

Draft Summary of Comments on Proposed Regulation No. 22 Revisions  
February 24, 2003

The following is a summary of the comments on the proposed Air Toxics regulation revisions received during the public comment period. Comments are grouped by subject area. Draft RI DEM responses follow comments in Italics, but are subject to change.

Process

RI DEM should halt implementation and establish a task force to develop mutually acceptable regulations. (Rhodes, Clariant, Environmental Managers (EM), Partridge) The Department should have had a formal work group to discuss the proposed revisions. (Northern RI Chamber, EM) After the end of the formal comment period (extended), DEM should convene a working group to sort through issues raised. (Senate Policy Office (SPO)) *This is being done.*

Comment period should be extended. (Chamber, SPO, Mereco, Osram Sylvania (OS)) *This was done.*

Definitions/Language

Language is not clear. Should establish an internal review process before public comment period. (Levine Frick (LFR)) *This is being done.*

RI DEM should distinguish between manufacture, process and otherwise use like in SARA Title III. Recycling should be exempted. Definition of “use” should limit double counting for recycling, reclamation and subsequent use in additional process steps. (EM) Storage and use that does not result in emissions should not be excluded from these definitions. (TPI) *We are currently working on language that would base applicability on emissions rather than use. Depending on how that requirement is worded, we may or may not still need to add a definition of “use” to the regulation. If so, the definition will clarify how recycling and reclamation should be counted.*

Need definition of “process” to avoid multiple counting of the same material. (EM) Need additional definitions in Reg. 22 (e.g. for construct, modify, use, generation). (SPO, LFR, TPI) *Definitions are under development. Where possible, we will use definitions consistent with those in other RI Air Pollution Control regulations.*

Should reference NAICS rather than SIC. (SPO) *We may not be able to make this change because of need to be consistent with federal definition.*

The definition of “Listed Toxic Substance” should just refer to Table I. (SPO) *The regulation will be amended in response to this comment.*

The LAER definition could discourage new construction or modifications or result in different standards being applied to different facilities. (SPO) LAER definition should be removed, shouldn't be applied to small sources. (EM) *The regulation allows LAER sources to have ambient impacts for some substances that are 10 times higher than they would be if the source were not LAER, thereby providing a degree of flexibility for sources that have controlled emissions. In no way does the regulation require sources to be LAER. DEM believes that this added flexibility is a positive for industry but would consider removing it if evidence is supplied to the contrary.*

“Use” and “generate” should be clarified. Does it include trace amounts of naturally occurring material or quantities below the amounts included on MSDS sheets? (OS, ESS) De minimus concentrations should be defined, such as using a threshold consistent with the presence of the substance on MSDS forms or the OSHA Hazard Communication Standard. (AEG, ESS) *The proposed regulation will be altered to specify that concentrations below those reported on MSDS sheets need not be considered.*

Add comma after “fabrics” in 22.1.8. (EM) *The proposed regulation will be amended in response to this comment.*

Definition of reformulation in 22.1.10 should be modified to include other means to reduce the potential to emit, such as a change in the order of addition, new equipment, etc. Reasons other than reformulation should be allowed for extensions, including long delivery times, acts of God, or other reasons the Director determines to be reasonable. (EM) *The regulation allows an extra 6 months for compliance if a facility is attempting reformulation in order to encourage pollution prevention (22.5.5(a)). Otherwise, facilities are given 18 months “or another reasonable time period.” The compliance period allowed has always considered the compliance mechanism proposed (e.g. purchase of inexpensive off the shelf equipment would require less time than purchase of custom designed equipment.) RI DEM does not plan to change this requirement at this time.*

#### Applicability – substances

Substance classes like “copper and compounds” are unclear. Would copper pipe be included? Does copper compounds mean the weight of copper or the weight of the entire compound? (EM) *A footnote will be added that notes that the AALs for metal compounds apply to the metal content rather than the whole compound, unless otherwise noted. Substituting emissions for use in the applicability requirements will eliminate confusion over whether copper pipe should be reported.*

Only Federal HAPs should be included. (EM, RI Contract Electroplaters (RICE)) For this round, add only HAPs. Add others later if necessary. (Alliance Environmental Group (AEG)) *RI DEM believes that it is important that the list be comprehensive. The HAP list is not exhaustive and is somewhat dated. Moreover, Regulation No. 9 requires the case-by-case derivations of calculated AALs (CAALs) in evaluating new source*

