Air Subcommittee on September 14, 1983, it was rejected in favor of an approach which explicitly lists emission limits for each regulated substance. The Air Subcommittee felt that use of toxicological extrapolation would leave unclear which substances would be regulated and the emission limits required. The Air Subcommittee made it clear that certainty in terms of which substances would be regulated and their emission limits was of paramount importance. Given that response and recognizing the difficulty in obtaining data on the effects of inhaled materials, the Task Force reasoned that TLVs represent the best source of guidance with regard to inhaled acute toxics, especially because of the eminence and objectivity of the ACGIH. The Task Force came to this conclusion with full awareness of the intention of the American Conference of Governmental Industrial Hygienists (ACGIH) that TLVs not be used to define community air quality standards. ACGIH recommends that TLVs not be used to set ambient air standards for four reasons:

1. TLVs are developed for work place exposures.
2. TLVs not intended for uninterrupted exposure.
3. TLVs are reported for a wide variety of health effects.

4. ACGIH disclaims liability with respect to inconsistent use of the TLVs.

The first three concerns were addressed by the Task Force and subsequently by the staff by limiting the number of substances to be regulated and by modifying the acceptable ambient concentrations from those recommended by ACGIH. The fourth concern cannot be addressed by the Department.

After lengthy discussion, the Department modified the proposed rule to change the 1% of TLV limit and exemption threshold to 2.4% of TLV, an approach suggested by the Wisconsin Industrial Air Coalition, Air Toxics Negotiating Committee.

2. Issue: Is it appropriate to use technology-based controls as opposed to risk assessment to set emission limits for carcinogenic (chronic toxic) emissions? For chronic hazardous emissions (i.e., known or suspected carcinogens), technology-based controls are required.

Comment: Several commenters indicated that the list of and plan to control carcinogenic substances is flawed because (1) chronic hazardous emission controls are only merited where a substance-specific risk assessment demonstrates unacceptable risks and (2) it is premature to regulate suspected (as opposed to known) carcinogens, because the state of scientific knowledge is too sketchy.

Response: As Dr. Ernest Mastromatteo (Chairman, ACGIH Threshold Limit Values Committee for Airborne Substances) stated in his comments, "The prevailing scientific opinion is that thresholds do not exist for ... carcinogenic agents." Absent any safe threshold value, therefore, any level of carcinogenic emissions involves a potential risk of cancer. Therefore, to reduce the risk to the lowest level possible, the application of technology based controls (Best Available Control Technology and Lowest Achievable Emission Rate Technology) is recommended.

The point that it is premature to regulate emissions of suspected carcinogens ignores the evidence supplied by studies on laboratory animals that provide a significant presumption of risk to human health. In most cases, because of the extreme difficulty in getting definitive human test data on carcinogens, most carcinogens will remain in the suspect category, rather than the known human carcinogen category. In order to provide adequate protection to the citizens of Wisconsin it is absolutely necessary to reduce the emissions of suspected human carcinogens as well as known human carcinogens.

As a result of extensive discussions following the public hearings, the rule has been modified in terms of the annual de minimus emission rates for carcinogens which trigger the need to apply for a permit. The modified de minimus rates are based on a risk index which is keyed to the unit risk factors developed by the U.S. EPA's Carcinogen Assessment Group (CAG)

The rule will continue to utilize the lists of carcinogens derived from the National Toxicology Program (NTP).

3. Issue: How costly will the proposed rule be to industrial sources?

Comment: A number of commenters have claimed that significant inventory, permit application and control costs will be imposed on industry sources

if the proposed rules are promulgated. Inventory costs refer to those necessary to inventory materials used or emissions created to discern which, if any, of the listed hazardous substances may be emitted by that source and whether such emissions or materials are sufficiently large to require permitting or controls. Industry comments suggest that some Wisconsin firms will be competitively disadvantaged by the rule.

Response:

The number of acute substances immediately regulated by the rule has dropped from 363 to approximately 100. This will lessen industrial costs in the aggregate.

