Will Deregulating Michigan's Toxic Air Emissions Put Residents at Risk?

Backgrounder on the Proposed Administrative Rule Change

ACKNOWLEDGEMENTS

About the Michigan Environmental Council

Since 1980, the Michigan Environmental Council has been at the forefront of efforts to protect our Great Lakes, promote sustainable cities, safeguard public health and establish clean energy policies for a more vibrant economy. Representing over 65 member organizations throughout the state, MEC provides agenda-setting leadership at the State Capitol and with our Congressional delegation in Washington.

For More Information

James Clift, Policy Director
Michigan Environmental Council
602 W. Ionia Street
Lansing, MI 48933
517-487-9539
www.environmentalcouncil.org

October 2014

TABLE OF CONTENTS

Recommendation to Deregulate Emissions of Over 500 Toxic Chemicals

Nine states including Michigan do not use a discrete list of toxic chemicals and therefore their programs regulate all toxic chemicals proposed to be emitted. Those states include Minnesota, Delaware, Georgia, Maryland, New Jersey, Oklahoma and Texas.

In Michigan, the regulated list currently includes about 1200 chemicals. When evaluating the potential impact that a chemical may have on the adjoining community, the state considers:

1. The toxicity of the chemical,
2. The quantity being emitted, and
3. How close the industrial facility or specific stack is to nearby homes.

However, the administration is currently assessing a proposal that would reduce the number of toxic chemicals regulated by more than 500 (the list of chemicals is included with the Air Toxics Workgroup report - Appendix B). Those chemicals fall into two categories:

1. **Eliminating regulation of toxic chemicals that have not been tested for their impact on public health.** Michigan's current regulation assumes any chemical that has not been tested for health impacts is very toxic and a default value is used for evaluating its impact on the local community. The permit application has the choice of using the default value or conducting basic health testing on the chemical to establish a specific value.

2. **Eliminating regulation of the less toxic non-carcinogen chemicals (regardless of the quantity being emitted).** The proposal arbitrarily draws the line based on toxicity and proposes deregulating the 25% least toxic chemicals currently regulated. Importantly, the chemicals would not be regulated regardless of the quantity being emitted.

Concerns with the Proposed Changes

1. The changes fail to protect the public health of Michigan families

Under the proposal, industrial facilities will be allowed to emit chemicals that have not been tested for their impact on human health or natural resources. This makes Michigan families the equivalent of guinea pigs. It is our position that the company using the chemical (and reaping the financial benefits of its use) should bear the burden of demonstrating it is safe before emitting it into the air we breathe. Instead this proposal transfers to those living next to the factory the risk that the chemical can cause cancer or have other negative consequences.

Under current regulations, state regulators can credibly tell residents they have looked at the public health aspects of a new factory or proposed expansion and are basing their issuance of a permit on the demonstration that it will be safe for the community. If this proposal is adopted, regulators would have no basis to claim they have thoroughly examined its impact on public health. This has the potential to result in greater conflict between industrial facilities and

adjoining residents, and greater community resistance to new factories proposed in their communities.

2. The changes are not supported by sound science

There is no science behind the proposed change. The proposal to deregulate chemicals for which no safety data exists goes against our knowledge of toxic chemicals. The current program at least creates a presumption that an untested chemical is fairly toxic. If modeling shows that emitting a chemical is safe due to the quantity emitted, the state can issue a permit satisfied it has performed its duty to protect the health and safety of its residents.

The second category of chemicals being deregulated are those that have been found not to cause cancer and are less toxic than other chemicals, but which can still have impacts on public health. However, as explained above, the potential impact on human health is driven by both the toxicity of the chemical and the quantity of the chemical being emitted. The second category ignores this question of quantity and deregulates a chemical based solely on its toxicity. This change is also contrary to the science behind protecting people from the impacts of toxic chemicals.

3. Changes will have disproportionate impact on low-income areas and communities of color

Numerous studies have shown that residential neighborhoods next to industrial areas tend to have below-average income and have a greater likelihood to be communities of color[1]. By deregulating more than 500 chemicals the proposal will have the greatest impact in those communities with the highest concentration of industrial facilities and toxic air emissions. Residents in these areas of the state already are at greater risk because our program does not take into account the impacts of multiple pollutants from multiple sources when setting acceptable emissions limits. Further deregulating individual toxic chemicals will place these communities at even greater risk.

---

[1] Race, Income, and Environmental Inequality in the United States, Liam Downey and Brian Hawkins, Sociol Perspect. Dec 1, 2008; 51(4): 759–781, doi: 10.1525/sop.2008.51.4.759

Racial and Socioeconomic Disparities in Residential Proximity to Polluting Industrial Facilities: Evidence From the Americans' Changing Lives Study, Paul Mohai, PhD, Paula M. Lantz, PhD, Jeffrey Morenoff, PhD, James S. House, PhD, and Richard P. Mero, MS, Am J Public Health. 2009 November; 99(Suppl 3): S649–S656., doi: 10.2105/AJPH.2007.131383

4. Department failed to consider the health and safety benefits of the current rule

The Executive Order that prompted the review of the Air Toxics rule enumerated seven factors that were supposed to be considered when reviewing an existing administrative rule. The first factor to be evaluated was the "health or safety benefits of the rules." In this case the department conducted no assessment of the potential health and safety risks that could be presented by deregulating over 500 toxic chemicals in Michigan. This failure to evaluate the potential impacts will place Michigan residents at risk.

Where Did These Recommendations Come From?

The Environmental Advisory Rules Committee (ARC) was created by the Office of Regulatory Reinvention (ORR) in accordance with Executive Order 2011-5. The mission of the ORR is to ensure that Michigan's regulatory environment is simple, fair, efficient, and conducive to business growth and job creation. The purpose of the Environmental ARC was to produce recommendations to the ORR for changes to Michigan's existing environmental regulations.

Evaluations and recommendations were based on the application of the seven factors described in Executive Order 2011-5. Those seven factors are as follows:

1. Health or safety benefits of the rules;
2. Whether the rules are mandated by any applicable constitutional or statutory provision;
3. The cost of compliance with the rules, taking into account their complexity, reporting requirements and other factors;
4. The extent to which the rules conflict with or duplicate similar rules or regulations adopted by the state or federal government;
5. Extent to which the regulations exceed national or regional compliance requirements or other standards;
6. Date of last evaluation of the rules and the degree, if any, to which technology, economic conditions or other factors have changed regulatory activity covered by the rules since the last evaluation; and
7. Other changes or developments since implementation that demonstrate there is no continued need for the rules.

In December of 2011 the ARC issued its final recommendations to the administration. The recommendations within each category were listed in order of priority, based on the importance of the recommendation to the state's future.

Under the air program, the first recommendation addressed was the issue of the regulation of air toxics emitted from industrial facilities (Appendix A).

The ORR review of environmental rules led to the formation of a number of workgroups. One of those workgroups, the Air Toxics Workgroup (ATW) of the Air Quality Division, reviewed

Michigan's Air Toxic Program and made a number of specific recommendations. The report of the workgroup is attached as Appendix B.

A summary of the history of Michigan's Air Toxic Program is included in workgroup report. In general the program has been operating since the early 1980s and has been reviewed by been the subject of three separate stakeholder groups, the last one in the late 1990s which resulted in our current program.

In Michigan for several decades, a source emitting any toxic air contaminant, not specifically exempted, had both the duty to identify and characterize such an emission in a quantitative manner, and then perform a community health risk assessment by evaluating the ambient consequences of those emissions against a system of screening values. By reducing the number of chemicals covered by the rules this change significantly weakens the community health risk assessment performed by the applicant.

Air Quality Recommendations

No. A–1
Subject: Air Toxics Rules
Regulation: R 336.1224 – R 336.1232
Remedy: ☐ Process ☒ Rules ☐ Statute

Background/Issue: In 1992, Michigan approved state-only air toxics regulations and, for the most part, they remain in effect today. The rule development and approval process required several years of prior discussions with industrial and environmental groups, well before passage of the federal 1990 Clean Air Act (CAA) amendments. Prior to passage of the CAA amendments, the federal regulations concerning potential air toxics were limited to approximately 5 compounds.

Title III of the 1990 Clean Air Act Amendments established a national regulatory program to minimize the emissions of the most significant air toxics. Since passage of the 1990 CAA, the federal government has developed numerous Maximum Achievable Control Technology (MACT) determinations for a wide variety of processes that typically emit hazardous air pollutants (HAPS). Any MACT-subject source is required to comply with (1) the federal emission limitations, (2) specified emissions control technologies, and (3) specific monitoring, testing, and reporting requirements. Therefore, Michigan's outdated air toxics regulations are in need of significant reform.

In developing each MACT standard, USEPA focused on the most significant HAPS emitted from a specific process type, then developed emission control strategies that are as stringent as the control systems required to meet the intent of Michigan Rule 224. Not *all potential air pollutants* were evaluated by USEPA during development of the MACT standards, nor should they have been. The USEPA regulations focus on specific organic and non-organic HAPS, while the Michigan program focuses on each individual pollutant. The emission control systems required by MACT are as stringent as those required by Rule 224, although MACT uses emission surrogates such as CO and PM to certify reductions in potential HAPS, whereas Michigan's air toxics regulations review *each potential pollutant* individually. The end results for determining the adequacy of a proposed emissions control system is essentially the same.

Recommendations: The Committee makes the following recommendations regarding Air Toxic rules:

- The parts of R 336.1224 dealing with compounds that are considered volatile organic compounds (VOCs) should be rescinded. Portions of R 336.1224 are redundant because R 336.1702 requires a control technology review for VOCs. VOC-based emission control is more effective under R 336.1702 and this entire regulation exceeds federal standards.

- Rule 336.1225 should be amended to specifically include the following:
  - Limit permit modification reviews to those increases in a Hazard Index exceeding 10% above the previously permitted baseline.
  - Exempt sources that are identified in a MACT source category.

- Exempt clean fuels such as natural gas, low sulfur #2 Fuel Oil, and non-chemically treated biofuels.
- Exempt pollution control projects for existing sources from the air toxic regulations.
- Limit the number of air toxics to the federal HAPS list.
- Make the acceptable exposure limits consistent with other nearby states.
- Stop requiring permit holders to conduct elaborate and costly stack tests to provide emissions research data, since the DEQ does not use this information for subsequent permit reviews.

- R 336.1228 should be rescinded. This rule allows the Air Quality Division to go beyond the requirements of the rule for any reason.

Rationale/Comments: These proposed revisions to Michigan's air toxics regulations would serve to level the playing field with other states vying for additional industrial growth, and would not result in a back-sliding of the environmental programs (see supplemental document Issue A-1, Attachment 1). The current system of reviewing the impacts of every feasible, potential air toxic results in nothing more than a "numbers game" that only serves to heighten public anxiety , delay permit issuance and waste several hundreds of thousands of dollars for stack testing that could be put to better use for industrial expansions, process improvements and other more beneficial programs. Please review supplemental document Issue A-1, Attachments 2 and 2a related to the Public Participation Document for Frontier Renewable Resources PTI 166-09. You can see that only 6 of the 37 identified air toxics (based on the firing of natural gas) have a predicted air quality impact at least 50% of their individual ambient limitations. Furthermore, the Permit to Install document for the Mancelona Renewable Resources project contained in Issue A-1, Attachment 3 requires the company to spend tens of thousands of additional dollars to perform stack testing for 28 potential air toxics (the majority of which are predicted to be emitted in trace levels) generated from the burning of non-chemically treated biomass (wood).

This has also been a consistent issue for Michigan's Asphalt Plant industry for the past 20+ years (see supplemental document Issue A-1, Attachment 4). The AQD has required stack testing for compounds that have proven to have ambient impacts well below any state or federal standard. Had the AQD invested the time to compile the results of these historical stack tests, which have been consistently submitted to AQD for the past 20+ years, it would be readily apparent that the vast majority of these air toxics of concern would no longer be an issue. This would result in a more expedited air permitting process, reduce stack testing requirements for new Asphalt Plants and save companies several thousands of dollars in unnecessary stack testing.

Supplemental document Issue A-1, Attachment 5, provides a summary of issues related to a 2+ year delay in issuance of an air permit for use of Biodiesel in a large utility boiler when the same fuel is widely used in this company's fleet vehicles.

Supporting document Issue A-1, Attachments 6 and 6a relate to air toxics issues for raw material and fuel substitutions that can be expanded to several other types of manufacturing and combustion processes. As noted in our final recommendations, we believe a Hazard Indexing

methodology be established by rule to allow for raw material / fuel substitutions that do not have a detrimental ambient impact. This is consistent with our recommendation in A-1, Rule 336.1225.

James Clift Comments: The environmental community believes that a company or person who wants to emit a toxic chemical into the environment should have the duty to demonstrate that emission of that toxic chemical will not adversely impact natural resources or public health. By requiring testing before chemical are released, we are providing companies with the incentive to develop safer alternatives through green chemistry.

If the federal government has developed a MACT, BACT or LEAR standard for a chemical, we support that standard being applied as the Michigan standard. However, if such a standard has not been developed, we believe the source should be subject to T-BACT. Exempting all chemicals not on the list federal list of hazardous air pollutants could provide an unwise incentive for companies to use chemicals for which there has been less testing and analysis versus the use of less toxic alternatives.

We support Rule 228 which is designed to protect Michigan citizens from persistent bioaccumative toxic chemicals.

Air Toxics Workgroup
"TAC List" Discussion Paper — DRAFT
August 20, 2013 UPDATE

ORR (2011) Report Recommendation A-1(6):

R 336.1225 should be amended and specifically include the following:
Limit the number of air toxics to the federal HAPs list.

ATW Initial Discussion

Discussion of the "TAC list" issue at the 3/5/13 ATW meeting indicated that the "status quo" is characterized by some ATW members as burdensome and more extensive than other Region 5 state's programs. However, there are also reservations about the sufficiency of the HAPs list. And if the DEQ were to adopt a defined list of TACs for R225 applicability, then staff asked about a mechanism to ensure public health protection if health concerns are posed by the proposed emission of an unlisted compound. ATW members voted, using the "gradient of agreement" tool, on three options: 1. HAPs only; 2. HAPs plus, including a caveat to add other compounds; and, 3. maintaining the status quo. Although there were varied levels of acceptability for each option, the voting was relatively polarized for options 1 and 3, and option 2 was relatively closer to consensus. While the discussion and the voting at that point should not be mistaken for a final recommendation or decision, the feedback was sufficient to prompt DEQ to explore further the potential ways that a regulatory system based on a defined TAC list could be developed.

Goal Statement and Guiding Concepts

The following **goal statement** was proposed, for purposes of consideration and discussion, and was accepted by the ATW:

The TAC list includes the federal HAPs list and other air toxics that may be reasonably anticipated to occur in NSR permitted air emissions, and which warrant the evaluation of ambient air impacts in PTI applications in order to help ensure public health and environmental protection while promoting regulatory certainty and efficiency.

The following set of **"guiding concepts"** for developing an "option 2" approach was provided for discussion purposes:

1. The TAC list should include the HAPs list, and should additionally include the air toxics that may be reasonably anticipated to occur in emissions from facilities requiring a Permit to Install (PTI), minus those substances that have relatively low toxicity. The regulated community would prefer an approach that is focused on the more relevant substances, that is less burdensome and provides greater certainty.

2. The DEQ would have the authority to add to the list or remove substances from the list through the rulemaking process.

3. Rule 203(1)(c) should continue to require PTI applicants to describe the "quantity of **all air contaminants** that are reasonably anticipated due to the operation of the proposed process equipment." However, for unlisted air toxics (i.e., non-TACs), the current language in Rule 203(1)(h) would not be interpreted to be applicable; i.e., the applicant would not be required to provide in the PTI application, "Data demonstrating that the emissions from the process will not have an unacceptable air quality impact in relation to all federal, state, and local air quality standards." So, for non-TACs, the permit applicant would need to identify the emission rates but would not be required to model the ambient air impacts or compare the impacts to screening levels or other health protective benchmarks.
4. The DEQ rules should provide the DEQ authority to evaluate the ambient air impacts and potential health concerns of non-TACs in a PTI application, and to impose restrictions on their emissions as necessary to ensure public health protection. Section 324.5512 of NREPA authorizes the department to promulgate rules for controlling or prohibiting air pollution, and to deny or revoke a permit to operate a source, process, or process equipment that **would adversely affect human health** or other conditions important to the life of the community. [The Natural Resources and Environmental Protection Act (NREPA) Act 451 of the Public Acts of 1994, Part 55 Air Pollution Control].
5. For non-TACs, a modeled maximum ambient air impact exceeding a health-protective benchmark, such as a screening level (SL) as currently derived by the DEQ, may or may not in itself provide sufficient weight of evidence to support DEQ action to ensure public health protection under #4 above. The DEQ may additionally consider relevant scientific and case-by-case information (as done currently under Rule 226(d) and Rule 228).

Potential Approaches to List Development

In 2010, AQD conducted a survey of State's air toxics programs to gather basic information on the scope of their programs, including the list of air toxics regulated. The survey found that 29 of the 50 states regulate air toxics in permit reviews, based on ambient air impact estimates and public health protective benchmarks. Of the 21 states that do not routinely perform air toxics risk assessment in NSR, many (if not all) have a "backstop" or "safety net" provision for case-specific risk assessment. Of the six states in EPA Region 5, four states routinely evaluate air toxics ambient air impacts for public health acceptability. Illinois generally does not (but could in exceptional cases). Indiana performs such evaluations only in a limited number of cases, not "routinely." Complete information was not collected on what list of air toxics are included for all states, but the gathered information did indicate that program scope varied widely. The state's approach for establishing the regulated air toxics may be generally grouped into five categories, as listed in **Table 1** below.

Table 1. State's approaches to the development of lists of regulated air toxics.

Air toxics included in NSR health risk assessment	Example states	# states
HAPs only	CT; HA; VA	3
HAPs plus additional air toxics of concern	KY (HAPs+112r list); LA; NM (HAPs+OELs); NY (HAPs+112r list); NC; ND; RI; VT; WV (HAPs+OELs)	10
All air toxics with OELs	AL	1
State-specific list	OH; WI; CA; ID; MA; NH; SC	7
No discrete list; virtually any may be included	MI; MN; DE; GA; MD; NJ; OK; TX	9

Conceptually, there are several potential approaches to constructing a R225 TAC list, including the following:

1. Adopt a list developed by another state / states.
2. Develop a "list of lists."
3. List those chemicals meeting listing criteria based on health hazards, potency, persistence and bioaccumulation.
4. Develop a list based on the HAPs and the current list of TACs with SLs, with exclusion criteria.

The tendency for air toxics to pose a public health concern is generally a function of the potency, the exposure potential (which depends on the quantity and duration of the emission, the dispersion, and background exposures), and the presence and susceptibility of the public to the exposure. A list of regulated air toxics that is *unlimited* may be a relatively more reliable approach to address all potential concerns; any approach to developing a defined list of regulated air toxics may potentially be less reliable. For example, a substance with relatively low toxicity may be unlisted, however, a combination of high emissions, poor dispersion, and the presence of an exposed public, can pose public health concerns even if the toxicity or potency is relatively low. A "backstop" plan for detecting and addressing such cases is important, and is discussed elsewhere in this paper. Having noted this general limitation of any defined list, the following is a brief description of the apparent strengths and weaknesses/limitations of the four general approaches listed above, for discussion purposes.

1. Adopt a list developed by another state / states.

The positives of this option include convenience, and consistency (with the chosen State(s), but not with others). The concern is that the available lists in Region 5 may not be regarded by the DEQ, ATW, and/or the public, as fully appropriate for Michigan. The Ohio EPA list (303 compounds or classes) is based on the HAPs list plus substances passing several inclusion and exclusion criteria. Their rationale for applying exclusion criteria contains a considerable number of professional judgments. Some of these criteria may be regarded by some as having a questionable basis; environmental groups have strongly objected and have brought a lawsuit against Ohio EPA over the list and the criteria used to develop the list. The Minnesota MPCA has an unlimited list of regulated air toxics. The Wisconsin DNR's list was derived in 2004 based on certain inclusion and exclusion criteria,

and consists of 535 substances (26 HAPs are not included). Of course, lists from states outside of EPA R5 may also be considered. There is no consistency in the state's lists or in the approaches used to derive the lists. It would be arguable to debate whose list is more appropriate for Michigan.

2. Develop a "list of lists."
This approach was recommended by the Michigan Air Toxics Policy Committee (1989) as a way to focus the required environmental acceptability assessments (with case-by-case assessment of other air toxics of concern at a specific site). They recommended a list of approximately 1200 substances, consisting of the substances with ACGIH or NIOSH OELs, the Michigan Critical Materials Register, the NTP and IARC lists of carcinogens, and the chemicals listed in the IJC's Great Lakes Water Quality Board 1987 Report on Great Lakes Water Quality. As noted in Table 1 above, some states have used the EPA's 112(r) chemical list for emergency preparedness (which consists of 77 acutely toxic chemicals, and 63 flammable gases and volatile flammable liquids). Another relevant list available today is the EPA's Toxics Release Inventory (TRI) list.

The strengths of this approach are the relative ease of compiling a list of lists, and, the contributing lists would presumably have some environmental relevance. The limitations of this approach are that many listed substances may be irrelevant to PTI air emissions in Michigan, and, many of the substances on lists such as the TRI may have inadequate data for SL development. Also, this approach can result in a very long list, which may be undesirable to the regulated community (guiding concept #1 above).

3. List those chemicals meeting listing criteria based on health hazards, potency, persistence and bioaccumulation.
The strength of this approach is that the scientific defensibility may be relatively strong. The limitations of this approach are that it is a relatively labor intensive and time consuming initiative, the appropriate criteria may be difficult to establish, and the resulting list may not be the most relevant to the PTI program. Also, this approach (a version of which was implemented by Ohio EPA) may rely on multiple judgments for inclusion or exclusion that may be contested. A key element would be to establish well-reasoned, non-arbitrary inclusion and exclusion criteria, preferably derived by a consensus approach among multiple stakeholders.

4. Develop a TAC list based on the HAPs and the current MDEQ list of TACs with SLs, with exclusion criteria.
The strengths of this approach are relative efficiency of list development, the focus on air toxics that are relevant to PTI applications in Michigan, and the inclusion of those substances that have already been found to have sufficient toxicity data for SL development. As with #3 above, a key element would be to derive well-reasoned, non-arbitrary criteria, but in this case, those would be more limited since they would only be exclusion criteria (i.e., criteria for not including certain substances that currently have SLs). The limitation of this approach is that the selection of the exclusion criteria may be debatable.

Further rationale for approach #4: The initial universe of substances for assessment is the current SL list of **1202 substances** (as of May, 2013). This list represents MDEQ's 21+ years of experience in evaluating air toxics in the New Source Review permitting program, under an open-ended TAC definition (excluding only a short list of exempted substances; currently 41). Over the last 21 years (since 1992), screening levels have been derived for TACs (under the open-ended definition) if they appeared in proposed emission characterizations for all categories of facilities (thermal, chemical, or general manufacturing). Data-poor chemicals were addressed relatively inclusively in the MDEQ program, i.e., SL derivation methods include the use of minimal data such as subchronic animal studies, LD50s, and LC50s. This list also includes 289 substances with inadequate toxicity data for SL derivation, which were assigned the default ITSL of 0.1 $\mu g/m^3$ (annual AT). Rather than propose the inclusion of all 1200+ substances on the future TAC list, some exclusion criteria may be reasonable in the interest of developing a shorter list that is more focused on the more relevant substances and is less burdensome on the regulated community (guiding concept #1).

Proposal for the TAC List

It was proposed that the MDEQ follow approach #4 above, to develop a defined TAC list including the following:

1. Most EPA HAPs should be included, including all individual chemicals that EPA includes as members of HAP listed groups (e.g., metal compounds). For clarity, the individual chemical members of the HAP groups of polycyclic organic matter (POM) and glycol ethers should be listed individually and only if they meet the other qualifying criteria (based on the ITSL or carcinogenicity). The HAPs list includes many air toxics with well documented toxicity and with the potential for public exposure, based on air emissions data and/or ambient air monitoring data. The HAPs list is the focus of EPA's air toxics data collection and regulatory actions under the Clean Air Act. Ohio EPA adopted all HAPs into their Toxic Air Pollutant list. However, it may be noted that some of the HAPs have relatively limited toxicity datasets, and some of the HAPs have not been identified and addressed in Permit to Install applications. For some HAPs, it may not be reasonable to anticipate that they would appear in future PTI applications. Reasons to include all HAPs in a TAC list are: for simplicity; for consistency with EPA; and, for better clarity in communicating the basis for the list with the regulated community and other groups. Reasons to not include some HAPs in the TAC list are: to better focus on the air toxics most relevant to PTI applications; and, many HAPs do not have SLs and therefore may never have been identified in a PTI application. In some cases, DEQ has evaluated air toxics in PTI applications and not established a SL, but rather notified permits staff that the predicted ambient air impact is acceptable, in cases where the impact was very low and the toxicologist did not feel it was appropriate to establish a data-derived or default SL. Therefore, for the **Table 2** list of HAPs without SLs, the Toxics Unit files were reviewed to determine if the substance had been evaluated for a PTI application (**Table 2** has a column for "File Review Comments"). It is tentatively proposed that the potential TAC list exclude HAPs that do not have a SL and have not been encountered in a PTI application.

2. All carcinogens would be included (i.e., all compounds with a current IRSL, or, meeting the current rules' definition of a carcinogen (e.g., asphalt fumes)). See also the discussion of the carcinogenic PAHs in **Table 5**.

3. All substances with ITSLs at or below a cutoff value would be included; substances with only ITSLs that are above the cutoff values would be excluded (see discussion below).

4. It may be considered to exclude all substances with an ITSL of 0.1 $\mu g/m^3$ (annual averaging time) based on the default value and a lack of chemical-specific data sufficient for SL development. That would include 287 chemicals currently on the SL list. This approach is consistent with Guiding Concepts #1 described earlier. This approach would also be consistent with the other EPA R5 State air toxics programs. It may be noted that Texas TCEQ utilizes a default effect screening level (ESL) of 2 $\mu g/m^3$ (1 hour averaging time) when data are lacking for ESL derivation. That default ESL is similar to the AQD default ITSL, using the EPA's Screen3 averaging time (AT) conversion factor of 0.08 for converting from 1 hour AT to annual AT (2 $\mu g/m^3$ (1 hr AT) X 0.08 = 0.16 $\mu g/m^3$ (annual AT)).

5. Consistent with the Guiding Concepts described earlier, substances not on the TAC list would be identified in PTI applications, including information on the quantity of emissions (R203(1)(c)), but the applicant would not be required to include further information demonstrating the acceptability of the air quality impacts. MDEQ may still address those substances, with justification, by way of emission limits to protect the public health and/or adding substances to the TAC list via rulemaking.

ITSL Cutoff Values

Criterion #3 above mentions ITSL cutoff values. While initially proposed cutoff values for consideration may be largely arbitrary (e.g., proposing a $\mu g/m^3$ value or a percentile of an ITSL distribution), the final selection of an appropriate and reasonable cutoff is not arbitrarily selected. Careful consideration by staff and the ATW Members of the reasonableness of the approach, the magnitude of the resulting ITSL cutoff values, the resulting chemicals that meet or fail to meet the cutoff values, and the overall adequacy of the TAC list to meet the goal and the guiding concepts, followed by an ATW recommendation, make the approach more reasoned and deliberate.

The selection of a cutoff may take into consideration available and appropriate criteria utilized in other air quality protection activities. For example, for substances that may be anticipated to exist as particulates in air emissions and in ambient air, consider the primary NAAQS for particulate matter (150 $\mu g/m^3$ (24 hour) for PM_{10}, and 12 $\mu g/m^3$ (annual) and 35 $\mu g/m^3$ (24 hour) for $PM_{2.5}$); also consider that the ACGIH (2012 handbook; Appendix B) recommends TLVs of 3 mg/m^3 (respirable particles) and 10 mg/m^3 (inhalable particles) for Particles Not Otherwise Specified (PNOS).

The Wisconsin air toxics regulatory list is based on several qualifying criteria, including exclusion criteria of having an OEL (TLV) of greater than or equal to 100 ppm or 10 mg/m^3.

A TLV of 10 mg/m^3 would be associated with an AQD ITSL of 100 µg/m^3 (8 hr AT) (utilizing an uncertainty factor of 100, as per the air toxics rules).

It may be considered that the EPA has de-listed some HAPs based upon a finding that there are adequate data on the health and environmental effects of these substances to determine that emissions may not reasonably be anticipated to cause adverse human health or environmental effects (**Table 3)**.

The establishment of a cutoff may also consider the range of ITSL values thus far derived by DEQ. An assessment of the current SL values, and the selection of a reasonable percentile of the distribution of the current ITSLs, may help distinguish the relatively more toxic substances (in the majority of the distribution) from the relatively lower toxicity substances (in the minority of the distribution). Setting that cutoff may be guided by consideration of the range of current ITSL values. Rather than setting an *a priori* percentile of the distribution as the cutoff point, it was considered informative to describe the distribution (e.g., the 50th, 75th, 90th, 95th and 99th percentiles). The distributions were determined after excluding from the dataset those substances with an ITSL of 0.1 µg/m^3 (annual AT) based on the default value. These percentiles were first determined for all current ITSLs, without distinction as to HAP or non-HAP status, and without regard to the various averaging times (ATs) associated with the screening levels. For substances with two ITSLs (acute and chronic), only the chronic (lower) ITSL was included in the assessment. The ITSL distributions were also determined for the following subsets: HAPs only; non-HAPs only; annual AT only; 24 AT only; 8 hr AT only; and, 1 hr AT only. The resulting summary statistics for the ITSL group datasets, as of May 2013, that were initially considered by the ATW are presented in **Table 4a**. It should be noted that an August update of the 75th percentile values is presented in **Table 4b**.

For discussion purposes, staff initially pursued the potential content of a TAC list that includes the current ITSLs except for those exceeding the 75th percentile cutoff point for each specific averaging time, in addition to the other listing criteria previously mentioned (in bold in **Table 4a**). This approach and proposed cutoff points were regarded by staff as reasonably inclusive, while providing a significant reduction in the current SL list (guiding concept #1). Following ATW consideration and discussion at several meetings through the 8th meeting on August 1st, 2013, the utilization of the 75th percentile of the distribution for each ITSL averaging time appeared to gain acceptance by many Members, pending a final Workgroup recommendation. It should be noted that the updated ITSL cutoff values appear in **Table 4b and Table 7** and in the document on the ATW website, “Proposed TAC List, August Update”.

Authority to Address Unlisted Air Toxics in PTI Applications

If the current TAC definition were to be changed to some defined list, then a key issue would be the DEQ’s authority to address air toxics concerns that may arise for unlisted air toxics that are proposed for emission in a PTI application. A review of the authority of other state’s air agencies, and of other MDEQ divisions, to address unlisted substances, is summarized in **Table 6**. It was proposed for discussion purposes that AQD adopt rule

language similar to that of MDEQ-WRD in **Table 6**. Following Workgroup discussion of issue A-1(9) regarding Rule 228, the Workgroup drafted a recommendation to retain Rule 228 with the addition of clarifying language, and a Member proposed that non-TACs could also be addressed by the AQD as appropriate under this authority.

ITSLs With 1 Hour Averaging Times

Upon review of the proposed TAC list and ITSL cutoffs (**Table 4a**), it was noted that the 75th %ile cutoff value for the 1 hr AT ITSLs (300 µg/m^3) was not as high as for the 8 hr or 24 hr ITSLs. Staff responded that this group presumably has a relatively lower ITSL distribution because it includes a relatively more acutely toxic subset of the substances that have TLV occupational exposure levels. A Member asked staff to evaluate the chemicals with 1 hr AT ITSLs that do not meet the criteria for TAC listing; if they raise concerns, then it may be an option to include them in the TAC list. Staff evaluated this list of 33 chemicals; eight have 1 hr AT ITSLs above the 75th %ile value of 300 µg/m^3. Of these eight, one (methylene chloride) is a carcinogen and therefore will be on the TAC list. Another (hydrogen chloride) will be on the TAC list because it also has an annual AT ITSL (20 µg/m^3) that is below the 75th %ile cutoff for the annual AT. Staff do not feel that the remaining six raise particular concerns for being unlisted, therefore, it is proposed to not make an exception to the 75th percentile cutoff for these chemicals:

Chemical	**CAS #**	**1 hr AT ITSL (µg/m^3)**	**Other ITSL**
Ethylene glycol	107-21-1	1000	
Hexylene glycol	107-41-5	1210	
Methanol	67-56-1	3250	
Isoamyl acetate	123-92-2	5300	2700 µg/m^3 (8 hr AT); this is above the 75th %ile.
Trichlorofluoromethane	75-69-4	56200	
Hfc-227ea	431-89-0	5560000	130000 (annual AT); this is above the 75th %ile cutoff.

Listing of Chemical Groups

The Workgroup discussed how the EPA HAPs list contains chemical groups for metals, and also for glycol ethers, cyanide compounds, POM (polycyclic organic matter), etc. The listing of chemical groups gives the impression of a smaller list size. There are 187 HAPs including the chemical groups, but the actual size of the list of specific HAP chemicals is much larger. The inclusion of chemical groups in a regulatory list can enable a regulatory agency to add chemicals to the list (as new members of a listed group) very efficiently, but

this diminishes the goal of a list to be clear and as specific as possible. The Workgroup favored the clarity of specific chemical listings rather than the use of some of the groups as in EPA's HAPs list, although it is recognized that this contributes to a longer list than if groups were listed. Therefore, the proposed list includes *specific* PAHs and glycol ether compounds, etc., if they meet the criteria for listing. Regarding metal compounds, staff feels that in some cases these compounds should be listed separately, because toxicity (and the magnitude of the health protective screening level) is dependent on the specific metal compound. However, in other cases, different compounds of the same metal have toxicity that is primarily determined by the metal alone. In these cases, it seems inappropriate to list the metal forms individually, and then apply a footnote directing that their emissions and impacts should be evaluated additively (with adjustment of the MW to the atomic weight of the metal) for comparison to the screening level. Therefore, staff anticipates that some metals may be appropriately listed as a TAC group. The current SL list, and draft proposed TAC list, include some specific metal compounds that may be grouped together in the future, pending further review. For example, an initial review has tentatively identified the following cases where further assessment is warranted:

"Antimony and antimony compounds" may consolidate 5 current listings.
"Cobalt and cobalt compounds" may consolidate 3 current listings.
"Copper and copper compounds" may consolidate 4 current listings.
"Magnesium and magnesium compounds" may consolidate 7 current listings.
"Manganese and manganese compounds" may consolidate 4 current listings.
"Molybdenum water soluble compounds" may consolidate 3 current listings.
"Molybdenum water insoluble compounds" may consolidate 3 current listings.

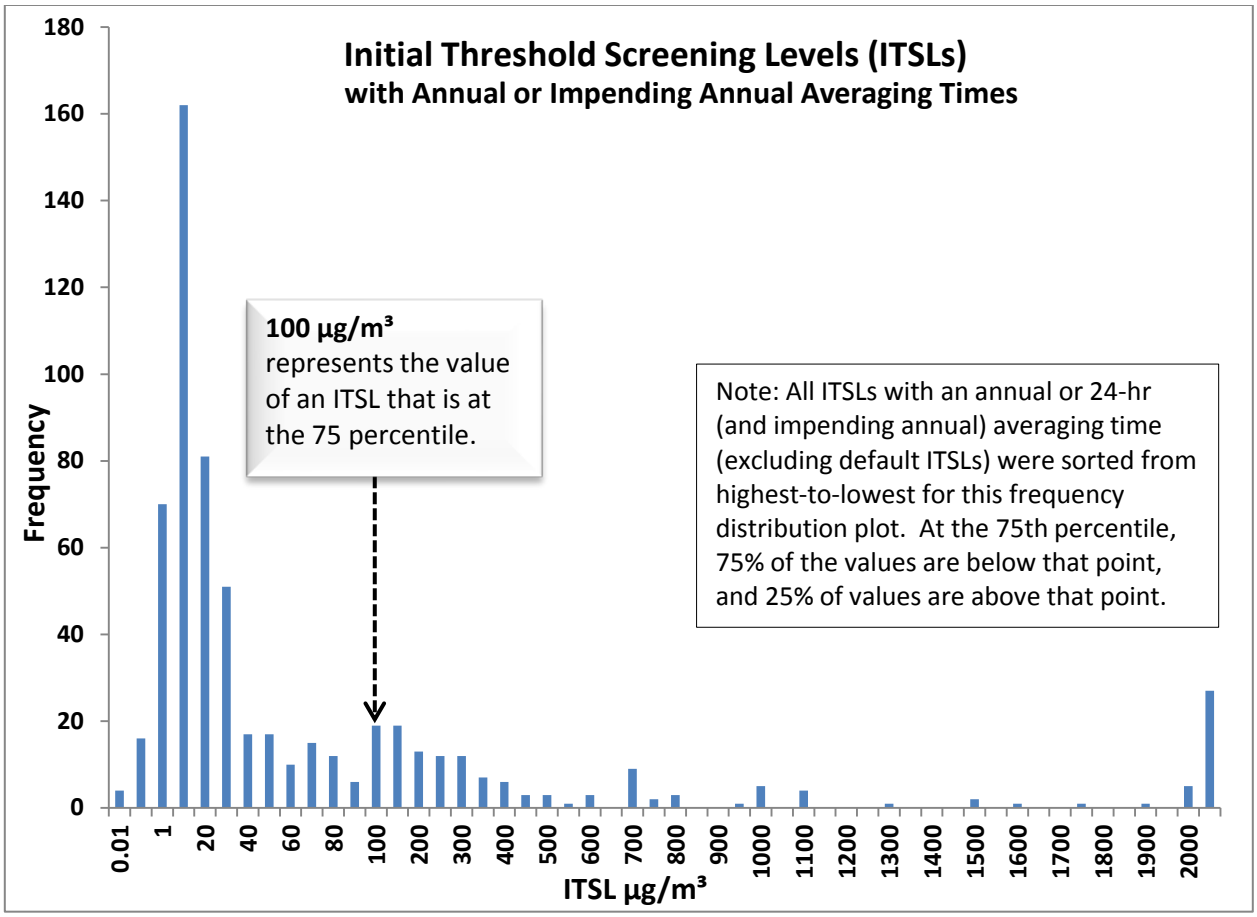
Merging of the Current Annual AT ITSLs With the Current RfC- and RfD-Based 24-Hour AT ITSLs That Are Anticipated To Change to Annual AT

Concurrent with addressing the TAC list issue, the Workgroup explored the ORR Report's Recommendation A-1(7): Make acceptable exposure limits consistent with other nearby states. As a result of that discussion, the Workgroup is recommending that AQD utilize a default annual averaging time (AT) rather than a 24 hour AT for ITSLs that are based on the EPA RfC and RfD methodologies. AQD is agreeable to making that change. Therefore, for those chemicals, the change in AT from 24 hours to annual may be regarded as "impending". However, this issue crosses over to the "TAC List" issue, because the proposed TAC list criteria include ITSL cutoff values set at the 75th percentile level for each AT. Those 75th percentile values are statistically determined based on the distribution of all of the non-default ITSLs for each AT. Previous estimates (e.g., the April 2013 statistics in **Table 4A**) of the 75th percentiles, TAC list size, and the TAC list of chemicals were based on the *current* ATs and 75th percentiles, and did not account for this

impending change in ATs. Further, the proposed draft rule language for the TAC list issue will include specific ITSL cutoff values. Therefore, it seems appropriate and necessary to address this impending change in the ATs so that the specific ITSL cutoff values in the draft proposed rules will reflect the AT change. In other words, the ITSL cutoff values for both annual and 24 hour ATs in the proposed draft rules should reflect that impending change. Also, there was a concern that making that change could significantly change the 75th percentile cutoff values, and potentially cause a significant change in the number of chemicals proposed for the TAC list.