*permits for substances without Regulation No. 22 AALs (see sections 9.3.3(a)(2) and 9.4.2(g)). RI DEM has calculated CAALs for a number of non-listed substances for permit reviews in the past few years. Having a comprehensive set of AALs in Reg. 22 eliminates discrepancies between permits. For these reasons, RI DEM does not intend to modify the list except to correct errors.*

The AT Guideline calls propylene glycol a HAP. It is not. Other substances also have an incorrect basis for listing. (EM) *The EPA HAP list includes the a class of substances called “glycol ethers.” Since this classification has caused confusion in many situations, RI DEM attempted to list the substances in this list for which toxicological benchmarks are available individually. However, we agree that propylene glycol does not meet the glycol ether definition and, since it does not meet the other criteria for listing, was removed from the list.*

Sulfates is too broad a category to regulate as such. (Environmental Science Services (ESS)) *RI DEM is investigating this issue.*

2,4 and 2,6-TDI have different CAS numbers, 584849 and 91087. They should be listed separately as such. (Mearthane) *The AAL for TDI is based on EPA’s RfC for mixed 2,4- and 2,6-TDI isomers. As such, RI DEM will continue to list these substances together but will change the CAS number to the one applicable to the mixture, 26471-62-5. Note, however, that this AAL will apply to either isomer alone as well as to the mixture.*

Propylene, methyl ethyl ketone (MEK), methyl isobutyl ketone (MIBK) and isophorone should not be regulated as air toxics. (American Chemistry Council (ACC)) *These substances are included because they are HAPs (see further discussion in AAL section).*

The reference to diesel exhaust in Table H of the proposed Air Toxics Guideline should be removed. (International Truck and Engine Corp.) *This substance was included in the Guideline table in error and has been removed.*

Isopropyl alcohol (IPA) should not be included in the list, even though California EPA (CAL) has developed an inhalation benchmark for this substance, because federal, state and international environmental authorities have determined that it does not pose a threat to public health due to its low toxicity. In fact, adding IPA to the list will hinder pollution prevention efforts in RI. (ACC) *Inclusion on the list will not prohibit the use of IPA in Rhode Island. The only AAL for this substance is 3,000  $\mu\text{g}/\text{m}^3$  as a one-hour average, based on eye and respiratory irritation. RI DEM believes that this is an appropriate health benchmark and that facilities shouldn’t be allowed to cause impacts in excess of this level. Moreover, since this AAL is not very stringent, it should not result in the need to make many or any modifications.*

Acetone should not be included because it is not regulated by EPA under any environmental statute based on toxicity concerns. The California Air Resources Board (CARB) removed acetone from its list of air toxics several years ago due to low toxicity. (ACC). *The AALs for acetone are very lenient and shouldn’t necessitate the limitation of*

*facility emissions, but impacts above the AALs should be regulated. RI DEM believes that it is appropriate to include this substance on the list because it is used in the State and because having it on the list obviates the need for case by case CAAL derivations in permit applications.*

### Applicability - thresholds

Could avoid creating definitions for use and generation by shifting to emissions basis for applicability, exempting substances with certain physical properties, or adding exemptions for trace quantities. (TPI) *RI DEM plans to shift to an emissions basis for applicability, but to include language that defaults to use if a facility cannot calculate emissions using specified acceptable methodology.*

With the wording of the regulation and the Minimum Quantities (MQ) listed, the regulation could significantly affect homeowners, high schools, colleges, auto service stations, wastewater treatment facilities and manufacturers. (Chamber, EM) *Homeowners will be specifically excluded. In addition, the shift of the basis of the MQs to emissions rather than use and the elimination of hourly and daily MQs should eliminate these problems. Specifically:*

MQ for sodium hydroxide is 0.009 lb/hr, which would bring in wastewater pretreatment systems and cleaning products. (Chamber, Richard Hittinger (RH), EM, Darlington Fabrics (DF)) *The proposed MQ for sodium hydroxide is now 3 pounds per year and will apply to emissions.*

Manganese MQ of 0.003 pound per day would include use of potassium permanganate, which is used in environmental remediation, pharmacies, etc. (Chamber, RH, DF) *The shift to emissions from use would eliminate this consequence.*