More specifically:

(A) Inventory Costs -- Costs specifically incurred due to the proposed rule should be negligible because 95% of the contaminants on Table 1 also must be inventoried to comply with SARA.

(B) Permit Application Costs -- Existing sources, for the most part, must apply for mandatory operating permits (MOPs). Promulgation of the proposed rule would simply require adding information to the MOP application on toxic emissions covered by the rule. Given the need to inventory for toxics required by SARA, incremental costs due only to the proposed hazardous emissions rules should be very small.

(C) Control Costs -- Based on a survey of thirty sources representing many of Wisconsin's industrial categories, those sources that require additional toxic controls could generally comply with those requirements at minor cost. Required control was generally attained through such options as raw material substitution, minor stack height increases (eliminate downwash), or limits on potential hours of operation (though, in such cases, resulting hours of operation were greater than actual hours currently in operation). Therefore, the control strategies needed were generally not capital intensive.

Moreover, of 519 sources applying for new source permits or permit modifications between January 1983 and September 1987, only 31 required toxic limits, indicating few Wisconsin sources emit or use sufficiently large amounts of toxic substances to be covered by the proposed rule. Additionally, none of the 31 sources requiring toxic permit limits needed to use special toxics-related control equipment, because controls required for criteria pollutants were generally adequate to control the toxic substances sufficiently as well.

In the past, questions have been raised relating to toxics control costs for oil refining and incineration, because there is less information with which to characterize such costs. We have received no specific comments which indicate that costs for these categories would be burdensome.

4. Issue: Are administrative and enforcement costs requested by DNR reasonable and sufficient?

Comment: Some commenters have suggested more DNR staff will be required to administer and enforce the hazardous emissions rule than the Department's fiscal note states will be necessary. The concern here is that these costs will be higher than DNR staff claim and that DNR's requested additional staff will be insufficient to process toxic emission related permit applications in a timely manner, thereby slowing up business activity.

Response: The Department staff has analyzed this question carefully and is confident that the requested number will be sufficient. In addition, the overall fiscal estimate by the Department includes \$30,400 annually for modelling and computer costs. Moreover, the most recent fiscal estimate indicates that six additional positions are necessary to review and approve submittals of compliance plans -- a function that industrial representatives have asked the Department to perform. However, the rule is structured so that if these six positions are not forthcoming, sources are still responsible for compliance with emission limits within the time frames required by the rule for acute substances (Tables 1,2 and 4) compliance with limits for the emission of carcinogens will undoubtedly be delayed.

5. Issue: Will there be delays in DNR's processing of permit applications and modifications as a result of the increased workload caused by the toxic emission rules?

Comment: Certain commenters have raised concern about the DNR's ability to process hazardous emission control permits. The concern expressed is that the additional complexity resulting from the proposed rules may overtax the DNR's permit processing ability, in part (mentioned for the previous issue) because the Department is not requesting sufficient additional staff. Again the broader concern here is the presumed harm to the competitive position of affected Wisconsin companies.

Response: The small staff increases requested will adequately cover the additional workload. The Department will generally perform the modeling necessitated by permit activities related to hazardous emissions. Also, the rule has been modified to incorporate a formula designed to minimize the need for permits for those source modifications which involve material changes. This approach, jointly agreed to, was suggested by Thomas Stockdale of the S.C. Johnson Company. Given the small number of sources that can be expected to require toxic permit limits (see Issue #3) and the just mentioned efficiencies built into permit processing, staff see no reason to expect delays due to promulgation of the proposed rules. In addition, it should be noted that such toxic limits are already being established in new source permits at the present time with no discernable delays.

6. Issue: Is it appropriate to base chronic (carcinogenic) toxic emission regulations on the amount of the contaminant used rather than on the

emission level of that contaminant? As originally proposed the rule incorporated a simplified reporting procedure to determine whether a permit is required. That procedure was based on the amount of the chronic contaminant used by the source rather than on the source's emissions.