Staff recognized this issue and completed the evaluation of this AT change after the August 1, 2013 ATW meeting. After all ITSLs with a current 24 hour AT based on the EPA RfC or RfD methodologies are changed to annual AT, only eight chemicals will still have a 24 hour AT ITSL. The characteristics of that group are described in **Table 7**. The previous 75th percentile cutoff values and the number of chemicals in the proposed draft TAC list are also presented for comparison in **Table 7**. Although the AT conversion results in a relatively small set of chemicals (n=8) that will have 24 hr AT ITSLs, the ITSLs in that group are well distributed (ranging from 2 µg/m^3 to 10000 µg/m^3), and the 75th %ile cutoff did not change greatly (an increase from 420 to 522 µg/m^3).

Based on these findings, it is proposed that the draft TAC list rules utilize the cutoffs that result from the conversion of the ITSL ATs as described above. The effect of merging the two groups (those with current annual AT ITSLs, and those with an impending AT change from 24 hours to annual AT) is an increase in the cutoff from 43 µg/m^3 to 100 µg/m^3 for the annual AT. The effect of this change is the inclusion of chemicals that currently have annual AT ITSLs that are above the prior annual AT cutoff of 43 µg/m^3, but which are at or below the new cutoff of 100 µg/m^3. Another effect of this change is the exclusion of chemicals that have current 24 hr AT ITSLs below the prior 24 hr AT cutoff of 420 µg/m^3, but above the new annual AT cutoff of 100 µg/m^3. The overall net effect of these changes is a small increase in the total list of TACs (a change from 750 to 756 chemicals). This is further described in **Table 7**. The graph below helps to visualize the distribution of the merged annual AT ITSLs, and the 75th percentile cutoff value.



Other Chemical Listing Discussions

In addition to the above criteria, procedures, and discussions, the ATW discussed the listing of two perfluorinated compounds (PFOS, CAS# 1763-23-1; and PFOA, CAS# 335-67-1), crystalline silica (from sources not meeting the current TAC list exemption; CAS# 14808-60-7), carcinogenic PAHs, and asphalt fumes (CAS# 8052-42-4) (see **Table 5**). Also, a Member requested that methyl isocyanate (CAS# 624-83-9) be added to the proposed TAC list due to high toxicity and the potential that it could occur in a future permit application. Although mercury (CAS# 7439-97-6) does not have a SL, the SL list has a footnote indicating that a benchmark for inhalation of elemental mercury (0.3 µg/m^3) would meet the cutoff criterion; mercury is included in the future TAC list.

Proposed TAC List and Procedure

The proposed TAC list, based on the above criteria, procedure, and discussions, is **756 chemicals**. This may be anticipated to change somewhat due to the routine updating of chemical risk assessments, the evaluation of "new" air toxics in permit applications, the potential consolidation of some metal compounds, etc. Further statistical information and a spreadsheet showing all *current* TACs, and the basis for chemicals meeting or not meeting the criteria for the *proposed future* TAC list, are available on the ATW website in an August 13, 2013 document, "Proposed TAC List, August 2013". The spreadsheet

includes a notation for the chemicals that currently have 24 hr AT ITSLs but with an impending change to an annual AT. The spreadsheet reflects the updated 75th %ile cutoff values as listed in **Table 4b** and **Table 7**.

Table 2. HAPs without SLs.

Chemical and CAS #	Toxics Unit File Review Comments
Acetamide 60-35-5	There is no indication of a review for NSR permitting, therefore, it is proposed to not include it in the TAC list.
2-acetylaminofluorene 53-96-3	There is no indication of a review for NSR permitting, therefore, it is proposed to not include it in the TAC list.
4-aminobiphenyl 92-67-1	There is no indication of a review for NSR permitting, therefore, it is proposed to not include it in the TAC list.
o-anisidine 90-04-0	O-anisidine hydrochloride (134-29-2) has an IRSL. Therefore, include it in the TAC list.
Benzotrichloride (trichlorotoluene) 98-07-7	There is no indication of a review for NSR permitting, therefore, it is proposed to not include it in the TAC list.
Calcium cyanamide 156-62-7	There is no indication of a review for NSR permitting, therefore, it is proposed to not include it in the TAC list.
Captan 133-06-2	There is no indication of a review for NSR permitting, therefore, it is proposed to not include it in the TAC list.
Carbaryl 63-25-2	There is no indication of a review for NSR permitting, therefore, it is proposed to not include it in the TAC list.
Catechol 120-80-9	There is no indication of a review for NSR permitting, therefore, it is proposed to not include it in the TAC list.
Chloramben 133-90-4	There is no indication of a review for NSR permitting, therefore, it is proposed to not include it in the TAC list.
Chlordane 57-74-9	Chlordane (technical) (12789-03-6) has an ITSL and IRSL. Therefore, it is proposed to include it in the TAC list.
Chloroacetic acid 79-11-8	This was evaluated for at least one NSR permit. Therefore, it is proposed to list it as a TAC.
Chlorobenzilate 510-15-6	There is no indication of a review for NSR permitting, therefore, it is proposed to not include it in the TAC list.
Chloromethyl methyl ether 107-30-2	There is no indication of a review for NSR permitting, therefore, it is proposed to not include it in the TAC list.
2,4-D, salts and esters 94-75-7	There is no indication of a review for NSR permitting, therefore, it is proposed to not include it in the TAC list.
DDE 3547-04-4	DDD(TDE; 72-54-8), DDE(p,p'; 72-55-9) and DDT(50-29-3) have IRSLs. Therefore, it is proposed to include it in the TAC list.
Diazomethane 334-88-3	There is no indication of a review for NSR permitting, therefore, it is proposed to not include it in the TAC list.
3,3-dimethoxybenzidine 119-90-4	This was evaluated for at least one NSR permit. Therefore, it is proposed to list it as a TAC.
Dimethyl aminoazobenzene 60-11-7	There is no indication of a review for NSR permitting, therefore, it is proposed to not include it in the TAC list.
3,3'-dimethyl benzidine 119-93-7	There is no indication of a review for NSR permitting, therefore, it is proposed to not include it in the TAC list.
Dimethyl carbamoyl chloride	There is no indication of a review for NSR permitting,

79-44-7	therefore, it is proposed to not include it in the TAC list.
1,1-dimethyl hydrazine 57-14-7	There is no indication of a review for NSR permitting, therefore, it is proposed to not include it in the TAC list.
1,2-diphenylhydrazine 122-66-7	There is no indication of a review for NSR permitting, therefore, it is proposed to not include it in the TAC list.
Ethyl carbamate (Urethane) 51-79-6	This was evaluated for at least one NSR permit. Therefore, it is proposed to list it as a TAC.
Ethylene imine (Aziridine) 151-56-4	This was evaluated for at least one NSR permit. Therefore, it is proposed to list it as a TAC.
Hexamethylphosphoramide 680-31-9	There is no indication of a review for NSR permitting, therefore, it is proposed to not include it in the TAC list.
Hydroquinone 123-31-9	This was evaluated for at least one NSR permit. Therefore, it is proposed to list it as a TAC.
Lindane (all isomers) 58-89-9	There is no indication of a review for NSR permitting, therefore, it is proposed to not include it in the TAC list.
Methoxychlor 72-43-5	There is no indication of a review for NSR permitting, therefore, it is proposed to not include it in the TAC list.
Methyl iodide (Iodomethane) 74-88-4	This was evaluated for at least one NSR permit. Therefore, it is proposed to list it as a TAC.
Methyl isocyanate 624-83-9	There is no indication of a review for NSR permitting, therefore, it is proposed to not include it in the TAC list.
4,4-methylene bis(2-chloroaniline) 101-14-4	There is no indication of a review for NSR permitting, therefore, it is proposed to not include it in the TAC list.
4,4'-methylenedianiline 101-77-9	There is no indication of a review for NSR permitting, therefore, it is proposed to not include it in the TAC list.
4-nitrobiphenyl 92-93-3	There is no indication of a review for NSR permitting, therefore, it is proposed to not include it in the TAC list.
N-Nitrosomorpholine 59-89-2	There is no indication of a review for NSR permitting, therefore, it is proposed to not include it in the TAC list.
Parathion 56-38-2	There is no indication of a review for NSR permitting, therefore, it is proposed to not include it in the TAC list.
p-Phenylenediamine 106-50-3	There is no indication of a review for NSR permitting, therefore, it is proposed to not include it in the TAC list.
Phthalic anhydride 85-44-9	There is no indication of a review for NSR permitting, therefore, it is proposed to not include it in the TAC list.
beta-Propiolactone 57-57-8	There is no indication of a review for NSR permitting, therefore, it is proposed to not include it in the TAC list.
Propoxur (Baygon) 114-26-1	There is no indication of a review for NSR permitting, therefore, it is proposed to not include it in the TAC list.
Quinone (p-benzoquinone) 106-51-4	This was evaluated for at least one NSR permit. Therefore, it is proposed to list it as a TAC.
Styrene oxide 96-09-3	Styrene (also a HAP) has an IRSL. Styrene is metabolized to styrene oxide. Both are reasonably anticipated to be human carcinogens (NTP Report on Carcinogens, 12th Ed.). Therefore, RETAIN on TAC list.

Titanium tetrachloride 7550-45-0	There is no indication of a review for NSR permitting, therefore, it is proposed to not include it in the TAC list.
2,4-toluene diamine 95-80-7	There is no indication of a review for NSR permitting, therefore, it is proposed to not include it in the TAC list.
Trifluralin 1582-09-8	There is no indication of a review for NSR permitting, therefore, it is proposed to not include it in the TAC list.
Lead compounds	Lead is a criteria pollutant; exempted from TAC defn.
Radionuclides (including radon)	A 1994 DEQ policy determination was that there were sufficient regulations by NRC, EPA, and MDCH, such that additional AQD permitting requirements would be unnecessary and duplicative.
Polycyclic organic matter (POM)	The TAC list should include specific compounds, for clarity, if they meet criteria (ITSLs or carcinogenicity).
Glycol ethers	The TAC list should include specific compounds, for clarity, if they meet criteria (ITSLs).

Table 3. De-listed EPA HAPs.

Delisted HAP	Date of delisting	AQD ITSL ($\mu g/m^3$; AT) or RfC	comments
Caprolactam	6/18/96	10 $\mu g/m^3$ (8 hr AT)	
Surfactant alcohol ethoxylates and their derivatives (SAED) (in glycol ethers HAP category)	8/2/2000	Ethylene glycol ether 2-methoxy-1-propanol (a non-SAED) used as a conservative surrogate to derive an RfC-like benchmark of 200 to 2000 $\mu g/m^3$ for SAEDs.	A hypothetical facility emission rate of 105 lbs total SAEDs/year was used in the petition for de-listing, and was relied upon in EPA's review.
Ethylene glycol monobutyl ether (2-butoxyethanol) (in glycol ethers HAP category)	11/29/04	1600 $\mu g/m^3$ (24 hr AT)	
Methyl ethyl ketone	12/19/05	5000 $\mu g/m^3$ (24 hr AT)	

Table 4a. ITSL value distribution (as of April, 2013). All values are in units of µg/m^3. (These statistics are based on only the air toxics with data-derived final SLs, i.e., excluding chemicals with only default-based ITSLs).

ITSL group	Mean	50th %ile	75th %ile	90th %ile	95th %ile	99th %ile
All ITSLs	1375	24	140	1956	5000	23800
HAPs only	626	14.5	100	1000	3088	13572
Non-HAPs only	1547	28	140	2300	5450	42850
Annual AT only	482	14	**43**	140	300	1363
24 hr AT only	1789	60	**420**	2600	6000	46600
8 hr AT only	2760	86	**2850**	6020	16710	30482
1 hr AT only	2741	15	**290**	1168	3046	44551

Table 4b. Updated 75th percentile values (as of August, 2013) reflecting the change in averaging time from 24 hours to annual for ITSLs based on the RfC or RfD methodologies. All values are in units of µg/m^3. (These statistics are based on only the air toxics with data-derived final SLs, i.e., excluding chemicals with only default-based ITSLs).

Averaging Time	75th Percentile of Distribution (µg/m^3)
1 hr	**300**
8 hr	**2330**
24 hr	**522**
Annual	**100**

Table 5. Additional air toxics (n=23) that are not on the TAC SL list, which are proposed to be added to the future TAC list:

Substance	Comments on why there is no SL, but that listing as a TAC would be appropriate
Crystalline silica (14808-60-7)	Not a HAP. Some sources of crystalline silica are exempt from TAC definition. (AQD has recently set an ITSL at 3 µg/m^3 (annual AT)). Proposed to place it on the TAC list. The current TAC list exemption for certain sources would remain.
Asphalt fumes (8052-42-4)	Not a HAP as a mixture. The fumes contain carcinogens, but there is no IRSL for the mixture due to lack of a key study on the mixture. Based on a 1995 Scientific Advisory Panel recommendation, AQD has regulated the mixture utilizing the EPA RPFs for carcinogenic PAHs (see also below). Proposed to list this mixture as a TAC with an explanatory footnote (only) that would help clarify the regulatory approach.
Carcinogenic PAHs (n=19, in addition to those meeting other listing criteria)	The PAHs are HAPs as "POM." The EPA's risk assessment of the carcinogenic PAH group is currently in transition. The 1993 EPA guidance for the group is currently still in use by MDEQ (there are 7 carcinogenic PAHs, including B(a)P and 6 with Relative Potency Factors (RPFs) relative to B(a)P). CalOEHHA regulates 21 carcinogenic PAHs with RPFs. EPA has drafted a new scheme, with 25 carcinogenic PAHs with nonzero RPFs (including B(a)P); they are currently addressing the SAB review comments on that draft (http://yosemite.epa.gov/sab/sabproduct.nsf/0/E65D909C98520C1D85257501005E46AE?OpenDocument). Currently, 16 do **not** have SLs. **Three** additional PAHs have evidence of carcinogenicity, have CalOEHHA RPFs, and are not on the current SL list. Therefore, **19** additional substances for the TAC list are proposed, for this group. (In the 5/13/13 spreadsheet of potential TACs, the basis for listing = "Carc7" (n=7), "EPA Carc" (n=16), or "CAL Carc" (n=3).
Perfluorinated compounds (PFCs): PFOS and PFOA (n=2)	Perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA) are persistent bioaccumulative toxics (PBTs) that have been identified by MDEQ as emerging contaminants of concern. (http://www.michigan.gov/deq/0,4561,7-135-3308-266777--,00.html). PFCs have recently been detected in Michigan groundwater and in several species of aquatic and terrestrial wildlife. Although the presence of PFCs in air emission sources subject to NSR permitting has not yet been characterized, it is proposed that these two PFCs be listed as TACs. (In the 8/13/13 spreadsheet of potential TACs, the basis for listing = "Emerging".

Table 6. Authority to address unlisted substances.

Agency	Description of authority
MDEQ-Water Resources Division (WRD)	NREPA Part 8 rules regulate surface water discharges of "toxic substances," which are defined as those included in three lists of substances (several hundred) and, **"Any other toxic substances that the department determines are of concern at a specific site."**
MDEQ-Remediation and Redevelopment Division (RRD)	NREPA Part 201 rules define "hazardous substance" as three lists of substances (several hundred), and, **"Any substance that the department demonstrates, on a case by case basis, poses an unacceptable risk to the public health, safety, or welfare, or the environment, considering the fate of the material, dose-response, toxicity, or adverse impact on natural resources."**
Ohio EPA - Air	Ohio EPA has a list of 303 chemicals/classes of regulated air toxics. Language in administrative code and in rules gives authority for their Director to evaluate unlisted air toxics (personal communication with Paul Koval, 2/21/13).
Wisconsin DNR - Air	There are 535 listed "hazardous air contaminants" substances/groups; this was established in 2004, based on criteria specified in their code. Authority to address unlisted substances: **"Code: NR 445.03 General limitations. No person may cause, allow or permit emissions into the ambient air of any hazardous substance in a quantity or concentration or for a duration that is injurious to human health, plant or animal life unless the purpose of that emission is for the control of plant or animal life. Hazardous substances include but are not limited to the hazardous air contaminants listed in Tables A to C of s. NR 445.07."**
Minnesota PCA - Air	MN does not have a defined list of regulated air toxics. Statute: **"The Pollution Control Agency may issue, continue in effect or deny permits, under such conditions as it may prescribe for the prevention of pollution, for the emission of air contaminants…"**

Table 7. The Effects of Converting the 24 Hour AT ITSLs Based on the RfD or RfC Methodologies to Annual AT ITSLs.

	May 13, 2013 Draft Discussion Paper	**Current Discussion Paper**	**Comments**
Number of chemicals with an annual AT ITSL	389	620	The current number reflects the conversion from 24 hr AT to annual AT for all RfC- and RfD-based ITSLs.
Number of chemicals with a 24 hr AT ITSL	239	8	Same as above.
75^{th} %ile cutoff for annual AT ($\mu g/m^3$)	43	100	The current cutoff is significantly higher than previous, due to the new, larger group of chemicals in the annual AT group.
75^{th} %ile cutoff for 24 hr AT ($\mu g/m^3$)	420	522	The AT conversion will result in 8 remaining chemicals with a 24 hr AT. Only two of these 8 chemicals (TCE and tetrachloroethylene) have 24 hr AT ITSLs that are above the cutoff of 522 $\mu g/m^3$; they would be listed as TACs based on carcinogenicity.
Total TACs	**750**	**756**	

APPENDIX J:

POTENTIAL DEFINED TAC LIST

APPENDIX J: Proposed TAC List – August Update

Table 1. Percentiles of Initial Threshold Screening Levels			
Initial Threshold Screening Levels (ITSLs) Grouped by Averaging Time	**75th Percentile of ITSL Group**	**Count of 1st ITSL <75th%**	**Count of 2nd ITSL <75th%**
1 hr	300 µg/m³	18	7
8 hr	2330 µg/m³	135	10
24 hr	522 µg/m³	2	4
Annual	100 µg/m³	479	0
Note: Some Toxic Air Contaminant (TACs) have 2 ITSLs each with different averaging times. One or both ITSLs may be less than 75th percentile cutoff.			

Table 2. Basis for TACs on the Future Screening Level List	
Count only if "1st ITSL"	578
Count only if "1st ITSL, 2nd ITSL"	18
Count only if "1st ITSL, 2nd ITSL, Carc*"	3
Count only if "1st ITSL, Carc"	40
Count only if "Carc"	81
**Count only if "Added"	36
Total Number of Future TACs	756
* "Carc" = carcinogenic compounds. All carcinogenic TACs have Initial Risk Screening Levels (IRSLs), except Asphalt Fumes.	
**Note: Asphalt fumes and crystalline silica were listed as "carc" and "1st ITSL", respectively, therefore, are counted in those groups above, despite being technically "Added".	

Table 3. Other Information	
Total number of compounds evaluated	1231
1st ITSL <75%	639
2nd ITSL <75%	21
*TACs removed from List	475
Default ITSLs	289
Added TACs	38
Number of TACs that had 24 hr averaging time, but were converted to annual averaging time	231
Number of TACs with annual averaging time that were previously 24 hr averaging time AND had values < 75th percentile, therefore are on the new TAC list	139
**IRSLs	123
IRSLs with no ITSLs <75th%	80
*TACs with ITSL values that were either: (1) greater than 75th percentile OR (2) default ITSL, AND there was no other reason for including in a new list of TACs.	
**All TACs with IRSLs are included in the new screening level list.	

Table 4. Current and Proposed MDEQ Air Quality Division Screening Level List of Toxic Air Contaminants

NEW AvgT "annual" Some ITSLs with 24-hr avg. time were converted to annual avg. because ITSL was derived to protect for chronic effects.

CAS Number	Chemical Name	Future TAC?	Basis for Yes	Reason for No, etc.	1st ITSL ($\mu g/m^3$)	*NEW AvgT	1st ITSL <=75th%	2nd ITSL ($\mu g/m^3$)	2nd ITSL AvgT	2nd ITSL <=75th%	IRSL
--	100 sxl	NO		default	0.1	annual					
--	2-(1-ethoxyethoxy)-6-(trifluoromethyl)-benzenethiol	NO		default	0.1	annual					
--	2-mercapto-3-(trifluoromethyl)-phenol	NO		default	0.1	annual					
--	4-chloro-2-ethyoxy-6-fluoropyrimidine	NO		default	0.1	annual					
--	atlox 848	NO		default	0.1	annual					
--	cyclic (phme)2(me)2, d4	NO		default	0.1	annual					
--	cyclopentyldichlorosilane	NO		default	0.1	annual					
--	dicyclopentyldichlorosilane	NO		default	0.1	annual					
--	disiloxane	NO		default	0.1	annual					
--	ethomeen t/30	NO		default	0.1	annual					
--	heptamethyl-1-vinyl-1,7-dichlorotetrasilazane	NO		default	0.1	annual					
--	n-chloro-2,6-difluorobenzamide	NO		default	0.1	annual					
--	sponto 11	NO		default	0.1	annual					
--	sponto 723	NO		default	0.1	annual					
--	t-det c-40	NO		default	0.1	annual					
--	witconol al 69-66	NO		default	0.1	annual					
--	o-(1-ethoxyethyl)-2-(propylthio)-3-(trifluoromethyl)phenol	NO		default	0.1	annual					
--1	biosam tp-1.5	YES	1st ITSL		0.02	1 hr	YES				
--2	purafect 4000g	YES	1st ITSL		0.02	1 hr	YES				
--3	fyre-zyme	YES	1st ITSL		0.15	annual	YES				
--4	1,1,2,4-tetramethyl-1-1-1-sila-2-aza-cyclopentane	YES	1st ITSL		0.7	annual	YES				
--5	epoxy resin solution	YES	1st ITSL		6	annual	YES				
--6	n-butylglucamine	YES	1st ITSL		6.4	annual	YES				

Table 4. Current and Proposed MDEQ Air Quality Division Screening Level List of Toxic Air Contaminants

NEW AvgT "annual" Some ITSLs with 24-hr avg. time were converted to annual avg. because ITSL was derived to protect for chronic effects.

CAS Number	Chemical Name	Future TAC?	Basis for Yes	Reason for No, etc.	1st ITSL ($\mu g/m^3$)	*NEW AvgT	1st ITSL <=75th%	2nd ITSL ($\mu g/m^3$)	2nd ITSL AvgT	2nd ITSL <=75th%	IRSL
--7	polyglycol 26-3	YES	1st ITSL		16	annual	YES				
--8	ad acid	YES	1st ITSL		17	annual	YES				
--9	triethylammonium suleptanate	YES	1st ITSL		17	annual	YES				
-1-0	amyl acetate (mixture)	NO		>75th%	1100	annual*					
50-00-0	formaldehyde	YES	1st ITSL, Carc		9	8 hr	YES				0.08
50-03-3	hydrocortisone acetate	YES	1st ITSL		15	annual	YES				
50-21-5	lactic acid	YES	1st ITSL		7	annual	YES				
50-28-2	estradiol	NO		default	0.1	annual					
50-29-3	ddt	YES	Carc								0.01
50-32-8	benzo(a)pyrene	YES	Carc								0.0005
51-28-5	2,4-dinitrophenol	YES	1st ITSL		7	annual*	YES				
51-79-6	Ethyl carbamate (Urethane)	YES	HAP Table 2								
53-36-1	methyl predisolone acetate	YES	1st ITSL		43	annual	YES				
53-70-3	Dibenz(a,h)anthracene	YES	Carc7								
56-23-5	carbon tetrachloride	YES	1st ITSL, Carc		100	annual*	YES				0.17
56-49-5	3-methyl cholanthrene	YES	Cal Carc								
56-55-3	benz(a)anthracene	YES	Carc7								
56-81-5	glycerol	YES	1st ITSL		100	8 hr	YES				
57-11-4	stearic acid	YES	1st ITSL		100	8 hr	YES				
57-12-5	cyanide	YES	1st ITSL		50	1 hr	YES				
57-15-8	chlorobutanol	NO		default	0.1	annual					
57-41-0	phenytoin	YES	Carc								0.07
57-55-6	propylene glycol	NO		>75th%	6000	annual					
57-83-0	progesterone	NO		default	0.1	annual					
57-97-9	7,12-dimethyl benzanthracene	YES	Cal Carc								
58-36-6	10,10'-oxybisphenoxarsine oxide	YES	1st ITSL		0.2	annual	YES				

Table 4. Current and Proposed MDEQ Air Quality Division Screening Level List of Toxic Air Contaminants

NEW AvgT "annual" Some ITSLs with 24-hr avg. time were converted to annual avg. because ITSL was derived to protect for chronic effects.

CAS Number	Chemical Name	Future TAC?	Basis for Yes	Reason for No, etc.	1st ITSL ($\mu g/m^3$)	*NEW AvgT	1st ITSL <=75th%	2nd ITSL ($\mu g/m^3$)	2nd ITSL AvgT	2nd ITSL <=75th%	IRSL
60-29-7	ethyl ether	NO		>75th%	12000	8 hr					
60-34-4	methyl hydrazine	YES	1st ITSL, Carc		0.03	annual*	YES				0.0087
60-57-1	dieldrin	YES	Carc								0.0002
62-53-3	aniline	YES	1st ITSL, 2nd ITSL, Carc		1	annual	YES	76	8 hr	YES	0.6
62-73-7	dichlorvos	YES	1st ITSL		0.5	annual*	YES				
62-75-9	n-nitrosodimethylamine	YES	Carc								7E-05
63-05-8	androstenedione	YES	1st ITSL		17	annual	YES				
64-02-8	ethylenediamine tetra-acetic acid, tetrasodium salt	NO		default	0.1	annual					
64-04-0	beta phenylethylamine	NO		default	0.1	annual					
64-17-5	ethyl alcohol	NO		>75th%	19000	8 hr					
64-18-6	formic acid	YES	1st ITSL		2	annual*	YES				
64-19-7	acetic acid	YES	1st ITSL		250	8 hr	YES				
64-67-5	diethyl sulfate	YES	1st ITSL		1	annual	YES				
66-25-1	hexanaldehyde	YES	1st ITSL		2	annual	YES				
67-56-1	methanol	NO		>75th%	3250	1 hr					
67-63-0	isopropyl alcohol	NO		>75th%	220	annual*					
67-64-1	acetone	NO		>75th%	5900	8 hr					
67-66-3	chloroform	YES	Carc								0.4
67-68-5	dimethylsulfoxide	YES	1st ITSL		20	annual	YES				
67-72-1	hexachloroethane	YES	1st ITSL, 2nd ITSL, Carc		30	annual	YES	1600	8 hr	YES	0.1
68-12-2	N,N-dimethylformamide	YES	1st ITSL		30	annual*	YES				
71-23-8	n-propyl alcohol	NO		>75th%	730	annual					
71-36-3	n-butanol	NO		>75th%	350	annual*					

Table 4. Current and Proposed MDEQ Air Quality Division Screening Level List of Toxic Air Contaminants

NEW AvgT "annual" Some ITSLs with 24-hr avg. time were converted to annual avg. because ITSL was derived to protect for chronic effects.

CAS Number	Chemical Name	Future TAC?	Basis for Yes	Reason for No, etc.	1st ITSL ($\mu g/m^3$)	*NEW AvgT	1st ITSL <=75th%	2nd ITSL ($\mu g/m^3$)	2nd ITSL AvgT	2nd ITSL <=75th%	IRSL
71-41-0	amyl alcohol	NO		>75th%	120	annual					
71-43-2	benzene	YES	1st ITSL, 2nd ITSL, Carc		30	annual	YES	**30**	**24 hr**	**YES**	0.1
71-55-6	methyl chloroform	NO		>75th%	6000	annual*					
72-54-8	DDD (TDE)	YES	Carc								0.01
72-55-9	DDE, p,p'-	YES	Carc								0.01
74-83-9	methyl bromide	YES	1st ITSL		5	annual*	YES				
74-85-1	ethylene	NO		>75th%	6240	annual*					
74-87-3	methyl chloride	YES	1st ITSL, Carc		90	annual*	YES				1.6
74-88-4	Methyl iodide (Iodomethane)	YES	HAP Table 2								
74-89-5	methylamine	YES	1st ITSL		64	8 hr	YES				
74-90-8	hydrogen cyanide	YES	1st ITSL, 2nd ITSL		0.8	annual	YES	50	1 hr	YES	
74-93-1	methyl mercaptan	YES	1st ITSL		10	1 hr	YES				
74-97-5	chlorobromomethane	NO		>75th%	10600	8 hr					
74-99-7	methyl acetylene	NO		>75th%	16500	8 hr					
75-00-3	ethyl chloride	NO		>75th%	10000	annual*					
75-01-4	vinyl chloride	YES	1st ITSL, Carc		100	annual*	YES				0.11
75-04-7	ethylamine	YES	1st ITSL		92	8 hr	YES				
75-05-8	acetonitrile	YES	1st ITSL		60	annual*	YES				
75-07-0	acetaldehyde	YES	1st ITSL, Carc		9	annual*	YES				0.5
75-09-2	methylene chloride	YES	Carc		2000	annual		14000	1 hr		60
75-12-7	formamide	YES	Carc		600	annual*					0.2
75-15-0	carbon disulfide	NO		>75th%	700	annual*					
75-18-3	dimethylsulfide	YES	1st ITSL		7	annual	YES				

Table 4. Current and Proposed MDEQ Air Quality Division Screening Level List of Toxic Air Contaminants

NEW AvgT "annual" Some ITSLs with 24-hr avg. time were converted to annual avg. because ITSL was derived to protect for chronic effects.

CAS Number	Chemical Name	Future TAC?	Basis for Yes	Reason for No, etc.	1st ITSL ($\mu g/m^3$)	*NEW AvgT	1st ITSL <=75th%	2nd ITSL ($\mu g/m^3$)	2nd ITSL AvgT	2nd ITSL <=75th%	IRSL
75-21-8	ethylene oxide	YES	Carc								0.03
75-25-2	bromoform	YES	Carc								0.9
75-27-4	bromodichloromethane	YES	Carc								0.06
75-28-5	isobutane	NO		>75th%	23800	8 hr					
75-29-6	2-chloropropane	YES	1st ITSL		100	annual*	YES				
75-31-0	isopropylamine	YES	1st ITSL		120	8 hr	YES				
75-34-3	1,1-dichloroethane	NO		>75th%	500	annual*					
75-35-4	vinylidene chloride (1,1-dichloroethylene)	NO		>75th%	200	annual*					
75-36-5	acetyl chloride	NO		default	0.1	annual					
75-37-6	1,1-difluoroethane	NO		>75th%	40000	annual*					
75-38-7	vinylidene fluoride	YES	1st ITSL		30	annual*	YES				
75-44-5	phosgene	YES	1st ITSL		0.3	annual*	YES				
75-45-6	chlorodifluoromethane	NO		>75th%	50000	annual*					
75-50-3	trimethylamine	YES	1st ITSL		120	8 hr	YES				
75-52-5	nitromethane	YES	1st ITSL, Carc		70	annual*	YES				0.1
75-54-7	methyldichlorosilane	YES	1st ITSL		4	annual	YES				
75-55-8	1,2-propylenimine	YES	1st ITSL		5	8 hr	YES				
75-56-9	propylene oxide	YES	1st ITSL, Carc		30	annual*	YES				0.3
75-64-9	t-butylamine	YES	1st ITSL		60	annual	YES				
75-65-0	t-butanol	NO		>75th%	1890	annual*					
75-68-3	1-chloro-1,1-difluoroethane	NO		>75th%	50000	annual*					
75-69-4	trichlorofluoromethane	NO		>75th%	56200	1 hr					
75-71-8	dichlorodifluoromethane	NO		>75th%	49500	8 hr					
75-75-2	methane sulfonic acid	YES	1st ITSL		1.4	annual	YES				
75-76-3	tetramethylsilane	NO		>75th%	1300	annual					
75-77-4	trimethylchlorosilane	YES	1st ITSL		6	annual	YES				

Table 4. Current and Proposed MDEQ Air Quality Division Screening Level List of Toxic Air Contaminants

NEW AvgT "annual" Some ITSLs with 24-hr avg. time were converted to annual avg. because ITSL was derived to protect for chronic effects.

CAS Number	Chemical Name	Future TAC?	Basis for Yes	Reason for No, etc.	1st ITSL ($\mu g/m^3$)	*NEW AvgT	1st ITSL <=75th%	2nd ITSL ($\mu g/m^3$)	2nd ITSL AvgT	2nd ITSL <=75th%	IRSL
75-78-5	dimethyldichlorosilane	YES	1st ITSL		6.2	annual	YES				
75-79-6	methyltrichlorosilane	NO		>75th%	109	annual					
75-94-5	vinyltrichlorosilane	YES	1st ITSL		7	annual	YES				
76-05-1	trifluoroacetic acid	YES	1st ITSL		8	annual	YES				
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	NO		>75th%	19140	annual*					
76-14-2	dichlorotetrafluoroethan	NO		>75th%	69000	8 hr					
76-44-8	heptachlor	YES	Carc								0.0008
76-83-5	triphenyl methyl chloride	YES	1st ITSL		17	annual	YES				
77-47-4	hexachlorocyclopentadiene	YES	1st ITSL		0.2	annual*	YES				
77-48-5	1,3-dibromo-5,5-dimethylhydantoin	YES	1st ITSL		2	8 hr	YES				
77-58-7	dibutyl tin dilaurate	YES	1st ITSL		5	8 hr	YES				
77-73-6	dicyclopentadiene	YES	1st ITSL		1	annual*	YES				
77-76-9	2,2-dimethoxypropane	NO		default	0.1	annual					
77-78-1	dimethyl sulfate	YES	1st ITSL		0.5	8 hr	YES				
77-93-0	triethyl citrate	NO		>75th%	290	annual					
78-07-9	ethyltriethoxysilane	YES	1st ITSL		44	annual	YES				
78-10-4	ethyl silicate	YES	1st ITSL		850	8 hr	YES				
78-59-1	isophorone	YES	1st ITSL, Carc		280	1 hr	YES				3.7
78-78-4	2-methyl butane	NO		>75th%	17700	8 hr					
78-79-5	isoprene	YES	Carc								0.02
78-83-1	isobutyl alcohol	YES	1st ITSL		1500	8 hr	YES				
78-84-2	isobutyraldehyde	NO		>75th%	160	annual*					
78-87-5	propylene dichloride	YES	1st ITSL		4	annual*	YES				
78-92-2	sec-butanol	NO		>75th%	3000	8 hr					
78-93-3	methyl ethyl ketone	NO		>75th%	5000	annual*					
78-96-6	monoisopropanolamine	YES	1st ITSL		15	annual	YES				
79-00-5	1,1,2-trichloroethane	YES	Carc								0.06

Table 4. Current and Proposed MDEQ Air Quality Division Screening Level List of Toxic Air Contaminants

NEW AvgT "annual" Some ITSLs with 24-hr avg. time were converted to annual avg. because ITSL was derived to protect for chronic effects.

CAS Number	Chemical Name	Future TAC?	Basis for Yes	Reason for No, etc.	1st ITSL ($\mu g/m^3$)	*NEW AvgT	1st ITSL <=75th%	2nd ITSL ($\mu g/m^3$)	2nd ITSL AvgT	2nd ITSL <=75th%	IRSL
79-01-6	trichloroethylene	YES	1st ITSL, Carc		2	annual	YES	10000	24 hr		0.2
79-06-1	acrylamide	YES	1st ITSL, Carc		6	annual*	YES				0.005
79-09-4	propionic acid	YES	1st ITSL		300	8 hr	YES				
79-10-7	acrylic acid	YES	1st ITSL		1	annual*	YES				
79-11-8	Chloroacetic acid	YES	HAP Table 2								
79-14-1	hydroxyacetic acid/ glycolic acid	YES	1st ITSL		4	annual	YES				
79-20-9	methyl acetate	NO		>75th%	6100	8 hr					
79-24-3	nitroethane	YES	1st ITSL		60	annual*	YES				
79-29-8	2,3-dimethylbutane	NO		>75th%	3500	8 hr					
79-31-2	isobutyric acid	YES	1st ITSL		0.9	annual	YES				
79-34-5	1,1,2,2-tetrachloroethane	YES	Carc								0.02
79-41-4	methacrylic acid	YES	1st ITSL		30	annual*	YES				
79-46-9	2-nitropropane	YES	1st ITSL, Carc		20	annual*	YES				0.0004
79-92-5	camphene	YES	1st ITSL		80	annual	YES				
80-15-9	cumene hydroperoxide	YES	1st ITSL		6	annual*	YES				
80-43-3	dicumyl peroxide	NO		default	0.1	annual					
80-56-8	pinene, alpha	YES	1st ITSL		1120	8 hr	YES				
80-62-6	methyl methacrylate	NO		>75th%	700	annual*					
80-73-9	n,n'-dimethylethyleneurea	NO		default	0.1	annual					
82-68-8	pentachloronitrobenzene	YES	1st ITSL		11	annual*	YES				
83-32-9	acenaphthene	NO		>75th%	210	annual*					
84-66-2	diethyl phthalate	YES	1st ITSL		50	8 hr	YES	2800	24 hr		
85-01-8	phenanthrene	NO		default	0.1	annual					
85-68-7	butyl benzyl phthalate	NO		>75th%	700	annual*					
86-73-7	fluorene	NO		>75th%	140	annual*					

Table 4. Current and Proposed MDEQ Air Quality Division Screening Level List of Toxic Air Contaminants

NEW AvgT "annual" Some ITSLs with 24-hr avg. time were converted to annual avg. because ITSL was derived to protect for chronic effects.