The POM MQ (0.09 lb of B(a)P equivalents per year) would push other facilities over threshold. (Chamber, RH, DF) *The current proposed MQ for POM is 0.1 lb/year of B(a)P equivalents. Combustion of fuel oil, natural gas or propane is excluded except for electricity generators. RI DEM believes that the POM MQ was appropriately derived and that it is important to evaluate the air toxics impacts of POM sources because of the potent carcinogenicity of this class of substances.*

The 0.4 lb/hour MQ for ethylene glycol monoethyl ether (EGME), an ingredient in automobile antifreeze, would include all auto repair facilities. (RH) *The MQ for EGME is now proposed at 100 lb/year. EGME is not a major ingredient in antifreezes; it is not listed on MSDS sheets for common antifreezes. This fact, in combinations with the shift to emissions based MQs would make it unlikely that the MQ would be exceeded by auto repair facilities.*

Shouldn't regulate facilities that use less 10 lb/hour of acetone. (RH, ESS) *The current proposal has an MQ for acetone of 20,000 lb/year, based on the one-hour AAL. This is just a threshold for bringing companies under the umbrella of the regulation. Most facilities would be able to emit more. RI DEM believes that this MQ was appropriately derived.*

The asbestos limit (0.0004 fibers per year) makes no sense. (RH) The asbestos number is wrong. (General Dynamics (GD), ESS) Asbestos abatement activities should be exempt. (GD) *The units of the asbestos AAL were incorrect, so the MQ for this substance was incorrectly calculated. The MQ in the current proposal is 400 fibers per year. RI DEM is investigating whether asbestos abatement, which is regulated by the Department of Health, should be excluded.*

MQ of 0.1 lb/hr for copper would include all plumbers. (RH) *The MQ for copper is now 40 lb/year and, since it will be based on emissions, plumbers will not be brought in by this MQ.*

The 1 lb/day MQ for propylene glycol and 1 lb/hr for ethylene glycol could bring in individual adding antifreeze to car, also auto service. (EM) *As discussed above, propylene glycol has been removed from the list. The current proposed 400 lb/yr MQ for ethylene glycol, particularly in combination with the change to an emissions basis, would exclude auto service providers and other antifreeze users.*

The 1 lb/day MQ for dibutyl phthalate could bring in beauty parlors doing manicures. (EM) *The current proposed MQ for dibutyl phthalate is 70 pounds per year. According to the American Beauty Association, nail polishes contain no more than 5 – 19% dibutyl phthalate, so a beauty parlor would have to use at least 700 pounds per year of nail polish to trigger the threshold, even if all of this substance that was used were emitted. In fact, dibutyl phthalate has a low volatility and is probably largely retained in the dried nail polish. Therefore, it is unlikely that manicurists would exceed this threshold.*

The 0.2 lb/hr MQ for chlorine could affect homeowners with swimming pools or bleaching clothes. (EM) *The chlorine threshold is now 20 lb of emissions per year. Homeowners will be specifically excluded from the regulation but, since this is quite a toxic substance, RI DEM believes that this is an appropriate threshold for nonresidential use.*

The 1 lb/day MQ for HCl would bring in laboratories. (EM) *The MQ is now 60 lb of emissions per year, based on the 24-hour AAL, which is, in turn, based on the RfC. RI DEM believes that this is an appropriate threshold and that it is unlikely to bring in laboratories.*

0.04 lb/hr MQ for hydrogen sulfide would bring in septic tanks and wastewater treatment plants. (EM) *The currently proposed MQ for hydrogen sulfide is 10*

*lb/yr. As discussed previously, Reg. 22 will not apply to homeowners. Most wastewater treatment plants already are required to report; supplying information about hydrogen sulfide emissions in addition will not be overly burdensome. In most cases, facilities would be allowed to emit quantities substantially higher than the MQ.*

RI DEM should not use hourly and daily MQs. It would be difficult for sources using a substance in more than one process to determine which of the those processes were running at the same time in the previous year, and, thus, what the maximum hourly emissions rate was. Does hour mean clock hour or any 60 minute period (latter would be even more difficult)? (EM) Measurement of hourly and 24-hour emissions is difficult for many businesses, especially job shops (Precision Art (PA)) Should either eliminate hourly MQs or allow for case by case evaluation. (ESS) Use only annual MQs with provision that DEM can consider other MQs as appropriate. (AEG) *RI DEM has decided to drop 1 hour and 24 hour MQs but to consider hourly and 24-hour impacts in the derivation of annual MQs. One hour and 24-hour AALs would remain, as they always have, in the regulation, so facilities will be asked for lb/hour and lb/day emissions rates in Air Toxic Operating Permit (ATOP) applications, where appropriate, and some ATOPs will include limitations in those units. Therefore, facilities will be required to estimate short-term emissions rates in ATOP applications and, if given shorter-term emissions limits, will be required to track emissions in those time frames to assure compliance. However, under this scheme, other facilities will not be required to report hourly or daily emissions of air toxics.*