Comment: Several commenters disagreed with basing permit requirements on the amount of the chronic toxic substance used rather than on the emission level. This view is closely related to the view that chronic toxic permit requirements should be determined by substance-specific risk assessments, in that without knowing the emission levels, one can't know the risk to people and resources.

Response: The simplified procedure originally proposed in the rule was intended to keep costs and effort down for potential permittees. Tying permit application requirements to emissions may require stack tests, which would increase costs to the sources. Moreover, this procedure was suggested by industrial source representatives as the most generally advantageous approach to permitting.

However, in response to comments received and subsequent discussions, the rule has been modified to remove use as the basis of control requirements for carcinogenic substances. A source's emission level is now the "trigger" requiring permit application and attendant controls. A caveat here is that municipal waste and hospital incinerators must apply for toxic-related permits regardless of their emission level. This is because of the inconsistent nature of their waste and the high potential for hazardous emissions if not well controlled. Additionally, the amount of a carcinogen used does have one application in the current version of the proposed rule -- wherever the amount used is less than the de minimus emission level, the source is exempt from permit application or control requirements.

7. Issue: Should fugitive carcinogens be regulated by this rule? Fugitive carcinogens are either known or suspected carcinogenic emissions that are not released through a stack. These emissions are regulated by the proposed rule.

Comment: Certain commenters have suggested that workers are at risk at the specific location where such fugitive contaminants are emitted. They suggest that existing federal regulations (e.g., OSHA, decisions by the Consumer Protection Safety Commission) deal with those risks. Ambient contaminant problems, beyond the property lines of sources of fugitive carcinogens, can be expected to be too small to have any effect. Therefore, fugitive carcinogenic emissions should be exempt from regulation under the proposed rule.

Response: Many of the OSHA limits for carcinogenic compounds do not consider the carcinogenicity of the compound. In addition, the most common way to reduce impacts of fugitive emissions is to vent the emissions to the outside atmosphere. Therefore, the Department believes regulation of fugitive carcinogenic emissions is justified.

However, if the source can demonstrate that the emissions are not emitted from the building the source will be exempt.

8. Issue: Should the proposed rule regulate toxic emissions caused by accidents or emergencies?

Comment: Some commenters have questioned the proposed rule's lack of regulation of emergency or accidental toxic emissions suggesting this lack prevents consistent and complete hazardous emission regulation.

Response: Primary regulatory responsibility for emergency/accidental toxic releases lies with the Division of Emergency Government. Moreover, the intention of the proposed rule is to control or limit toxic emissions pro-actively. Lastly, existing regulatory schemes can be used to deal with emergency or accidental toxic emissions, if and when they occur. All sources over a certain size are also required to have an emergency action plan to deal with accidental releases.

9. Issue: Should the definition of an emission "source" refer to an entire facility or to each separate emission unit within a facility.

Comment: Some commenters have indicated that the definition of "source" in the proposed rule can be taken to mean either an entire facility or a separate emitting unit which is a subset of the facility (which one commenter called a "basic emission unit"). They argued that the appropriate definition of a source is a "basic emission unit" (i.e., free-standing process which results in emissions -- a facility could contain several such emission units, which could emit differing amounts and kinds of contaminants). The definition of a source as an entire facility could result in emissions from one process causing another process to be regulated.

Response: The definition of an emission source currently in the state statutes will be used in the proposed rule. In addition, for compliance with carcinogenic control requirements, the rule was modified to require control only for those emissions units emitting at least 10% of the facilities total emissions.

10. Issue: Clarification of one in one million risk level. Under the proposed rule, sources of known human carcinogens may apply for a variance, if they feel the required controls are economically infeasible. To be granted a variance, the source must show the control costs to be infeasible and must, through a risk assessment, make a compelling case that the individual lifetime risk level of those exposed to the carcinogenic emission is no more than one in one million excess cancer deaths.

Comment: Commenters have asked that this risk level be explained clearly.

Response: The one in a million risk level concept has been deleted from the proposed rule.

11. Issue: Who should supply the risk assessment methodology? The issue here is which state agency should be given the responsibility for determining how risk assessment will be carried out by those requesting a variance from LAER controls for known carcinogens.