CAS Number	Chemical Name	Future TAC?	Basis for Yes	Reason for No, etc.	1st ITSL ($\mu g/m^3$)	*NEW AvgT	1st ITSL <=75th%	2nd ITSL ($\mu g/m^3$)	2nd ITSL AvgT	2nd ITSL <=75th%	IRSL
86-74-8	carbazole	YES	Carc								0.4
87-61-6	1,2,3-trichlorobenzene	YES	1st ITSL		27	annual*	YES				
87-62-7	2,6-xylidine	YES	Carc								0.78
87-68-3	hexachlorobutadiene	YES	Carc								0.05
87-86-5	pentachlorophenol	YES	1st ITSL, Carc		20	annual*	YES				0.009
87-90-1	1,3,5-trichloroisocyanuric acid	YES	1st ITSL		2	annual	YES				
88-06-2	2,4,6-trichlorophenol	YES	Carc								0.3
88-12-0	n-vinylpyrrolidinone	YES	Carc								0.04
88-65-3	o-bromobenzoic acid	NO		default	0.1	annual					
88-73-3	1-chloro-2-nitrobenzene	YES	Carc								0.21
88-85-7	dinoseb	YES	1st ITSL		4	annual*	YES				
90-02-8	salicylaldehyde	YES	1st ITSL		30	annual	YES				
90-12-0	1-methyl naphthalene	YES	Carc		250	annual*					0.14
90-43-7	o-phenylphenol	YES	Carc								1.1
90-72-2	2,4,6-tri(dimethylaminomethyl)phenol	YES	1st ITSL		7	annual	YES				
91-01-0	benzhydrol	YES	1st ITSL		16	annual	YES				
91-17-8	decahydronaphthalene	YES	Carc								0.03
91-20-3	naphthalene	YES	1st ITSL, Carc		3	annual*	YES				0.08
91-22-5	quinoline	YES	Carc								0.001
91-44-1	7-diethylamino-4-methyl coumarin	YES	1st ITSL		16	annual	YES				
91-57-6	2-methylnaphthalene	YES	1st ITSL		10	annual	YES				
91-59-8	2-naphthylamine	YES	Carc								0.0001
91-94-1	dichlorobenzidine	YES	Carc								0.002
92-52-4	biphenyl	YES	1st ITSL		13	8 hr	YES				
92-87-5	benzidine	YES	Carc								2E-05
93-14-1	guaifenesin	YES	1st ITSL		5	annual	YES				

Table 4. Current and Proposed MDEQ Air Quality Division Screening Level List of Toxic Air Contaminants

NEW AvgT "annual" Some ITSLs with 24-hr avg. time were converted to annual avg. because ITSL was derived to protect for chronic effects.

CAS Number	Chemical Name	Future TAC?	Basis for Yes	Reason for No, etc.	1st ITSL ($\mu g/m^3$)	*NEW AvgT	1st ITSL <=75th%	2nd ITSL ($\mu g/m^3$)	2nd ITSL AvgT	2nd ITSL <=75th%	IRSL
93-58-3	methyl benzoate	YES	1st ITSL		4	annual	YES				
93-59-4	peroxybenzoic acid	NO		default	0.1	annual					
93-83-4	oleoyl diethanolamine	YES	1st ITSL		3	annual	YES				
94-96-2	2-ethyl-1,3-hexanediol	YES	1st ITSL		30	annual	YES				
95-16-9	benzothiazole	YES	1st ITSL		1	annual	YES				
95-38-5	oyel hydroxyethylimidazoline	YES	1st ITSL		2	annual	YES				
95-47-6	o-xylene	YES	1st ITSL		100	annual*	YES				
95-48-7	o-cresol	YES	1st ITSL		100	8 hr	YES				
95-49-8	monochlorotoluene	YES	1st ITSL		70	annual*	YES				
95-50-1	1,2-dichlorobenzene	NO		>75th%	300	annual*					
95-51-2	2-chloroaniline	YES	1st ITSL		10	annual*	YES				
95-53-4	o-toluidine	YES	Carc								0.07
95-57-8	2-chlorophenol	YES	1st ITSL		18	annual*	YES				
95-63-6	1,2,4-trimethylbenzene	YES	1st ITSL, 2nd ITSL		50	annual	YES	1200	8 hr	YES	
95-65-8	3,4-dimethyl phenol	YES	1st ITSL		3.5	annual*	YES				
95-74-9	3-chloro-p-toluidine	YES	1st ITSL		2	annual	YES				
95-87-4	2,5-dimethylphenol	YES	1st ITSL		0.7	annual	YES				
95-93-2	1,2,4,5-tetramethyl benzene	YES	1st ITSL		20	annual	YES				
95-94-3	1,2,4,5-tetrachlorobenzene	YES	1st ITSL		1	annual*	YES				
95-95-4	2,4,5-trichlorophenol	NO		>75th%	350	annual*					
96-12-8	dibromochloropropane	YES	1st ITSL, Carc		0.2	annual*	YES				0.0001
96-14-0	3-methylpentane	NO		>75th%	3500	8 hr					
96-18-4	1,2,3-trichloropropane	YES	1st ITSL		0.3	annual*	YES				
96-23-1	1,3-dichloro-2-propanol	YES	1st ITSL, Carc		3	annual*	YES				0.07
96-29-7	methylethylketoxime	YES	Carc								2.5
96-33-3	methyl acrylate	YES	1st ITSL		70	annual*	YES				

Table 4. Current and Proposed MDEQ Air Quality Division Screening Level List of Toxic Air Contaminants

NEW AvgT "annual" Some ITSLs with 24-hr avg. time were converted to annual avg. because ITSL was derived to protect for chronic effects.

CAS Number	Chemical Name	Future TAC?	Basis for Yes	Reason for No, etc.	1st ITSL ($\mu g/m^3$)	*NEW AvgT	1st ITSL <=75th%	2nd ITSL ($\mu g/m^3$)	2nd ITSL AvgT	2nd ITSL <=75th%	IRSL
96-37-7	methylcyclopentane	NO		>75th%	700	annual*					
96-45-7	ethylene thiourea	YES	1st ITSL, Carc		0.28	annual*	YES				0.01
96-48-0	gamma-butyrolactone	NO		>75th%	280	annual*					
96-49-1	ethylene carbonate	YES	1st ITSL		30	annual	YES				
96-80-0	diisopropylaminoethanol	YES	1st ITSL		4	annual	YES				
97-64-3	ethyl lactate	YES	1st ITSL		20	annual	YES				
97-85-8	isobutyl isobutyrate	NO		>75th%	300	annual					
97-86-9	isobutyl methacrylate	NO		>75th%	600	annual					
97-88-1	n-butyl methacrylate	NO		>75th%	569	annual					
97-95-0	2-ethyl butanol	YES	1st ITSL		40	annual	YES				
97-99-4	tetrahydrofuryl methanol	YES	1st ITSL		52	annual	YES				
98-00-0	furfuryl alcohol	YES	1st ITSL, Carc		1	annual*	YES				0.03
98-01-1	furfural	YES	Carc								0.06
98-06-6	tert-butylbenzene	YES	1st ITSL		10	annual	YES				
98-13-5	phenyltrichlorosilane	NO		default	0.1	annual					
98-17-9	m-trifluoromethylphenol	YES	1st ITSL		0.08	annual	YES				
98-29-3	t-butylcatechol	YES	1st ITSL		9	annual	YES				
98-56-6	p-chlorobenzotrifluoride	YES	1st ITSL		70	annual*	YES				
98-82-8	cumene	YES	Carc		400	annual*					0.1
98-83-9	alpha-methyl styrene	NO		>75th%	230	annual*					
98-84-0	dl-alpha phenylethylamine	YES	1st ITSL		3	annual	YES				
98-86-2	acetophenone	YES	1st ITSL		490	8 hr	YES				
98-95-3	nitrobenzene	YES	1st ITSL, Carc		9	annual*	YES				0.025
99-87-6	p-isopropyltoluene	YES	1st ITSL		10	annual	YES				
99-97-8	n,n-dimethyl-p-toluidine	YES	1st ITSL		28	annual	YES				
100-02-7	4-nitrophenol	YES	1st ITSL		0.7	annual	YES				

Table 4. Current and Proposed MDEQ Air Quality Division Screening Level List of Toxic Air Contaminants

NEW AvgT "annual" Some ITSLs with 24-hr avg. time were converted to annual avg. because ITSL was derived to protect for chronic effects.

CAS Number	Chemical Name	Future TAC?	Basis for Yes	Reason for No, etc.	1st ITSL ($\mu g/m^3$)	*NEW AvgT	1st ITSL <=75th%	2nd ITSL ($\mu g/m^3$)	2nd ITSL AvgT	2nd ITSL <=75th%	IRSL
100-06-1	4-methoxyacetophenone	NO		default	0.1	annual					
100-36-7	2-diethylaminoethylamine	YES	1st ITSL		9	annual	YES				
100-37-8	2-diethylaminoethanol (deae)	YES	1st ITSL		4	annual*	YES				
100-40-3	4-vinylcyclohexene	YES	1st ITSL		4	8 hr	YES				
100-41-4	ethylbenzene	YES	Carc		1000	annual*					3
100-42-5	styrene	YES	Carc		1000	annual*					1.7
100-44-7	benzyl chloride	YES	Carc								0.02
100-46-9	benzylamine	NO		default	0.1	annual					
100-51-6	benzyl alcohol	NO		>75th%	5000	annual*					
100-52-7	benzaldehyde	YES	Carc								0.4
100-85-6	benzyltrimethylammonium hydroxide	NO		default	0.1	annual					
100-97-0	hexamethylenetetramine	YES	1st ITSL		100	annual	YES				
101-68-8	methylene diphenyl diisocyanate	YES	1st ITSL		0.6	annual*	YES				
101-84-8	diphenyloxide	YES	1st ITSL		70	8 hr	YES				
102-69-2	tripropylamine	YES	1st ITSL		0.2	annual	YES				
102-71-6	triethanolamine	YES	1st ITSL		50	8 hr	YES				
102-76-1	triacetin	YES	1st ITSL		20	annual	YES				
102-79-4	butyldiethanolamine	YES	1st ITSL		14	annual	YES				
102-81-8	2-n-dibutylaminoethanol	YES	1st ITSL		28	annual*	YES				
102-82-9	tributylamine	YES	1st ITSL		7	annual	YES				
103-09-3	2-ethylhexyl acetate	YES	1st ITSL		15	annual	YES				
103-11-7	2-ethylhexyl acrylate	YES	1st ITSL		18	annual	YES				
103-23-1	di (2-ethylhexyl) adipate	YES	Carc								3
103-33-3	azobenzene	YES	Carc								0.03
103-63-9	2-bromoethyl benzene	YES	1st ITSL		3	annual	YES				
103-65-1	propylbenzene	YES	1st ITSL		20	annual	YES				
103-83-3	benzyl dimethylamine	YES	1st ITSL		30	annual	YES				
103-99-1	N-stearoyl-4-aminophenol	NO		default	0.1	annual					

Table 4. Current and Proposed MDEQ Air Quality Division Screening Level List of Toxic Air Contaminants

NEW AvgT "annual" Some ITSLs with 24-hr avg. time were converted to annual avg. because ITSL was derived to protect for chronic effects.

CAS Number	Chemical Name	Future TAC?	Basis for Yes	Reason for No, etc.	1st ITSL ($\mu g/m^3$)	*NEW AvgT	1st ITSL <=75th%	2nd ITSL ($\mu g/m^3$)	2nd ITSL AvgT	2nd ITSL <=75th%	IRSL
104-15-4	p-toluenesulfonic acid	NO		default	0.1	annual					
104-51-8	n-butylbenzene	YES	1st ITSL		30	annual	YES				
104-68-7	diethylene glycol monophenyl ether	YES	1st ITSL		7	annual	YES				
104-75-6	2-ethylhexylamine	NO		default	0.1	annual					
104-76-7	2-ethylhexanol	YES	1st ITSL		70	annual	YES				
104-78-9	n,n-diethyl-1,3-propanediamine	NO		>75th%	140	annual					
104-87-0	p-tolualdehyde	NO		>75th%	440	annual*					
105-39-5	ethyl chloroacetate	NO		default	0.1	annual					
105-53-3	diethylmalonate	YES	1st ITSL		50	annual	YES				
105-56-6	ethyl cyanoacetate	NO		default	0.1	annual					
105-58-8	diethyl carbonate	NO		>75th%	5000	annual*					
105-59-9	methyldiethanolamine	YES	1st ITSL		6	annual	YES				
105-60-2	caprolactam	YES	1st ITSL		10	8 hr	YES				
105-67-9	2,4-dimethylphenol	YES	1st ITSL		70	annual*	YES				
106-36-5	propyl propionate	YES	1st ITSL		84	annual	YES				
106-42-3	p-xylene	YES	1st ITSL		100	annual*	YES				
106-46-7	1,4-dichlorobenzene	YES	Carc		800	annual*					0.14
106-49-0	p-toluidine	YES	Carc								0.03
106-51-4	Quinone (p-benzoquinone)	YES	HAP Table 2								
106-79-6	dimethyl decanedioate	NO		default	0.1	annual					
106-88-7	1,2-butylene oxide	YES	1st ITSL, Carc		20	annual*	YES				1.2
106-89-8	epichlorohydrin	YES	1st ITSL, Carc		1	annual*	YES				0.8
106-91-2	glycidyl methacrylate	YES	1st ITSL, 2nd ITSL		0.8	annual	YES	**16**	**24 hr**	**YES**	
106-92-3	allyl glycidyl ether	YES	Carc								0.1
106-93-4	ethylene dibromide	YES	1st ITSL,		9	annual*	YES				0.002

Table 4. Current and Proposed MDEQ Air Quality Division Screening Level List of Toxic Air Contaminants

NEW AvgT "annual" Some ITSLs with 24-hr avg. time were converted to annual avg. because ITSL was derived to protect for chronic effects.

CAS Number	Chemical Name	Future TAC?	Basis for Yes	Reason for No, etc.	1st ITSL ($\mu g/m^3$)	*NEW AvgT	1st ITSL <=75th%	2nd ITSL ($\mu g/m^3$)	2nd ITSL AvgT	2nd ITSL <=75th%	IRSL
			Carc								
106-94-5	propyl bromide	YES	1st ITSL		49	annual	YES				
106-97-8	butane	NO		>75th%	23800	8 hr					
106-99-0	1,3-butadiene	YES	1st ITSL, Carc		2	annual*	YES				0.03
107-00-6	ethylacetylene	NO		default	0.1	annual					
107-02-8	acrolein	YES	1st ITSL, 2nd ITSL		0.16	annual	YES	5	1 hr	YES	
107-03-9	1-propanethiol	YES	1st ITSL		16	1 hr	YES				
107-05-1	allyl chloride	YES	1st ITSL, 2nd ITSL		1	annual	YES	31	8 hr	YES	
107-06-2	1,2-dichloroethane	YES	Carc								0.04
107-10-8	propylamine	NO		>75th%	112	annual					
107-13-1	acrylonitrile	YES	1st ITSL, Carc		2	annual*	YES				0.01
107-15-3	ethylene diamine	YES	1st ITSL		0.03	annual	YES				
107-18-6	allyl alcohol	YES	1st ITSL		18	annual*	YES				
107-21-1	ethylene glycol	NO		>75th%	1000	1 hr					
107-31-3	methyl formate	YES	1st ITSL		1250	8 hr	YES				
107-39-1	diisobutylene	NO		default	0.1	annual					
107-41-5	hexylene glycol	NO		>75th%	1210	1 hr					
107-46-0	hexamethyldisiloxane	NO		>75th%	240	annual					
107-51-7	octamethyltrisiloxane	NO		default	0.1	annual					
107-54-0	3,5-dimethyl-1-hexyn-3-o	NO		default	0.1	annual					
107-66-4	dibutyl phosphate	YES	1st ITSL		50	8 hr	YES				
107-68-6	n-methyl taurine	YES	1st ITSL		17	annual	YES				
107-71-1	t-butyl peroxyacetate	YES	1st ITSL		0.06	annual	YES				
107-83-5	2-methylpentane	NO		>75th%	17600	8 hr					
107-87-9	methyl propyl ketone	NO		>75th%	5300	8 hr					

Table 4. Current and Proposed MDEQ Air Quality Division Screening Level List of Toxic Air Contaminants

NEW AvgT "annual" Some ITSLs with 24-hr avg. time were converted to annual avg. because ITSL was derived to protect for chronic effects.

CAS Number	Chemical Name	Future TAC?	Basis for Yes	Reason for No, etc.	1st ITSL ($\mu g/m^3$)	*NEW AvgT	1st ITSL <=75th%	2nd ITSL ($\mu g/m^3$)	2nd ITSL AvgT	2nd ITSL <=75th%	IRSL
107-92-6	butyric acid	YES	1st ITSL		10	annual	YES				
107-98-2	propylene glycol monomethyl ether	NO		>75th%	2000	annual*					
108-01-0	dimethylethanolamine	YES	1st ITSL, 2nd ITSL		5.2	annual	YES	220	8 hr	YES	
108-03-2	1-nitropropane	YES	1st ITSL		900	8 hr	YES				
108-05-4	vinyl acetate	NO		>75th%	200	annual*					
108-08-7	2,4-dimethylpentane	NO		>75th%	3500	8 hr					
108-10-1	methyl isobutyl ketone	NO		>75th%	3000	annual*					
108-11-2	methyl amyl alcohol	YES	1st ITSL		1000	8 hr	YES				
108-16-7	dimethylamino-2-propanol	YES	1st ITSL		4	annual	YES				
108-18-9	diisopropylamine	YES	1st ITSL		200	8 hr	YES				
108-20-3	diisopropyl ether	NO		>75th%	358	annual*					
108-21-4	isopropyl acetate	NO		>75th%	4200	8 hr					
108-31-6	maleic anhydride	YES	1st ITSL		0.1	8 hr	YES				
108-32-7	propylene carbonate	NO		>75th%	700	annual*					
108-38-3	m-xylene	YES	1st ITSL		100	annual*	YES				
108-46-3	resorcinol	YES	1st ITSL		27	annual*	YES				
108-60-1	bis(2-chloroisopropyl)ether	NO		>75th%	140	annual*					
108-65-6	propylene glycol monomethyl ether acetate	NO		>75th%	3000	annual*					
108-67-8	1,3,5-trimethyl benzene	YES	1st ITSL, 2nd ITSL		50	annual	YES	1200	8 hr	YES	
108-68-9	3,5-dimethylphenol	YES	1st ITSL		0.8	annual	YES				
108-78-1	melamine	YES	Carc								1.5
108-82-7	2,6-dimethyl-4-heptanol	YES	1st ITSL		30	annual	YES				
108-83-8	diisobutyl ketone	YES	1st ITSL		1500	8 hr	YES				
108-86-1	bromobenzene	YES	1st ITSL		60	annual*	YES				
108-87-2	methylcyclohexane	NO		>75th%	16000	8 hr					

Table 4. Current and Proposed MDEQ Air Quality Division Screening Level List of Toxic Air Contaminants

NEW AvgT "annual" Some ITSLs with 24-hr avg. time were converted to annual avg. because ITSL was derived to protect for chronic effects.

CAS Number	Chemical Name	Future TAC?	Basis for Yes	Reason for No, etc.	1st ITSL ($\mu g/m^3$)	*NEW AvgT	1st ITSL <=75th%	2nd ITSL ($\mu g/m^3$)	2nd ITSL AvgT	2nd ITSL <=75th%	IRSL
108-88-3	toluene	NO		>75th%	5000	annual*					
108-90-7	chlorobenzene	YES	1st ITSL		50	annual	YES	4400	8 hr		
108-94-1	cyclohexanone	YES	1st ITSL		800	8 hr	YES				
108-95-2	phenol	YES	1st ITSL		190	8 hr	YES				
108-99-6	3-picoline	YES	1st ITSL		80	annual	YES				
109-06-8	alpha-picoline	YES	1st ITSL		24	annual*	YES				
109-56-8	isopropylethanolamine	NO		default	0.1	annual					
109-60-4	n-propyl acetate	NO		>75th%	8350	8 hr					
109-65-9	1-bromobutane	YES	1st ITSL		9	annual	YES				
109-66-0	pentane	NO		>75th%	17700	8 hr					
109-69-3	n-butyl chloride	NO		>75th%	1500	annual*					
109-70-6	1-bromo-3-chloropropane	NO		default	0.1	annual					
109-83-1	2-methylaminoethanol	YES	1st ITSL		38	annual	YES				
109-86-4	2-methoxyethanol	YES	1st ITSL		20	annual*	YES				
109-89-7	diethylamine	YES	1st ITSL		150	8 hr	YES				
109-92-2	ethyl vinyl ether	YES	1st ITSL		20	annual	YES				
109-94-4	ethyl formate	NO		>75th%	3000	8 hr					
109-99-9	tetrahydrofuran	NO		>75th%	8000	annual					
110-00-9	furan	YES	1st ITSL, Carc		4	annual*	YES				0.0002
110-12-3	methyl isoamy ketone	YES	1st ITSL		2300	8 hr	YES				
110-16-7	maleic acid	NO		default	0.1	annual					
110-19-0	isobutyl acetate	YES	1st ITSL		480	8 hr	YES				
110-30-5	n,n'-ethylene bis-octadecanamide	NO		default	0.1	annual					
110-43-0	methyl n-amyl ketone	YES	1st ITSL		2330	8 hr	YES				
110-49-6	ethylene glycol monomethyl ether acetate	YES	1st ITSL		31	annual*	YES				
110-54-3	n-hexane	NO		>75th%	700	annual*					

Table 4. Current and Proposed MDEQ Air Quality Division Screening Level List of Toxic Air Contaminants

NEW AvgT "annual" Some ITSLs with 24-hr avg. time were converted to annual avg. because ITSL was derived to protect for chronic effects.

CAS Number	Chemical Name	Future TAC?	Basis for Yes	Reason for No, etc.	1st ITSL ($\mu g/m^3$)	*NEW AvgT	1st ITSL <=75th%	2nd ITSL ($\mu g/m^3$)	2nd ITSL AvgT	2nd ITSL <=75th%	IRSL
110-58-7	amylamine	YES	1st ITSL		1	annual	YES				
110-61-2	succinonitrile	YES	1st ITSL		0.8	annual	YES				
110-62-3	valeraldehyde	YES	1st ITSL		1760	8 hr	YES				
110-63-4	1,4 butanediol	YES	1st ITSL		79	annual	YES				
110-71-4	ethylene glycol dimethyl ether	YES	1st ITSL		24	annual*	YES				
110-73-6	2-ethylaminoethanol	YES	1st ITSL		1	annual	YES				
110-80-5	2-ethoxyethanol	NO		>75th%	200	annual*					
110-82-7	cyclohexane	NO		>75th%	6000	annual*					
110-83-8	cyclohexene	NO		>75th%	10000	8 hr					
110-86-1	pyridine	YES	1st ITSL		3.5	annual*	YES				
110-89-4	piperidine	NO		>75th%	140	annual					
110-97-4	diisopropanolamine	YES	1st ITSL		4	annual	YES				
111-13-7	2-octanone	YES	1st ITSL		20	annual	YES				
111-15-9	ethylene glycol monoethyl ether acetate	NO		>75th%	293	annual*					
111-30-8	glutaraldehyde	YES	1st ITSL, 2nd ITSL		0.08	annual	YES	0.2	1 hr	YES	
111-42-2	diethanolamine	YES	1st ITSL		5	annual*	YES				
111-44-4	bis-2-chloroethylether	YES	Carc								0.003
111-46-6	diethylene glycol	NO		>75th%	21000	annual*					
111-75-1	2-butylaminoethanol	YES	1st ITSL		4	annual	YES				
111-76-2	2-butoxyethanol	NO		>75th%	1600	annual*					
111-77-3	diethylene glycol monomethyl ether	NO		>75th%	190	annual*					
111-84-2	n-nonane	NO		>75th%	550	annual*					
111-90-0	diethylene glycol monoethyl ether	NO		>75th%	1750	annual*					
111-92-2	dibutylamine	YES	1st ITSL		23	annual	YES				
112-06-1	n-heptyl acetate	YES	1st ITSL		16	annual	YES				
112-07-2	ethylene glycol monobutyl ether acetate	NO		>75th%	17600	annual*					

Table 4. Current and Proposed MDEQ Air Quality Division Screening Level List of Toxic Air Contaminants

NEW AvgT "annual" Some ITSLs with 24-hr avg. time were converted to annual avg. because ITSL was derived to protect for chronic effects.

CAS Number	Chemical Name	Future TAC?	Basis for Yes	Reason for No, etc.	1st ITSL ($\mu g/m^3$)	*NEW AvgT	1st ITSL <=75th%	2nd ITSL ($\mu g/m^3$)	2nd ITSL AvgT	2nd ITSL <=75th%	IRSL
112-15-2	diethylene glycol monoethyl ether acetate	YES	1st ITSL		18	annual	YES				
112-24-3	triethylene tetramine	YES	1st ITSL		8	annual	YES				
112-25-4	ethylene glycol monohexyl ether	YES	1st ITSL		8	annual	YES				
112-34-5	butyl carbitol	YES	1st ITSL		20	annual*	YES				
112-48-1	ethylene glycol dibutyl ether	YES	1st ITSL		10	annual	YES				
112-50-5	triethylene glycol monoethyl ether	YES	1st ITSL		100	annual	YES				
112-55-0	n-dodecyl mercaptan	YES	1st ITSL		8	8 hr	YES				
112-80-1	oleic acid	NO		>75th%	242	annual					
115-07-1	propylene	NO		>75th%	1500	annual*					
115-10-6	dimethyl ether	YES	1st ITSL		66	annual	YES				
115-11-7	isobutylene	YES	1st ITSL		21	annual	YES				
115-19-5	methyl butynol	YES	1st ITSL		6.5	annual	YES				
116-11-0	2-methoxy-1-propene	YES	1st ITSL		6	annual	YES				
116-14-3	tetrafluoroethylene	YES	Carc								0.4
117-81-7	diethyl hexyl phthalate	YES	Carc								0.2
117-84-0	di-n-octyl phthalate	NO		>75th%	470	annual*					
118-52-5	1,3-dichloro-5,5-dimethylhydantoin	YES	1st ITSL		2	8 hr	YES				
118-74-1	hexachlorobenzene	YES	Carc								0.002
118-91-2	o-chlorobenzoic acid	NO		default	0.1	annual					
119-53-9	benzoin	YES	1st ITSL		32	annual*	YES				
119-90-4	3,3-dimethoxybenzidine	YES	HAP Table 2								
120-07-0	phenyldiethanolamine	YES	1st ITSL		3	annual	YES				
120-12-7	anthracene	NO		>75th%	1000	annual*					
120-82-1	1,2,4-trichlorobenzene	YES	1st ITSL		4	annual*	YES				
120-83-2	2,4-dichlorophenol	YES	1st ITSL		77	annual	YES				
121-14-2	2,4-dinitrotoluene	YES	1st ITSL, Carc		2	8 hr	YES				0.009

Table 4. Current and Proposed MDEQ Air Quality Division Screening Level List of Toxic Air Contaminants

NEW AvgT "annual" Some ITSLs with 24-hr avg. time were converted to annual avg. because ITSL was derived to protect for chronic effects.

CAS Number	Chemical Name	Future TAC?	Basis for Yes	Reason for No, etc.	1st ITSL ($\mu g/m^3$)	*NEW AvgT	1st ITSL <=75th%	2nd ITSL ($\mu g/m^3$)	2nd ITSL AvgT	2nd ITSL <=75th%	IRSL
121-43-7	trimethoxyborine	YES	1st ITSL		18	annual	YES				
121-44-8	triethylamine	YES	1st ITSL		7	annual*	YES				
121-69-7	dimethylaniline	YES	Carc								0.085
121-93-7	isopropyldiethanolamine	NO		default	0.1	annual					
122-20-3	triisopropanolamine (tipa)	YES	1st ITSL		19	annual	YES				
122-60-1	phenyl glycidyl ether	YES	Carc								0.1
122-79-2	phenyl acetate	NO		default	0.1	annual					
122-99-6	ethylene glycol monophenyl ether	YES	1st ITSL		8	annual	YES				
123-03-5	cetylpyridinium chloride	YES	1st ITSL		1.8	annual	YES				
123-05-7	2-ethylhexanal	YES	1st ITSL		10	annual	YES				
123-19-3	dipropyl ketone	NO		>75th%	250	annual*					
123-31-9	Hydroquinone	YES	HAP Table 2								
123-38-6	propionaldehyde	YES	1st ITSL		8	annual*	YES				
123-42-2	diacetone alcohol	NO		>75th%	2375	8 hr					
123-51-3	isoamyl alcohol	YES	1st ITSL		360	8 hr	YES				
123-54-6	2,4-pentanedione	YES	1st ITSL		25	annual*	YES				
123-72-8	butyraldehyde	YES	1st ITSL		7	annual*	YES				
123-86-4	n-butyl acetate	NO		>75th%	7100	8 hr					
123-91-1	1,4-dioxane	YES	1st ITSL, Carc		100	annual*	YES				0.04
123-92-2	isoamyl acetate	NO		>75th%	2700	8 hr		5300	1 hr		
124-04-9	adipic acid	YES	1st ITSL		50	8 hr	YES				
124-07-2	octanoic acid	YES	1st ITSL		33	annual	YES				
124-17-4	diethylene glycol monobutyl ether acetate	YES	1st ITSL		25	annual*	YES				
124-26-5	octadecanamide	NO		default	0.1	annual					
124-28-7	N,N-dimethyl octadecylamine	NO		default	0.1	annual					
124-41-4	sodium methylate	NO		default	0.1	annual					

Table 4. Current and Proposed MDEQ Air Quality Division Screening Level List of Toxic Air Contaminants

NEW AvgT "annual" Some ITSLs with 24-hr avg. time were converted to annual avg. because ITSL was derived to protect for chronic effects.

CAS Number	Chemical Name	Future TAC?	Basis for Yes	Reason for No, etc.	1st ITSL ($\mu g/m^3$)	*NEW AvgT	1st ITSL <=75th%	2nd ITSL ($\mu g/m^3$)	2nd ITSL AvgT	2nd ITSL <=75th%	IRSL
124-48-1	chlorodibromomethane	YES	Carc								0.04
124-63-0	methyl sulfonyl chloride	YES	1st ITSL		2	annual	YES				
124-68-5	2-amino-2-methyl-1-propanol	YES	1st ITSL		4	annual	YES				
124-70-9	methylvinyldichlorosilane	YES	1st ITSL		6	annual	YES				
126-06-7	3-bromo-1-chloro-5,5-dimethylhydantoin	YES	1st ITSL		2	8 hr	YES				
126-30-7	neopentyl glycol	NO		default	0.1	annual					
126-72-7	tris(2,3-dibromopropyl) phosphate	YES	Carc								0.002
126-73-8	tributyl phosphate	YES	1st ITSL		22	8 hr	YES				
126-86-3	actylenic diol	NO		default	0.1	annual					
126-99-8	beta-chloroprene	YES	1st ITSL, Carc		20	annual*	YES				0.002
127-18-4	tetrachloroethylene	YES	1st ITSL, Carc		40	annual	YES	1400	24 hr		4
127-91-3	pinene, beta	YES	1st ITSL		1120	8 hr	YES				
128-04-1	sodium dimethyl dithiocarbamate	NO		default	0.1	annual					
128-37-0	2,6-di-tert-butyl-p-cresol	YES	Carc								1
129-00-0	pyrene	YES	1st ITSL		100	annual*	YES				
131-11-3	dimethylphthalate	YES	1st ITSL		50	8 hr	YES				
131-17-9	diallyl phthalate	YES	Carc								0.1
132-64-9	dibenzofuran	YES	1st ITSL		4	annual*	YES				
134-29-2	o-ansidine hydrochloride	YES	Carc								0.04
135-98-8	sec-butylbenzene	YES	1st ITSL		6	annual	YES				
136-47-0	tetracaine hyrochloride	YES	1st ITSL		0.3	annual	YES				
136-52-7	cobalt 2-ethylhexanoate	NO		default	0.1	annual					
137-26-8	thiram	YES	1st ITSL		17.5	annual*	YES				
137-32-6	2-methyl-1-butanol	YES	1st ITSL		13	annual	YES				
140-31-8	aminoethylpiperazine	NO		default	0.1	annual					
140-88-5	ethyl acrylate	YES	1st ITSL		30	annual*	YES				

Table 4. Current and Proposed MDEQ Air Quality Division Screening Level List of Toxic Air Contaminants

NEW AvgT "annual" Some ITSLs with 24-hr avg. time were converted to annual avg. because ITSL was derived to protect for chronic effects.

CAS Number	Chemical Name	Future TAC?	Basis for Yes	Reason for No, etc.	1st ITSL ($\mu g/m^3$)	*NEW AvgT	1st ITSL <=75th%	2nd ITSL ($\mu g/m^3$)	2nd ITSL AvgT	2nd ITSL <=75th%	IRSL
141-32-2	butyl acrylate	YES	1st ITSL		100	8 hr	YES				
141-43-5	ethanolamine	YES	1st ITSL		80	8 hr	YES				
141-62-8	decamethyltetrasiloxane	NO		default	0.1	annual					
141-63-9	linear dimethylsiloxanes,MD3M(&higher)	NO		default	0.1	annual					
141-78-6	ethyl acetate	NO		>75th%	3200	annual*					
141-79-7	mesityl oxide	YES	1st ITSL		400	8 hr	YES				
141-91-3	2,6-dimethyl morpholine	NO		>75th%	377	annual					
141-97-9	ethyl acetoacetate	YES	1st ITSL		46	annual	YES				
142-29-0	cyclopentene	YES	1st ITSL		5	annual	YES				
142-59-6	ethylene bisthiocarbamate disodium	YES	1st ITSL		1	annual	YES				
142-71-2	cupric acetate	YES	1st ITSL		2	8 hr	YES				
142-82-5	heptane	NO		>75th%	3500	8 hr					
142-84-7	di-n-propylamine	YES	1st ITSL		1.5	annual	YES				
142-96-1	dibutyl ether	YES	1st ITSL		33	annual	YES				
143-29-3	butylcarbitol formal	NO		default	0.1	annual					
144-62-7	oxalic acid	YES	1st ITSL		10	8 hr	YES				
144-79-6	diphenylmethylchlorosilane	NO		default	0.1	annual					
145-73-3	endothall	YES	1st ITSL		35	annual*	YES				
147-14-8	copper phthalocyanine	YES	1st ITSL		21	annual	YES				
147-24-0	benadryl hcl	YES	1st ITSL		50	annual	YES				
147-94-4	cytarabine	NO		default	0.1	annual					
149-57-5	2-ethylhexanoic acid	YES	1st ITSL		64	annual	YES				
149-73-5	trimethylorthoformate	NO		>75th%	800	annual					
151-56-4	Ethylene imine (Aziridine)	YES	HAP Table 2								
156-59-2	cis-1-2,dichloroethylene	YES	1st ITSL		7	annual*	YES				
156-60-5	trans-1-2-dichloroethylene	YES	1st ITSL		70	annual*	YES				

Table 4. Current and Proposed MDEQ Air Quality Division Screening Level List of Toxic Air Contaminants

NEW AvgT "annual" Some ITSLs with 24-hr avg. time were converted to annual avg. because ITSL was derived to protect for chronic effects.

CAS Number	Chemical Name	Future TAC?	Basis for Yes	Reason for No, etc.	1st ITSL ($\mu g/m^3$)	*NEW AvgT	1st ITSL <=75th%	2nd ITSL ($\mu g/m^3$)	2nd ITSL AvgT	2nd ITSL <=75th%	IRSL
189-55-9	Dibenzo[a,i]pyrene	YES	EPA Carc								
189-64-0	Dibenzo[a,h]pyrene	YES	EPA Carc								
191-24-2	benzo(g,h,i)perylene	YES	1st ITSL		12	annual*	YES				
191-26-4	Anthanthrene	YES	EPA Carc								
191-30-0	Dibenzo[a,l]pyrene	YES	EPA Carc								
192-65-4	Dibenzo[a,e]pyrene	YES	EPA Carc								
193-09-9	Naphtho[2,3e]pyrene	YES	EPA Carc								
193-39-5	Indeno(1,2,3-cd)pyrene	YES	Carc7								
199-54-2	Benz[e]aceanthrylene	YES	EPA Carc								
202-33-5	Benz[j]aceanthrylene	YES	EPA Carc								
202-94-8	Benz[b,c]aceanthrylene, 11H	YES	EPA Carc								
202-98-2	Cyclopenta[d,e,f]chrysene, 4H	YES	EPA Carc								
205-12-9	Benzo[c]fluorene	YES	EPA Carc								
205-82-3	Benzo[j]fluoranthene	YES	EPA Carc								
205-99-2	Benzo(b)fluoranthene	YES	Carc7								
206-44-0	fluoranthene	NO		>75th%	140	annual*					
207-08-9	Benzo(k)fluoranthene	YES	Carc7								
208-96-8	acenaphthylene	YES	1st ITSL		35	annual*	YES				
211-91-6	Benz[l]aceanthrylene	YES	EPA Carc								
215-58-7	Dibenz[a,c]anthracene	YES	EPA Carc								
218-01-9	Chrysene	YES	Carc7								
280-57-9	triethylenediamine	YES	1st ITSL		6	annual	YES				
287-92-3	cyclopentane	NO		>75th%	17200	8 hr					
300-57-2	allyl benzene	YES	1st ITSL		5	annual	YES				
302-01-2	hydrazine	YES	Carc								0.0002
302-22-7	chlormadinone acetate	NO		default	0.1	annual					
303-81-1	novobiocin	YES	1st ITSL		40	annual*	YES				
309-00-2	aldrin	YES	Carc								0.0002

Table 4. Current and Proposed MDEQ Air Quality Division Screening Level List of Toxic Air Contaminants

NEW AvgT "annual" Some ITSLs with 24-hr avg. time were converted to annual avg. because ITSL was derived to protect for chronic effects.