RI DEM should consider physical properties of materials in setting MQs. (EM) If continue with “use” as basis of MQs, MQ derivations should consider how much of what is used will be emitted. (LFR, EM) RI DEM should assume 1% loss or 10% loss rather than 100% loss in MQs. (EM) *The switch to emissions-based MQs will resolve this issue.*

It is not clear how mixtures would be handled. De minimus quantities in mixtures should be exempted. (EM, RICE) *This will be done. RI DEM is still considering how to handle small, variable quantities of contaminant metals in metals that will be refined.*

MQs should be based on emissions (or potential to emit), not use and generation. (OS, RH, EM, ACC) Instead of “use”, MQs should be based on use such that the amounts listed in the MQs may be emitted. (AEG) Sources should not be required to register if they use but do not emit a listed substance in greater than the MQ.” (CC, RH, Bradford Dyeing Assn. (BDA) ) In cases where a chemical is used only as an intermediate under closed reactor conditions (like methyl chloride), air emissions may be insignificantly low and basing applicability on use or generation rather than emissions is misguided. (ACC) *As discussed above, RI DEM plans to switch to an emissions basis for the MQs, but to develop language that states that, if a facility cannot calculate emissions using defined acceptable procedures, it must revert to the default of reporting based on use. RI DEM will work with other members of the stakeholders group to develop appropriate language for this purpose.*

## Electricity Generator Exemption

Standby generators and cogeneration facilities where the main output is heat should be exempted. (EM) There should be an exemption for generators based on heat input or MW output, or all fuel burning should be exempted. (ESS) Emergency generators burning natural gas or diesel fuel should be exempt. (AEG) Emergency standby internal combustion engines and internal combustion engines used to generate electricity for on-site use in non-emergency conditions that operate less than 500 hours per year should be exempt. (GD) *RI DEM is planning to exempt standby and emergency generators operating less than 500 hours per year from the regulation. The regulation will apply to other electric generators, including cogeneration facilities, because these facilities may have significant emissions and there are a few enough of them in the State that it would not be problematic to regulate them.*

## Applicability – Source Types

Laboratories associated with manufacturing operations should be exempted. (EM) *RI DEM does not intend to exempt laboratories. However, shifting the MQ basis from use to emissions and eliminating one and 24-hour MQs should eliminate inappropriate regulation of this source type.*

Applicability threshold should clearly define sources to be regulated. (LFR) *The regulation is designed to apply across the board to all source types which have emissions that could impact public health. Therefore, RI DEM does not believe that it is appropriate to have the thresholds specific by source type. However, switching to an emissions basis for the MQs will eliminate inappropriate regulation of facilities that use but do not emit significant amounts of a listed substance.*

Exempt temporary use, such as during construction or remediation from some requirements (AEG) *DEM is evaluating this issue.*

RICE is opposed to any selective regulating of particular commercial and industrial sectors. (RICE) *RI DEM agrees with this position.*

## Reporting/registration

22.4.1(c)(6) requires facilities to report emissions by calendar day, but facilities may not have the information in that form (may have it by shift schedules or product cycles). (EM) *The removal of one and 24-hour MQs from the proposal would eliminate the need for general daily and hourly reporting requirements. However, facilities will still have to estimate daily and hourly emissions rates in ATOP applications and track shorter-term emissions if given daily or hourly emissions limits in their ATOPs. Since ATOPs are*

*written on a case by case basis, it would be relatively simple to address shift schedule issues for a particular source should they arise.*

In 22.4.2, when would registration be required if a facility starts using a substance at a rate less than the MQ, but then increases to above MQ? In (c), the maximum amount of the substances that will be emitted in the calendar year, hour or 24-hours may not be known in advance. (EM) *In keeping with the change to the emissions basis for MQs, this preregistration requirement will be eliminated. However, facilities would be required to obtain a preconstruction permit prior to first use if emissions have the potential to exceed a MQ. Facilities that do not do so would be at risk of enforcement action if emissions from the new process do exceed the MQ.*