Comment: Some commenters have suggested that the Wisconsin Department of Health and Social Services (DHSS) supply the risk assessment methodology to those requesting a variance because of DHSS statutory responsibility with respect to human health.

Response: Risk assessment is no longer a part of the rule.

12. Issue: What guidance will be provided on Best Available Control Technology (BACT) and Lowest Achievable Emission Rate (LAER)? Sources which use suspected or known human carcinogens must use BACT and LAER controls, respectively.

Comment: Some commenters have stated that they need more explicit guidance as to what the BACT and LAER control requirements will mean to them as sources. They have asked whether these controls will be based on site-specific criteria or on an industry-wide standard. They have indicated it is unclear what the economic and operational ramifications of such controls will be.

Response: Staff will supply sources with BACT/LAER guidance by the date this rule is promulgated. Some examples have already been provided to industry representatives.

13. Issue: Why are the rules' "deminimus levels" which trigger the need for a permit based on uncontrolled and potential emissions rather than on the sources actual controlled emissions at a source which may be controlled by an emission control system?

Comment: Some commenters have claimed that the determination of the need for a permit (i.e., how to determine the deminimus level) should be based upon actual source emissions and actual ability at the sources to control emissions. They argue that basing permit requirements on the potential emission level, assuming no controls on the toxic emission(s) in question, results in overstated estimates of toxic emissions.

Response: The Department will modify the rules to use controlled and allowable emission levels for compliance purposes. If an existing source has a currently controlled process, the controlled emission rate will be used to determine if the source needs further control. New sources, only have potential emissions because they are not yet in existence, if controls are to be applied then they must be reviewed as a part of a permit.

14. Issue: Have problems been demonstrated in Wisconsin due to toxic emissions?

Comment: Some commenters argue that the rule should cover only those contaminants for which Wisconsin-specific problems have been shown to exist. They argue that most of the 494 substances to be controlled have not been shown to cause specific human health or environmental problems in Wisconsin.

Response: The toxicity of the contaminants proposed for control has been shown by various studies. There is no reason to believe that the presence of such contaminants in Wisconsin air emissions will cause different impacts than elsewhere. Moreover, the proposed rule is intended to prevent problems from occurring, rather than an ad hoc measure to address already experienced problems. Lastly, it particularly makes no sense to wait for evidence of problems from carcinogenic contaminants, since it ordinarily takes so long for cancer to develop.

15. Issue: Should existing sources be exempt from the proposed rule?

Comment: Comment here is based on an argument similar to that immediately above -- that currently there is no evidence in Wisconsin of human health-related problems that have been caused by toxic emissions. The argument is that since, therefore, existing sources have not been shown to cause problems, there is no reason to regulate them.

Response: As implied above, various studies have shown the danger in allowing the existing levels of toxic emissions to continue. Both existing and new sources must be controlled to lower the risk of human health and environmental damage in Wisconsin. Also, the survey results mentioned in Issue #3 above (How costly will the proposed rule be to industrial sources?) show that only a small proportion of existing sources would require toxic permit limits and that those who do generally will be able to comply for only minor costs.

16. Issue: Should virgin fossil fuel combustion be exempt from the proposed rule? (By "virgin" is meant uncontaminated by toxic constituents which are added to the normal form of the fuel.)

Comment: Commenters have suggested that fossil fuels unadulterated by toxic constituents be exempt from scrutiny under the proposed rule. As S.C. Johnson's comments state, "Because very high volumes of fuel must be burned to exceed the de minimus limits, because such sources are almost always regulated under other air rules, and because the stacks for such sources are often tall (for criteria pollutant purposes); it would be unlikely that one would encounter fossil fuel combustion situations where the cancer risk will be significantly greater than one in one million." Similar arguments were made by other commenters regarding acute toxics in virgin fossil fuel.

Response: The rule has been changed in two regards here: (A) Virgin fossil fuel is now defined, (B) Emissions from combustion of certain virgin fossil fuels are exempt if they are vented from stacks which are of downwash minimization stack height and other very clean virgin fossil fuels are exempt regardless of stack height..