CAS Number	Chemical Name	Future TAC?	Basis for Yes	Reason for No, etc.	1st ITSL ($\mu g/m^3$)	*NEW AvgT	1st ITSL <=75th%	2nd ITSL ($\mu g/m^3$)	2nd ITSL AvgT	2nd ITSL <=75th%	IRSL
313-06-4	estradiol cypionate	NO		default	0.1	annual					
319-84-6	alpha-hexachlorocyclohexane	YES	Carc								0.0006
330-54-1	diuron	YES	1st ITSL		7	annual*	YES				
335-67-1	PFOA	YES	Emerging								
338-98-7	isoflupredone acetate	YES	1st ITSL		0.01	annual	YES				
353-50-4	carbonyl fluoride	YES	1st ITSL		54	8 hr	YES				
358-67-8	trifluoropropylmethyl dimethoxysilane	YES	1st ITSL		100	annual	YES				
359-07-9	2-bromo-1,1- difluoro ethane	NO		default	0.1	annual					
363-51-9	2-chloro-6-fluorobenzenamine	NO		default	0.1	annual					
363-72-4	pentafluorobenzene	YES	1st ITSL		10	annual	YES				
366-18-7	2,2'-bipyridyl	YES	1st ITSL		0.8	annual	YES				
382-21-8	perfluoroisobutylene	YES	1st ITSL		0.8	1 hr	YES				
385-00-2	2,6-difluorobenzoic acid	NO		default	0.1	annual					
431-89-0	hfc-227ea	NO		>75th%	130000	annual		5560000	1 hr		
460-73-1	1,1,1,3,3-pentafluoropropane	NO		>75th%	2000	annual*					
461-58-5	cyanoguanidine	NO		default	0.1	annual					
463-58-1	carbonyl sulfide	YES	1st ITSL		9	annual	YES				
505-48-6	suberic acid	YES	1st ITSL		17	annual	YES				
509-14-8	tetranitromethane	YES	1st ITSL, Carc		0.4	8 hr	YES				7E-05
513-35-9	amylene	NO		>75th%	106	annual					
513-37-1	dimethylvinyl chloride	YES	Carc								0.008
513-85-9	2,3-butanediol	YES	1st ITSL		15	annual	YES				
526-73-8	1,2,3-trimethylbenzene	YES	1st ITSL, 2nd ITSL		50	annual	YES	1200	8 hr	YES	
526-75-0	2,3-dimethyl phenol	YES	1st ITSL		2	annual	YES				
532-27-4	alpha chloroacetophenone	YES	1st ITSL		0.03	annual*	YES				
534-52-1	dinitro-o-cresol	YES	1st ITSL		2	8 hr	YES				

Table 4. Current and Proposed MDEQ Air Quality Division Screening Level List of Toxic Air Contaminants

NEW AvgT "annual" Some ITSLs with 24-hr avg. time were converted to annual avg. because ITSL was derived to protect for chronic effects.

CAS Number	Chemical Name	Future TAC?	Basis for Yes	Reason for No, etc.	1st ITSL ($\mu g/m^3$)	*NEW AvgT	1st ITSL <=75th%	2nd ITSL ($\mu g/m^3$)	2nd ITSL AvgT	2nd ITSL <=75th%	IRSL
540-49-8	1,2-dibromoethylene	NO		default	0.1	annual					
540-59-0	1,2-dichloroethylene	YES	1st ITSL		35	annual*	YES				
540-84-1	2,2,4-Trimethyl Pentane	NO		>75th%	3500	8 hr					
540-88-5	tert-butyl acetate	NO		>75th%	9500	8 hr					
540-97-6	dodecamethylcyclohexasiloxane	NO		>75th%	400	annual					
541-02-6	decamethylcyclopentasiloxane	NO		>75th%	200	annual*					
541-05-9	hexamethylcyclotrisiloxane	YES	1st ITSL		50	annual	YES				
541-73-1	1,3-dichlorobenzene	YES	1st ITSL		3	annual	YES				
541-85-5	ethyl amyl ketone	NO		>75th%	220	annual*					
542-75-6	1,3-dichloropropene	YES	1st ITSL, Carc		20	annual*	YES				0.2
542-88-1	bis(chloromethyl)ether	YES	Carc								2E-05
546-93-0	magnesium carbonate	YES	1st ITSL		50	8 hr	YES				
552-45-4	alpha-chloro-ortho-xylene	NO		default	0.1	annual					
556-67-2	octamethylcyclotetrasilo	YES	1st ITSL		75	annual*	YES				
557-04-0	magnesium stearate	YES	1st ITSL		100	8 hr	YES				
557-05-1	zinc stearate	YES	1st ITSL		50	8 hr	YES				
563-47-3	3-chloro-2-methylpropene	YES	Carc								0.03
565-59-3	2,3-dimethylpentane	NO		>75th%	3500	8 hr					
576-26-1	2,6-dimethyl phenol	YES	1st ITSL		2	annual*	YES				
584-84-9	2,4-toluene diisocyanate	YES	1st ITSL, Carc		0.07	annual*	YES				0.03
589-34-4	3-methylhexane	NO		>75th%	3500	8 hr					
590-01-2	n-butyl propionate	NO		>75th%	102	annual					
590-86-3	isovaleraldehyde	NO		>75th%	800	annual					
591-22-0	3,5-lutidine	NO		default	0.1	annual					
591-27-5	m-aminophenol	NO		>75th%	390	annual					
591-76-4	2-methylhexane	NO		>75th%	3500	8 hr					

Table 4. Current and Proposed MDEQ Air Quality Division Screening Level List of Toxic Air Contaminants

NEW AvgT "annual" Some ITSLs with 24-hr avg. time were converted to annual avg. because ITSL was derived to protect for chronic effects.

CAS Number	Chemical Name	Future TAC?	Basis for Yes	Reason for No, etc.	1st ITSL ($\mu g/m^3$)	*NEW AvgT	1st ITSL <=75th%	2nd ITSL ($\mu g/m^3$)	2nd ITSL AvgT	2nd ITSL <=75th%	IRSL
591-78-6	methyl n-butyl ketone	YES	1st ITSL		30	annual*	YES				
592-09-6	trifluoropropyltrichlorosilane	NO		default	0.1	annual					
592-42-7	1,5-hexanediene	NO		>75th%	264	annual					
592-76-7	1-heptene	YES	1st ITSL		24	annual	YES				
592-84-7	butyl formate	NO		default	0.1	annual					
593-51-1	methylamine hydrochloride	YES	1st ITSL		64	8 hr	YES				
593-60-2	vinyl bromide	YES	1st ITSL		3	annual*	YES				
606-46-2	n,n-diethyl-o-toluine	NO		default	0.1	annual					
608-31-1	2,6-dichlorobenzenamine	NO		default	0.1	annual					
611-14-3	1-ethyl-2-methylbenzene	NO		default	0.1	annual					
612-00-0	1,1-diphenylethane	YES	1st ITSL		0.8	annual	YES				
613-48-9	n,n-diethyl-p-toludine	NO		default	0.1	annual					
616-38-6	dimethyl carbonate	NO		>75th%	300	annual					
617-94-7	phenyl isopropanol (2-phenyl-2-propanol)	YES	1st ITSL		4	annual	YES				
620-23-5	m-tolualdehyde	NO		>75th%	440	annual*					
621-64-7	n-nitroso-di-n-propylamine	YES	Carc								0.0005
621-77-2	triamylamine	NO		default	0.1	annual					
622-96-8	p-ethyl toluene	NO		>75th%	350	annual*					
622-97-9	4-methylstyrene	YES	1st ITSL		2	annual	YES				
624-41-9	2-methyl butyl acetate	NO		>75th%	1100	annual*					
624-54-4	n-pentyl proprionate	YES	1st ITSL		21	annual	YES				
624-83-9	Methyl isocyanate	YES	ATW								
624-92-0	dimethyl disulfide	YES	1st ITSL		28	annual	YES				
626-38-0	2-pentyl acetate	NO		>75th%	2600	8 hr					
626-67-5	n-methylpiperidine	YES	1st ITSL		8	annual	YES				
627-20-3	cis-2-pentene	NO		default	0.1	annual					
627-30-5	3-chloro-1-propanol	NO		default	0.1	annual					

Table 4. Current and Proposed MDEQ Air Quality Division Screening Level List of Toxic Air Contaminants

NEW AvgT "annual" Some ITSLs with 24-hr avg. time were converted to annual avg. because ITSL was derived to protect for chronic effects.

CAS Number	Chemical Name	Future TAC?	Basis for Yes	Reason for No, etc.	1st ITSL ($\mu g/m^3$)	*NEW AvgT	1st ITSL <=75th%	2nd ITSL ($\mu g/m^3$)	2nd ITSL AvgT	2nd ITSL <=75th%	IRSL
627-83-8	octadecanoic acid, 1,2-ethanediyl ester	NO		default	0.1	annual					
628-63-7	n-amyl acetate	NO		>75th%	1100	annual*					
629-11-8	1,6-hexanediol	YES	1st ITSL		14	annual	YES				
629-73-2	1-hexadecene	YES	1st ITSL		17	annual	YES				
630-20-6	1,1,1,2-tetrachloroethane	YES	Carc								0.1
630-93-3	sodium dilantin	YES	Carc								0.04
632-22-4	tetramethyl urea	YES	1st ITSL, 2nd ITSL		0.8	annual	YES	**230**	**24 hr**	**YES**	
634-66-2	1,2,3,4-tetrachlorobenzene	NO		>75th%	120	annual*					
634-90-2	1,2,3,5-tetrachlorobenzene	YES	1st ITSL		12	annual*	YES				
637-92-3	ethyl tertiary butyl ether	NO		>75th%	373	annual*					
644-62-2	meclofenamic acid	NO		default	0.1	annual					
646-06-0	1,3-dioxolane	YES	1st ITSL		10	annual	YES				
668-45-1	chlorofluorobenzonitrile	NO		default	0.1	annual					
677-21-4	3,3,3-trifluoropropene	NO		>75th%	280	annual					
684-93-5	n-nitroso-n-methylurea	YES	Carc								2E-06
694-87-1	benzocyclobutene	NO		>75th%	220	annual					
696-82-2	2,4,6-trifluoropyrimidine	NO		default	0.1	annual					
701-64-4	monophenyl phosphoric acid	YES	1st ITSL		3	annual	YES				
756-79-6	dimethyl methyl phosphonate	NO		>75th%	700	annual*					
763-69-9	ethyl-3-ethyloxypropionate	NO		>75th%	134	annual*					
770-35-4	propylene glycol phenyl ether	YES	1st ITSL		8	annual	YES				
778-25-6	diphenylmethylsilanol	YES	1st ITSL		6	annual	YES				
807-28-3	tetraphenyldimethyldisiloxane	NO		default	0.1	annual					
811-97-2	1,1,1,2-tetrafluoroethane	NO		>75th%	80000	annual*					
814-68-6	acryloyl chloride	YES	1st ITSL		0.3	annual	YES				
822-06-0	hexamethylene diisocyanate	YES	1st ITSL		0.01	annual*	YES				

Table 4. Current and Proposed MDEQ Air Quality Division Screening Level List of Toxic Air Contaminants

NEW AvgT "annual" Some ITSLs with 24-hr avg. time were converted to annual avg. because ITSL was derived to protect for chronic effects.

CAS Number	Chemical Name	Future TAC?	Basis for Yes	Reason for No, etc.	1st ITSL ($\mu g/m^3$)	*NEW AvgT	1st ITSL <=75th%	2nd ITSL ($\mu g/m^3$)	2nd ITSL AvgT	2nd ITSL <=75th%	IRSL
827-52-1	cyclohexylbenzene	NO		default	0.1	annual					
836-30-6	n-nitrodiphenylamine	YES	1st ITSL		1	annual	YES				
838-85-7	diphenyl phosphoric acid	NO		default	0.1	annual					
859-18-7	lincomycin hydrochloride	YES	1st ITSL		75	annual*	YES				
868-77-9	2-hydroxyethyl methacrylate	YES	1st ITSL		10	annual	YES				
872-36-6	vinylene carbonate	NO		default	0.1	annual					
872-50-4	N-methylpyrrolidone	NO		>75th%	700	annual*					
947-19-3	1-hydroxcyclohexyl phenyl ketone	NO		default	0.1	annual					
981-34-0	betamethasone 11	YES	1st ITSL		17	annual	YES				
992-94-9	methylsilane	YES	1st ITSL		30	annual*	YES				
993-07-7	trimethylsilane	NO		>75th%	340	annual					
994-05-8	tertiary amyl methyl ether	YES	1st ITSL		62	annual*	YES				
996-35-0	dimethylisopropylamine	NO		>75th%	200	annual					
999-97-3	hexamethyldisilazane	NO		>75th%	206	annual					
1009-93-4	hexamethylcyclotrisilazane	NO		default	0.1	annual					
1047-16-1	quinacridone pigment	NO		default	0.1	annual					
1066-35-9	dimethylchlorosilane	YES	1st ITSL		2	annual	YES				
1066-40-6	trimethylsilanol	YES	1st ITSL		65	annual	YES				
1067-25-0	propyltrimethoxysilane	NO		>75th%	1000	annual					
1070-10-6	2-ethylhexyltitanate	NO		default	0.1	annual					
1072-53-3	1,3,2-dioxathiolane,2,2-dioxide	NO		default	0.1	annual					
1072-63-5	1-vinylimidazol	YES	1st ITSL		9	annual	YES				
1074-40-4	4,6-dichloro-2-methoxypyrimidine	NO		default	0.1	annual					
1111-74-6	dimethylsilane	YES	1st ITSL		30	annual*	YES				
1112-39-6	dimethyldimethoxysilane	YES	1st ITSL		90	annual	YES				
1116-54-7	n-nitrosodiethanolamine	YES	Carc								0.0012
1120-71-4	1,3-propane sultone	YES	1st ITSL		2	annual	YES				
1122-82-3	cyclohexyl isothiocyanate	NO		default	0.1	annual					

Table 4. Current and Proposed MDEQ Air Quality Division Screening Level List of Toxic Air Contaminants

NEW AvgT "annual" Some ITSLs with 24-hr avg. time were converted to annual avg. because ITSL was derived to protect for chronic effects.

CAS Number	Chemical Name	Future TAC?	Basis for Yes	Reason for No, etc.	1st ITSL (µg/m^3)	*NEW AvgT	1st ITSL <=75th%	2nd ITSL (µg/m^3)	2nd ITSL AvgT	2nd ITSL <=75th%	IRSL
1156-19-0	tolazamide	YES	1st ITSL		17	annual	YES				
1163-19-5	decabromodiphenyl oxide	YES	1st ITSL, Carc		25	annual*	YES				5
1184-85-6	methyl methane sulfonamide	NO		default	0.1	annual					
1185-55-3	trimethoxymethylsilane	YES	1st ITSL		80	annual	YES				
1194-02-1	p-fluorobenzonitrile	YES	1st ITSL		0.5	annual	YES				
1300-72-7	sodium xylenesulfonate	NO		default	0.1	annual					
1306-38-3	cerium oxide	YES	1st ITSL		0.9	annual*	YES				
1308-14-1	chromium (+3) hydroxide	YES	1st ITSL		0.5	annual*	YES				
1308-38-9	chromium 3 oxide	YES	1st ITSL		0.5	annual*	YES				
1309-42-8	magnesium hydroxide	YES	1st ITSL		100	8 hr	YES				
1309-48-4	magnesium oxide	YES	1st ITSL		100	8 hr	YES				
1309-64-4	antimony trioxide	YES	1st ITSL		0.2	annual*	YES				
1310-53-8	germanium dioxide	YES	1st ITSL		7	annual	YES				
1310-58-3	potassium hydroxide	YES	1st ITSL		20	1 hr	YES				
1310-66-3	lithium hydroxide	YES	1st ITSL		0.25	8 hr	YES				
1310-73-2	sodium hydroxide	YES	1st ITSL		20	1 hr	YES				
1313-27-5	molybdenum trioxide	YES	1st ITSL, Carc		5	8 hr	YES				0.12
1313-96-8	niobium oxide	NO		default	0.1	annual					
1314-13-2	zinc oxide	YES	1st ITSL		50	8 hr	YES				
1314-28-9	rhenium oxide	NO		default	0.1	annual					
1314-32-5	thallic oxide	YES	1st ITSL		0.2	annual*	YES				
1314-62-1	vanadium pentoxide	YES	1st ITSL		0.5	1 hr	YES				
1317-33-5	molybdenum disulfide	YES	1st ITSL		30	8 hr	YES				
1319-77-3	cresol (mixed isomers)	YES	1st ITSL		100	8 hr	YES				
1320-67-8	propylene glycol monomethyl ether	NO		>75th%	2000	annual*					
1328-53-6	phthalocyanine pigment green	NO		default	0.1	annual					

Table 4. Current and Proposed MDEQ Air Quality Division Screening Level List of Toxic Air Contaminants

NEW AvgT "annual" Some ITSLs with 24-hr avg. time were converted to annual avg. because ITSL was derived to protect for chronic effects.

CAS Number	Chemical Name	Future TAC?	Basis for Yes	Reason for No, etc.	1st ITSL ($\mu g/m^3$)	*NEW AvgT	1st ITSL <=75th%	2nd ITSL ($\mu g/m^3$)	2nd ITSL AvgT	2nd ITSL <=75th%	IRSL
1330-20-7	mixed xylenes	YES	1st ITSL		100	annual*	YES				
1330-86-5	adipate plasticizer	NO		default	0.1	annual					
1332-21-4	asbestos	YES	Carc								2E-05
1332-58-7	kaolin	YES	1st ITSL		20	8 hr	YES				
1333-13-7	tert-butyl-m-cresol	NO		default	0.1	annual					
1333-86-4	carbon black	YES	1st ITSL		30	8 hr	YES				
1336-21-6	ammonium hydroxide	NO		>75th%	200	annual*					
1336-36-3	polychlorinated biphenyls	YES	Carc								0.002
1338-23-4	methyl ethyl ketone peroxide	YES	1st ITSL		15	1 hr	YES				
1345-04-6	antimony trisulfide	YES	1st ITSL		0.2	annual*	YES				
1345-05-7	lithopone	NO		default	0.1	annual					
1405-10-3	neomycin sulfate	NO		>75th%	280	annual					
1445-45-0	trimethyl-o-acetate	YES	1st ITSL		24	annual	YES				
1477-55-0	1,3-bis(aminomethyl)benzenen	YES	1st ITSL		1	1 hr	YES				
1559-35-9	ethylene glycol mono-2-ethylhexyl ether	YES	1st ITSL		37	annual	YES				
1559-36-0	diethylene glycol mono-2-ethylhexyl ether	YES	1st ITSL		22	annual	YES				
1559-37-1	triethylene glycol mono-2-ethyhexyl ether	NO		default	0.1	annual					
1569-01-3	1-propoxy-2-propanol	YES	1st ITSL		86	annual*	YES				
1569-02-4	propylene glycol monoethyl ether (beta)	NO		>75th%	240	annual					
1589-47-5	2-methoxy-1-propanol	NO		>75th%	660	annual*					
1590-87-0	disilane	NO		default	0.1	annual					
1623-15-0	monobutyl phosphoric acid	YES	1st ITSL		15	annual	YES				
1634-04-4	methyl t-butyl ether	NO		>75th%	3000	annual*					
1643-19-2	t-n-butyl ammonium bromide	NO		default	0.1	annual					
1702-17-6	clopyralid	YES	1st ITSL		15	annual	YES				

Table 4. Current and Proposed MDEQ Air Quality Division Screening Level List of Toxic Air Contaminants

NEW AvgT "annual" Some ITSLs with 24-hr avg. time were converted to annual avg. because ITSL was derived to protect for chronic effects.

CAS Number	Chemical Name	Future TAC?	Basis for Yes	Reason for No, etc.	1st ITSL ($\mu g/m^3$)	*NEW AvgT	1st ITSL <=75th%	2nd ITSL ($\mu g/m^3$)	2nd ITSL AvgT	2nd ITSL <=75th%	IRSL
1717-00-6	1,1-dichloro-1-fluoroethane	NO		>75th%	12800	annual*					
1719-58-0	dimethylvinylchlorosilane	NO		default	0.1	annual					
1746-01-6	2,3,7,8-tetrachlorodibenzo(p)dioxin	YES	1st ITSL, Carc		2E-06	annual	YES				2E-08
1758-88-9	2-ethyl-1,4-dimethyl benzene	NO		default	0.1	annual					
1760-24-3	n-(3-(trimethoxysilyl)propyl)-ethylenediamine	YES	1st ITSL		8	annual	YES				
1761-71-3	4,4'-diaminodicyclohexylmethane	YES	1st ITSL		6	annual	YES				
1763-23-1	PFOS	YES	Emerging								
1873-88-7	heptamethyltrisiloxane	NO		default	0.1	annual					
1897-52-5	2,6-difluorobenzonitrile	YES	1st ITSL		0.2	annual	YES				
1912-83-0	stannous octoate	YES	1st ITSL		1	8 hr	YES				
2031-67-6	methyltriethoxysilane	YES	1st ITSL		23	annual	YES				
2050-92-2	diamylamine	YES	1st ITSL		9	annual	YES				
2157-45-1	tetra-2-methoxyethoxy-silane	NO		default	0.1	annual					
2160-93-2	t-butyldiethanolamine	YES	1st ITSL		9	annual	YES				
2238-07-5	diglycidyl ether	YES	1st ITSL		0.5	8 hr	YES				
2370-88-9	cyclic methylhydrogensiloxane, d4	NO		default	0.1	annual					
2374-14-3	cyclic methyltrifluoropropylsiloxane, d3	YES	1st ITSL		0.6	annual	YES				
2403-89-6	1,2,2,6,6-pentamethyl-4-piperidinol	NO		default	0.1	annual					
2426-08-6	n-butyl glycidyl ether	YES	1st ITSL, 2nd ITSL		300	1 hr	YES	160	8 hr	YES	
2467-02-9	bisphenol f	NO		default	0.1	annual					
2476-74-6	flumethasone 6	NO		default	0.1	annual					
2530-85-0	organofunctional silane	NO		default	0.1	annual					
2627-86-3	L-alpha-phenylethylamine	NO		default	0.1	annual					
2627-95-4	tetramethyldivinyldisiloxane	YES	1st ITSL		16	annual	YES				
2627-97-6	dimethyldiphenydivinylsiloxane	NO		default	0.1	annual					

Table 4. Current and Proposed MDEQ Air Quality Division Screening Level List of Toxic Air Contaminants

NEW AvgT "annual" Some ITSLs with 24-hr avg. time were converted to annual avg. because ITSL was derived to protect for chronic effects.

CAS Number	Chemical Name	Future TAC?	Basis for Yes	Reason for No, etc.	1st ITSL ($\mu g/m^3$)	*NEW AvgT	1st ITSL <=75th%	2nd ITSL ($\mu g/m^3$)	2nd ITSL AvgT	2nd ITSL <=75th%	IRSL
2682-20-4	2-methyl-4-isothiazolin-3-one	NO		default	0.1	annual					
2687-91-4	1-ethyl-2-pyrrolidone	YES	1st ITSL		4.9	annual	YES				
2768-02-7	vinyltrimethoxysilane	YES	1st ITSL		10	annual	YES				
2807-30-9	ethylene glycol monopropyl ether	YES	1st ITSL		30	annual	YES				
2837-89-0	2-chloro-1,1,1,2-tetrafluoroethane	NO		>75th%	5000	annual*					
2919-66-6	melengesterol acetate	YES	1st ITSL		**2**	annual*	YES				
2981-10-4	piperdinocyclohexene	YES	1st ITSL		2	annual	YES				
2996-92-1	phenyltrimethoxysilane	YES	1st ITSL		60	annual	YES				
3006-82-4	t-butylperoxy-2-ethylhexanoate	NO		default	0.1	annual					
3006-86-8	1,1-di-(tert-buytlperoxy)cyclohexane	NO		default	0.1	annual					
3020-12-0	o-(1-ethoxyethyl)-3-(trifluoromethyl)phenol	NO		default	0.1	annual					
3033-62-3	bis (2-dimethylaminoethyl) ether	YES	1st ITSL		0.05	annual*	YES				
3052-70-8	(1-methylethylidene)bis(1,1-dimethylpropyl)peroxide	NO		default	0.1	annual					
3081-01-4	santoflex 14	NO		default	0.1	annual					
3144-09-0	methanesulfonamide	YES	1st ITSL		44	annual	YES				
3153-26-2	vanadium oxide bis (2,4-pentanedionate)	NO		default	0.1	annual					
3236-53-1	trimethyl hexamethylenediamine	NO		default	0.1	annual					
3277-26-7	tetramethyldihydrogendisiloxane	NO		>75th%	120	annual					
3290-92-4	trimethylolpropane trimethacrylate	YES	1st ITSL		20	annual	YES				
3390-61-2	tetraphenyldimethyl-2-phenylmethyltrisiloxane	NO		default	0.1	annual					
3399-73-3	cyclohexenylethylamine	NO		default	0.1	annual					
3697-24-3	5-methylchrysene	YES	Cal Carc								
3731-51-9	2-(aminomethyl)pyridine	NO		default	0.1	annual					
3764-01-0	2,4,6-trichloropyrimidine	NO		default	0.1	annual					
3779-63-3	aliphatic polyisocyanate-1	NO		default	0.1	annual					

Table 4. Current and Proposed MDEQ Air Quality Division Screening Level List of Toxic Air Contaminants

NEW AvgT "annual" Some ITSLs with 24-hr avg. time were converted to annual avg. because ITSL was derived to protect for chronic effects.

CAS Number	Chemical Name	Future TAC?	Basis for Yes	Reason for No, etc.	1st ITSL ($\mu g/m^3$)	*NEW AvgT	1st ITSL <=75th%	2nd ITSL ($\mu g/m^3$)	2nd ITSL AvgT	2nd ITSL <=75th%	IRSL
3814-34-4	2-ethylbutyl bromide	NO		default	0.1	annual					
3843-16-1	distearyldimethylammonium methosulfate	NO		default	0.1	annual					
3982-82-9	tetraphenyldimethyl-2-dimethyltrisiloxane	NO		default	0.1	annual					
3986-89-8	progesterone 4	NO		default	0.1	annual					
4098-71-9	isophorone diisocyanate	YES	1st ITSL		0.45	8 hr	YES				
4109-96-0	dichlorosilane	NO		default	0.1	annual					
4170-30-3	crotonaldehyde	YES	1st ITSL		9	1 hr	YES				
4221-98-1	p-mentha-1,5-diene	NO		default	0.1	annual					
4253-34-3	methyltriacetoxysilane	NO		default	0.1	annual					
4420-74-0	3-mercaptopropyltrimethoxysilane	YES	1st ITSL		2.4	annual	YES				
4435-53-4	butoxyl	YES	1st ITSL		14	annual	YES				
4444-67-1	di-sec-butylamine	NO		>75th%	417	annual					
4620-70-6	t-butylaminoethanol	YES	1st ITSL		5	annual	YES				
4652-27-1	4-methoxy-3-buten-2-one	NO		default	0.1	annual					
4994-16-5	4-phenylcyclohexene	YES	1st ITSL		33	annual	YES				
5131-66-8	propylene glycol n-butyl ether (alpha isomer)	YES	1st ITSL		77	annual	YES				
5314-55-6	ethyltrimethoxysilane	YES	1st ITSL		3	annual	YES				
5329-14-6	sulfamic acid	YES	1st ITSL		4	annual	YES				
5385-75-1	Dibenzo[a,e]fluoranthene	YES	EPA Carc								
5436-21-5	4,4-dimethoxy-2-butanone	YES	1st ITSL		20	annual	YES				
5507-44-8	vinylmethyldiethoxysilane	NO		default	0.1	annual					
5509-65-9	2,6-difluoroaniline	YES	1st ITSL		2	annual	YES				
5779-94-2	2,5-dimethylbenzaldehyde	NO		default	0.1	annual					
5888-33-5	iso-bornyl acrylate	YES	1st ITSL		14	annual	YES				
5906-75-2	vinyl dimethylsilanol	NO		default	0.1	annual					
5989-27-5	d-limonene	NO		>75th%	6250	annual*					

Table 4. Current and Proposed MDEQ Air Quality Division Screening Level List of Toxic Air Contaminants

NEW AvgT "annual" Some ITSLs with 24-hr avg. time were converted to annual avg. because ITSL was derived to protect for chronic effects.

CAS Number	Chemical Name	Future TAC?	Basis for Yes	Reason for No, etc.	1st ITSL ($\mu g/m^3$)	*NEW AvgT	1st ITSL <=75th%	2nd ITSL ($\mu g/m^3$)	2nd ITSL AvgT	2nd ITSL <=75th%	IRSL
6004-24-6	cetylpyridinium chloride monohydrate	YES	1st ITSL		1.8	annual	YES				
6166-86-5	cyclic methylhydrogensiloxane, d5	NO		default	0.1	annual					
6192-52-5	p-toluenesulfonic acid monohydrate	NO		default	0.1	annual					
6408-78-2	C.I. acid blue 25	NO		default	0.1	annual					
6419-19-8	aminotrimethylene phosphonic acid	NO		default	0.1	annual					
6574-99-8	3,4-dichlorobenzonitrile	YES	1st ITSL		2	annual	YES				
6674-22-2	1,8-diazabicyclo[5.4.0]undec-7-ene	NO		default	0.1	annual					
6700-34-1	dextromethorphan hydrochloride	YES	1st ITSL		0.4	annual	YES				
6713-03-7	1-(2-hydroxyethylthio)propane	NO		default	0.1	annual					
6846-50-0	2,2,4-trimethylpentanediol-1,3-diisobutyrate	NO		>75th%	106	annual					
6904-66-1	tetraphenylhexamethyltetrasiloxane	NO		default	0.1	annual					
6915-15-7	malic acid	YES	1st ITSL		5	annual	YES				
6975-71-9	cyclohexenylacetonitrile	YES	1st ITSL		3.5	annual	YES				
7085-85-0	ethyl 2-cyanoacrylate	YES	1st ITSL		10	8 hr	YES				
7439-93-2	lithium	YES	1st ITSL		35	annual*	YES				
7439-95-4	magnesium	YES	1st ITSL		100	8 hr	YES				
7439-96-5	manganese and compounds	YES	1st ITSL		0.05	annual	YES				
7439-97-6	Mercury	YES	<75%								
7439-98-7	molybdenum	YES	1st ITSL		30	8 hr	YES				
7440-02-0	nickel	YES	Carc								0.0042
7440-05-3	palladium	NO		default	0.1	annual					
7440-06-4	platinum soluble salt	YES	1st ITSL		0.02	8 hr	YES				
7440-22-4	silver - soluble	YES	1st ITSL		0.1	8 hr	YES				
7440-24-6	strontium	NO		>75th%	2000	annual*					
7440-28-0	thallium	YES	1st ITSL		0.2	annual*	YES				
7440-31-5	tin	YES	1st ITSL		20	8 hr	YES				
7440-36-0	antimony	YES	1st ITSL		0.2	annual*	YES				

Table 4. Current and Proposed MDEQ Air Quality Division Screening Level List of Toxic Air Contaminants

NEW AvgT "annual" Some ITSLs with 24-hr avg. time were converted to annual avg. because ITSL was derived to protect for chronic effects.

CAS Number	Chemical Name	Future TAC?	Basis for Yes	Reason for No, etc.	1st ITSL ($\mu g/m^3$)	*NEW AvgT	1st ITSL <=75th%	2nd ITSL ($\mu g/m^3$)	2nd ITSL AvgT	2nd ITSL <=75th%	IRSL
7440-38-2	arsenic	YES	Carc								0.0002
7440-39-3	barium	YES	1st ITSL		5	8 hr	YES				
7440-41-7	beryllium	YES	1st ITSL, Carc		0.02	annual*	YES				0.0004
7440-43-9	cadmium	YES	Carc								0.0006
7440-45-1	cerium	YES	1st ITSL		6	annual	YES				
7440-48-4	cobalt	YES	1st ITSL		0.2	8 hr	YES				
7440-50-8	copper	YES	1st ITSL		2	8 hr	YES				
7440-65-5	yttrium	YES	1st ITSL		10	8 hr	YES				
7446-11-9	sulfur trioxide	YES	1st ITSL, 2nd ITSL		1	annual	YES	120	1 hr	YES	
7446-70-0	aluminum chloride	YES	1st ITSL		20	8 hr	YES				
7473-98-5	2-hydroxy-2-methyl-1-phenyl-1-propanone	NO		default	0.1	annual					
7525-62-4	ethylvinyl benzene	NO		default	0.1	annual					
7553-56-2	iodine	YES	1st ITSL		1	8 hr	YES				
7558-79-4	disodium hydrogen phosphate	YES	1st ITSL		10	annual*	YES				
7580-85-0	2-tert-butoxyethanol	YES	1st ITSL		7	annual	YES				
7631-90-5	sodium bisulfite	YES	1st ITSL		50	8 hr	YES				
7631-95-0	sodium molybdate	YES	1st ITSL		5	8 hr	YES				
7632-00-0	sodium nitrite	YES	1st ITSL		10	annual	YES				
7632-04-4	sodium perborate	YES	1st ITSL		8	annual	YES				
7637-07-2	boron trifluoride	YES	1st ITSL		0.7	annual*	YES				
7647-01-0	hydrogen chloride	YES	1st ITSL		20	annual	YES	2100	1 hr		
7647-15-6	sodium bromide	NO		>75th%	140	annual*					
7664-38-2	phosphoric acid	YES	1st ITSL		10	annual*	YES				
7664-39-3	hydrogen fluoride	YES	1st ITSL, 2nd ITSL		14	annual	YES	240	1 hr	YES	

Table 4. Current and Proposed MDEQ Air Quality Division Screening Level List of Toxic Air Contaminants

NEW AvgT "annual" Some ITSLs with 24-hr avg. time were converted to annual avg. because ITSL was derived to protect for chronic effects.

CAS Number	Chemical Name	Future TAC?	Basis for Yes	Reason for No, etc.	1st ITSL ($\mu g/m^3$)	*NEW AvgT	1st ITSL <=75th%	2nd ITSL ($\mu g/m^3$)	2nd ITSL AvgT	2nd ITSL <=75th%	IRSL
7664-41-7	ammonia	YES	1st ITSL		100	annual*	YES				
7664-93-9	sulfuric acid	YES	1st ITSL, 2nd ITSL		1	annual	YES	120	1 hr	YES	
7681-49-4	sodium fluoride	YES	1st ITSL		60	8 hr	YES				
7681-52-9	sodium hypochlorite	YES	1st ITSL		16	8 hr	YES				
7681-82-5	sodium iodide	NO		default	0.1	annual					
7691-02-3	tetramethyldivinyldisila	YES	1st ITSL		30	annual	YES				
7697-37-2	nitric acid	YES	1st ITSL		50	8 hr	YES				
7704-34-9	sulfur (elemental)	YES	1st ITSL		30	8 hr	YES				
7722-64-7	potassium permanganate	YES	1st ITSL		0.1	annual*	YES				
7722-76-1	ammonium dihydrogen phosphate	NO		default	0.1	annual					
7722-84-1	hydrogen peroxide	YES	1st ITSL		14	8 hr	YES				
7723-14-0	phosphorus (total)	YES	1st ITSL		1	8 hr	YES				
7726-95-6	bromine	YES	1st ITSL		7	8 hr	YES				
7727-43-7	barium sulfate	YES	1st ITSL		50	8 hr	YES				
7757-83-7	sodium sulfite	YES	1st ITSL		0.028	annual	YES				
7758-05-6	potassium iodate	YES	1st ITSL		1	annual	YES				
7758-98-7	copper sulfate, anhydrous	YES	1st ITSL		2	8 hr	YES				
7758-99-8	copper sulfate pentahydrate	YES	1st ITSL		10	8 hr	YES				
7782-49-2	selenium	YES	1st ITSL		2	8 hr	YES				
7782-50-5	chlorine	YES	1st ITSL, 2nd ITSL		0.3	annual	YES	500	8 hr	YES	
7782-65-2	germanium tetrahydride	YES	1st ITSL		6	8 hr	YES				
7783-06-4	hydrogen sulfide	YES	1st ITSL, 2nd ITSL		2	annual	YES	**100**	**24 hr**	**YES**	
7783-28-0	diammonium hydrogen phosphate	NO		default	0.1	annual					
7783-54-2	nitrogen trifluoride	YES	1st ITSL		290	8 hr	YES				
7783-61-1	silicon tetrafluoride	YES	1st ITSL		0.2	annual	YES				

Table 4. Current and Proposed MDEQ Air Quality Division Screening Level List of Toxic Air Contaminants

NEW AvgT "annual" Some ITSLs with 24-hr avg. time were converted to annual avg. because ITSL was derived to protect for chronic effects.

CAS Number	Chemical Name	Future TAC?	Basis for Yes	Reason for No, etc.	1st ITSL ($\mu g/m^3$)	*NEW AvgT	1st ITSL <=75th%	2nd ITSL ($\mu g/m^3$)	2nd ITSL AvgT	2nd ITSL <=75th%	IRSL
7784-42-1	arsine	YES	1st ITSL		0.05	annual*	YES				
7786-30-3	magnesium chloride	YES	1st ITSL		5	annual	YES				
7789-23-3	potassium fluoride	YES	1st ITSL		76	8 hr	YES				
7789-82-4	calcium molybdate	YES	1st ITSL		5	8 hr	YES				
7803-51-2	phosphine	YES	1st ITSL		0.3	annual*	YES				
7803-52-3	stibine	YES	1st ITSL		5	8 hr	YES				
7803-62-5	silicon tetrahydride	YES	1st ITSL		30	annual*	YES				
8001-35-2	toxaphene	YES	Carc								0.003
8001-79-4	castor oil	YES	1st ITSL		50	8 hr	YES				
8002-09-3	yarmor pine oil	YES	1st ITSL		10	annual	YES				
8002-74-2	paraffin wax fume	YES	1st ITSL		20	8 hr	YES				
8005-02-5	solvent black	NO		default	0.1	annual					
8006-61-9	gasoline	YES	Carc								2
8006-64-2	turpentine	YES	1st ITSL		1120	8 hr	YES				
8007-45-2	coke oven emissions	YES	Carc								0.0016
8012-95-1	mineral oil	YES	1st ITSL		50	8 hr	YES				
8014-95-7	oleum	YES	1st ITSL, 2nd ITSL		1	annual	YES	120	1 hr	YES	
8020-83-5	deodorized kerosene	YES	1st ITSL		24	annual	YES				
8030-30-6	naphtha	NO		>75th%	3500	8 hr					
8032-32-4	VM & P naphtha	NO		>75th%	3500	8 hr					
8042-47-5	white mineral oil	YES	1st ITSL		50	8 hr	YES				
8050-09-7	colophony	YES	1st ITSL		1	1 hr	YES				
8052-41-3	stoddard solvent	NO		>75th%	3500	8 hr					
8052-42-4	Asphalt fumes	YES	Carc								
9000-90-2	alpha-amylase	YES	1st ITSL		0.02	1 hr	YES				
9001-92-7	bacillus subtilis neutral protease	YES	1st ITSL		0.02	1 hr	YES				
9002-86-2	polyvinyl chloride	YES	1st ITSL		5	annual	YES				

Table 4. Current and Proposed MDEQ Air Quality Division Screening Level List of Toxic Air Contaminants

NEW AvgT "annual" Some ITSLs with 24-hr avg. time were converted to annual avg. because ITSL was derived to protect for chronic effects.