22.4.1 is inconsistent with 22.4.2. One requires registration by April 15 of each year, one prior to first use. (EM) *The reason for this “inconsistency” is that one requirement applied to preregistration prior to first use, the other to annual registration for continuing use. However, as discussed above, the preregistration requirement is being removed from the regulation.*

Registration requirement should reference Regulation 14 if 22.4.1 is part of the annual emission statement submittal. (LFR) *The relationship between Regulations 14 and 22 reporting will be clarified in the regulations.*

Does the registration requirement in 22.4.1(c) include only listed toxics above the Table III threshold, or all listed toxics? (LFR) *The requirement will apply only to the toxics that are emitted in amounts above the threshold. This will be clarified in the regulation.*

Reporting should be as simple as much as possible because many companies are already operating with a reduced staff. (RICE) *RI DEM agrees and therefore is removing the requirements to report daily and hourly emissions.*

### Permitting

Section 22.3.1 (permits to construct) should be clarified. Does a facility intending to construct a source that increases use but not the potential to emit a substance more than the MQ have to register but not apply for a permit? How would multiple projects be dealt with? The last line of this section should be clarified to indicate that this is a Reg. 9 permit, not an ATOP. (EM) *Section 22.3.1 states that new sources that have the potential to emit above the MQ of an air toxic must first receive a preconstruction permit. 22.3.2 states that that permit must be consistent with Regulation 9. We have removed the requirement that facilities that propose to use but do not have the potential to emit over the MQ of an air toxics prior to use, but these substances must be reported in the annual inventory.*

Most new projects will have the potential to exceed a daily or hourly MQ, as currently presented. Either the exemptions need to be expanded or RI DEM needs an alternative to

allow projects to proceed in RI DEM determines that permit is not appropriate. (EM) *The daily and hourly MQs have been removed.*

Only newly constructed or modified sources should be required to obtain an ATOP. This would relieve an enormous industry burden. (OS) *This would be a major backslide from the current regulation and would result in RI DEM being unable to evaluate impacts from existing facilities that may affect public health. RI DEM did not change the regulation as a result of this comment.*

The regulation should allow more than 60 days from notification for filing an ATOP. (OS) *60 days has worked for most facilities during the 13 years that the program has been in place. In cases where a facility is working on its ATOP but needs some extra time, RI DEM has allowed extensions. The regulation was not changed in response to this comment.*

22.5.1 (and 22.5.2-EM) should be modified to indicate that it applies only after a facility has received written notice from the Director. (LFR, EM) *The regulation will be modified to clarify the applicability of this requirement.*

In 22.5.9, the Director should be required to indicate the reasons for cancellation or revocation of an ATOP in the written notice. The permit holder shouldn't have to request it. (LFR, EM) The hearing process should be described. (EM) *The regulation will be modified to specify that permit cancellation/revocation notifications will include the reason for the action. The hearing process is described elsewhere in administrative procedure laws and regulations.*

Permit transfers should be allowed for existing facilities without the Director's approval. (EM) *RI DEM is evaluating this issue.*

The ATOP and Title V Operating Permit process should be integrated and the link should be established in Regulation 22. (LFR) *The two processes are coordinated, but cannot be completely integrated, because many facilities with ATOPs are not Title V sources and vice versa. Where a Title V permit is issued to a facility that has an ATOP, the conditions in the ATOPs, like all other conditions that are applicable to a facility, are incorporated into the Title V permit.*

Conditions that may be included in ATOP should be limited to compliance with Regulation 22. Section 22.5.7(f) is too broad (says that ATOPs can include conditions necessary to ensure compliance with all applicable State and Federal APC rules). (EM) *RI DEM will look into this further. The purpose of an ATOP is to ensure compliance with Regulation 22 and conditions applicable to unrelated pollutants or processes would not be included. On the other hand, it would be inappropriate to issue an ATOP with provisions that were inconsistent with other requirements applicable to the facility. For instance, air toxics modeling may indicate that a facility could emit a large quantity of toluene and not violate the AAL, but emissions of toluene from that source may be restricted by other regulations because toluene is a volatile organic compound ozone*

*precursor. In addition, where there is a MACT standard applicable to a process for which an ATOP is issued, it may make sense to incorporate relevant requirements of that standard into the ATOP.*

### Modeling/back modeling

There should be alternative impact levels for industrial properties and public roadways. (OS) *The amendments allow for the establishment of alternative impact levels in those situations.*