17. Issue: Should processes/facility operations using substances in "closed" systems be subject to the rule?

Comment: Some commenters have asked why processes or facility operations employing toxic contaminants in "closed" systems should be regulated by the rule. Their reasoning is that "closed" systems, by definition, would not emit toxics into the ambient environment.

Response: The rule has been modified to require that permit applications are "triggered" by emissions, as opposed to use. As long as emissions from any source are below the de minimus level requiring a permit application, that source will not be regulated.

18. Issue: Should the proposed rules include an emission limit for lead which is more stringent than that required to comply with the Prevention of Significant Deterioration levels?

Comment: One commenter referred to an "emission limit" for lead of .057 pounds per hour, which he felt the rule proposed. He complained that that emission rate was more stringent than that required to comply with the Prevention of Significant Deterioration (PSD) level, and that regulation beyond PSD regulation is unnecessary for lead.

Response: There is no emission limit required for lead by the proposed rule. Rather, the rate of .057 pounds per hour is simply an amount, which if exceeded, was meant to require the source to apply for a permit. However, the Department agrees to change that permit application "trigger" level to .13 pounds per hour which corresponds to the existing PSD requirement.

19. Issue: Should the listed contaminants covered by the rule be updated to reflect the National Toxicology Program's 1985 Summary?

Comment: Some commenters have suggested that the lists of contaminants in Tables 1-4 are out of date and that a more current total list would better reflect the 1985 summary published by the National Toxicology Program.

Response: The 1985 National Toxicology Program list of carcinogenic contaminants has been incorporated in the rule.

20. Issue: Should regulation of acute toxics occur before there is time to analyze the data which will be generated by the Superfund Amendments and Reauthorization Act (SARA)?

Comment: Certain comments suggested that rule promulgation wait until the yet-to-be-generated SARA database, was available to facilitate the study of the effects of acute toxics. These comments claimed that the presence of this inventory for all 50 states would result in a sounder basis for knowing which acute toxics should be regulated.

Response: Where the same substances are regulated under both SARA and the proposed state rule, sources must inventory for such contaminants by July 1988, so that the rule might at best speed up the need to inventory such substances very slightly. More generally, because the SARA requirement, per se, only results in a database, rather than in an analysis of effects of the inventoried contaminants, it does not help to determine which acute toxics need to be regulated. Thus, use of the SARA list is reactive whereas the proposed rule results in a prospective mechanism which seeks to prevent damage before it occurs.

21. Issue: Should the Department develop toxic-related permit application requirements, permit review procedures and application forms, which would then be submitted for public input before the proposed rule can take effect?

Comment: Some comment has suggested that specific toxic-related permit application requirements, review procedures, and application forms should be developed by the Department, which should then be submitted for public comment before the proposed rule takes effect. The thrust of this comment is that there may be sufficient difficulty and cost associated with these activities, which have not been adequately aired and it's unclear whether the rule's impact will be unreasonable.

Response: There is no great mystery surrounding permit related activities associated with the proposed rule. The rule will simply result in an continuation of the existing permit process which already deals with these activities on an ad hoc basis using our general authority. The process will remain the same.

22. Issue: Will LAER, BACT, and Threshold Limit Values (TLVs) remain fixed, or will they change with improving technology and knowledge, respectively?

Comment: A number of commenters expressed concern as to whether the above restrictions will change over time, requiring periodic upgrading of controls. These commenters wondered whether they might be put in a position of putting in one set of controls, which could shortly after operation become obsolete.

Response: LAER, BACT, and TLVs may well change with changing technology and knowledge. The rule has been modified such that any source which has achieved compliance with this section by installing emission control equipment, shall generally not be required to install additional control equipment to achieve compliance with this section for a period of up to ten (10) years after the installation of the control equipment or the useful life of the control equipment, whichever is less.

23. Issue: Accuracy of dispersion modeling for assessing compliance.

Comment: One commenter complained that the Department's use of dispersion modeling was an inaccurate way to assess compliance.