CAS Number	Chemical Name	Future TAC?	Basis for Yes	Reason for No, etc.	1st ITSL ($\mu g/m^3$)	*NEW AvgT	1st ITSL <=75th%	2nd ITSL ($\mu g/m^3$)	2nd ITSL AvgT	2nd ITSL <=75th%	IRSL
9002-92-0	polyoxyethylene lauryl ether	YES	1st ITSL		12	annual	YES				
9002-93-1	triton x100	YES	1st ITSL		0.15	annual	YES				
9003-11-6	methyl oxirane (pluronic p103)	NO		default	0.1	annual					
9003-13-8	polyalkylene glycol monobutyl ether/ butoxypolypropylene glycol	NO		>75th%	160	annual					
9003-22-9	polyvinylchloride/polyvinylacetate	YES	1st ITSL		50	annual	YES				
9003-39-8	polyvinyl pyrrolidone	YES	1st ITSL		4	annual	YES				
9003-55-8	styrene-butadiene polymer	NO		default	0.1	annual					
9004-32-4	carboxymethyl cellulose	NO		>75th%	300	annual					
9004-58-4	ethylhydroxyethyl cellulose	YES	1st ITSL		50	8 hr	YES				
9004-74-4	polyethylene glycol methyl ether	YES	1st ITSL		13	annual	YES				
9011-17-0	polyvinylidine fluoride	NO		default	0.1	annual					
9014-85-1	tetramethyl decyndiol	NO		default	0.1	annual					
9014-92-0	t-det dd-14	NO		default	0.1	annual					
9016-45-9	igepal co-630	YES	1st ITSL		18	annual	YES				
9016-87-9	polmeric methylene diphenyl diisocyanate	YES	1st ITSL		0.6	annual*	YES				
9036-19-5	t-det c08	NO		default	0.1	annual					
9063-06-3	oxirane, methyl-, polymer with oxirane, monomethyl ether	NO		default	0.1	annual					
10025-78-2	trichlorosilane	YES	1st ITSL		8	annual	YES				
10025-91-9	antimony trichloride	YES	1st ITSL		5	8 hr	YES				
10026-04-7	silicon tetrachloride	NO		>75th%	1100	annual					
10034-93-2	hydrazine sulfate	YES	Carc								0.0008
10034-96-5	manganese sulfate monohydrate	YES	1st ITSL		0.15	annual*	YES				
10035-10-6	hydrogen bromide	YES	1st ITSL		70	1 hr	YES				
10039-56-2	sodium hypophosphite monohydrate	NO		default	0.1	annual					
10049-04-4	chlorine dioxide	YES	1st ITSL		0.2	annual*	YES				

Table 4. Current and Proposed MDEQ Air Quality Division Screening Level List of Toxic Air Contaminants

NEW AvgT "annual" Some ITSLs with 24-hr avg. time were converted to annual avg. because ITSL was derived to protect for chronic effects.

CAS Number	Chemical Name	Future TAC?	Basis for Yes	Reason for No, etc.	1st ITSL ($\mu g/m^3$)	*NEW AvgT	1st ITSL <=75th%	2nd ITSL ($\mu g/m^3$)	2nd ITSL AvgT	2nd ITSL <=75th%	IRSL
10096-91-0	hydroxyphenylbenzotriazole	NO		default	0.1	annual					
10097-09-3	bis-urea accelerator	NO		default	0.1	annual					
10190-55-3	lead molybdate	YES	1st ITSL		30	8 hr	YES				
10215-30-2	2-propoxy-1-propanol	NO		default	0.1	annual					
10377-60-3	magnesium nitrate	YES	1st ITSL		100	8 hr	YES				
10431-98-8	2-ethyl-2-oxazoline	YES	1st ITSL		53	annual	YES				
10469-09-7	tetrachloropicolinic acid	YES	1st ITSL		21	annual	YES				
10482-56-1	alpha-terpineol	NO		default	0.1	annual					
10551-21-0	phenethyl alpha picolinium bromide	NO		default	0.1	annual					
12021-95-3	hexafluorozirconium acid	NO		default	0.1	annual					
12035-72-2	nickel subsulfide	YES	Carc								0.0021
12037-29-5	praseodymium oxide	NO		default	0.1	annual					
12054-85-2	ammonium molybdate	YES	1st ITSL		5	8 hr	YES				
12070-12-1	tungsten carbide	YES	1st ITSL		50	8 hr	YES				
12136-45-7	potassium oxide	NO		default	0.1	annual					
12262-58-7	cyclohexanone peroxide	NO		default	0.1	annual					
12401-86-4	sodium monoxide	NO		default	0.1	annual					
12789-03-6	chlordane (technical)	YES	1st ITSL, Carc		0.7	annual*	YES				0.01
13007-85-7	sodium glucoheptonate	NO		default	0.1	annual					
13209-41-1	17,21-dihydroxy-16 alpha-methylpregna-1,4,9(11)-triene-3,20-dione	NO		default	0.1	annual					
13465-77-5	hexachlorodisilane	NO		default	0.1	annual					
13466-78-9	carene, delta	YES	1st ITSL		1120	8 hr	YES				
13528-93-3	bis(me2clsilyl)ethane	NO		default	0.1	annual					
13701-59-2	barium metaborate monohydrate	NO		default	0.1	annual					
13879-32-8	1,1'[methylenebis(oxyethane-1,2-diloxy)]bisbenzene	YES	1st ITSL		0.7	annual	YES				

Table 4. Current and Proposed MDEQ Air Quality Division Screening Level List of Toxic Air Contaminants

NEW AvgT "annual" Some ITSLs with 24-hr avg. time were converted to annual avg. because ITSL was derived to protect for chronic effects.

CAS Number	Chemical Name	Future TAC?	Basis for Yes	Reason for No, etc.	1st ITSL ($\mu g/m^3$)	*NEW AvgT	1st ITSL <=75th%	2nd ITSL ($\mu g/m^3$)	2nd ITSL AvgT	2nd ITSL <=75th%	IRSL
13952-84-6	sec-butylamine	YES	1st ITSL		5	annual	YES				
14579-03-4	cyclopentyltrichlorosilane	NO		default	0.1	annual					
14807-96-6	talc	YES	Carc								0.8
14808-60-7	Crystalline silica	YES	1st ITSL		3	annual	YES				
14960-06-6	sodium lauriminodipropionate	NO		default	0.1	annual					
15096-52-3	sodium aluminum fluoride	YES	1st ITSL		270	8 hr	YES				
15245-12-2	nitric acid, ammonium calcium salt	NO		default	0.1	annual					
15321-61-6	iron oxalate	NO		default	0.1	annual					
15821-83-7	propylene glycol n-butyl ether (beta isomer)	YES	1st ITSL		77	annual	YES				
15956-58-8	manganese 2-ethylhexanoate	YES	1st ITSL		0.3	annual*	YES				
16065-83-1	Chromium, trivalent	YES	1st ITSL		5	8 hr	YES				
16079-88-2	1-bromo-3-chloro-5,5-dimethylhydantoin	YES	1st ITSL		2	8 hr	YES				
16369-21-4	n-propylethanolamine	YES	1st ITSL		28	annual	YES				
16691-43-3	3-amino-5-mercapto-1,2,4-triazole	YES	1st ITSL		7	annual	YES				
16753-62-1	methylvinyldimethoxysilane	YES	1st ITSL		100	annual	YES				
16881-77-9	methyldimethoxysilane	YES	1st ITSL		92	annual	YES				
16883-83-3	1,3-pentanediol-2,2,4-trimethyl-3-(benzyl phthalate)-isobutyrate	NO		default	0.1	annual					
16893-85-9	sodium silicofluoride	YES	1st ITSL		250	8 hr	YES				
16919-31-6	ammonium hexafluorozirconate	NO		default	0.1	annual					
17557-23-2	neopentyl glycol diglycidyl ether	NO		default	0.1	annual					
17639-93-9	methyl chloroproprionate	YES	1st ITSL		6	annual	YES				
18063-03-1	2,6-difluorobenzamide	YES	1st ITSL		11	annual	YES				
18300-89-5	cinnamate	NO		default	0.1	annual					
18395-30-7	isobutyltrimethoxysilane	NO		>75th%	200	annual					
18540-29-9	chromium, hexavalent - mist	YES	1st ITSL, Carc		0.008	annual*	YES				8E-05

Table 4. Current and Proposed MDEQ Air Quality Division Screening Level List of Toxic Air Contaminants

NEW AvgT "annual" Some ITSLs with 24-hr avg. time were converted to annual avg. because ITSL was derived to protect for chronic effects.

CAS Number	Chemical Name	Future TAC?	Basis for Yes	Reason for No, etc.	1st ITSL ($\mu g/m^3$)	*NEW AvgT	1st ITSL <=75th%	2nd ITSL ($\mu g/m^3$)	2nd ITSL AvgT	2nd ITSL <=75th%	IRSL
18540-29-9	chromium, hexavalent - particulate	YES	1st ITSL, Carc		0.1	annual*	YES				8E-05
18868-43-4	molybdenum dioxide	YES	1st ITSL		30	8 hr	YES				
19089-47-5	propylene glycol monoethyl ether (alpha)	YES	1st ITSL		23	annual	YES				
19430-93-4	perfluorobutylethylene	NO		>75th%	340	annual					
19549-80-5	4,6-dimethyl-2-heptanone	NO		default	0.1	annual					
19666-30-9	oxadiazon	YES	Carc								0.05
20324-33-8	tripropylene glycol methyl ether, dowanol 62b	YES	1st ITSL		10	annual	YES				
20536-16-7	tetrachlorodisilane	NO		default	0.1	annual					
21324-40-3	lithium hexafluorophosphate	NO		default	0.1	annual					
21348-59-4	niobium oxalate	NO		default	0.1	annual					
22407-51-8	tetramethylchlorovinyldisiloxane	NO		default	0.1	annual					
22431-89-6	3,3,6,6-tetramethyl-1,2-dioxane	NO		default	0.1	annual					
23410-40-4	1,2-ethanediamine, n-(3-(dimethoxymethylsilyl)-2-methylpropyl)	NO		default	0.1	annual					
24304-00-5	aluminum nitride	YES	1st ITSL		0.03	annual	YES				
24510-87-0	flumethasone 5	NO		default	0.1	annual					
24729-96-2	clindamycin phosphate	YES	1st ITSL		6	annual	YES				
24937-79-9	polyvinylidene fluoride	NO		default	0.1	annual					
24938-91-8	polyglycol 59-13	YES	1st ITSL		7	annual	YES				
25013-15-4	vinyl toluene	YES	1st ITSL		6	annual*	YES				
25036-25-3	diglycidyl ether of bisphenol a	NO		default	0.1	annual					
25068-38-6	bisphenol a/epichlorohydrin resin	NO		>75th%	160	annual					
25085-99-8	bisphenol epoxy resin	NO		default	0.1	annual					
25154-52-3	nonyl phenol (mixed isomers)	YES	1st ITSL		30	annual*	YES				
25168-26-7	2,4-D, isooctyl ester	YES	1st ITSL		3	annual	YES				

Table 4. Current and Proposed MDEQ Air Quality Division Screening Level List of Toxic Air Contaminants

NEW AvgT "annual" Some ITSLs with 24-hr avg. time were converted to annual avg. because ITSL was derived to protect for chronic effects.

CAS Number	Chemical Name	Future TAC?	Basis for Yes	Reason for No, etc.	1st ITSL ($\mu g/m^3$)	*NEW AvgT	1st ITSL <=75th%	2nd ITSL ($\mu g/m^3$)	2nd ITSL AvgT	2nd ITSL <=75th%	IRSL
25265-71-8	dipropylene glycol	NO		>75th%	242	annual					
25265-77-4	texanol	YES	1st ITSL		55	annual	YES				
25322-68-3	polyethylene glycol	YES	1st ITSL		8	annual	YES				
25322-69-4	polypropylene glycol	YES	1st ITSL		49	annual	YES				
25340-17-4	diethylbenzene mixture	YES	1st ITSL		6	annual	YES				
25498-49-1	tripropylene glycol methyl ether	YES	1st ITSL		11	annual	YES				
25550-14-5	ethyl toluene -mixture	NO		default	0.1	annual					
25551-13-7	trimethylbenzenes (mixed isomers)	YES	1st ITSL, 2nd ITSL		50	annual	YES	1200	8 hr	YES	
25973-55-1	benzotriazol dimethylpropyl phenol	NO		default	0.1	annual					
25988-97-0	dimethylamine-epichlorohydrin polymer	NO		default	0.1	annual					
26062-79-3	polydimethyl diallyl ammonium chloride	NO		>75th%	1000	annual*					
26142-30-3	diglycidyl ether of polyglycol	NO		default	0.1	annual					
26172-55-4	5-chloro-2-methyl-4-isothiazolin-3-one	NO		default	0.1	annual					
26447-40-5	1,1'-methylene bisisocyanatobenzene	YES	1st ITSL		0.6	annual*	YES				
26471-62-5	toluene diisocyanate	YES	1st ITSL, Carc		0.07	annual*	YES				0.03
26530-20-1	octylisothiazolone	YES	1st ITSL		2	annual	YES				
26544-20-7	mcpa 2-ehe (2-methyl-4-chlorophenoxyacetic acid 2-ethylhexyl ester)	YES	1st ITSL		90	annual	YES				
26761-40-0	diisodecyl ester phthalate	YES	1st ITSL		30	annual	YES				
26780-96-1	poly(1,2-dihydro-2,2,4-trimethylquinoline)	YES	1st ITSL		35	annual*	YES				
26952-20-5	picloram, isooctyl ester	NO		default	0.1	annual					
26952-21-6	isooctanol	NO		>75th%	2700	8 hr					
27078-75-7	4,6-difluoro-2-methoxypyrimidine	NO		default	0.1	annual					
27208-37-3	Cyclopenta[c,d]pyrene	YES	EPA Carc								

Table 4. Current and Proposed MDEQ Air Quality Division Screening Level List of Toxic Air Contaminants

NEW AvgT "annual" Some ITSLs with 24-hr avg. time were converted to annual avg. because ITSL was derived to protect for chronic effects.

CAS Number	Chemical Name	Future TAC?	Basis for Yes	Reason for No, etc.	1st ITSL (µg/m^3)	*NEW AvgT	1st ITSL <=75th%	2nd ITSL (µg/m^3)	2nd ITSL AvgT	2nd ITSL <=75th%	IRSL
27253-31-2	cobalt neodecanoate	YES	1st ITSL		1.4	8 hr	YES				
27253-32-3	manganese neodecanoate	YES	1st ITSL		0.3	annual*	YES				
27274-31-3	polyethylene glycol monoallyl ether	YES	1st ITSL		6	annual	YES				
27646-80-6	2-methylamino-2-methyl-1-propanol	NO		default	0.1	annual					
27668-52-6	octadecyldimethyl (3-(trimethoxysilyl)propyl) ammonium chloride	NO		>75th%	170	annual					
28300-74-5	antimony potassium tartrate	YES	1st ITSL		5	8 hr	YES				
28476-83-7	2-butenedioic acid (z)-dibutyl ester, polymer with chloroethene	NO		default	0.1	annual					
28553-12-0	diisononyl phthalate	YES	1st ITSL		75	annual	YES				
28729-52-4	dimethylcyclopentane	NO		default	0.1	annual					
28729-54-6	m-propyl toluene	NO		default	0.1	annual					
28961-43-5	triacrylate ester	NO		default	0.1	annual					
28984-69-2	4,4-(5h)-oxazoledimethanol, 2-(hepadecanyl)	NO		default	0.1	annual					
29387-86-8	propylene glycol, n-butyl ether (mixed isomers)	YES	1st ITSL		77	annual	YES				
29733-18-4	diisodecyl glutarate	NO		default	0.1	annual					
29911-27-1	dipropylene glycol monopropyl ether	YES	1st ITSL		5	annual	YES				
29911-28-2	dipropylene glycol monobutyl ether	YES	1st ITSL		11	annual	YES				
30030-25-2	vinylbenzylchloride	YES	1st ITSL		2	annual	YES				
30705-14-7	SR 1153	NO		default	0.1	annual					
31138-65-5	sodium glucoheptonate	NO		default	0.1	annual					
31726-34-8	poly(oxy-1,2-ethanediyl),alpha-hexyl-omega-hydroxy	NO		default	0.1	annual					
34375-28-5	hydroxymethylamino ethanol	NO		default	0.1	annual					
34590-94-8	dipropylene glycol methyl ether	NO		>75th%	720	annual*					

Table 4. Current and Proposed MDEQ Air Quality Division Screening Level List of Toxic Air Contaminants

NEW AvgT "annual" Some ITSLs with 24-hr avg. time were converted to annual avg. because ITSL was derived to protect for chronic effects.

CAS Number	Chemical Name	Future TAC?	Basis for Yes	Reason for No, etc.	1st ITSL ($\mu g/m^3$)	*NEW AvgT	1st ITSL <=75th%	2nd ITSL ($\mu g/m^3$)	2nd ITSL AvgT	2nd ITSL <=75th%	IRSL
35176-78-4	polyethylene terephthalate (uncoated)	NO		default	0.1	annual					
35794-11-7	3,5-dimethylpiperidine	NO		default	0.1	annual					
35884-42-5	dowanol dpnb	NO		default	0.1	annual					
37251-67-5	polyethylene polypropylene glycol	NO		default	0.1	annual					
38436-16-7	perfluorobutylethylmethyldichlorosilane	NO		default	0.1	annual					
39464-66-9	lauryl alcohol, phosphated	YES	1st ITSL		20	annual	YES				
40758-65-4	4,6-dichloro-2-ethoxypyrimidine	NO		default	0.1	annual					
41556-26-7	bis(pentamethylpiperdinyl)sebacate	NO		default	0.1	annual					
41593-38-8	propylene glycol monophenyl ether	NO		default	0.1	annual					
42978-66-5	tripropylene glycol diacrylate	YES	1st ITSL		22	annual	YES				
44992-01-0	acryloyloxyethyltrimethyl ammonium chloride	NO		default	0.1	annual					
46438-39-5	monobutyl monophenyl phosphoric acid	NO		default	0.1	annual					
50791-87-2	methylvinylbis(N-methylace	YES	1st ITSL		4	annual	YES				
51200-87-4	dimethyloxazolidine	YES	1st ITSL		1	annual	YES				
51730-94-0	dipropylene glycol phenyl ether	NO		default	0.1	annual					
51811-38-2	tryfac 5556	NO		default	0.1	annual					
52125-53-8	propylene glycol monoethyl ether (mixture)	YES	1st ITSL		23	annual	YES				
53880-05-0	isophorone diisocyanate polymer	NO		default	0.1	annual					
55818-57-0	phenol, 4,4-(1-methylethylidene)bis, polymer with (chloromethyl)oxiran	NO		default	0.1	annual					
55934-93-5	tripropylene glycol n-butyl ether	NO		>75th%	116	annual*					
56539-66-3	3-methoxy-3methyl-1butanol	YES	1st ITSL		13	annual	YES				
56741-95-8	bropirimine	YES	1st ITSL		15	annual	YES				
56780-58-6	2-hydroxy-3-trimethylammoniopropyl ether starch	NO		default	0.1	annual					

Table 4. Current and Proposed MDEQ Air Quality Division Screening Level List of Toxic Air Contaminants

NEW AvgT "annual" Some ITSLs with 24-hr avg. time were converted to annual avg. because ITSL was derived to protect for chronic effects.

CAS Number	Chemical Name	Future TAC?	Basis for Yes	Reason for No, etc.	1st ITSL ($\mu g/m^3$)	*NEW AvgT	1st ITSL <=75th%	2nd ITSL ($\mu g/m^3$)	2nd ITSL AvgT	2nd ITSL <=75th%	IRSL
57018-52-7	propylene glycol tert-butyl ether	NO		>75th%	329	annual					
60304-36-1	aluminum potassium fluoride	YES	1st ITSL		0.2	annual	YES				
60676-86-0	amorphous silica - fused silica	YES	1st ITSL		60	8 hr	YES				
60966-36-1	bisnoralcohol	YES	1st ITSL		17	annual	YES				
61477-94-9	pirmenol hydrochloride	YES	1st ITSL		3	annual	YES				
61788-93-0	coco alkyldimethyl amines	NO		default	0.1	annual					
61790-33-8	tallow alkylamines	NO		default	0.1	annual					
61790-53-2	amorphous silica - diatomaceous earth	YES	1st ITSL		60	8 hr	YES				
61791-28-4	ethoxy, tallow alcohol	NO		default	0.1	annual					
63148-57-2	Dow Corning Fluid 1107	YES	1st ITSL		30	annual	YES				
63148-62-9	high molecular wt. silicon	YES	1st ITSL		2	annual	YES				
63148-65-2	polyvinyl butyral	NO		default	0.1	annual					
63449-39-8	chlorinated paraffins	YES	Carc								0.03
63716-40-5	n-butoxy propanol (mixed isomers)	YES	1st ITSL		77	annual	YES				
63937-30-4	anhydro-dimethylamino hexose reductone	YES	1st ITSL		0.6	annual	YES				
64248-62-0	3,4-difluorobenzonitrile	YES	1st ITSL		0.6	annual	YES				
64265-57-2	crosslinker cx100	YES	1st ITSL		10	annual	YES				
64475-85-0	mineral spirits	NO		>75th%	3500	8 hr					
64485-82-1	thiazole ester	YES	1st ITSL		17	annual	YES				
64741-41-9	naphtha heavy straight run	NO		>75th%	3500	8 hr					
64741-42-0	naphtha, full range straight run	YES	1st ITSL		18	annual	YES				
64741-44-2	straight run middle distillate	YES	1st ITSL		36	annual	YES				
64741-54-4	naphtha, heavy catalytic cracked	NO		>75th%	115	annual					
64741-55-5	naphtha (petroleum), light catalytic cracked	NO		>75th%	5600	annual*					
64741-56-6	residues, (petroleum), vacuum	YES	1st ITSL		16	annual	YES				

Table 4. Current and Proposed MDEQ Air Quality Division Screening Level List of Toxic Air Contaminants

NEW AvgT "annual" Some ITSLs with 24-hr avg. time were converted to annual avg. because ITSL was derived to protect for chronic effects.

CAS Number	Chemical Name	Future TAC?	Basis for Yes	Reason for No, etc.	1st ITSL ($\mu g/m^3$)	*NEW AvgT	1st ITSL <=75th%	2nd ITSL ($\mu g/m^3$)	2nd ITSL AvgT	2nd ITSL <=75th%	IRSL
64741-59-9	distillates, (petroleum), light catalytic cracked	YES	1st ITSL		93	annual	YES				
64741-62-4	clarified oils (petroleum), catalytic cracked	YES	1st ITSL		12	annual	YES				
64741-63-5	naphtha, light catalytic reformed	YES	1st ITSL		100	annual	YES				
64741-64-6	naphtha, full range alkylate	NO		>75th%	3500	8 hr					
64741-65-7	heavy alkylate naphtha	NO		>75th%	3500	8 hr					
64741-66-8	light alkylate naphtha	NO		>75th%	138	annual					
64741-68-0	heavy catalytic reformed naphtha	YES	1st ITSL		70	annual	YES				
64741-81-7	distillates (petroleum), heavy thermal cracked	YES	1st ITSL		15	annual	YES				
64741-82-8	distillates (petroleum), light thermal cracked	YES	1st ITSL		93	annual	YES				
64741-83-9	naphtha, heavy thermal cracked	NO		>75th%	5600	annual*					
64741-86-2	sweetened middle distillate	YES	1st ITSL		2	annual	YES				
64741-88-4	solvent refined heavy paraffnic distillate	YES	1st ITSL		50	8 hr	YES				
64741-89-5	distillates (petroleum) solvent-refined light paraffinic	YES	1st ITSL		50	8 hr	YES				
64742-06-9	extracts (petroleum), middle distillate solvent	YES	1st ITSL		2	annual	YES				
64742-14-9	petroleum distillates, acid treated	YES	1st ITSL		24	annual	YES				
64742-30-9	distillates (petroleum), chemically neutralized middle	YES	1st ITSL		2	annual	YES				
64742-46-7	hydrotreated middle distillate	YES	1st ITSL		50	8 hr	YES				
64742-47-8	hydrotreated light distillate	YES	1st ITSL		24	annual	YES				
64742-48-9	hydrotreated heavy napht	NO		>75th%	3500	8 hr					
64742-49-0	hydrotreated light naphtha	NO		>75th%	3500	8 hr					
64742-52-5	hydrotreated heavy naphthenic	YES	1st ITSL		50	8 hr	YES				

Table 4. Current and Proposed MDEQ Air Quality Division Screening Level List of Toxic Air Contaminants

NEW AvgT "annual" Some ITSLs with 24-hr avg. time were converted to annual avg. because ITSL was derived to protect for chronic effects.

CAS Number	Chemical Name	Future TAC?	Basis for Yes	Reason for No, etc.	1st ITSL ($\mu g/m^3$)	*NEW AvgT	1st ITSL <=75th%	2nd ITSL ($\mu g/m^3$)	2nd ITSL AvgT	2nd ITSL <=75th%	IRSL
	distillate										
64742-53-6	hydrotreated light naphthenic distillate	YES	1st ITSL		50	8 hr	YES				
64742-54-7	hydrotreated heavy paraffinic mineral oil	YES	1st ITSL		50	8 hr	YES				
64742-55-8	hydrotreated light paraffinic distillate	YES	1st ITSL		50	8 hr	YES				
64742-62-7	residual oils (petroleum) solvent-dewaxed	YES	1st ITSL		50	8 hr	YES				
64742-65-0	dewaxed heavy paraffinic mineral oil	YES	1st ITSL		50	8 hr	YES				
64742-80-9	hydrodesulfurized middle distillate	YES	1st ITSL		2	annual	YES				
64742-81-0	hydrodesulfurized kerosene	YES	1st ITSL		2	annual	YES				
64742-82-1	naphtha (petroleum) hydrodesulfurized heavy	YES	1st ITSL		14	annual	YES				
64742-88-7	solvent naphtha medium aliphatic	NO		>75th%	3500	8 hr					
64742-89-8	solvent naphtha light aliphatic	NO		>75th%	3500	8 hr					
64742-94-5	heavy aromatic solvent naphtha	YES	1st ITSL		70	annual*	YES				
64742-95-6	light aromatic solvent naphtha (petroleum)	YES	1st ITSL		61	annual	YES				
64742-96-7	solvent naphtha (petroleum) heavy aliphatic	YES	1st ITSL		24	annual	YES				
64771-72-8	norpar 12	NO		default	0.1	annual					
65402-65-5	4-hydroxytetramethyl piperadine free radical (4-oh-tempo)	YES	1st ITSL		4	annual	YES				
66071-86-1	LV 837/821	NO		default	0.1	annual					
67701-10-4	sodium soap 903923	YES	1st ITSL		6	annual	YES				
67701-11-5	sodium soap 900602	YES	1st ITSL		6	annual	YES				
67762-41-8	linear primary alcohol	NO		default	0.1	annual					
67762-90-7	siloxanes and silicones(silica filled polydimethylsiloxane)	NO		default	0.1	annual					
67784-80-9	soybean oil, methyl esters	YES	1st ITSL		15	annual	YES				

Table 4. Current and Proposed MDEQ Air Quality Division Screening Level List of Toxic Air Contaminants

NEW AvgT "annual" Some ITSLs with 24-hr avg. time were converted to annual avg. because ITSL was derived to protect for chronic effects.

CAS Number	Chemical Name	Future TAC?	Basis for Yes	Reason for No, etc.	1st ITSL ($\mu g/m^3$)	*NEW AvgT	1st ITSL <=75th%	2nd ITSL ($\mu g/m^3$)	2nd ITSL AvgT	2nd ITSL <=75th%	IRSL
67812-17-3	3-trimethoxysilyl propylmethyl methylphosphonate	NO		default	0.1	annual					
68002-20-0	1,2,3-triazine-2,4,6-triamine polymer with methylated formaldehyde	NO		default	0.1	annual					
68003-28-1	polyamide	NO		default	0.1	annual					
68037-58-1	high molecular wt. silicon	NO		default	0.1	annual					
68037-76-3	alphamethylstyrene(dodecyl)polysiloxane	NO		default	0.1	annual					
68037-77-4	ethylmethylsiloxane, 2-phenylpropylmethylsiloxane copolymer	NO		default	0.1	annual					
68037-88-7	high molecular weight sili	NO		default	0.1	annual					
68071-85-2	Spenkel F34	NO		default	0.1	annual					
68083-19-2	high molecular wt. silicon	NO		default	0.1	annual					
68083-20-5	linear methylvinylsiloxane ppolymer hydroxl endblock	NO		default	0.1	annual					
68083-40-9	2-hydroxy-4(2'-hydroxy-3'octoxypropoxy)-benzophenone	NO		default	0.1	annual					
68092-49-9	2-hydroxy-4(2'-hydroxy-3'dacyloxypropoxy)-benzophenone	NO		default	0.1	annual					
68131-40-8	tergitol 15-s-3	NO		>75th%	290	annual*					
68132-02-5	coumarone indene resin	NO		default	0.1	annual					
68309-52-4	Nylen 5	NO		default	0.1	annual					
68334-30-5	diesel fuel	YES	1st ITSL		70	annual	YES				
68390-56-7	diketene hydrogenated fatty acids	NO		default	0.1	annual					
68410-00-4	distillates (petroleum), crude oil	YES	1st ITSL		19	annual	YES				
68410-23-1	polyethylenepolyamine reaction products with c18-unsat. fatty acids	NO		default	0.1	annual					
68439-49-6	ethoxylated c16-18 alcohols	YES	1st ITSL		4	annual	YES				
68458-91-3	Solvar & LV 820	NO		default	0.1	annual					

Table 4. Current and Proposed MDEQ Air Quality Division Screening Level List of Toxic Air Contaminants

NEW AvgT "annual" Some ITSLs with 24-hr avg. time were converted to annual avg. because ITSL was derived to protect for chronic effects.

CAS Number	Chemical Name	Future TAC?	Basis for Yes	Reason for No, etc.	1st ITSL ($\mu g/m^3$)	*NEW AvgT	1st ITSL <=75th%	2nd ITSL ($\mu g/m^3$)	2nd ITSL AvgT	2nd ITSL <=75th%	IRSL
68459-31-4	fatty acids c9-11 branched glycidyl esters polymer	NO		default	0.1	annual					
68476-86-8	petroleum gases, liquefied, sweetened	NO		default	0.1	annual					
68477-31-6	aromatic petroleum derivative solvent	YES	1st ITSL		13	annual	YES				
68515-40-2	alkyl benzyl phthalate	NO		default	0.1	annual					
68515-44-6	branched and linear diheptyl phthalate ester	NO		default	0.1	annual					
68516-16-5	sulfuric acid c6-10 alkyl esters	NO		default	0.1	annual					
68526-86-3	tridecanol	YES	1st ITSL		2	annual	YES				
68551-17-7	heavy naphtha	NO		>75th%	3500	8 hr					
68575-36-0	3,5-dichloro-a-methyl st	YES	1st ITSL		16	annual	YES				
68608-26-4	sodium petroleum sulfonate	NO		default	0.1	annual					
68610-11-7	diethylenetriamine reaction product with bisphenol a	NO		default	0.1	annual					
68783-24-4	di-tallow alkylamines	NO		default	0.1	annual					
68918-22-9	high molecular wt. silicon	NO		default	0.1	annual					
68955-35-1	naphtha, catalytic reformed	NO		>75th%	350	annual*					
68956-56-9	hydrocarbons, terpene processing by-products	NO		default	0.1	annual					
68987-42-8	ethylenated benzene residues	YES	1st ITSL		6	annual	YES				
68990-79-4	oils, vegetable, mixed with animal oil methylesters, polymerized, oxidixed	NO		default	0.1	annual					
69012-64-2	amorphous silica - silica fume	YES	1st ITSL		60	8 hr	YES				
69013-18-9	alcohols c8-18 ethoxylated propoxylated	NO		default	0.1	annual					
69029-39-6	polyglycol 26-2	NO		default	0.1	annual					
69102-90-5	butadiene homopolymer	NO		default	0.1	annual					
69430-24-6	high molecular wt. silicon	YES	1st ITSL		30	annual	YES				

Table 4. Current and Proposed MDEQ Air Quality Division Screening Level List of Toxic Air Contaminants

NEW AvgT "annual" Some ITSLs with 24-hr avg. time were converted to annual avg. because ITSL was derived to protect for chronic effects.

CAS Number	Chemical Name	Future TAC?	Basis for Yes	Reason for No, etc.	1st ITSL ($\mu g/m^3$)	*NEW AvgT	1st ITSL <=75th%	2nd ITSL ($\mu g/m^3$)	2nd ITSL AvgT	2nd ITSL <=75th%	IRSL
69696-98-6	hexane 1,6-bis(tributyl ammonium bromi	NO		default	0.1	annual					
69991-67-9	fomblin perfluorpolyether	NO		default	0.1	annual					
70131-67-8	high molecular wt. silicon	NO		default	0.1	annual					
70657-70-4	2-methoxy-1-propanol acetate	NO		>75th%	500	annual*					
70914-20-4	c6-8 branched alcohols	YES	1st ITSL		13	annual	YES				
71888-89-6	diisoheptyl phthalate	YES	1st ITSL		100	annual*	YES				
71945-54-5	3-(1,1-dimethylethoxy)-heptane	YES	1st ITSL		6	annual	YES				
75782-86-4	alcohols c12-13	YES	1st ITSL		31	annual	YES				
77820-58-7	2-amino-3-chlorobenzoic acid methyl ester	YES	1st ITSL		7	annual	YES				
78330-21-9	c11-c14 isoalcohols, c14 rich, ethoxylated alcohol	YES	1st ITSL		8	annual	YES				
82586-54-7	quinapril step 8	YES	1st ITSL		2	annual	YES				
82919-37-7	methyl pentamethyl-4-piperidinyl ester of decanedioic acid	NO		default	0.1	annual					
84632-65-5	pyrrolo[3,4-c]pyrrole-1,4-dione,3,6-bis(4-chlorophenyl)-2,5-dihydro	NO		default	0.1	annual					
86753-78-8	Solsperse 5000	NO		default	0.1	annual					
88230-35-7	oxo-hexyl acetate	YES	1st ITSL		81	annual	YES				
88851-61-0	trospectomycin sulfate	NO		default	0.1	annual					
88917-22-0	dipropylene glycol methyl ether acetate	NO		>75th%	930	annual*					
90438-79-2	oxo-heptyl acetate	YES	1st ITSL		41	annual	YES				
90622-57-4	isopar h	NO		>75th%	128	annual					
95481-62-2	dibasic ester	YES	1st ITSL		1	annual	YES				
97658-80-5	5-bp-bisenamine	YES	1st ITSL		10	annual	YES				
98516-30-4	propanol, 1(or 2) ethoxy, acetate isoparaffinic petroleum hydrocarbon	NO		default	0.1	annual					

Table 4. Current and Proposed MDEQ Air Quality Division Screening Level List of Toxic Air Contaminants

NEW AvgT "annual" Some ITSLs with 24-hr avg. time were converted to annual avg. because ITSL was derived to protect for chronic effects.

CAS Number	Chemical Name	Future TAC?	Basis for Yes	Reason for No, etc.	1st ITSL (µg/m^3)	*NEW AvgT	1st ITSL <=75th%	2nd ITSL (µg/m^3)	2nd ITSL AvgT	2nd ITSL <=75th%	IRSL
98967-40-9	flumetsulam	YES	1st ITSL		26	annual	YES				
98967-55-6	n-(2,6-difluorophenyl)-7-methyl-1h-1,2,4-triazolo(1,5a)pyrimidine-2-su	NO		default	0.1	annual					
102054-10-4	bis(2-methoxy-1-methylethy	YES	1st ITSL		6	annual	YES				
103335-54-2	4-aza acid	YES	1st ITSL		17	annual	YES				
103429-90-9	3-methoxy-3methyl-1butyl acetate	NO		default	0.1	annual					
103980-44-5	ceftiofur hydrochloride	NO		>75th%	166	annual					
106917-31-1	sanduvor 3068 liquid	YES	1st ITSL		52	annual	YES				
108419-32-5	exxate 800 - octyl acetate	NO		>75th%	110	annual*					
108419-33-6	exxate 900	YES	1st ITSL		17	annual	YES				
108419-34-7	exxate 1000	YES	1st ITSL		17	annual	YES				
108419-35-8	c11-14 branched alkyl acetates	NO		>75th%	300	annual*					
109265-71-6	Solsperse 12000	NO		default	0.1	annual					
110839-13-9	1,3-benzenedimethanamine polymer with 2,2'-((1-methylethylidene) bis(4	NO		default	0.1	annual					
110888-15-8	4-chloro-3-fluorobenzonitrile	NO		default	0.1	annual					
111109-77-4	dipropylene glycol dimethyl ether	YES	1st ITSL		59	annual*	YES				
111381-89-6	branched and linear heptyl nonyl phthalate ester	NO		default	0.1	annual					
112926-00-8	amorphous silica - precipitated silica and silica gel	YES	1st ITSL		60	8 hr	YES				
112945-52-5	amorphous silica - pyrogenic or fumed silica	YES	1st ITSL		60	8 hr	YES				
113171-12-3	n-(2,6-difluorophenyl)-5-amino-1h-1,2,4-triazole-3-sulfonamide	NO		default	0.1	annual					
117482-84-5	3-chloro-4-fluorobenzonitrile	YES	1st ITSL		2	annual	YES				
123312-54-9	distearyldimethylammonium bisulfate	NO		default	0.1	annual					
123333-53-9	1-hydroxy benzotriazole	NO		default	0.1	annual					

Table 4. Current and Proposed MDEQ Air Quality Division Screening Level List of Toxic Air Contaminants

NEW AvgT "annual" Some ITSLs with 24-hr avg. time were converted to annual avg. because ITSL was derived to protect for chronic effects.