22.5.4(b) should also allow for modification of one-hour, as well as 24-hour and annual, AALs. (EM) *One-hour AALs are included in 22.5.4(a), the provision that allows the exclusion of areas that are not accessible to the public. 22.5.4(b) allows an adjustment of annual and 24-hour AALs if land use is such that the duration of public exposure in a particular area would be limited. Since one-hour AALs are meant to protect from acute exposures, RI DEM does not believe that this provision is applicable to that averaging time.*

The back modeling methodology used to derive MQs is overly conservative. EPA's 112(g) program used different assumptions and derived more reasonable de minimus values. While Rhode Island's modeling shows that emissions of 1 lb/hr could result in a ground level impact of 1000  $\mu\text{g}/\text{m}^3$ , EPA's modeling showed that the same level of emissions would result in an ambient impact of only 2.2  $\mu\text{g}/\text{m}^3$ . (ACC) *RI DEM disagrees both with ACC's assessment of the differences between the EPA and RI DEM modeling results and with the statement that RI's modeling assumptions are inappropriate. EPA's documentation explaining the 112(g) de minimus modeling procedure states that the modeling showed that a 1 lb/hour emission would be associated with an annual average impact of 2.2  $\mu\text{g}/\text{m}^3$ . The RI DEM impact level of 1000  $\mu\text{g}/\text{m}^3$  cited by ACC is a one-hour average impact. The annual average impact, which could be compared to EPA's value, is 0.08 times the one-hour impact, or 80  $\mu\text{g}/\text{m}^3$ .*

*The main difference between the modeling assumptions used by EPA and RI DEM is that EPA did not consider impacts closer to the facility than 200 meters. In Rhode Island, many emissions sources have very little buffering property; distances to fence line are sometimes as close as 10 feet. At 200 m, the RI DEM modeling shows a maximum one-hour impact of 85  $\mu\text{g}/\text{m}^3$ , which would translate into a maximum annual impact of 6.8  $\mu\text{g}/\text{m}^3$ , which is only approximately 3 times higher than EPA's annual impact of 2.2  $\mu\text{g}/\text{m}^3$ . However, RI DEM believes that it is important to consider impacts closer to the source.*

*Another difference between the RI DEM and EPA modeling assumptions is that RI DEM used an exit velocity of 0.0010 m/sec when a volume source was modeled as a point source, based on the source parameters of actual Rhode Island sources. Note that New Jersey DEP used the same exit velocity value when running dispersion models to generate their risk screening nomographs for point sources.*

*Since RI DEM modeling is based on the parameters from actual sources in the State and uses the EPA approved SCREEN model, RI DEM believes it to be appropriately conservative. Note that this modeling was used only to generate the MQ applicability thresholds. Modeling to determine appropriate emissions limitations for an individual facility's ATOP will reflect the actual parameters applicable to that facility, and allowable emissions may be considerably higher than the MQs.*

### General

*RI DEM should do an economic analysis. (EM) RI DEM will do some level of economic analysis – identifying sources that would be covered by the regulation and attempting to quantify likely costs associated with compliance. Note, however, that costs for sources are minimal when, as frequently is the case, the ATOP review shows that no emissions reductions are necessary. Where impacts are higher than AALs, RI DEM has worked with facilities to identify the most appropriate remedies. In some cases this has necessitated the addition of air pollution control equipment, in other cases a change in dispersion characteristics (e.g. a stack extension) has solved the problem, and, in still other cases, the facility has been able to discontinue use of the toxic substance. RI DEM has been and will continue to be flexible when establishing compliance schedules and has been willing to model a variety of situations to help a facility to identify optimal compliance strategies.*

*There should be allowances for flexibility. (PA) While RI DEM is flexible when establishing compliance schedules and with certain other procedures, we believe that it is important that standards be set that are the same for all types of facilities. RI DEM is willing to consider specific suggestions about areas of the regulation which should include greater allowances for flexibility.*

*RI should function in concert with neighboring states. (SPO) Ideally, it would be preferable to have the same air toxics program operating throughout the region. However, although the states do meet and share information about their programs, somewhat divergent programs are in place in the various states and this is unlikely to change.*