Response: The Department does not rely on dispersion modeling in determining compliance. It uses stack tests or other methods to determine compliance.

Comment: The University of Wisconsin - Madison requested that medical and research hoods be exempt from NR 445. The University commenter argued that only small amounts of chemicals are used, on an irregular basis, and that the chemical constituents change rapidly as different experiments are undertaken.

Response: The rules have been modified to exempt emissions from laboratories. Laboratories are defined in NR 400.02(51).

9. Issue: Should a separate estimate of the fiscal impact on state facilities be undertaken?

Comment: The University of Wisconsin - Madison commenter urged that a separate fiscal impact assessment be done for state agencies affected by the proposed rules. His reasoning was that costs imposed would be significant and result in little environmental benefit.

Response: There is so little data characterizing critical considerations, such as what state facility emission levels of the Table 1, 2, and 3 substances are, that a quantifiable separate fiscal impact analysis is not possible.

10. Issue: Should the acceptable ambient concentrations (AACs) of formaldehyde and phenol be .1 ppm and .5 ppm, respectively, rather than .01 and .05 ppm, as they are currently designated in the proposed rules?

Comment: One commenter claimed that the proposed AACs of .01 ppm and .05 ppm for formaldehyde and phenol are overly restrictive by one order of magnitude, given his understanding of the preponderance of available scientific evidence.

Response: The rules have modified the acceptable ambient concentration for phenol to 2.4% of the TLV. Formaldehyde has been listed as a suspected carcinogen.

11. Issue: Should the name of the compound epichlorohydrin on List 3 (suspected human carcinogens) be changed to alpha epichlorohydrin?

Comment: One commenter indicated that the appropriate compound name on this list was alpha epichlorohydrin, as opposed to epichlorohydrin as proposed by the rule.

Response: The commenter is correct. The name will be changed.

12. Issue: Should calcium oxide and calcium hydroxide be removed from the proposed rules (the compounds are currently listed in Table 1)?

Comment: One commenter claimed that both calcium oxide and calcium hydroxide should be removed from the list of acute toxics, and thus from the rules, because there was insufficient evidence of significant toxicity -- that the compounds were merely irritants posing no significant danger to human health.

Response: Based on discussion with the Wisconsin Industry Air Coalition Air Toxics Negotiating Committee the Department modified the rule to include controls for calcium oxide and calcium hydroxide only for new sources at this time. Health effects of these compounds are to be reviewed at a later date.

13. Issue: Should methylene chloride remain on Table 1 (as the rules propose) or be moved to Table 3 (as Citizens for a Better Environment proposes)?

Comment: One commenter requested the Department to disregard the suggestion that methylene chloride be reclassified from an acute toxic to a suspected carcinogen.

Response: To remain consistent with the 1985 National Toxicology Program classification, methylene chloride is not listed as a carcinogen.

14. Issue: Would a standby or peaking power plant -- which is used only infrequently -- be required to install LAER control equipment if it emits a Table 2 substance?

Comment: One commenter claimed it would be non cost-effective and of insignificant benefit to public health to require those peaking power plants which emit known human carcinogens to install LAER controls.

Response: As for all sources of known human carcinogens, any peaking power plant which emits a Table 2 substance at greater than the de minimus level designated in the rules must install LAER controls. Thus, the more frequently such a power plant is used, the greater is the likelihood its emissions will exceed the level requiring LAER controls. However, since virgin fossil fuels are exempted from the control requirements under most situations it is unlikely that a peaking power plant would have to impose controls.

15. Issue: Should lead chromate be regulated as a carcinogen?

Comment: A commenter from the John Deere Company questioned whether there was adequate evidence supporting regulation of lead chromate as a carcinogen.

Response: Both the IARC and NTP have examined lead chromate with the result that both classify the substance as carcinogenic. Given the fact that these two organizations are the best independent authorities for such data, there is little doubt that lead chromate should be regulated as a carcinogen. The variance procedure incorporated within the rules would, of course, be available to John Deere if needed.