CAS Number	Chemical Name	Future TAC?	Basis for Yes	Reason for No, etc.	1st ITSL ($\mu g/m^3$)	*NEW AvgT	1st ITSL <=75th%	2nd ITSL ($\mu g/m^3$)	2nd ITSL AvgT	2nd ITSL <=75th%	IRSL
126803-73-4	n-(2,6-dichloro-3-methylphenyl)-5,7-dimethyoxy(1,2,4)triazo...[de-511]	NO		default	0.1	annual					
129879-84-1	5-amino-1,2,4-triazole-3-sulfonyl chloride	YES	1st ITSL		7	annual	YES				
130014-38-9	trifluoropropylsilsesquioxane, dimethylhydrogensilyoxy-terminated	NO		default	0.1	annual					
136797-56-3	FC-247	YES	1st ITSL		24	annual	YES				
136816-75-6	atevirdane mesylate	YES	1st ITSL		16	annual	YES				
144669-03-4	hexenylsiloxane	YES	1st ITSL		16	annual	YES				
144669-04-5	hexenylsiloxanes	YES	1st ITSL		16	annual	YES				
166524-65-8	2-ethoxy-4,6-difluoropyrimidine	YES	1st ITSL		20	annual	YES				
166524-75-0	2,2'-dithiobis(5-ethoxy-7-fluoro[1,2,4]triazolo(1,5-c)pyrimidine	YES	1st ITSL		0.8	annual	YES				
170557-43-4	dowanol tmh-deg borate ester	YES	1st ITSL		32	annual	YES				

APPENDIX K:

COMPARISON OF HAP AND TAC SCREENING LEVEL LISTS

Appendix K - Comparison of HAP and TAC Screening Level Lists

MDNRE-AQD Toxic Air Contaminants List Compared to the EPA Hazardous Air Pollutants List
February 16, 2010
Robert Sills, Toxics Unit Supervisor, MDNRE-Air Quality Division

Michigan's Air Pollution Control Rules (under Part 55 of NREPA) to regulate the emission of toxic air contaminants (TACs) have been in place since 1992. TACs are defined (Rule 336. l120(f)) as any air contaminants for which there are no national - ambient air quality standard and which are or may become harmful to the environment when present in the outdoor atmosphere in sufficient quantities and duration. The TAC definition lists 41 substances which are not TACs. This list includes the six pollutants that have national ambient air quality standards and 35 other substances.

The original air toxics rules (1992) included the current definition of TACs based on the Michigan Air Toxics Policy Committee (1989) recommendation that the AQD should address a large list of TACs plus any other substances which the AQD determines to be of concern at a specific site. The TAC definition was re-visited again in 1997 by the AQD Air Toxics Subcommittee. Based on the Subcommittee's discussion and recommendations, the AQD made revisions to the air toxics rules in 1998, retaining the open-ended TAC definition but providing greater flexibility in the rules and adopting a small quantity exemption.

The regulatory programs of the AQD and the EPA are intended to provide a level of protection against the potential risks of air toxics and therefore ensure the public that facility emissions are safe. However, the federal regulations for air toxics have significant limitations. These limitations include the specific air toxics that are regulated, types of facilities that are regulated, the quantity of emissions that are subject to regulation, and the risk assessment requirements.

EPA lists 187 substances as hazardous air pollutants (HAPs) that are subject to federal regulation. Major sources are any facility that emits 10 tons per year of any HAP or 25 tons per year of any combination of HAPs. EPA has made progress in developing pollution control technology requirements for categories of major sources. EPA is also required to assess the need for standards to protect public health and the environment. However, EPA has completed very few of these residual risk assessments on their listed HAPs. In those instances where a technology standard is established and a residual risk assessment has been completed, the source category is exempted from the AQD air toxics regulations so there is no regulatory redundancy.

Michigan's program is broader than the federal program to better ensure public health protection from air toxics emissions from proposed new or modified sources, while also including a number of exemptions for sources and air toxics emission levels which have been specifically determined to pose no unacceptable risks to the public health. Michigan's program is designed to supplement and complement (without redundancy) the federal air toxics regulations.

Although the EPA HAP list captures many substances recognized as high-concern air contaminants, there are many non-HAP air toxics which can potentially pose health risks to the public who are exposed to them. These substances include pharmaceuticals, pesticides,

metals, inorganic compounds, and organic compounds. In Michigan, approximately 1200 TACs listed in the attached table were identified in Permit to Install applications for proposed facilities. As part of the permit application review, the TACs were evaluated by AQD toxicologist staff and health-based screening levels were developed, which provide a level of protection from adverse health effects. The AQD frequently provides assurances to the concerned public about the safety of existing or proposed facility air emissions, and is able to do so because of the health-based screening levels and the open-ended TAG definition.

As indicated in the 3rd and 4th columns of Table 2, there are many TACs which are not HAPs but which are carcinogenic. TACs also pose concerns for potential acute toxicity, developmental effects, sensitization, respiratory effects such as asthma, liver or kidney effects, neurological effects, etc. Table 1 shows some specific examples of non-HAP TACs and their primary public health concerns.

Table 1. Example non-HAP TACs and their primary public health concerns.

Toxic Air Contaminants (TACs)	Primary Public Health Concern
Aldrin, benzaldehyde, bromodichloromethane, dimethylvinyl chloride, hydrazine sulfate, molybdenum trioxide, nitromethane, tetrahydrofuran, etc.	Carcinogens
Ammonia, Glutaraldehyde, Hydrogen sulfide	Irritation of the eyes and respiratory tract
2,4,6-trinitrotoluene	Liver toxicity, anemia
Barium	Muscle toxicity; environmental persistence
Bromine	Respiratory irritation, headache
Chlorine dioxide	Lung toxicity
Chlormadinone acetate	Reproductive effects
Chlorpyrifos	Nervous system toxicity
Colophony, Isophorone diisocyanate	Asthma exacerbation, sensitizer
Dibutyltin oxide	Immune function and central nervous system toxicity
Methylene diphenyl isocyanate	Respiratory tract toxicity
Melengesterol acetate	Reproductive toxicity; menstruation blockage
Osmium tetroxide	Irritant to the eyes, nose and throat; pulmonary edema and bronchitis
Sulfuric acid	Eye and respiratory irritancy and corrosiveness, shortness of breath
Tetrachlorobenzene	Liver and kidney toxicity; environmental persistence
Thallium	Developmental, respiratory, and gastrointestinal effects; environmental persistence
Vanadium pentaoxide	Bronchitis, emphysema, respiratory tract irritation

Appendix K - Comparison of HAP and TAC Screening Level Lists

MDNRE AQD Toxic Air Contaminants with Health-Based Screening Levels

January 25, 2010

(EPA HAPs appear in **BOLD** type)

CAS No.	Chemical Name	HAP?	Carcinogen?
3052-70-8	(1-methylethylidene)bis(1,1-dimethylpropyl)peroxide	no	no
6713-03-7	1-(2-hydroxyethylthio)propane	no	no
630-20-6	1,1,1,2-tetrachloroethane	no	yes
811-97-2	1,1,1,2-tetrafluoroethane	no	no
460-73-1	1,1,1,3,3-pentafluoropropane	no	no
79-34-5	**1,1,2,2-tetrachloroethane**	**yes**	yes
--0	1,1,2,4-tetramethyl-1-1-1-sila-2-aza-cyclopentane	no	no
76-13-1	1,1,2-trichloro-1,2,2-trifluoroethane	no	no
79-00-5	**1,1,2-trichloroethane**	**yes**	yes
3006-86-8	1,1-di-(tert-buytlperoxy)cyclohexane	no	no
1717-00-6	1,1-dichloro-1-fluoroethane	no	no
75-34-3	**1,1-dichloroethane**	**yes**	no
75-37-6	1,1-difluoroethane	no	no
612-00-0	1,1-diphenylethane	no	no
26447-40-5	1,1'-methylene bisisocyanatobenzene	no	no
2403-89-6	1,2,2,6,6-pentamethyl-4-piperidinol	no	no
634-66-2	1,2,3,4-tetrachlorobenzene	no	no
634-90-2	1,2,3,5-tetrachlorobenzene	no	no
68002-20-0	1,2,3-triazine-2,4,6-triamine polymer with methylated formaldehyde	no	no
87-61-6	1,2,3-trichlorobenzene	no	no
96-18-4	1,2,3-trichloropropane	no	no
526-73-8	1,2,3-trimethylbenzene	no	no
95-94-3	1,2,4,5-tetrachlorobenzene	no	no
95-93-2	1,2,4,5-tetramethylbenzene	no	no
120-82-1	**1,2,4-trichlorobenzene**	**yes**	no
95-63-6	1,2,4-trimethylbenzene	no	no
106-88-7	**1,2-butylene oxide**	**yes**	yes
95-50-1	1,2-dichlorobenzene	no	no
107-06-2	**1,2-dichloroethane**	**yes**	yes
540-59-0	1,2-dichloroethylene	no	no
23410-40-4	1,2-ethanediamine, n-(3-(dimethoxymethylsilyl)-2-methylpropyl)	no	no
87-90-1	1,3,5-trichloroisocyanuric acid	no	no
108-67-8	1,3,5-trimethylbenzene	no	no
110839-13-9	1,3-benzenedimethanamine polymer with 2,2'-((1-methylethylidene) bis(4	no	no
1477-55-0	1,3-bis(aminomethyl)benzenen	no	no
106-99-0	**1,3-butadiene**	**yes**	yes
77-48-5	1,3-dibromo-5,5-dimethylhydantoin	no	no
118-52-5	1,3-dichloro-5,5-dimethylhydantoin	no	no
541-73-1	1,3-dichlorobenzene	no	no
542-75-6	**1,3-dichloropropene**	**yes**	yes
646-06-0	1,3-dioxolane	no	no
16883-83-3	1,3-pentanediol-2,2,4-trimethyl-3-(benzyl phthalate)-isobutyrate	no	no
110-63-4	1,4 butanediol	no	no
106-46-7	**1,4-dichlorobenzene**	**yes**	yes
123-91-1	**1,4-dioxane**	**yes**	yes
592-42-7	1,5-hexanediene	no	no
629-11-8	1,6-hexanediol	no	no

Appendix K - Comparison of HAP and TAC Screening Level Lists

MDNRE AQD Toxic Air Contaminants with Health-Based Screening Levels

January 25, 2010

(EPA HAPs appear in **BOLD** type)

CAS No.	Chemical Name	HAP?	Carcinogen?
6674-22-2	1,8-diazabicyclo[5.4.0]undec-7-ene	no	no
58-36-6	10,10'-oxybisphenoxarsine oxide	no	no
--0	100 sxl	unknown	no
13209-41-1	17,21-dihydroxy-16 alpha-methylpregna-1,4,9(11)-triene-3,20-dione	no	no
16079-88-2	1-bromo-3-chloro-5,5-dimethylhydantoin	no	no
109-70-6	1-bromo-3-chloropropane	no	no
109-65-9	1-bromobutane	no	no
75-68-3	1-chloro-1,1-difluoroethane	no	no
88-73-3	1-chloro-2-nitrobenzene	no	yes
611-14-3	1-ethyl-2-methylbenzene	no	no
592-76-7	1-heptene	no	no
629-73-2	1-hexadecene	no	no
947-19-3	1-hydroxcyclohexyl phenyl ketone	no	no
123333-53-9	1-hydroxy benzotriazole	no	no
90-12-0	**1-methyl naphthalene**	**yes** (POM)	yes
108-03-2	1-nitropropane	no	no
1569-01-3	1-propoxy-2-propanol	no	no
1072-63-5	1-vinylimidazol	no	no
--0	2-(1-ethoxyethoxy)-6-(trifluroromethyl)-benzenethiol	no	no
3731-51-9	2-(aminomethyl)pyridine	no	no
540-84-1	**2,2,4-trimethyl pentane**	**yes**	no
6846-50-0	2,2,4-trimethylpentanediol-1,3-diisobutyrate	no	no
366-18-7	2,2'-bipyridyl	no	no
77-76-9	2,2-dimethoxypropane	no	no
166524-75-0	2,2'-dithiobis(5-ethoxy-7-fluoro[1,2,4]triazolo(1,5-c)pyrimidine	no	no
1746-01-6	**2,3,7,8-tetrachlorodibenzo(p)dioxin**	**yes**	yes
513-85-9	2,3-butanediol	no	no
526-75-0	2,3-dimethyl phenol	no	no
79-29-8	2,3-dimethylbutane	no	no
565-59-3	2,3-dimethylpentane	no	no
95-95-4	**2,4,5-trichlorophenol**	**yes**	no
90-72-2	2,4,6-tri(dimethylaminomethyl)phenol	no	no
88-06-2	**2,4,6-trichlorophenol**	**yes**	yes
3764-01-1	2,4,6-trichloropyrimidine	no	no
696-82-2	2,4,6-trifluoropyrimidine	no	no
118-96-7	2,4,6-trinitrotoluene	no	no
94-75-7	**2,4-Dichlorophenoxyacetic Acid (2,4-d)**	**yes**	no
25168-26-7	**2,4- Dichlorophenoxyacetic Acid (2,4-d) isooctyl ester**	**yes**	no
120-83-2	2,4-dichlorophenol	no	no
108-08-7	2,4-dimethylpentane	no	no
105-67-9	2,4-dimethylphenol	no	no
51-28-5	**2,4-dinitrophenol**	**yes**	no
121-14-2	**2,4-dinitrotoluene**	**yes**	yes
123-54-6	2,4-pentanedione	no	no
548-84-9	**2,4-toluene diisocyanate**	**yes**	yes
5779-94-2	2,5-dimethylbenzaldehyde	no	no
95-87-4	2,5-dimethylphenol	no	no

Appendix K - Comparison of HAP and TAC Screening Level Lists

MDNRE AQD Toxic Air Contaminants with Health-Based Screening Levels

January 25, 2010

(EPA HAPs appear in **BOLD** type)

CAS No.	Chemical Name	HAP?	Carcinogen?
608-31-1	2,6-dichlorobenzenamine	no	no
5509-65-9	2,6-difluoroaniline	no	no
18063-03-1	2,6-difluorobenzamide	no	no
385-00-2	2,6-difluorobenzoic acid	no	no
1897-52-5	2,6-difluorobenzonitrile	no	no
141-91-3	2,6-dimethyl morpholine	no	no
576-26-1	2,6-dimethyl phenol	no	no
606-20-2	2,6-dinitrotoluene	no	yes
128-37-0	2,6-di-tert-butyl-p-cresol	no	yes
87-62-7	2,6-xylidine	no	yes
124-68-5	2-amino-2-methyl-1-propanol	no	no
77820-58-7	2-amino-3-chlorobenzoic acid methyl ester	no	no
359-07-9	2-bromo-1,1-difluoroethane	no	no
103-63-9	2-bromoethylbenzene	no	no
28476-83-7	2-butenedioic acid (z)-dibutyl ester, polymer with chloroethene	no	no
111-76-2	**2-butoxyethanol**	**yes**	no
111-75-1	2-butylaminoethanol	no	no
2837-89-0	2-chloro-1,1,1,2-tetrafluoroethane	no	no
363-51-9	2-chloro-6-fluorobenzenamine	no	no
95-51-2	2-chloroaniline	no	no
95-57-8	2-chlorophenol	no	no
75-29-6	2-chloropropane	no	no
100-37-8	2-diethylaminoethanol	no	no
100-36-7	2-diethylaminoethylamine	no	no
166524-65-8	2-ethoxy-4,6-difluoropyrimidine	no	no
110-80-5	**2-ethoxyethanol**	**yes**	no
97-95-0	2-ethyl butanol	no	no
94-96-2	2-ethyl-1,3-hexanediol	no	no
1758-88-9	2-ethyl-1,4-dimethyl benzene	no	no
10431-98-8	2-ethyl-2-oxazoline	no	no
110-73-6	2-ethylaminoethanol	no	no
3814-34-4	2-ethylbutyl bromide	no	no
123-05-7	2-ethylhexanal	no	no
149-57-5	2-ethylhexanoic acid	no	no
104-76-7	2-ethylhexanol	no	no
103-09-3	2-ethylhexyl acetate	no	no
103-11-7	2-ethylhexyl acrylate	no	no
104-75-6	2-ethylhexylamine	no	no
1070-10-6	2-ethylhexyltitanate	no	no
7473-98-5	2-hydroxy-2-methyl-1-phenyl-1-propanone	no	no
56780-58-6	2-hydroxy-3-trimethylammoniopropyl ether starch	no	no
68092-49-9	2-hydroxy-4(2'-hydroxy-3'dacyloxypropoxy)-benzophenone	unknown	no
68083-40-9	2-hydroxy-4(2'-hydroxy-3'octoxypropoxy)-benzophenone	unknown	no
868-77-9	2-hydroxyethyl methacrylate	no	no
--0	2-mercapto-3-(trifluoromethyl)-phenol	no	no
1589-47-5	2-methoxy-1-propanol	no	no
70657-70-4	2-methoxy-1-propanol acetate	no	no

Appendix K - Comparison of HAP and TAC Screening Level Lists

MDNRE AQD Toxic Air Contaminants with Health-Based Screening Levels

January 25, 2010

(EPA HAPs appear in **BOLD** type)

CAS No.	Chemical Name	HAP?	Carcinogen?
116-11-0	2-methoxy-1-propene	no	no
109-86-4	**2-methoxyethanol**	**yes**	no
78-78-4	2-methyl butane	no	no
624-41-9	2-methyl butyl acetate	no	no
137-32-6	2-methyl-1-butanol	no	no
2682-20-4	2-methyl-4-isothiazolin-3-one	no	no
27646-80-6	2-methylamino-2-methyl-1-propanol	no	no
109-83-1	2-methylaminoethanol	no	no
591-76-4	2-methylhexane	no	no
91-57-6	**2-methylnaphthalene**	**yes** (POM)	no
107-83-5	2-methylpentane	no	no
91-59-8	**2-naphthylamine**	**yes** (POM)	yes
102-81-8	2-n-dibutylaminoethanol	no	no
79-46-9	**2-nitropropane**	**yes**	yes
111-13-7	2-octanone	no	no
10215-30-2	2-propoxy-1-propanol	no	no
7580-85-0	**2-tert-butoxyethanol**	**yes**	no
71945-54-5	3-(1,1-dimethylethoxy)-heptane	no	no
677-21-4	3,3,3-trifluoropropene	no	no
22431-89-6	3,3,6,6-tetramethyl-1,2-dioxane	no	no
6574-99-8	3,4-dichlorobenzonitrile	no	no
64248-62-0	3,4-difluorobenzonitrile	no	no
95-65-8	3,4-dimethyl phenol	no	no
68575-36-0	3,5-dichloro-a-methyl st	no	no
107-54-0	3,5-dimethyl-1-hexyn-3-ol	no	no
108-68-9	3,5-dimethylphenol	no	no
35794-11-7	3,5-dimethylpiperidine	no	no
591-22-0	3,5-lutidine	no	no
16691-43-3	3-amino-5-mercapto-1,2,4-triazole	no	no
126-06-7	3-bromo-1-chloro-5,5-dimethylhydantoin	no	no
627-30-5	3-chloro-1-propanol	no	no
563-47-3	3-chloro-2-methylpropene	no	yes
117482-84-5	3-chloro-4-fluorobenzonitrile	no	no
95-74-9	3-chloro-p-toluidine	no	no
4420-74-0	3-mercaptopropyltrimethoxysilane	no	no
56539-66-3	3-methoxy-3methyl-1butanol	no	no
103429-90-9	3-methoxy-3methyl-1butyl acetate	no	no
589-34-4	3-methylhexane	no	no
96-14-0	3-methylpentane	no	no
108-99-6	3-picoline	no	no
67812-17-3	3-trimethoxysilyl propylmethyl methylphosphonate	no	no
28984-69-2	4,4-(5h)-oxazoledimethanol, 2-(hepadecanyl)	no	no
5436-21-5	4,4-dimethoxy-2-butanone	no	no
101-14-4	**4,4-methylenebis(2-chloroaniline)**	**yes**	yes
40758-65-4	4,6-dichloro-2-ethoxypyrimidine	no	no
1074-40-4	4,6-dichloro-2-methoxypyrimidine	no	no
27078-75-7	4,6-difluoro-2-methoxypyrimidine	no	no

Appendix K - Comparison of HAP and TAC Screening Level Lists

MDNRE AQD Toxic Air Contaminants with Health-Based Screening Levels

January 25, 2010

(EPA HAPs appear in **BOLD** type)

CAS No.	Chemical Name	HAP?	Carcinogen?
19549-80-5	4,6-dimethyl-2-heptanone	no	no
103335-54-2	4-aza acid	no	no
--0	4-chloro-2-ethoxy-6-fluoropyrimidine	no	no
110888-15-8	4-chloro-3-fluorobenzonitrile	no	no
65402-65-5	4-hydroxytetramethyl piperadine free radical(4-oh-tempo)	no	no
4652-27-1	4-methoxy-3-buten-2-one	no	no
100-06-1	4-methoxyacetophenone	no	no
622-97-9	4-methylstyrene	no	no
100-02-7	**4-nitrophenol**	**yes**	no
4994-16-5	4-phenylcyclohexene	no	no
100-40-3	4-vinylcyclohexene	no	no
129879-84-1	5-amino-1,2,4-triazole-3-sulfonyl chloride	no	no
97658-80-5	5-bp-bisenamine	no	no
26172-55-4	5-chloro-2-methyl-4-isothiazolin-3-one	no	no
91-44-1	7-diethylamino-4-methyl coumarin	no	no
83-32-9	**acenaphthene**	**yes** (POM)	no
208-96-8	**acenaphthylene**	**yes** (POM)	no
75-07-0	**acetaldehyde**	**yes**	yes
64-19-7	acetic acid	no	no
108-24-7	acetic anhydride	no	no
67-64-1	acetone	no	no
75-05-8	**acetonitrile**	**yes**	no
98-86-2	**acetophenone**	**yes**	no
75-36-5	acetyl chloride	no	no
50-78-2	acetylsalicylic acid	no	no
107-02-8	**acrolein**	**yes**	no
79-06-1	**acrylamide**	**yes**	yes
79-10-7	**acrylic acid**	**yes**	no
107-13-1	**acrylonitrile**	**yes**	yes
814-68-6	acryloyl chloride	no	no
44992-01-0	acryloyloxyethyltrimethyl ammonium chloride	no	no
126-86-3	actylenic diol	no	no
--0	ad acid	no	no
1330-86-5	adipate plasticizer	no	no
75782-86-4	alcohols c12-13	no	no
69013-18-9	alcohols c8-18 ethoxylated propoxylated	no	no
309-00-2	aldrin	no	yes
3779-63-3	aliphatic polyisocyanate-1	no	no
68515-40-2	alkyl benzyl phthalate	no	no
107-18-6	allyl alcohol	no	no
300-57-2	allyl benzene	no	no
107-05-1	**allyl chloride**	**yes**	no
106-92-3	allyl glycidyl ether	no	yes
532-27-4	**alpha chloroacetophenone**	**yes**	no
9000-90-2	alpha-amylase	no	no
552-45-4	alpha-chloro-ortho-xylene	no	no
319-84-6	**alpha-hexachlorocyclohexane**	**yes**	yes

Appendix K - Comparison of HAP and TAC Screening Level Lists

MDNRE AQD Toxic Air Contaminants with Health-Based Screening Levels

January 25, 2010

(EPA HAPs appear in **BOLD** type)

CAS No.	Chemical Name	HAP?	Carcinogen?
98-83-9	alpha-methyl styrene	no	no
68037-76-3	alphamethylstyrene(dodecyl)polysiloxane	no	no
109-06-8	alpha-picoline	no	no
7446-70-0	aluminum chloride	no	no
24304-00-5	aluminum nitride	no	no
60304-36-1	aluminum potassium fluoride	no	no
6419-19-8	aminotrimethylene phosphonic acid	no	no
7664-41-7	ammonia	no	no
12125-02-9	ammonium chloride	no	no
16919-31-6	ammonium hexafluorozirconate	no	no
1336-21-6	ammonium hydroxide	no	no
12054-85-2	ammonium molybdate	no	no
60676-86-0	amorphous fused silica	no	no
--0	amyl acetate (mixture)	no	no
71-41-0	amyl alcohol	no	no
110-58-7	amylamine	no	no
513-35-9	amylene	no	no
63-05-8	androstenedione	no	no
63937-30-4	anhydro-dimethylamino hexose reductone	no	no
62-53-3	**aniline**	**yes**	no
120-12-7	**anthracene**	**yes** (POM)	no
7440-36-0	**antimony**	**yes** (Sb comps.)	no
28300-74-5	**antimony potassium tartrate**	**yes** (Sb comps.)	no
10025-91-9	**antimony trichloride**	**yes** (Sb comps.)	no
1309-64-4	**antimony trioxide**	**yes** (Sb comps.)	no
1345-04-6	**antimony trisulfide**	**yes** (Sb comps.)	no
68477-31-6	aromatic petroleum derivative solvent	unknown	no
7440-38-2	**arsenic**	**yes** (As comps)	yes
7784-42-1	**arsine**	**yes**	no
1332-21-4	**asbestos**	**yes**	yes
136816-75-6	atevirdane mesylate	no	no
--0	atlox 848	no	no
103-33-3	azobenzene	no	yes
9001-92-7	bacillus subtilis neutral protease	no	no
7440-39-3	barium	no	no
13701-59-2	barium metaborate monohydrate	no	no
7727-43-7	barium sulfate	no	no
147-24-0	benadryl hcl	unknown	no
56-55-3	**benz(a)anthracene**	**yes** (POM)	no
100-52-7	benzaldehyde	no	yes
71-43-2	**benzene**	**yes**	yes
91-01-0	benzhydrol	no	no
92-87-5	**benzidine**	**yes**	yes
50-32-8	**benzo(a)pyrene**	**yes** (POM)	yes
205-99-2	**benzo(b)fluoranthene**	**yes** (POM)	no
191-24-2	**benzo(g,h,i)perylene**	**yes** (POM)	no
207-08-9	**benzo(k)fluoranthene**	**yes** (POM)	no

Appendix K - Comparison of HAP and TAC Screening Level Lists

MDNRE AQD Toxic Air Contaminants with Health-Based Screening Levels

January 25, 2010

(EPA HAPs appear in **BOLD** type)

CAS No.	Chemical Name	HAP?	Carcinogen?
694-87-1	benzocyclobutene	no	no
119-53-9	benzoin	no	no
95-16-9	benzothiazole	no	no
25973-55-1	benzotriazol dimethylpropyl phenol	unknown	no
100-51-6	benzyl alcohol	no	no
100-44-7	**benzyl chloride**	**yes**	yes
103-83-3	benzyl dimethylamine	no	no
100-46-9	benzylamine	no	no
100-85-6	benzyltrimethylammonium hydroxide	no	no
7440-41-7	**beryllium**	**yes** (Be comps)	yes
64-04-0	beta phenylethylamine	no	no
126-99-8	**beta-chloroprene**	**yes**	yes
981-34-0	betamethasone 11	no	no
--0	biosam tp-1.5	no	no
92-52-4	**biphenyl**	**yes**	no
3033-62-3	bis (2-dimethylaminoethyl) ether	no	no
108-60-1	bis(2-chloroisopropyl)ether	no	no
102054-10-4	bis(2-methoxy-1-methylethy	no	no
542-88-1	**bis(chloromethyl)ether**	**yes**	yes
13528-93-3	bis(me2clsilyl)ethane	no	no
41556-26-7	bis(pentamethylpiperdinyl)sebacate	no	no
111-44-4	**bis-2-chloroethylether**	**yes**	yes
60966-36-1	bisnoralcohol	no	no
25068-38-6	bisphenol a/epichlorohydrin resin	no	no
25085-99-8	bisphenol epoxy resin	no	no
2467-02-9	bisphenol f	no	no
10097-09-3	bis-urea accelerator	no	no
7637-07-2	boron trifluoride	no	no
68515-44-6	branched and linear diheptyl phthalate ester	no	no
111381-89-6	branched and linear heptyl nonyl phthalate ester	no	no
7726-95-6	bromine	no	no
108-86-1	bromobenzene	no	no
75-27-4	bromodichloromethane	no	yes
75-25-2	**bromoform**	**yes**	yes
56741-95-8	bropirimine	no	no
69102-90-5	butadiene homopolymer	no	no
106-97-8	butane	no	no
4435-53-4	butoxyl	no	no
141-32-2	butyl acrylate	no	no
85-68-7	butyl benzyl phthalate	no	no
112-34-5	**butyl carbitol**	**yes**	no
592-84-7	butyl formate	no	no
138-22-7	butyl lactate	no	no
143-29-3	butylcarbitol formal	no	no
102-79-4	butyldiethanolamine	no	no
123-72-8	butyraldehyde	no	no
107-92-6	butyric acid	no	no

Appendix K - Comparison of HAP and TAC Screening Level Lists

MDNRE AQD Toxic Air Contaminants with Health-Based Screening Levels

January 25, 2010

(EPA HAPs appear in **BOLD** type)

CAS No.	Chemical Name	HAP?	Carcinogen?
6408-78-2	c.i. acid blue 25	no	no
108419-35-8	c11-14 branched alkyl acetates	no	no
78330-21-9	c11-c14 isoalcohols, c14 rich, ethoxylated alcohol	no	no
70914-20-4	c6-8 branched alcohols	no	no
7440-43-9	**cadmium**	**yes** (Cd comps.)	yes
7789-82-4	calcium molybdate	no	no
1592-23-0	calcium stearate	no	no
79-92-5	camphene	no	no
105-60-2	caprolactam	no	no
86-74-8	**carbazole**	**yes** (POM)	yes
1333-86-4	carbon black	no	no
75-15-0	**carbon disulfide**	**yes**	no
56-23-5	**carbon tetrachloride**	**yes**	yes
353-50-4	carbonyl fluoride	no	no
463-58-1	**carbonyl sulfide**	**yes**	no
9004-32-4	carboxymethyl cellulose	no	no
13466-78-9	carene, delta	no	no
8001-79-4	castor oil	no	no
120-80-9	**catechol**	**yes**	no
103980-44-5	ceftiofur hydrochloride	no	no
7440-45-1	cerium	no	no
1306-38-3	cerium oxide	no	no
123-03-5	cetylpyridinium chloride	no	no
6004-24-6	cetylpyridinium chloride monohydrate	no	no
12789-03-6	chlordane (technical)	unknown	yes
63449-39-8	chlorinated paraffins	no	yes
7782-50-5	**chlorine**	**yes**	no
10049-04-4	chlorine dioxide	no	no
302-22-7	chlormadinone acetate	no	no
108-90-7	**chlorobenzene**	**yes**	no
74-97-5	chlorobromomethane	no	no
57-15-8	chlorobutanol	no	no
124-48-1	chlorodibromomethane	no	yes
75-45-6	chlorodifluoromethane	no	no
668-45-1	chlorofluorobenzonitrile	no	no
67-66-3	**chloroform**	**yes**	yes
2921-88-2	chlorpyrifos	no	no
1308-14-1	chromium (+3) hydroxide	no	no
1308-38-9	chromium 3 oxide	no	no
218-01-9	**chrysene**	**yes** (POM)	no
18300-89-5	cinnamate	no	no
156-59-2	cis-1-2,dichloroethylene	no	no
627-20-3	cis-2-pentene	no	no
64741-62-4	clarified oils (petroleum), catalytic cracked	no	no
24729-96-2	clindamycin phosphate	no	no
1702-17-6	clopyralid	no	no
7440-48-4	**cobalt**	**yes** (Co comps.)	no

Appendix K - Comparison of HAP and TAC Screening Level Lists

MDNRE AQD Toxic Air Contaminants with Health-Based Screening Levels

January 25, 2010

(EPA HAPs appear in **BOLD** type)

CAS No.	Chemical Name	HAP?	Carcinogen?
136-52-7	cobalt 2-ethylhexanoate	no	no
27253-31-2	**cobalt neodecanoate**	**yes** (Co comps.)	no
61788-93-0	coco alkyldimethyl amines	no	no
8007-45-2	**coke oven emissions**	**yes**	yes
8050-09-7	colophony	no	no
7440-50-8	copper	no	no
3251-23-8	copper nitrate	no	no
147-14-8	copper phthalocyanine	no	no
7758-99-8	copper sulfate pentahydrate	no	no
7758-98-7	copper sulfate, anhydrous	no	no
68132-02-5	coumarone indene resin	no	no
7440-47-3	**Cr**	**yes** (Cr comps.)	no
18540-29-9	**Cr, hexavalent - mist**	**yes** (Cr comps.)	yes
18540-29-9	**Cr, hexavalent - particulate**	**yes** (Cr comps.)	yes
16065-83-1	**Cr, trivalent**	**yes** (Cr comps.)	no
1319-77-3	**cresol (mixed isomers)**	**yes**	no
64265-57-2	crosslinker cx100	no	no
4170-30-3	crotonaldehyde	no	no
98-82-8	**cumene**	**yes**	yes
80-15-9	cumene hydroperoxide	no	no
142-71-2	cupric acetate	no	no
1317-38-0	cupric oxide (dust)	no	no
57-12-5	**cyanide**	**yes** as cyanides	no
461-58-5	cyanoguanidine	no	no
--0	cyclic (phme)2(me)2, d4	no	no
2370-88-9	cyclic methylhydrogensiloxane, d4	no	no
6166-86-5	cyclic methylhydrogensiloxane, d5	no	no
2374-14-3	cyclic methyltrifluoropropylsiloxane, d3	no	no
110-82-7	cyclohexane	no	no
108-94-1	cyclohexanone	no	no
12262-58-7	cyclohexanone peroxide	no	no
110-83-8	cyclohexene	no	no
6975-71-9	cyclohexenylacetonitrile	no	no
3399-73-3	cyclohexenylethylamine	no	no
1122-82-3	cyclohexyl isothiocyanate	no	no
287-92-3	cyclopentane	no	no
142-29-0	cyclopentene	no	no
--0	cyclopentyldichlorosilane	no	no
14579-03-4	cyclopentyltrichlorosilane	no	no
147-94-4	cytarabine	no	no
72-54-8	DDD (p,p'-dichlorodiphenyl dichloroethane)	no	yes
72-55-9	DDE (p,p'-dichlorodiphenyl dichloroethylene)	no	yes
50-29-3	DDT (p,p'-dichlorodiphenyl trichloroethane)	no	yes
1163-19-5	decabromodiphenyl oxide	unknown	yes
91-17-8	decahydronaphthalene	no	yes
541-02-6	decamethylcyclopentasiloxane	no	no
141-62-8	decamethyltetrasiloxane	no	no

Appendix K - Comparison of HAP and TAC Screening Level Lists

MDNRE AQD Toxic Air Contaminants with Health-Based Screening Levels

January 25, 2010

(EPA HAPs appear in **BOLD** type)

CAS No.	Chemical Name	HAP?	Carcinogen?
8020-83-5	deodorized kerosene	no	no
64742-65-0	dewaxed heavy paraffinic mineral oil	no	no
6700-34-1	dextromethorphan hydrochloride	no	no
103-23-1	di (2-ethylhexyl) adipate	no	yes
6422-86-2	di(ethylhexyl)terephthalate	no	no
123-42-2	diacetone alcohol	no	no
131-17-9	diallyl phthalate	no	yes
2050-92-2	diamylamine	no	no
95481-62-2	dibasic ester	no	no
53-70-3	**dibenz(a,h)anthracene**	**yes** (POM)	no
132-64-9	**dibenzofuran**	**yes**	no
96-12-8	**dibromochloropropane**	**yes**	no
107-66-4	dibutyl phosphate	no	no
107-66-4	dibutyl phosphate	no	no
84-74-2	**dibutyl phthalate**	**yes**	no
77-58-7	dibutyl tin dilaurate	no	no
111-92-2	dibutylamine	no	no
818-08-6	dibutyltin oxide	no	no
91-94-1	**dichlorobenzidine**	**yes**	yes
75-71-8	dichlorodifluoromethane	no	no
75-43-4	dichlorofluoromethane	no	no
4109-96-0	dichlorosilane	no	no
76-14-2	dichlorotetrafluoroethan	no	no
62-73-7	**dichlorvos**	**yes**	no
80-43-3	dicumyl peroxide	no	no
5124-30-1	dicyclohexylmethane-4,4'-diisocyanate	no	no
--0	dicyclopentyldichlorosilane	no	no
60-57-1	dieldrin	no	yes
68334-30-5	diesel fuel	no	no
111-42-2	**diethanolamine**	**yes**	no
117-81-7	**diethyl hexyl phthalate**	**yes**	yes
84-66-2	diethyl phthalate	no	no
64-67-5	**diethyl sulfate**	**yes**	no
109-89-7	diethylamine	no	no
25340-17-4	diethylbenzene mixture	no	no
111-46-6	**diethylene glycol**	**yes**	no
1559-36-0	diethylene glycol mono-2-ethylhexyl ether	no	no
124-17-4	**diethylene glycol monobutyl ether acetate**	**yes**	no
111-90-0	**diethylene glycol monoethyl ether**	**yes**	no
112-15-2	**diethylene glycol monoethyl ether acetate**	**yes**	no
111-77-3	**diethylene glycol monomethyl ether**	**yes**	no
104-68-7	**diethylene glycol monophenyl ether**	**yes**	no
111-40-0	diethylene triamine	no	no
68610-11-7	diethylenetriamine reaction product with bisphenol a	no	no
105-53-3	diethylmalonate	no	no
2238-07-5	diglycidyl ether	no	no
25036-25-3	diglycidyl ether of bisphenol a	unknown	no

Appendix K - Comparison of HAP and TAC Screening Level Lists

MDNRE AQD Toxic Air Contaminants with Health-Based Screening Levels

January 25, 2010

(EPA HAPs appear in **BOLD** type)

CAS No.	Chemical Name	HAP?	Carcinogen?
26142-30-3	diglycidyl ether of polyglycol	no	no
108-83-8	diisobutyl ketone	no	no
107-39-1	diisobutylene	no	no
26761-40-0	diisodecyl ester phthalate	no	no
29733-18-4	diisodecyl glutarate	no	no
71888-89-6	diisoheptyl phthalate	no	no
28553-12-0	diisononyl phthalate	no	no
110-97-4	diisopropanolamine	no	no
108-20-3	diisopropyl ether	no	no
108-18-9	diisopropylamine	no	no
96-80-0	diisopropylaminoethanol	no	no
68390-56-7	diketene hydrogenated fatty acids	no	no
57-41-0	dilantin	unknown	yes
624-92-0	dimethyldisulfide	no	no
627-93-0	dimethyl adipate	no	no
106-79-6	dimethyl decanedioate	no	no
115-10-6	dimethyl ether	no	no
1119-40-0	dimethyl glutarate	no	no
756-79-6	dimethyl methyl phosphonate	no	no
106-65-0	dimethyl succinate	no	no
77-78-1	**dimethyl sulfate**	**yes**	no
124-40-3	dimethylamine	no	no
25988-97-0	dimethylamine-epichlorohydrin polymer	no	no
108-16-7	dimethylamino-2-propanol	no	no
121-69-7	**dimethylaniline**	**yes**	yes
1066-35-9	dimethylchlorosilane	no	no
28729-52-4	dimethylcyclopentane	no	no
75-78-5	dimethyldichlorosilane	no	no
1112-39-6	dimethyldimethoxysilane	no	no
2627-97-6	dimethyldiphenydivinylsiloxane	no	no
108-01-0	dimethylethanolamine	no	no
996-35-0	dimethylisopropylamine	no	no
51200-87-4	dimethyloxazolidine	no	no
131-11-3	**dimethylphthalate**	**yes**	no
1111-74-6	dimethylsilane	no	no
75-18-3	dimethylsulfide	no	no
67-68-5	dimethylsulfoxide	no	no
513-37-1	dimethylvinyl chloride	no	yes
1719-58-0	dimethylvinylchlorosilane	no	no
117-84-0	di-n-octyl phthalate	no	no
88-85-7	dinoseb	no	no
142-84-7	di-n-propylamine	no	no
838-85-7	diphenyl phosphoric acid	no	no
122-39-4	diphenylamine	unknown	no
144-79-6	diphenylmethylchlorosilane	unknown	no
778-25-6	diphenylmethylsilanol	unknown	no
101-84-8	diphenyloxide	unknown	no