*RI should defer to the Federal MACT and Residual Risk programs. Establishing State health based standards puts local industry at a competitive disadvantage. (OS) Deferring to the Federal MACT and Residual Risk programs would be a major loss of protection the public currently benefits from. Because the Federal MACT program applies, for most source categories, only to major sources, there are few MACT applicable sources in the State so many sources which do impact public health would not be covered. Moreover, the MACT standards are technology based and do not look at risk. While the residual risk program will look at risk from MACT controlled sources in future years, that program is not designed to look at sources that are not MACT applicable; further, the development of that program has been problematic. RI DEM believes that RI, where*

*facilities often operate in close proximity to residences and other public exposure areas, a more comprehensive risk based program is necessary to protect public health.*

Since the program is more stringent than the Federal, RI DEM is being inconsistent with 23-23-5, which states that, without showing need, RI DEM cannot impose more stringent emission standards for fuels than those in Federal law. (OS) *23-23-5 applies only to fuels and is not applicable to this regulation.*

There should be a provision for case-by-case exclusions for sources which demonstrate that they will not cause or contribute to a nuisance or affect human health or the environment. (OS) Language should be added to 22.2 exempting small sources with limited emissions on a case-by-case basis. (PA) *While all sources emitting more than the MQs of listed substances must register, sources will be prioritized using the scheme specified in the Air Toxics Guidelines for determining which will be required to apply for ATOPs. Small sources with limited emissions will likely never rise high enough in the priority list to be required to apply for an ATOP, unless their impact is high, in which case they should be subject to the regulation.*

Background concentrations should be considered. For instance, if man-made acetone releases account for only 1% of total releases, they would not have significant impacts. (ACC) *Emissions from a particular source may cause localized elevated levels, even if, overall, other are more important contributors to ambient exposures. Therefore, RI DEM does not believe that it is appropriate to exclude chemicals from the air toxics list for this reason. However, in some cases, such as with bioaccumulating substances, it may be appropriate to make the AALs more stringent to account for the fact that the public is receiving significant exposure to the substance from other sources.*

### AALs

AALs should be defined as the maximum average ambient air concentration. (EM) *Averaging times for AALs were set to be consistent with applicable health endpoints. It wouldn't make sense to look at longer-term average exposures when evaluating whether an emission could cause a short-term health effect like respiratory irritation.*

RI DEM should include criteria accounting for additive effects of multiple pollutants (i.e. Hazard Index, maximum total risk). (ESS) *The RI Department of Health (HEALTH) toxicologist who worked with RI DEM to develop the AAL derivation procedures does not advocate Hazard Index type approaches for adding risk. RI DEM does require that sort of analysis in risk assessments for certain source types of new sources, like power plants and incinerators, as delineated in the RI "Guideline for Assessing Health Risks from Proposed Air Pollution Sources." In general, RI DEM has dealt with the issue of potential multiple exposures (both from different pollutants emitted by the same source and by the same or different pollutants emitted by multiple sources) by choosing conservative assumptions when deriving AALs.*

RI DEM should have a mechanism to consider the potential accumulation of persistent, toxic, and bioaccumulative constituents in the environment and the potential impact of those pollutants on soil, plants, fish and their users, if the source has the potential to impact sensitive areas. (ESS) *This type of analysis is done for certain new sources, using the guideline referenced above for assessing health effects and the “Guideline for Assessing the Welfare Impacts from Proposed Air Pollution Sources” for assessing environmental impacts. RI DEM is assessing whether the AALs for certain bioaccumulating pollutants, like mercury, should be reduced to take into account exposures from other routes and whether the proposed AALs are stringent enough to prevent environmental injury from certain pollutants like hydrogen fluoride which are known to cause plant injury. RI DEM would appreciate receiving suggestions of other pollutants that should be further evaluated, due to their bioaccumulation potential or environmental effects on the methodology appropriate for such an evaluation.*

Conversions from ppb to  $\mu\text{g}/\text{m}^3$  sometimes use 24 and sometimes 24.45 and the rounding approach is not consistent. (ESS) *The only conversions of this type that were done were for ATSDR inhalation MRLs, which are given in ppm. RI DEM checked all of the AALs that were derived from inhalation MRLs and found them to be consistent with the MRL in ppb multiplied by the molecular weight divided by 24.45 and then rounded to one significant digit. This conversion factor is used in the NIOSH Pocket Guide to Chemical Hazards (<http://www.cdc.gov/niosh/npg/npg.html>).*