Appendix K - Comparison of HAP and TAC Screening Level Lists

MDNRE AQD Toxic Air Contaminants with Health-Based Screening Levels

January 25, 2010

(EPA HAPs appear in **BOLD** type)

CAS No.	Chemical Name	HAP?	Carcinogen?
1231-93-0	dipropyl ketone	no	no
25265-71-8	dipropylene glycol	no	no
111109-77-4	dipropylene glycol dimethyl ether	no	no
34590-94-8	dipropylene glycol methyl ether	no	no
88917-22-0	dipropylene glycol methyl ether acetate	no	no
29911-28-2	dipropylene glycol monobutyl ether	no	no
29911-27-1	dipropylene glycol monopropyl ether	no	no
51730-94-0	**dipropylene glycol phenyl ether**	**yes**	no
4444-67-1	di-sec-butylamine	no	no
1590-87-0	disilane	no	no
--0	disiloxane	no	no
123312-54-9	distearyldimethylammonium bisulfate	no	no
3843-16-1	distearyldimethylammonium methosulfate	no	no
64741-89-5	distillates (petroleum) solvent-refined light paraffinic	no	no
64742-30-9	distillates (petroleum), chemically neutralized middle	no	no
68410-00-4	distillates (petroleum), crude oil	no	no
64741-81-7	distillates (petroleum), heavy thermal cracked	no	no
64741-82-8	distillates (petroleum), light thermal cracked	no	no
64741-59-9	distillates, (petroleum), light catalytic cracked	no	no
68783-24-4	di-tallow alkylamines	no	no
330-54-1	diuron	no	no
1321-74-0	divinyl benzene	no	no
98-84-0	dl-alpha phenylethylamine	no	no
5989-27-5	d-limonene	no	no
540-97-6	dodecamethylcyclohexasiloxane	no	no
63148-57-2	dow corning fluid 1107	no	no
35884-42-5	dowanol dpnb	no	no
170557-43-4	dowanol tmh-deg borate ester	no	no
145-73-3	endothall	no	no
106-89-8	**epichlorohydrin**	**yes**	yes
--0	epoxy resin solution	no	no
50-28-2	estradiol	no	no
313-06-4	estradiol cypionate	no	no
141-43-5	ethanolamine	no	no
--0	ethomeen t/30	no	no
61791-12-6	ethoxylated castor oil	no	no
7085-85-0	ethyl 2-cyanoacrylate	no	no
141-78-6	ethyl acetate	no	no
141-97-9	ethyl acetoacetate	no	no
140-88-5	**ethyl acrylate**	**yes**	no
64-17-5	ethyl alcohol	no	no
541-85-5	ethyl amyl ketone	no	no
75-00-3	**ethyl chloride**	**yes**	no
105-39-5	ethyl chloroacetate	no	no
105-56-6	ethyl cyanoacetate	no	no
60-29-7	ethyl ether	no	no
109-94-4	ethyl formate	no	no

Appendix K - Comparison of HAP and TAC Screening Level Lists

MDNRE AQD Toxic Air Contaminants with Health-Based Screening Levels

January 25, 2010

(EPA HAPs appear in **BOLD** type)

CAS No.	Chemical Name	HAP?	Carcinogen?
97-64-3	ethyl lactate	no	no
106-68-3	ethyl sec-amyl ketone	no	no
78-10-4	ethyl silicate	no	no
637-92-3	ethyl tertiary butyl ether	no	no
25550-14-5	ethyl toluene -mixture	no	no
109-92-2	ethyl vinyl ether	no	no
763-69-9	ethyl-3-ethyloxypropionate	no	no
107-00-6	ethylacetylene	no	no
75-04-7	ethylamine	no	no
100-41-4	**ethylbenzene**	**yes**	yes
68987-42-8	ethylenated benzene residues	no	no
74-85-1	ethylene	no	no
142-59-6	ethylene bisthiocarbamate disodium	no	no
107-15-3	ethylene diamine	no	no
106-93-4	**ethylene dibromide**	**yes**	yes
107-21-1	**ethylene glycol**	**yes**	no
112-48-1	**ethylene glycol dibutyl ether**	**yes**	no
110-71-4	ethylene glycol dimethyl ether	no	no
1559-35-9	ethylene glycol mono-2-ethylhexyl ether	no	no
112-07-2	**ethylene glycol monobutyl ether acetate**	**yes**	no
111-15-9	**ethylene glycol monoethyl ether acetate**	**yes**	no
112-25-4	**ethylene glycol monohexyl ether**	**yes**	no
110-49-6	**ethylene glycol monomethyl ether acetate**	**yes**	no
122-99-6	**ethylene glycol monophenyl ether**	**yes**	no
2807-30-9	**ethylene glycol monopropyl ether**	**yes**	no
75-21-8	**ethylene oxide**	**yes**	yes
96-45-7	**ethylene thiourea**	**yes**	yes
64-02-8	ethylenediamine tetra-acetic acid, tetrasodium salt	no	no
9004-58-4	ethylhydroxyethyl cellulose	no	no
78-07-9	ethyltriethoxysilane	no	no
5314-55-6	ethyltrimethoxysilane	no	no
7525-62-4	ethylvinyl benzene	no	no
64742-06-9	extracts (petroleum), middle distillate solvent	no	no
108419-34-7	exxate 1000	no	no
108419-32-5	exxate 800 - octyl acetate	no	no
108419-33-6	exxate 900	no	no
68459-31-4	fatty acids c9-11 branched glycidyl esters polymer	no	no
136797-56-3	fluorochemical-247	unknown	no
7705-08-0	ferric chloride	no	no
24510-87-0	flumethasone 5	no	no
2476-74-6	flumethasone 6	no	no
98967-40-9	flumetsulam	no	no
16872-11-0	fluoboric acid	no	no
206-44-0	**fluoranthene**	**yes** (POM)	no
86-73-7	**fluorene**	**yes** (POM)	no
69991-67-9	fomblin perfluorpolyether	no	no
50-00-0	**formaldehyde**	**yes**	yes

Appendix K - Comparison of HAP and TAC Screening Level Lists

MDNRE AQD Toxic Air Contaminants with Health-Based Screening Levels

January 25, 2010

(EPA HAPs appear in **BOLD** type)

CAS No.	Chemical Name	HAP?	Carcinogen?
75-12-7	formamide	no	no
64-18-6	formic acid	no	no
110-00-9	furan	no	yes
98-01-1	furfural	no	yes
98-00-0	furfuryl alcohol	no	yes
--0	fyre-zyme	no	no
96-48-0	gamma-butyrolactone	no	no
8006-61-9	**gasoline**	**yes** some comps	yes
1310-53-8	germanium dioxide	no	no
7782-65-2	germanium tetrahydride	no	no
111-30-8	glutaraldehyde	no	no
56-81-5	glycerol	no	no
106-91-2	glycidyl methacrylate	no	no
93-14-1	guaifenesin	no	no
64741-65-7	heavy alkylate naphtha	unknown	no
64742-94-5	heavy aromatic solvent naphtha	unknown	no
64741-68-0	heavy catalytic reformed naphtha	no	no
68551-17-7	heavy naphtha	no	no
76-44-8	**heptachlor**	**yes**	yes
--0	heptamethyl-1-vinyl-1,7-dichlorotetrasilazane	no	no
1873-88-7	heptamethyltrisiloxane	no	no
142-82-5	heptane	no	no
118-74-1	**hexachlorobenzene**	**yes**	yes
87-68-3	**hexachlorobutadiene**	**yes**	yes
77-47-4	**hexachlorocyclopentadiene**	**yes**	no
13465-77-5	hexachlorodisilane	no	no
67-72-1	**hexachloroethane**	**yes**	yes
12021-95-3	hexafluorozirconium acid	no	no
1009-93-4	hexamethylcyclotrisilazane	no	no
541-05-9	hexamethylcyclotrisiloxane	no	no
107-46-0	hexamethyldisiloxane	no	no
822-06-0	**hexamethylene diisocyanate**	**yes**	no
100-97-0	hexamethylenetetramine	no	no
66-25-1	hexanaldehyde	no	no
69696-98-6	hexane 1,6-bis(tributyl ammonium bromi	no	no
144669-03-4	hexenylsiloxane	no	no
144669-04-5	hexenylsiloxanes	no	no
107-41-5	hexylene glycol	no	no
431-89-0	hfc-227ea	no	no
68037-88-7	high molecular weight sili	no	no
63148-62-9	high molecular wt. silicon	no	no
68037-58-1	high molecular wt. silicon	no	no
68083-19-2	high molecular wt. silicon	no	no
68918-22-9	high molecular wt. silicon	no	no
69430-24-6	high molecular wt. silicon	no	no
70131-67-8	high molecular wt. silicon	no	no

Appendix K - Comparison of HAP and TAC Screening Level Lists

MDNRE AQD Toxic Air Contaminants with Health-Based Screening Levels

January 25, 2010

(EPA HAPs appear in **BOLD** type)

CAS No.	Chemical Name	HAP?	Carcinogen?
302-01-2	**hydrazine**	**yes**	yes
10034-93-2	hydrazine sulfate	no	yes
68956-56-9	hydrocarbons, terpene processing by-products	no	no
50-03-3	hydrocortisone acetate	no	no
64742-81-0	hydrodesulfurized kerosene	no	no
64742-80-9	hydrodesulfurized middle distillate	unknown	no
10035-10-6	hydrogen bromide	no	no
7647-01-0	**hydrogen chloride**	**yes**	no
74-90-8	**hydrogen cyanide**	**yes**	no
7664-39-3	**hydrogen fluoride**	**yes**	no
7722-84-1	hydrogen peroxide	no	no
7783-06-4	hydrogen sulfide	no	no
64742-48-9	hydrotreated heavy napht	unknown	no
64742-52-5	hydrotreated heavy naphthenic distillate	unknown	no
64742-54-7	hydrotreated heavy paraffinic mineral oil	unknown	no
64742-47-8	hydrotreated light distillate	unknown	no
64742-49-0	hydrotreated light naphtha	no	no
64742-53-6	hydrotreated light naphthenic distillate	no	no
64742-55-8	hydrotreated light paraffinic distillate	unknown	no
64742-46-7	hydrotreated middle distillate	unknown	no
79-14-1	hydroxyacetic acid/ glycolic acid	no	no
34375-28-5	hydroxymethylamino ethanol	no	no
10096-91-0	hydroxyphenylbenzotriazole	no	no
999-61-1	hydroxypropyl acrylate	no	no
9016-45-9	igepal co-630	no	no
193-39-5	**indeno(1,2,3-cd)pyrene**	**yes** (POM)	no
7553-56-2	iodine	no	no
123-92-2	isoamyl acetate	no	no
123-51-3	isoamyl alcohol	no	no
5888-33-5	iso-bornyl acrylate	no	no
75-28-5	isobutane	no	no
110-19-0	isobutyl acetate	no	no
78-83-1	isobutyl alcohol	no	no
97-85-8	isobutyl isobutyrate	no	no
97-86-9	isobutyl methacrylate	no	no
115-11-7	isobutylene	no	no
18395-30-7	isobutyltrimethoxysilane	no	no
78-84-2	isobutyraldehyde	no	no
79-31-2	isobutyric acid	no	no
338-98-7	isoflupredone acetate	no	no
26952-21-6	isooctanol	no	no
90622-57-4	isopar h	no	no
78-59-1	**isophorone**	**yes**	yes
4098-71-9	isophorone diisocyanate	no	no
53880-05-0	isophorone diisocyanate polymer	no	no
78-79-5	isoprene	no	yes
108-21-4	isopropyl acetate	no	no

Appendix K - Comparison of HAP and TAC Screening Level Lists

MDNRE AQD Toxic Air Contaminants with Health-Based Screening Levels

January 25, 2010

(EPA HAPs appear in **BOLD** type)

CAS No.	Chemical Name	HAP?	Carcinogen?
67-63-0	isopropyl alcohol	no	no
75-31-0	isopropylamine	no	no
121-93-7	isopropyldiethanolamine	no	no
109-56-8	isopropylethanolamine	no	no
590-86-3	isovaleraldehyde	no	no
1332-58-7	kaolin	no	no
50-21-5	lactic acid	no	no
2627-86-3	l-alpha-phenylethylamine	no	no
39464-66-9	lauryl alcohol, phosphated	no	no
10190-55-3	lead molybdate	no	no
64741-66-8	light alkylate naphtha	no	no
64742-95-6	light aromatic solvent naphtha (petroleum)	unknown	no
859-18-7	lincomycin hydrochloride	no	no
141-63-9	linear dimethylsiloxanes,md3m(&higher)	no	no
68083-20-5	linear methylvinylsiloxane ppolymer hydroxl endblock	no	no
67762-41-8	linear primary alcohol	no	no
1345-05-7	lithopone	no	no
66071-86-1	lv 837/821	no	no
7439-95-4	magnesium	no	no
546-93-0	magnesium carbonate	no	no
7786-30-3	magnesium chloride	no	no
1309-42-8	magnesium hydroxide	no	no
10377-60-3	magnesium nitrate	no	no
1309-48-4	magnesium oxide	no	no
557-04-0	magnesium stearate	no	no
108-31-6	**maleic anhydride**	**yes**	no
6915-15-7	malic acid	no	no
591-27-5	m-aminophenol	no	no
7439-96-5	**manganese**	**yes** (Mn comps.)	no
15956-58-8	**manganese 2-ethylhexanoate**	**yes** (Mn comps.)	no
27253-32-3	**manganese neodecanoate**	**yes** (Mn comps.)	no
1317-35-7	**manganese oxide**	**yes** (Mn comps.)	no
10034-96-5	**manganese sulfate monohydrate**	**yes** (Mn comps.)	no
26544-20-7	mcpa 2-ehe (2-methyl-4-chlorophenoxyacetic acid 2-ethylhexyl ester)	no	no
644-62-2	meclofenamic acid	unknown	no
108-78-1	melamine	no	yes
2919-66-6	melengesterol acetate	no	no
7439-97-6	**mercury**	**yes** (Hg comps.)	no
141-79-7	mesityl oxide	no	no
79-41-4	methacrylic acid	no	no
75-75-2	methane sulfonic acid	no	no
3144-09-0	methanesulfonamide	no	no
67-56-1	**methanol**	**yes**	no
79-20-9	methyl acetate	no	no
74-99-7	methyl acetylene	no	no
96-33-3	methyl acrylate	no	no
108-11-2	methyl amyl alcohol	no	no

Appendix K - Comparison of HAP and TAC Screening Level Lists

MDNRE AQD Toxic Air Contaminants with Health-Based Screening Levels

January 25, 2010

(EPA HAPs appear in **BOLD** type)

CAS No.	Chemical Name	HAP?	Carcinogen?
93-58-3	methyl benzoate	no	no
74-83-9	**methyl bromide**	**yes**	no
115-19-5	methyl butynol	no	no
74-87-3	**methyl chloride**	**yes**	yes
71-55-6	**methyl chloroform**	**yes**	no
17639-93-9	methyl chloroproprionate	no	no
78-93-3	**methyl ethyl ketone**	**yes**	no
1338-23-4	methyl ethyl ketone peroxide	no	no
107-31-3	methyl formate	no	no
60-34-4	**methyl hydrazine**	**yes**	yes
110-12-3	methyl isoamyl ketone	no	no
108-10-1	**methyl isobutyl ketone**	**yes**	no
624-83-9	**methyl isocyanate**	**yes**	no
74-93-1	methyl mercaptan	no	no
80-62-6	**methyl methacrylate**	**yes**	no
1184-85-6	methyl methane sulfonamide	no	no
110-43-0	methyl n-amyl ketone	no	no
591-78-6	methyl n-butyl ketone	no	no
9003-11-6	methyl oxirane (pluronic p103)	no	no
82919-37-7	methyl pentamethyl-4-piperidinyl ester of decanedioic acid	no	no
53-36-1	methyl predisolone acetate	no	no
107-87-9	methyl propyl ketone	no	no
124-63-0	methyl sulfonyl chloride	no	no
1634-04-4	**methyl t-butyl ether**	**yes**	no
109-87-5	methylal	no	no
74-89-5	methylamine	no	no
593-51-1	methylamine hydrochloride	no	no
108-87-2	methylcyclohexane	no	no
75-54-7	methyldichlorosilane	no	no
105-59-9	methyldiethanolamine	no	no
16881-77-9	methyldimethoxysilane	no	no
75-09-2	**methylene chloride**	**yes**	yes
101-68-8	**methylene diphenyl isocyanate**	**yes**	no
96-29-7	methylethylketoxime	no	yes
992-94-9	methylsilane	no	no
999-97-3	methylsilazane	no	no
4253-34-3	methyltriacetoxysilane	no	no
75-79-6	methyltrichlorosilane	no	no
2031-67-6	methyltriethoxysilane	no	no
50791-87-2	methylvinylbis(n-methylace	no	no
124-70-9	methylvinyldichlorosilane	no	no
16753-62-1	methylvinyldimethoxysilane	no	no
8012-95-1	mineral oil	no	no
64475-85-0	mineral spirits	unknown	no
1330-20-7	**mixed xylenes**	**yes**	no
7439-98-7	molybdenum	no	no
18868-43-4	molybdenum dioxide	no	no

Appendix K - Comparison of HAP and TAC Screening Level Lists

MDNRE AQD Toxic Air Contaminants with Health-Based Screening Levels

January 25, 2010

(EPA HAPs appear in **BOLD** type)

CAS No.	Chemical Name	HAP?	Carcinogen?
1317-33-5	molybdenum disulfide	no	no
1313-27-5	molybdenum trioxide	no	yes
46438-39-5	monobutyl monophenyl phosphoric acid	no	no
1623-15-0	monobutyl phosphoric acid	no	no
95-49-8	monochlorotoluene	no	no
78-96-6	monoisopropanolamine	no	no
701-64-4	monophenyl phosphoric acid	no	no
110-91-8	morpholine	no	no
28729-54-6	m-propyl toluene	no	no
620-23-5	m-tolualdehyde	no	no
98-17-9	m-trifluoromethylphenol	no	no
108-38-3	**m-xylene**	**yes**	no
126803-73-4	n-(2,6-dichloro-3-methylphenyl)-5,7-dimethyoxy(1,2,4)triazo...[de-511]	no	no
113171-12-3	n-(2,6-difluorophenyl)-5-amino-1h-1,2,4-triazole-3-sulfonamide	no	no
98967-55-6	n-(2,6-difluorophenyl)-7-methyl-1h-1,2,4-triazolo(1,5a)pyrimidine-2-su	no	no
1760-24-3	n-(3-(trimethoxysilyl)propyl)-ethylenediamine	no	no
104-78-9	n,n-diethyl-1,3-propanediamine	no	no
606-46-2	n,n-diethyl-o-toluine	no	no
613-48-9	n,n-diethyl-p-toludine	no	no
124-28-7	n,n-dimethyl octadecylamine	no	no
80-73-9	n,n'-dimethylethyleneurea	no	no
68-12-2	**n,n-dimethylformamide**	**yes**	no
99-97-8	n,n-dimethyl-p-toluidine	no	no
110-30-5	n,n'-ethylene bis-octadecanamide	no	no
628-63-7	n-amyl acetate	no	no
8030-30-6	naphtha	no	no
64742-82-1	naphtha (petroleum) hydrodesulfurized heavy	no	no
64741-55-5	naphtha (petroleum), light catalytic cracked	no	no
64741-41-9	naphtha heavy straight run	unknown	no
68955-35-1	naphtha, catalytic reformed	no	no
64741-64-6	naphtha, full range alkylate	no	no
64741-42-0	naphtha, full range straight run	no	no
64741-54-4	naphtha, heavy catalytic cracked	no	no
64741-83-9	naphtha, heavy thermal cracked	no	no
64741-63-5	naphtha, light catalytic reformed	no	no
91-20-3	**naphthalene**	**yes**	yes
71-36-3	n-butanol	no	no
63716-40-5	n-butoxy propanol (mixed isomers)	no	no
123-86-4	n-butyl acetate	no	no
109-69-3	n-butyl chloride	no	no
2426-08-6	n-butyl glycidyl ether	no	no
97-88-1	n-butyl methacrylate	no	no
590-01-2	n-butyl propionate	no	no
109-73-9	n-butylamine	no	no
104-51-8	n-butylbenzene	no	no
--0	n-butylglucamine	no	no
--0	n-chloro-2,6-difluorobenzamide	no	no

Appendix K - Comparison of HAP and TAC Screening Level Lists

MDNRE AQD Toxic Air Contaminants with Health-Based Screening Levels

January 25, 2010

(EPA HAPs appear in **BOLD** type)

CAS No.	Chemical Name	HAP?	Carcinogen?
112-55-0	n-dodecyl mercaptan	no	no
1405-10-3	neomycin sulfate	no	no
126-30-7	neopentyl glycol	no	no
17557-23-2	neopentyl glycol diglycidyl ether	no	no
112-06-1	n-heptyl acetate	no	no
110-54-3	**n-hexane**	**yes**	no
7440-02-0	**nickel**	**yes** (Ni comps.)	yes
12035-72-2	**nickel subsulfide**	**yes** (Ni comps.)	yes
7697-37-2	nitric acid	no	no
98-95-3	**nitrobenzene**	**yes**	yes
79-24-3	nitroethane	no	no
77835-42-0	nitrogen trifluoride	no	no
75-52-5	nitromethane	no	yes
107-68-6	n-methyl taurine	no	no
626-67-5	n-methylpiperidine	no	no
872-50-4	n-methylpyrrolidone	no	no
836-30-6	n-nitrodiphenylamine	no	no
1116-54-7	n-nitrosodiethanolamine	no	yes
621-64-7	n-nitroso-di-n-propylamine	no	yes
86-30-6	n-nitrosodiphenylamine	unknown	yes
684-93-5	**n-nitroso-n-methylurea**	**yes**	yes
111-84-2	n-nonane	no	no
25154-52-3	nonyl phenol (mixed isomers)	no	no
64771-72-8	norpar 12	no	no
303-81-1	novobiocin	unknown	no
624-54-4	n-pentyl proprionate	no	no
109-60-4	n-propyl acetate	no	no
71-23-8	n-propyl alcohol	no	no
16369-21-4	n-propylethanolamine	no	no
103-99-1	n-stearoyl-4-aminophenol	no	no
88-12-0	n-vinylpyrrolidinone	no	yes
68309-52-4	nylen 5	unknown	no
--0	o-(1-ethoxyethyl)-2-(propylthio)-3-(trifluoromethyl)phenol	no	no
--0	o-(1-ethoxyethyl)-3-(trifluoromethyl)phenol	no	no
134-29-2	o-ansidine hydrochloride	no	yes
88-65-3	o-bromobenzoic acid	no	no
118-91-2	o-chlorobenzoic acid	no	no
95-48-7	**o-cresol**	**yes**	no
124-26-5	octadecanamide	no	no
627-83-8	octadecanoic acid, 1,2-ethanediyl ester	no	no
27668-52-6	octadecyldimethyl (3-(trimethoxysilyl)propyl) ammonium chloride	no	no
556-67-2	octamethylcyclotetrasilo	no	no
107-51-7	octamethyltrisiloxane	no	no
124-07-2	octanoic acid	no	no
26530-20-1	octylisothiazolone	no	no
68990-79-4	oils, vegetable, mixed with animal oil methylesters, polymerized, oxidixed	no	no
112-80-1	oleic acid	no	no

Appendix K - Comparison of HAP and TAC Screening Level Lists

MDNRE AQD Toxic Air Contaminants with Health-Based Screening Levels

January 25, 2010

(EPA HAPs appear in **BOLD** type)

CAS No.	Chemical Name	HAP?	Carcinogen?
93-83-4	oleoyl diethanolamine	no	no
8014-95-7	oleum	no	no
90-43-7	o-phenylphenol	unknown	yes
2530-85-0	organofunctional silane	no	no
20816-12-0	osmium tetroxide	no	no
95-53-4	**o-toluidine**	**yes**	yes
19666-30-9	oxadiazon	no	yes
9063-06-3	oxirane, methyl-, polymer with oxirane, monomethyl ether	no	no
90438-79-2	oxo-heptyl acetate	no	no
88230-35-7	oxo-hexyl acetate	no	no
95-47-6	**o-xylene**	**yes**	no
95-38-5	oyel hydroxyethylimidazoline	no	no
7440-05-3	palladium	no	no
8002-74-2	paraffin wax fume	no	no
98-56-6	p-chlorobenzotrifluoride	no	no
82-68-8	**pentachloronitrobenzene**	**yes**	no
87-86-5	**pentachlorophenol**	**yes**	yes
109-66-0	pentane	no	no
19430-93-4	perfluorobutylethylene	no	no
38436-16-7	perfluorobutylethylmethyldichlorosilane	no	no
382-21-8	perfluoroisobutylene	no	no
93-59-4	peroxybenzoic acid	no	no
8002-05-9	petroleum	no	no
64742-14-9	petroleum distillates, acid treated	unknown	no
68476-86-8	petroleum gases, liquefied, sweetened	no	no
1194-02-1	p-fluorobenzonitrile	no	no
85-01-8	**phenanthrene**	**yes** (POM)	no
10551-21-0	phenethyl alpha picolinium bromide	no	no
108-95-2	**phenol**	**yes**	no
122-79-2	phenyl acetate	no	no
617-94-7	phenyl isopropanol (2-phenyl-2-propanol)	no	no
120-07-0	phenyldiethanolamine	no	no
98-13-5	phenyltrichlorosilane	no	no
2996-92-1	phenyltrimethoxysilane	no	no
75-44-5	**phosgene**	**yes**	no
7803-51-2	**phosphine**	**yes**	no
7664-38-2	phosphoric acid	no	no
7723-14-0	**phosphorus (total)**	**yes**	no
10025-87-3	phosphorus oxychloride	no	no
10026-13-8	phosphorus pentachloride	no	no
7719-12-2	phosphorus trichloride	no	no
1328-53-6	phthalocyanine pigment green	no	no
26952-20-5	picloram, isooctyl ester	no	no
80-56-8	pinene, alpha	no	no
127-91-3	pinene, beta	no	no
2981-10-4	piperdinocyclohexene	no	no
110-89-4	piperidine	no	no

Appendix K - Comparison of HAP and TAC Screening Level Lists

MDNRE AQD Toxic Air Contaminants with Health-Based Screening Levels

January 25, 2010

(EPA HAPs appear in **BOLD** type)

CAS No.	Chemical Name	HAP?	Carcinogen?
61477-94-9	pirmenol hydrochloride	no	no
99-87-6	p-isopropyltoluene	no	no
7440-06-4	platinum soluble salt	no	no
4221-98-1	p-mentha-1,5-diene	no	no
9016-87-9	polmeric methylene diphenyl diisocyanate	no	no
26780-96-1	poly(1,2-dihydro-2,2,4-trimethylquinoline)	no	no
9003-13-8	polyalkylene glycol monobutyl ether/ butoxypolypropylene glycol	no	no
68003-28-1	polyamide	no	no
1336-36-3	**polychlorinated biphenyls**	**yes**	yes
--0	**polycyclic aromatic hydrocarbons (pahs)**	**yes** (POM)	no
26062-79-3	polydimethyl diallyl ammonium chloride	no	no
25322-68-3	polyethylene glycol	no	no
9004-74-4	polyethylene glycol methyl ether	no	no
27274-31-3	polyethylene glycol monoallyl ether	no	no
37251-67-5	polyethylene polypropylene glycol	no	no
68410-23-1	polyethylenepolyamine reaction products with c18-unsat. fatty acids	no	no
69029-39-6	polyglycol 26-2	no	no
--0	polyglycol 26-3	no	no
24938-91-8	polyglycol 59-13	no	no
9002-92-0	polyoxyethylene lauryl ether	no	no
25322-69-4	polypropylene glycol	no	no
9002-86-2	polyvinyl chloride	no	no
9003-39-8	polyvinyl pyrrolidone	no	no
9003-22-9	polyvinylchloride/polyvinylacetate	no	no
7789-23-3	potassium fluoride	no	no
1310-58-3	potassium hydroxide	no	no
7758-05-6	potassium iodate	no	no
12136-45-7	potassium oxide	no	no
7722-64-7	**potassium permanganate**	**yes** (Mn comps.)	no
12037-29-5	praseodymium oxide	no	no
57-83-0	progesterone	no	no
3986-89-8	progesterone 4	no	no
98516-30-4	propanol, 1(or 2) ethoxy, acetate isoparaffinic petroleum hydrocarbon	no	no
123-38-6	propionaldehyde	no	no
79-09-4	propionic acid	no	no
106-94-5	propyl bromide	no	no
106-36-5	propyl propionate	no	no
107-10-8	propylamine	no	no
103-65-1	propylbenzene	no	no
115-07-1	propylene	no	no
108-32-7	propylene carbonate	no	no
78-87-5	**propylene dichloride**	**yes**	no
57-55-6	propylene glycol	no	no
19089-47-5	propylene glycol monoethyl ether (alpha)	no	no
1569-02-4	propylene glycol monoethyl ether (beta)	no	no
52125-53-8	propylene glycol monoethyl ether (mixture)	no	no
107-98-2	propylene glycol monomethyl ether	no	no

Appendix K - Comparison of HAP and TAC Screening Level Lists

MDNRE AQD Toxic Air Contaminants with Health-Based Screening Levels

January 25, 2010

(EPA HAPs appear in **BOLD** type)

CAS No.	Chemical Name	HAP?	Carcinogen?
1320-67-8	propylene glycol monomethyl ether	no	no
108-65-6	propylene glycol monomethyl ether acetate	no	no
41593-38-8	propylene glycol monophenyl ether	no	no
5131-66-8	propylene glycol n-butyl ether (alpha isomer)	no	no
15821-83-7	propylene glycol n-butyl ether (beta isomer)	no	no
770-35-4	propylene glycol phenyl ether	no	no
57018-52-7	propylene glycol tert-butyl ether	no	no
29387-86-8	propylene glycol, n-butyl ether (mixed isomers)	no	no
75-56-9	**propylene oxide**	**yes**	yes
1067-25-0	propyltrimethoxysilane	no	no
104-87-0	p-tolualdehyde	no	no
104-15-4	p-toluenesulfonic acid	no	no
6192-52-5	p-toluenesulfonic acid monohydrate	no	no
106-49-0	p-toluidine	no	yes
--0	purafect 4000g	no	no
106-42-3	**p-xylene**	**yes**	no
129-00-0	**pyrene**	**yes** (POM)	no
110-86-1	pyridine	no	no
84632-65-5	pyrrolo[3,4-c]pyrrole-1,4-dione,3,6-bis(4-chlorophenyl)-2,5-dihydro	no	no
1047-16-1	quinacridone pigment	no	no
82586-54-7	quinapril step 8	no	no
91-22-5	**quinoline**	**yes**	yes
106-51-4	**quinone**	**yes**	no
64742-62-7	residual oils (petroleum) solvent-dewaxed	no	no
64741-56-6	residues, (petroleum), vacuum	no	no
108-46-3	resorcinol	no	no
1314-28-9	rhenium oxide	no	no
90-02-8	salicylaldehyde	no	no
106917-31-1	sanduvor 3068 liquid	no	no
3081-01-4	santoflex 14	no	no
626-38-0	sec-amyl acetate	no	no
78-92-2	sec-butyl alcohol	no	no
13952-84-6	sec-butylamine	no	no
135-98-8	sec-butylbenzene	no	no
7782-49-2	**selenium**	**yes** (Se comps.)	no
112926-00-8	silica - precipitated	no	no
69012-64-2	silica amorphous fume	no	no
112945-52-5	silica, amorphous, crystalline free, fumed	no	no
10026-04-7	silicon tetrachloride	no	no
7783-61-1	silicon tetrafluoride	no	no
7803-62-5	silicon tetrahydride	no	no
67762-90-7	siloxanes and silicones(silica filled polydimethylsiloxane)	no	no
7440-22-4	silver - soluble	no	no
15096-52-3	sodium aluminum fluoride	no	no
7631-90-5	sodium bisulfite	no	no
7647-15-6	sodium bromide	no	no
630-93-3	sodium dilantin	unknown	yes

Appendix K - Comparison of HAP and TAC Screening Level Lists

MDNRE AQD Toxic Air Contaminants with Health-Based Screening Levels

January 25, 2010

(EPA HAPs appear in **BOLD** type)

CAS No.	Chemical Name	HAP?	Carcinogen?
128-04-1	sodium dimethyl dithiocarbamate	no	no
7681-49-4	sodium fluoride	no	no
13007-85-7	sodium glucoheptonate	no	no
31138-65-5	sodium glucoheptonate	no	no
1310-73-2	sodium hydroxide	no	no
7681-52-9	sodium hypochlorite	no	no
10039-56-2	sodium hypophosphite monohydrate	no	no
7681-82-5	sodium iodide	no	no
14960-06-6	sodium lauriminodipropionate	no	no
124-41-4	sodium methylate	no	no
7631-95-0	sodium molybdate	no	no
12401-86-4	sodium monoxide	no	no
7632-00-0	sodium nitrite	no	no
7632-04-4	sodium perborate	no	no
68608-26-4	sodium petroleum sulfonate	unknown	no
16893-85-9	sodium silicofluoride	no	no
67701-11-5	sodium soap 900602	no	no
67701-10-4	sodium soap 903923	no	no
7757-83-7	sodium sulfite	no	no
1300-72-7	sodium xylenesulfonate	no	no
109265-71-6	solsperse 12000	unknown	no
86753-78-8	solsperse 5000	unknown	no
68458-91-3	solvar & lv 820	no	no
8005-02-5	solvent black	no	no
64742-96-7	solvent naphtha (petroleum) heavy aliphatic	no	no
64742-89-8	solvent naphtha light aliphatic	unknown	no
64742-88-7	solvent naphtha medium aliphatic	unknown	no
64741-88-4	solvent refined heavy paraffnic distillate	unknown	no
67784-80-9	soybean oil, methyl esters	no	no
68071-85-2	spenkel f34	unknown	no
--0	sponto 11	no	no
--0	sponto 723	no	no
30705-14-7	sr 1153	no	no
1912-83-0	stannous octoate	no	no
57-11-4	stearic acid	no	no
7803-52-3	**stibine**	**yes** (Sb comps.)	no
8052-41-3	stoddard solvent	no	no
64741-44-2	straight run middle distillate	no	no
100-42-5	**styrene**	**yes**	yes
9003-55-8	styrene-butadiene polymer	no	no
505-48-6	suberic acid	no	no
5329-14-6	sulfamic acid	no	no
7704-34-9	sulfur (elemental)	no	no
7446-11-9	sulfur trioxide	no	no
7664-93-9	sulfuric acid	no	no
68516-16-5	sulfuric acid c6-10 alkyl esters	no	no
64741-86-2	sweetened middle distillate	unknown	no

Appendix K - Comparison of HAP and TAC Screening Level Lists

MDNRE AQD Toxic Air Contaminants with Health-Based Screening Levels

January 25, 2010

(EPA HAPs appear in **BOLD** type)

CAS No.	Chemical Name	HAP?	Carcinogen?
14807-96-6	talc	no	yes
61790-33-8	tallow alkylamines	no	no
75-65-0	t-butanol	no	no
107-71-1	t-butyl peroxyacetate	no	no
75-64-9	t-butylamine	no	no
4620-70-6	t-butylaminoethanol	no	no
98-29-3	t-butylcatechol	no	no
2160-93-2	t-butyldiethanolamine	no	no
3006-82-4	t-butylperoxy-2-ethylhexanoate	no	no
9036-19-5	t-det c08	no	no
--0	t-det c-40	no	no
9014-92-0	t-det dd-14	no	no
68131-40-8	tergitol 15-s-3	no	no
540-88-5	tert-butyl acetate	no	no
98-06-6	tert-butylbenzene	no	no
1333-13-7	tert-butyl-m-cresol	no	no
994-05-8	tertiary amyl methyl ether	no	no
2157-45-1	tetra-2-methoxyethoxy-silane	no	no
136-47-0	tetracaine hyrochloride	no	no
20536-16-7	tetrachlorodisilane	no	no
127-18-4	**tetrachloroethylene**	**yes**	yes
10469-09-7	tetrachloropicolinic acid	no	no
116-14-3	tetrafluoroethylene	no	yes
109-99-9	tetrahydrofuran	no	yes
97-99-4	tetrahydrofuryl methanol	no	no
9014-85-1	tetramethyl decyndiol	no	no
632-22-4	tetramethyl urea	no	no
22407-51-8	tetramethylchlorovinyldisiloxane	no	no
3277-26-7	tetramethyldihydrogendisiloxane	no	no
7691-02-3	tetramethyldivinyldisila	no	no
2627-95-4	tetramethyldivinyldisiloxane	no	no
75-76-3	tetramethylsilane	no	no
509-14-8	tetranitromethane	no	yes
3982-82-9	tetraphenyldimethyl-2-dimethyltrisiloxane	unknown	no
3390-61-2	tetraphenyldimethyl-2-phenylmethyltrisiloxane	unknown	no
807-28-3	tetraphenyldimethyldisiloxane	unknown	no
6904-66-1	tetraphenylhexamethyltetrasiloxane	unknown	no
25265-77-4	texanol	no	no
1314-32-5	thallic oxide	no	no
7440-28-0	thallium	no	no
64485-82-1	thiazole ester	no	no
7719-09-7	thionyl chloride	no	no
137-26-8	thiram	no	no
7440-31-5	tin	no	no
13463-67-7	titanium dioxide	no	no
1643-19-2	t-n-butyl ammonium bromide	no	no
1156-19-0	tolazamide	no	no

Appendix K - Comparison of HAP and TAC Screening Level Lists

MDNRE AQD Toxic Air Contaminants with Health-Based Screening Levels

January 25, 2010

(EPA HAPs appear in **BOLD** type)

CAS No.	Chemical Name	HAP?	Carcinogen?
108-88-3	**toluene**	**yes**	no
26471-62-5	**toluene diisocyanate**	**yes**	yes
8001-35-2	**toxaphene**	**yes**	yes
156-60-5	trans-1-2,dichloroethylene	no	no
102-76-1	triacetin	no	no
28961-43-5	triacrylate ester	no	no
621-77-2	triamylamine	no	no
126-73-8	tributyl phosphate	no	no
102-82-9	tributylamine	no	no
79-01-6	**trichloroethylene**	**yes**	yes
75-69-4	trichlorofluoromethane	no	no
10025-78-2	trichlorosilane	no	no
68526-86-3	tridecanol	no	no
102-71-6	triethanolamine	no	no
77-93-0	triethyl citrate	no	no
121-44-8	**triethylamine**	**yes**	no
--0	triethylammonium suleptanate	no	no
1559-37-1	triethylene glycol mono-2-ethyhexyl ether	no	no
112-50-5	triethylene glycol monoethyl ether	no	no
112-24-3	triethylene tetramine	no	no
280-57-9	triethylenediamine	no	no
76-05-1	trifluoroacetic acid	no	no
358-67-8	trifluoropropylmethyl dimethoxysilane	no	no
130014-38-9	trifluoropropylsilsesquioxane, dimethylhydrogensilyoxy-terminated	no	no
592-09-6	trifluoropropyltrichlorosilane	no	no
122-20-3	triisopropanolamine (tipa)	no	no
121-43-7	trimethoxyborine	no	no
1185-55-3	trimethoxymethylsilane	no	no
3236-53-1	trimethyl hexamethylenediamine	no	no
75-50-3	trimethylamine	no	no
25551-13-7	trimethylbenzenes (mixed isomers)	no	no
75-77-4	trimethylchlorosilane	no	no
1445-45-0	trimethyl-o-acetate	no	no
3290-92-4	trimethylolpropane trimethacrylate	no	no
149-73-5	trimethylorthoformate	no	no
993-07-7	trimethylsilane	no	no
1066-40-6	trimethylsilanol	no	no
76-83-5	triphenyl methyl chloride	unknown	no
102-69-2	tripropylamine	no	no
42978-66-5	tripropylene glycol diacrylate	no	no
25498-49-1	tripropylene glycol methyl ether	no	no
20324-33-8	tripropylene glycol methyl ether, dowanol 62b	no	no
55934-93-5	tripropylene glycol n-butyl ether	no	no
126-72-7	tris(2,3-dibromopropyl) phosphate	no	yes
9002-93-1	triton x100	no	no
88851-61-0	trospectomycin sulfate	no	no
51811-38-2	tryfac 5556	no	no

Appendix K - Comparison of HAP and TAC Screening Level Lists

MDNRE AQD Toxic Air Contaminants with Health-Based Screening Levels

January 25, 2010

(EPA HAPs appear in **BOLD** type)

CAS No.	Chemical Name	HAP?	Carcinogen?
12070-12-1	tungsten carbide	no	no
8006-64-2	turpentine	no	no
110-62-3	valeraldehyde	no	no
3153-26-2	vanadium oxide bis (2,4-pentanedionate)	no	no
1314-62-1	vanadium pentoxide	no	no
68990-52-3	vegetable oil fatty acid methyl ester	no	no
108-05-4	**vinyl acetate**	**yes**	no
593-60-2	**vinyl bromide**	**yes**	no
75-01-4	**vinyl chloride**	**yes**	yes
5906-75-2	vinyl dimethylsilanol	no	no
25013-15-4	vinyl toluene	no	no
30030-25-2	vinylbenzylchloride	no	no
75-35-4	**vinylidene chloride (1,1-dichloroethylene)**	**yes**	no
75-38-7	vinylidene fluoride	no	no
5507-44-8	vinylmethyldiethoxysilane	no	no
75-94-5	vinyltrichlorosilane	no	no
2768-02-7	vinyltrimethoxysilane	no	no
8032-32-4	vm & p naphtha	no	no
8042-47-5	white mineral oil	no	no
--0	witconol al 69-66	no	no
8002-09-3	yarmor pine oil	no	no
1314-13-2	zinc oxide	no	no
557-05-1	zinc stearate	no	no

APPENDIX L:

BENCHMARKING SURVEY OF STATE AIR TOXICS ASSESSMENTS IN NEW SOURCE PERMITTING

Benchmarking Survey of State Air Toxics Assessments in New Source Permitting

Robert Sills, Supervisor, Toxics Unit, Air Quality Division, Michigan Department of Natural Resources and Environment
February 25, 2010

Background and Introduction

The Michigan Department of Natural Resources and Environment (MDNRE) Air Quality Division (AQD) implements the "air toxics rules" (Rules 224-232) of Part 55 of the Natural Resources and Environmental Protection Act (NREPA) as part of the New Source Review (NSR) permitting program. Because the federal government has not required air toxics risk assessment in NSR, except for the limited and long-delayed requirements of the Clean Air Act under Section 112(f), many states have developed their own requirements to better ensure public health protection. Recently AQD has become aware of interest regarding the scope and basis for the MDNRE air toxics regulatory requirements, and how they compare to other state's programs. In particular, there is interest in comparing the issue of "the list", i.e., the scope of the air toxics included in the state's programs.

Previous "benchmarking" surveys have been conducted, however, they do not provide sufficient detail on this particular issue. For example, previous surveys by MDEQ (2009) and the Louisville (2005) local air pollution control agency are helpful for many purposes, but do not provide sufficient and current program details regarding the key question about "the list" which is the present interest. And, given the broad variety of state air toxics programs, and the many nuances in their scope and applicability, some surveys only provide a simple "yes" or "no" indication of the requirement for air toxics risk assessment.

Proper framing of the survey questions is critical to obtaining the desired information. The present survey sought to find if state air permitting programs go beyond the federal technology-based requirements and address public health concerns for ambient air impacts of air toxics emissions. Care was taken to avoid "false-negative" responses. For example, "false negative" responses could result if a question is phrased, "Is air toxics risk assessment required as part of New Source Review?" In response to that question, a state representative may unfortunately reply "no", if only because, 1) they evaluate modeled ambient air impacts in comparison to some health-based criteria such as TLV/100, but they consider that "screening" rather than "risk assessment"; 2) they have established permissible emission rate limits, which were derived based on assumed facility parameters (e.g., building and stack height and distance to fenceline), dispersion modeling, and health-based ambient air exposure criteria, which they may not think of as being essentially "risk assessment based"; or, 3) they don't perform the assessment as a *requirement* of their rules, but as a matter of policy. With regard to this 3rd point, the present survey found that there are many states which do not have air toxics risk assessment-based requirements in state statutes or rules *per se*, however, they do conduct air toxics impact and risk assessment as a *policy* under broad "safety net" language in statute or rule. The "safety net" language cited by many states generally requires that air emissions shall not pose a threat to the public health (similar to Michigan's Rule 901 under NREPA Part 55).

Some states have air toxics impact assessment requirements which are fairly unusual or unique. For example, some state programs specifically evaluate (or exclude from evaluation) selected

source categories, or, they utilize air toxics monitoring data for targeted geographic areas to drive initiatives to reduce emissions of selected air toxics. The present benchmarking survey attempted to note some of these significant program nuances, while primarily attempting to clarify if the air toxics addressed were limited to a specific list or not. As indicated in the "reference/contact" column of the table below, the results of the previous surveys by MDEQ (2009) and Louisville (2005) were relied upon in many cases, while in many other cases an appropriate state contact person was interviewed. It should also be noted that many state air permitting programs, like Michigan's, have a number of permit exemptions, permits by rule, or allowable emission thresholds, which would circumvent the need to perform modeling of ambient air impacts for air toxics to determine acceptability. Those program nuances have not been compiled in the present exercise, but are a significant and relevant aspect of state program comparisons nevertheless.

Results

State	Reference / contact	For proposed new/modified air emission sources, are ambient air impacts of any air toxics evaluated? If yes, what is the regulatory basis?	What air toxics are included?	What are the ambient air impacts compared to in order to determine acceptability?
Alabama	Wes Thornhill 334-271-7887	Yes, by policy but not in rules.	All air toxics with TLVs or other OELs.	If the substance has an OEL AND is emitted at > 0.1 lb/hr, then the modeled ambient air impact cannot exceed TLV/40 (8 hr AT) or TLV/420 (annual AT).
Alaska	MDEQ (2009); Louisville (2005)	No.		
Arizona	MDEQ (2009); Louisville (2005)	No.		
Arkansas	MDEQ (2009); Louisville (2005)	No.		
California	Louisville (2005)	Yes, by Hot Spots regulation; sources causing fenceline or community monitored levels of excess risk addressed via control measures (existing; point, area or mobile); modeling done for new sources.	748 total air toxics; 438 must be quantified in risk assessment (as of 2005 survey)	CA-OEHHA Reference Exposure Levels (RELs), or, one in 1 million cancer risk.
Colorado	MDEQ (2009); Louisville (2005)	No.		
Connecticut	Jim Grillo 860-424-4152; Louisville (2005) survey.	Yes. In rules. New and existing sources; major and area sources.	The HAPs list (187). Hazardous Limiting Values (HLVs) were derived for the HAPs based on modified occupational standards.	The rules provide 2 equations (one for under 20 m stacks, one for over 20 m stacks) relating air emissions to ambient impacts, which are compared to HLVs; it is a pass/fail standard for all permits.

Delaware	Jim Snead 302-323-4542	Yes, by policy but not in rules. Policy is under a general "safety net" provision (regulation 1102).	All substances; no discrete list.	Maximum ambient air impacts cannot exceed TLV/100 if there is a TLV available; if not, then impact cannot exceed the default value of 100 $\mu g/m^3$. This is the same approach for carcinogens as well as noncarcinogens.
Florida	MDEQ (2009); Louisville (2005)	No.		
Georgia	Eric Cornwell 404-363-7020	Yes, in guidance only; not by rule; under "safety net" rule provisions.	No discrete list; any substance with IRIS value or OEL.	Hierarchy used; 1) most stringent value between cancer-based value (one in 1 million if "A" carcinogen, otherwise, 1 in 100,000) or RfC; 2) TLV/100 (or, TLV/300 if "A" carcinogen), then scaled by 40 hrs/168 hrs (approx. a factor of 4) to derive acceptable ambient concentration (AAC) with 24 hr AT; for OELs which are ceiling limits or STELs, divide by 10 and also scale by a factor of 1.32 to account for 15" AT of OEL (per SCREEN3).
Hawaii	MDEQ (2009); Louisville (2005)	Yes; new/modified sources only; major and area sources.	HAPs only.	
Idaho	Carl Brown 208-373-0206	Yes. In rules. New/modified sources only. Does not apply if a MACT rule applies.	Approximately 350 toxic air pollutants; list was developed before the 1990 HAPs list	Utilize conservative pph emission thresholds; if exceeded, then ambient air impacts modeled; acceptable ambient concentrations (AACs) are based on 1E-06 cancer risk, and for noncarcinogens, OEL/UF.
Illinois	Jeff Sprague 217-524-4692	No, unless there are public concerns. Do have an internal screening for ethanol plants.		
Indiana	Bryan Wolff 317-234-3499	Yes. By policy; air toxics impacts are assessed only if requested by citizen or applicant. No routine screening.	No discrete list; any substance with any state or federal criteria or any health data may be included.	Commission has discretionary basis for permit denial if impacts are deemed adverse.

Iowa	MDEQ (2009); Louisville (2005)	No.		
Kansas	MDEQ (2009); Louisville (2005)	No.		
Kentucky	Taimur Shaikh 502-564-3999 x4480	Yes, as a policy regarding new/modified source permitting, under a general "safety net" regulation regarding public health protection.	EPA HAPs plus all substances regulated by EPA under the chemical accident prevention provisions (CAAA Section 112(r)).	Risk assessment based levels associated with HQ=1 or one in 1 million incremental cancer risk.
Louisiana	Louisville (2005)	Yes.	HAPs plus other air toxics.	Ambient impacts cannot exceed TLV/factor, or one in 10,000 cancer risk.
Maine	Lisa Higgins 207-287-7023; Louisville (2005) survey	Yes.	Have ambient air quality guidelines for HAPs plus additional compounds.	Have calculated health-based guideline values. Have a State statute mercury emission limit of 25 lbs/yr for any new or existing facility.
Maryland	Louisville (2005)	Yes.	All HAPs plus others; database of 6329 substances as of 2005 survey.	Maximum ambient air impacts cannot exceed TLV/100 or one in 1 million cancer risk.
Massachusetts	Marc Wolman 617-292-5515	Yes, as ambient air guidelines. Apply to only: incinerators, WWTPs and residuals mgmt., major remedial actions, and PSD projects.	Discrete list of air toxics (n~120) which pre-dates the EPA 1990 HAPs list	They have derived threshold effects exposure limits (TELs; 24 hr AT) and allowable ambient limits (AALs; annual AT) for all the targeted air toxics.
Michigan	Robert Sills 517-335-6973	Yes. Required by air toxics rules. New / modified sources only.	There is an open-ended definition of Toxic Air Contaminants (TACs); includes all substances other than 41 listed non-TACs. Health-based screening levels have been developed for approx. 1200 TACs.	Screening levels (SLs) for carcinogens are at 1E-06 risk per chemical for the proposed process; or, 1E-05 is acceptable for facility-wide emissions per chemical. Noncancer SLs are derived from RfCs, RfDs, OELs, or other data; default = 0.1 $\mu g/m^3$. SLs on website.

Minnesota	Mary Dymond 651-757-2327	Yes. By policy, an Air Emissions Risk Analysis (AERA) is needed for proposed new/modified sources exceeding emission thresholds, or if "flexible air permit", or if needed per MPCAs discretion; existing sources may also need an AERA if significant public interest.	All substances which have a health benchmark value from MN Dept of Health, EPA-IRIS, or California-OEHHA.	Facility-wide emissions, multi-media impacts: risk guidelines are for a cancer risk of 1E-05 and cumulative hazard index of 1 for pollutants with the same toxic endpoint.
Mississippi	Danny Jackson 601-961-5225	No; risk provisions are only implemented as needed, and are not being triggered by anything at present.		
Missouri	MDEQ (2009)	No.		
Montana	MDEQ (2009); Louisville (2005)	No, except incinerators must demonstrate negligible risk.		
Nebraska	MDEQ (2009); Louisville (2005)	No.		
Nevada	MDEQ (2009); Louisville (2005)	No.		
New Hampshire	Pat North 603-271-0901	Yes; by rule; new and existing sources of all types.	Utilize a discrete list of ~800 air toxics, including all HAPs plus substances with ACGIH TLVs or IRIS values.	OELs are divided by UFs depending on the OEL type. Three cancer classifications are recognized.
New Jersey	Olga Boyko 609-633-1108	Yes; by regulations.	Regulations reference the HAPs list, and also an older pre-HAPs list of air toxics. Risk screening is done for ALL compounds with health benchmarks from EPA, CA, etc.	They utilize permit reporting thresholds which trigger a reporting requirement; utilize HI=1, and one in 1 million cancer risk for a process (one in 100,000 for facility-wide emissions).
New Mexico	Ted Schooley 505-476-4334; Louisville (2005)	Yes. New/modified sources only.	HAPs plus substances with OELs.	Use chemical-specific pph emission thresholds; if exceeded, then modeled ambient air impacts cannot exceed OEL/100 or MDL if carcinogenic.

New York	Tom Gentile 518-402-8402	Yes. Required in rules. New and existing sources, excluding fossil fuel combustion sources (which are regulated separately).	Regulated air pollutants (RAPs) defined as criteria pollutants, HAPs, and CAA 112(r) compounds.	Guideline values derived via risk assessment. Currently considering draft rulemaking to restrict RAPs to a shorter list of high priority cpds., due to limited r.a. staffing.
North Carolina	MDEQ (2009); Louisville (2005)	Yes.	HAPs plus a discrete list of other air toxics.	Acceptable ambient pollutant levels established.
North Dakota	MDEQ (2009); Louisville (2005)	Yes; new/modified major and area sources.	700 air toxics, including HAPs, as of 2005 survey.	TLV/100 or one in 1 million cancer risk cannot be exceeded in ambient air.
Ohio	Paul Koval 614-644-2270	Yes. Per rules. For new or existing sources with over 1 ton/yr emissions of TAPs.	Toxic Air Pollutants (TAPs) = 303 substances.	TLV/42 for noncarcinogens.
Oklahoma	MDEQ (2009); Louisville (2005)	Yes.	1500 air toxics as of 2005 survey.	TLV divided by a factor which depends on the degree of toxicity.
Oregon	Patricia Huback 503-229-6932	No. Development of a program is under consideration.	Have 3 strategies in place to address air toxics concerns: 1) geographic approach based on NATA to identify areas of concern and develop strategies to reduce risks; 2) statewide source sector strategy approach (e.g., wood stoves); 3) safety net program, to address concerns identified by fenceline monitoring or source modeling.	Their Air Toxics Advisory Committee has established public health protective levels ("ambient benchmark concentrations") for 51 air toxics. Diesel, benzene, manganese, formaldehyde, steel foundry emissions, and wood stoves are among the higher priorities.
Pennsylvania	Dean Van Orden 717-787-1455	No, not routinely or as a broad policy. State statute does have a "safety net" provision, and under that, permit engineers have discretion to evaluate air toxics impacts and risks. Landfill gases, combustors, and cement kiln emissions have been evaluated.	HAPs plus other air toxics of concern (source-specific).	
Rhode Island	MDEQ (2009); Louisville (2005)	Yes.	HAPs plus a discrete list of other air toxics.	RfCs and other noncancer benchmarks; one in 1 million to one in 100,000 cancer risk.

South Carolina	Louisville (2005)	Yes; new/modified and existing.	257 toxic air pollutants (TAPs), as of 2005 survey.	
South Dakota	MDEQ (2009); Louisville (2005)	No.		
Tennessee	MDEQ (2009); Louisville (2005)	No, except in a few cases where public interest is high.		
Texas	Manuel Reina 512-239-1816	Yes. "Safety-net" rule for the protection of the public; policy under that for the modeling and assessment procedure. New / modified sources only.	All substances are subject; list of substances identified in air emissions with Effect Screening Levels (ESLs) developed has grown since 1980's to over 3000 substances.	Target cancer risk = 1E-05 per substance, facility-wide emissions. For noncarcinogens, TLV/100 (1 hr AT) and TLV/1000 (annual AT); default=1 $\mu g/m^3$. Draft ESLs and justifications public noticed. All appear on website.
Utah		No.		
Vermont	MDEQ (2009); Louisville (2005)	Yes; new/modified and existing sources; major and area sources.	382 hazardous air pollutants, all HAPs, plus any new air toxic if toxicological information is available.	TLV divided by UF; one in 1 million incremental cancer risk.
Virginia	Patricia Buonviri 804-698-4016	Yes, unless source is covered by a MACT standard; requirement is in regulations.	HAPs list with a couple of exceptions.	TLV divided by UF. No cancer risk-based criteria. Currently considering rule revisions to adopt a more risk-based program.
Washington	MDEQ (2009); Louisville (2005)	No.		
West Virginia	MDEQ (2009); Louisville (2005)	Yes.	HAPs plus substances with OELs.	
Wisconsin	Jeff Myers 608-266-2879	Yes. By rule; applies to new and existing sources, except for HAPs covered by a MACT std., or if chemical-specific health-based emission thresholds are not exceeded.		Noncarcinogens: use RfCs or TLV/42 as ambient standards not to be exceeded by aggregate impacts of the source, bkgd. levels, and impacts from other sources. Carcinogens: technology-based control only (LAER), or, can use low-risk modeling demonstration (1E-06 per cpd., or 1E-05 facility-wide) as a compliance option.
Wyoming	MDEQ (2009); Louisville (2005)	No.		

Discussion

Thirty states evaluate and regulate air toxics emissions in their permit reviews, based on public health exposure concerns, although there are many state-specific nuances regarding the regulatory basis, the types of sources included, the air toxics included, the acceptability criteria, and exemptions. Of the six states in EPA Region 5, five states generally and routinely evaluate air toxics ambient air impacts for public health acceptability; only Illinois generally does not (but may in exceptional cases). Of the eight Great Lakes states, six states generally and routinely evaluate air toxics ambient air impacts for public health acceptability; only Illinois and Pennsylvania generally do not (but they may in exceptional cases).

Acronyms and abbreviations not defined in text or table:

1E-05= one in 100,000 incremental cancer risk
1E-06= one in 1 million incremental cancer risk
AT= averaging time
bkgd.= background
CAA= clean air act
cpd.= compound
HAPs= hazardous air pollutants
HI= hazard index
HQ= hazard quotient
LAER= lowest achievable emission rate
MDL= method detection limit
NATA = National-Scale Air Toxics Assessment
OEL= occupational exposure level
pph= pounds per hour
RfC= reference concentration
RfD= reference dose
TLV= threshold limit value
UF= uncertainty factor
$\mu g/m^3$= micrograms per cubic meter

References

Louisville Air Pollution Control. 2005. Summary of State Air Toxics Programs. Unpublished report.

Michigan Department of Environmental Quality (MDEQ; currently MDNRE). 2009. Survey of State Air Permitting Programs. By Doreen Lehner, MDNRE-AQD. Unpublished report.

APPENDIX M:

EPA REGION 5 STATES BENCHMARKING COMPARISON TABLE

January 17, 2013 R. Sills **EPA Region 5 States Benchmarking Comparison Table**
HRA = Health risk assessment; i.e., modeling of ambient air impacts and comparison to health-protective benchmark values
N/M = New or modified sources. E = Existing sources.

Air Toxics Program Characteristic		MI	MN	OH	WI	IN	IL
Impetus for HRA of air emission sources	Required by statute or rules	yes	yes (statute requires cumulative RA for certain sources and locations)	yes	yes		
	By policy		yes (except as noted above)			yes	yes
	If significant interest by public or applicant (i.e., not routine)		yes (for existing sources)			yes	Not routine, done only if significant public concerns.
	Discretionary by agency					No criteria for max. ambient air impacts, but permit may be denied if "adverse."	
HRA done for **new/modified (N/M) or existing (E)** sources		N/M	N/M, and also E if significant public interest	N/M. Also existing sources are evaluated on a case-by-case basis	N/M or E	N/M	N/M

Source types or emission rate **exemptions** from HRA?		Yes	Yes	Yes (i.e., exempt if each TAP emission is ≤1 ton/yr)	Yes (i.e., HAPs exempt if covered by a MACT, but only if chem-specific emission thresholds not exceeded)		
What air toxics are subject to HRA?	Any					yes	
	All except 41 exemptions	yes					
	Unique list beyond HAPs (how many CPDs/Groups)		yes (any with a benchmark value from IRIS, Cal or MDH)	yes (n= 303 TAPs; includes all HAPs plus others)	yes (n= 535; 26 HAPs not included)		
	HAPs only						
How are **cumulative** air toxics impacts accounted for?	Generally not accounted for in permit review.	yes		yes	yes	yes	
	Can be considered in permit review	yes (Rule 228)	Done under statutory requirements for Minneapolis.	yes (combined impacts; not background conc.)			
	Routinely accounted for in permit review.						

How are **cumulative** air toxics impacts accounted for? (continued)	? Routinely evaluated via statewide monitoring or modeling initiative, ± risk reduction targets?	Detroit ambient air evaluated in 2005 and 2010 Detroit Air Toxics Initiative reports; no risk ↓ target; several facility-specific monitors are in operation.		Specific monitoring or modeling studies have been conducted to evaluate specific concern sources/areas. No risk ↓ target.	RAIMI statewide HAPs modeling of cumulative impacts of all sources; goal of 50% reduction (from 2002 to 2012) of people at >1E-6 CA risk.	Focused studies of monitoring and risk assessment completed for Indianapolis, and underway for the lakeshore area; statewide RAIMI modeling; are evaluating high-risk NATA'05 facilities. No risk ↓ target.	
Acceptable risk **benchmarks**		1E-6 per cpd for the process. 1E-5 per cpd for the facility. 10X higher for roads and indus. areas. EPA or other agency values; TLV/100; or derived from short-term studies. Default ITSL= 0.1 $\mu g/m^3$.	Provided to MPCA by MDH, based on values from EPA or other agencies, or derived by MDH.	IRIS values; modeled 1 hr AT max impacts not to exceed TLV/42.	1E-6 per cpd. 1E-5 all cpds. EPA RfCs etc. TLV-TWA/42 with 24-hr AT. TLV-Ceiling/10 with 1-hr. AT.	Use various EPA approved sources and databases.	

APPENDIX N:

CONSISTENCY WITH OTHER STATES

Air Toxics Workgroup
"Consistency with Other States" Discussion Paper
April 10, 2013

ORR (2011) Report Recommendation A-1(7):
R 336.1225 should be amended and specifically include the following:
Make the acceptable exposure limits consistent with other nearby states.

ATW discussion
Discussion with the ATW indicates that some members have concerns for a lack of consistency between MDEQ and the nearby states with regard to the air toxics screening level values and/or averaging times, which can contribute to an un-level playing field. AQD staff committed to developing some information and comparisons to help inform the discussion.

AQD impressions
There are differences between states' air toxics health-based screening levels for several possible reasons, which may be summarized as follows:

1. States may use different target risk level for carcinogens (e.g., 1E-5 vs. 1E-6). WDNR applies a 1E-6 target risk per chemical (and 1E-5 for cumulative risk), while MPCA and MDEQ allow 1E-5 per chemical (see **Table 3** cancer risk values and risk levels).

2. States may use different methods for deriving a benchmark. For example, OEL/100 vs. OEL/42. States have different methods to address (or not address) data-poor situations; see the discussion below.

3. States may adopt their screening levels from benchmarks provided by other recognized sources. Many substances have multiple applicable benchmarks already available from recognized sources, such as EPA-IRIS values, EPA-PPRTVs (from the Superfund program office), ATSDR MRLs, and CalOEHHA RELs, and Texas TCEQ ESLs. The benchmarks available from these sources are often different. A state may review all of those available, or utilize a hierarchy, and choose to adopt any one of these available benchmarks as-is or with modification. States may vary in their choices. Also, states establish their screening levels at different points in time, when different key studies and different benchmarks may be available. Many of DEQ's screening levels were developed in the 1990s and 2000s. See **Table 1** for general hierarchies utilized by States for establishing chronic inhalation screening levels. See the **Table 3** manganese example; the DEQ ITSL is based on the EPA-IRIS RfC (1993), while the MPCA screening level was derived in the 2000s by MDH.

4. Different critical effects may be addressed by the different state's benchmarks. For example, see the styrene example in **Table 3**: DEQ regulates it as a carcinogen, while MPCA and WDNR do not.

5. States may establish acute screening levels in addition to chronic noncancer screening levels. These can be derived by the agency or adopted from a recognized agency source; as with #3 above, such values may differ. There are some widely accepted sources of acute benchmarks: acute inhalation Minimum Risk Levels (MRLs) from the ATSDR; Acute Exposure Guidance Levels (AEGLs) from EPA's National Advisory Committee; and, California OEHHA's Acute Reference Exposure Levels (ARELs). Texas TCEQ also derives acute ESLs. Occupational Exposure Levels

(TLVs, Ceiling Limits, Short-term Exposure Limits) are also used by MDEQ and other agencies to derive acute benchmarks, with the application of an uncertainty factor to help ensure protection of sensitive individuals.

6. States may have different conventions for setting averaging times for their screening levels. **Table 3** has examples of different states having the same screening level value, but different ATs for this reason.

Data-Poor Situations

One of the most significant programmatic differences between DEQ and the other R5 State agencies is in the treatment of data-poor situations for noncancer risk assessment. Based on the recommendations from the 1981, 1989, and 1997 stakeholder workgroup reports, MDEQ has adopted rules and algorithms for utilizing short-term study results (short-term NOAELs and LOAELs; LC50s and LD50s) to derive ITSLs (with annual ATs) that are presumptively protective from chronic noncancer exposure and adverse effects, when the preferred studies or ITSL bases are not available (Rule 232). Ohio, Wisconsin and Minnesota would not extrapolate to derive chronic benchmarks, although they may address such limited datasets by setting acute screening levels. Texas TCEQ is an example of another state agency that utilizes LC50 data to derive acute and chronic benchmarks; their acute benchmark method is more restrictive than the DEQ approach.

Table 1. General Hierarchy of Basis for Chronic Inhalation Health Benchmarks

Hierarchy / rank[1]	Michigan DEQ	Minnesota PCA	Ohio EPA	Wisconsin DNR
Relatively higher	IRIS RfC value. Rules have default AT of 24 hours, which can be overridden by staff for an annual AT.	MDH health-based value (hbv)	IRIS or other available appropriate benchmark from reputable agency. 1 hr AT.	EPA values and ACGIH TLVs.
↓	EPA RfD, ATSDR MRL, EPA PPRTV, Cal REL, or staff-derived RfC[2]. AT may be 24 hours (default in rules for RfD).	MDH health risk value (hrv)	OEL (TLV/42). 1 hr AT.	
↓	OEL (TLV/100). AT is 8 hrs.	IRIS value		
↓	Subchronic study (e.g., 2-week) with extrapolation to chronic. Annual AT.	Cal REL, EPA HEAST, ATSDR MRL	Compare to other chemicals with similar structures, apply SAR.	
↓	LC_{50} value with extrapolation to chronic. Annual AT.	EPA Superfund PPRTV		
↓	LD_{50} value with extrapolation to chronic. Annual AT.			
Relatively lower	Default ITSL = 0.1 µg/m^3 (annual AT).	No default	No default	No default
Comments	Methods for deriving ITSLs from very limited data are protective, and have a long history at AQD.	Rarely use OELs (exception: ethanol facilities). Do not use short-term bioassay data to derive screening values. Chemicals with inadequate data are evaluated qualitatively in context with the entire facility.	Chemicals with inadequate data may be evaluated by comparison to similar compounds with better tox data (computational toxicology).	They do not address air toxics without benchmarks available from other reputable sources.

[1] MDEQ-AQD, and presumably the air toxics permitting agencies of the other EPA R5 states, utilizes a general hierarchy system that is not rigidly applied; professional judgment and consideration of the age and basis for the available benchmarks and methods are important factors in adopting health-based screening levels that are appropriate and defensible.

[2] Depending on the age and basis for the available benchmarks from other reputable agencies, AQD toxicologist staff may perform an updated literature review and utilize key studies differently than other available benchmarks in deriving an ITSL utilizing EPA's RfC methodology.

Table 2. Access to R5 State's Air Toxics Information and Screening Levels

State Agency	Location
Michigan DEQ	http://www.michigan.gov/deq/0,4561,7-135-3310_4105---,00.html
Ohio EPA	http://epa.ohio.gov/dapc/regs/3745_114.aspx (Toxics compound data sheets ONLY; NOT a list of benchmarks.)
Minnesota PCA	http://www.pca.state.mn.us/index.php/air/air-monitoring-and-reporting/air-emissions-modeling-and-monitoring/air-emission-risk-analysis-aera/risk-assessment-screening-spreadsheet-rass-and-g/chi-spreadsheet-aera.html Open the zipped file, "Protected RASS for 25 Stacks" Select the ToxValues tab to access the "Master Chemical List"
Wisconsin DNR	http://dnr.wi.gov/topic/airquality/toxics.html Select the tab for: Download the combined chemical spreadsheet tool (XLS).

Table 3. Comparison of R5 States' Health-Based Screening Levels for Select Air Toxics (acute and chronic noncancer; cancer at specified risk level, with annual AT; all values in µg/m^3).

Chemical	MDEQ-AQD	MPCA	Ohio EPA[1]	WDNR
Acetaldehyde #75-07-0	9 (24 hr AT) 5 (1E-5 cancer)	470 (1 hr AT) 9 (chronic) 4.5 (1E-5 cancer)		4504 (1 hr AT) 0.45 (1E-6 cancer)
Acrolein #107-02-8	5 (1hr AT) 0.02 (annual AT)	5 (1 hr AT) 0.4 (chronic)		22.9 (1 hr AT)
Ammonia #7664-41-7	100 (24 hr AT)	3200 (1 hr AT) 80 (chronic)		418 (24 hr AT) 100 (annual AT)
Benzene #71-43-2	30 (24 hr AT) 30 (annual AT) 1 (1E-5 cancer)	1000 (1 hr AT) 30 (chronic) 1.3 (1E-5 cancer)		0.13 (1E-6 cancer)
Benzo(a)pyrene #50-32-8	5E-3 (1E-5 cancer)	9.1 E-3 (1E-5 cancer)		9.1E-4 (1E-6 cancer)
Cadmium #7440-43-9	6E-3 (1E-5 cancer)	0.02 (chronic) 5.6E-3 (1E-5 cancer)		5.6E-4 (1E-6 cancer)
Chlorine #7782-50-5	500 (8 hr AT) 0.3 (annual AT)	290 (1 hr AT) 0.2 (chronic)		34.8 (24 hr AT)
Diethylene glycol monobutyl ether	20 (24 hr AT)	0.1 (chronic)		2320 (24 hr AT) 13000 (annual

(butyl cellosolve) #112-34-5				AT)
Epichlorohydrin #106-89-8	1 (24 hr AT) 8 (1E-5 cancer)	1300 (1 hr AT) 1 (chronic) 8.3 (1E-5 cancer)		45.4 (24 hr AT) 0.83 (1E-6 cancer)
Ethylene glycol #107-21-1	1000 (1 hr AT)	400 (chronic)		N/A
Ethylene oxide #75-21-8	0.3 (1E-5 cancer)	30 (chronic) 0.11 (1E-5 cancer)		1.1E-2 (1E-6 cancer)
Table 3, continued…				
Chemical	**MDEQ-AQD**	**MPCA**	**Ohio EPA[1]**	**WDNR**
Formaldehyde #50-00-0	9 (8 hr AT) 0.8 (1E-5 cancer)	94 (1 hr AT) 9(chronic) 2 (1E-5 cancer)		7.7E-2 (1E-6 cancer)
Hexane #110-54-3	700 (24 hr AT)	2000 (chronic)		4320 (24 hr AT) 200 (annual AT)
Hydrogen chloride #7647-01-0	2100 (1 hr AT) 20 (annual AT)	2700 (1 hr AT) 20 (chronic)		746 (1 hr AT) 20 (annual AT)
Hydrogen sulfide # 7783-06-4	100 (24 hr AT) 2 (annual AT)	42 (1 hr AT) 2 (chronic)		335 (24 hr AT)
Manganese	0.05 (annual AT)	0.2 (chronic)		4.8 (24 hr AT)
Mercury #7439-97-6	(no ITSL; inhalation-only RfC= 0.3 $\mu g/m^3$)	0.6 (1 hr AT) 0.3 (chronic)		Inorganic: 0.6 (24 hr AT); 0.3 (annual AT). Alkyl cpds: 0.24 (24 hr AT)
Methyl bromide #74-83-9	5 (24 hr AT)	2000 (1 hr AT) 5 (chronic)		93.2 (24 hr AT) 5 (annual AT)
Naphthalene #91-20-3	3 (24 hr AT) 0.8 (1E-5 cancer)	200 (1 hr AT) 9 (chronic) 0.29 (1E-5 cancer)		1258 (24 hr AT)
Nickel #7440-02-0	4.2E-2 (1E-5 cancer)	11 (1 hr AT) 0.014 (chronic) 2.1E-2 (1E-5 cancer)		3.8E-3 (1E-6 cancer)
Phenol #108-95-2	190 (8 hr AT)	5800 (1 hr AT) 200 (chronic)		462 (24 hr AT)
Styrene #100-42-5	1000 (24 hr AT) 17 (1E-5 cancer)	21000 (1 hr AT) 1000 (chronic)		2045 (24 hr AT) 1000 (annual AT)
Toluene #108-	5000 (24 hr AT)	37000 (1 hr AT)		4522 (24 hr AT)

88-3		400 (chronic)		400 (annual AT)
Trichloroethylene #79-01-6	10000 (24 hr AT) 2 (annual AT) 2 (1E-5 cancer)	2000 (1 hr AT) 2 (chronic) 3 (1E-5 cancer)		0.5 (1E-6 cancer)
Vinyl chloride #75-01-4	100 (24 hr AT) 1.1 (1E-5 cancer)	180000 (1 hr AT) 100 (chronic) 1.1 (1E-5 cancer)		100 (annual AT) 0.11 (1E-6 cancer)
Xylenes #1330-20-7	100 (24 hr AT)	43000 (1 hr AT) 100 (chronic)		10421 (annual AT)

[1] Ohio EPA does not publish their air toxics benchmarks; no list is available. They have Toxic Compound Data Sheets available (see link in **Table 3**), however, these appear to be justifications for listing with a summary of known hazards and toxicity information sources (e.g., IRIS unit risk values and RfCs; ACGIH OELs). It is unclear how permit applicants and staff permit reviewers determine if modeled impacts are approvable.

APPENDIX O:

TESTING REQUIREMENTS IN PERMITS TO INSTALL

Testing Requirements in Permits to Install

April 16, 2013

ORR Recommendation A-1(8)

The AQD should stop requiring permit holders to conduct elaborate and costly stack tests to provide emissions research data, since the DEQ does not use this information for subsequent permit reviews.

Update

There are many reasons why stack testing requirements are included in permits to install. These include compliance demonstrations where it is required via regulations (i.e. NSPS, NESHAPs, etc.); there is uncertainty in the quality of the emissions data; the proximity of the projected emissions to key regulatory thresholds; the source category in question has not tested to verify emissions. Stack testing is not a research project. Stack testing is a compliance demonstration and is a core component of the air program.

The AQD and many applicants routinely use historical stack test data in the evaluation of permit applications. If the data is representative of a similar process, an applicant may use it in quantifying their emissions. AQD may also use this data as a way to determine if emissions, as presented by the applicant, are similar to what other sources have provided and/or demonstrated.

Over the past several years, AQD required stack testing to confirm toxic air contaminant emissions from new asphalt plants. Effective June 1, after an evaluation of the test results, AQD determined that routine testing of asphalt plants was no longer warranted.

The need for stack testing will be determined on a case by case basis. This is consistent with how AQD routinely evaluates the need for stack testing of various

source categories. AQD will continue to make such evaluations in the future, thus not requiring stack testing where it is not warranted.

While all stack test data submitted to AQD is public information and available to applicants for review and use, it is not currently easily accessible. AQD will work with the regulated community to develop a standardized stack test result submittal template. Also, with input from the regulated community, AQD will explore ways to post stack test results on the internet to increase accessibility.

Based upon the above, AQD believes that this item has been completely addressed and can be listed as resolved.