Using RfCs and RfDs as 24-hour averages is overly conservative if applied to maximum, rather than average emissions. They should reflect average daily exposure over a week or a month. (ESS) RfCs and RfDs shouldn't be used as 24-hour averages unless adjusted upward from chronic to subchronic. (ACC) *The RfCs and RfDs were used as 24-hour averages rather than annual averages at the recommendations of the HEALTH toxicologist. An annual averaging time may be appropriate for some but not all of the RfCs and RfDs. The HEALTH toxicologist recommended that, unless a strong independent data base existed that could be used to sort the RfCs and RfDs into appropriate averaging time bins, the more conservative 24-hour averaging time should be used for all. In particular, HEALTH was opposed to modifying the RfCs and RfDs by taking out safety factors because RfC/RfD derivations often reflect the convergence of the consideration of a variety of issues.*

The factor of 10 inter-route safety factor applied by RI DEM when converting oral RfDs to inhalation values should only be used when a case-by-case evaluation determines it to be necessary for a chemical. (ESS, ACC) The use of this factor is inconsistent with the fact that a similar adjustment is not made when using oral cancer potency values. (ESS) *RI DEM and HEALTH do not have the resources to do case-by-case derivations and believe that the use of this safety factor is an appropriately conservative procedure to use until inhalation benchmarks are available for a particular substance.*

Basing 24-hour AALs on noncancer effects may not be protective for some carcinogens. The lower of the concentration associated with a  $10^{-6}$  risk or the noncancer effects number should be used. (ESS) *For carcinogens with risk factors available, the annual*

*average AAL is always based on cancer risk numbers unless noncancer effects are more sensitive. Therefore, if a carcinogen has a 24-hour AAL based on noncancer effects, it will also have an annual average AAL based on cancer. RI DEM and HEALTH do not believe that it is appropriate to apply a 24-hour averaging time to cancer risk.*

*There is no technical basis for adding additional safety factors to AALs based on noncancer effects for carcinogens for which quantitative cancer risk information is not available. The annual average AALs for these chemicals should be based on noncancer effects, not adjusted, until quantitative cancer information becomes available. (ESS, ACC) HEALTH agreed that there is no hard scientific basis for this procedure, but said that applying an additional safety factor to a carcinogens without potency information is a more appropriate way of addressing public concerns about cancer and than ignoring a chemical's carcinogenicity until potency information is available .*

*For one-hour AALs, RI DEM should also consider AIHA, ACGIH and EPA values and solicit comments on which values are best for each chemical. (ACC) The AIHA and ACGIH values are applicable to occupational settings and the EPA AEGL values are designed to determine appropriate actions during emergency releases. Neither are appropriate for AALs, which are designed to protect all members of the public, including sensitive individuals, from routine releases of toxics.*

*Annual averages for "C" carcinogens should be based on  $10^{-6}$  risk if a slope value is available, not  $10^{-5}$  risk. (ESS) RI DEM agrees that the decision to base Table I annual average AALs for "C" carcinogens on a  $10^{-5}$  risk and Table I annual average AALs for "A" and "B" carcinogens on a  $10^{-6}$  risk was somewhat arbitrary. (Table II values for all three classifications are based on a  $10^{-5}$  risk). However, since cancer is thought to be, in most cases, a nonthreshold effect, i.e. there is some risk at any level of exposure, choosing a level of risk on which to base a standard is somewhat arbitrary in itself. For Table I, which applies to sources that have not achieved LAER, RI DEM and HEALTH have chosen to regulate A and B carcinogens, for which there is more conclusive cancer data, more stringently ( $10^{-6}$  risk) than C carcinogens ( $10^{-5}$  risk).*

*RfCs should be used for annual average AALs preferentially over California (CAL) and ATSDR chronic values. (ESS) Since RfCs are used for 24-hour averages, there is no purpose to also using them as annual averages, since the 24-hour average AAL would always be more stringent.*

*RI DEM appears to incorrectly convert ingestion doses or eye irritation levels to inhalation doses. (EM) This comment was not further explained and requires further information from the commenter.*

*The AALs and MQs for propylene oxide and propylene glycol are much too stringent. (ACC) As discussed previously, propylene glycol has been dropped from the list because it is not a HAP and doesn't meet the other criteria for listing. The AALs for propylene oxide were based on the California (one-hour), EPA RfC (24-hour) and EPA cancer potency factor (annual), consistent with the methodology in the Air Toxics Guideline. If the commenter believes that the benchmarks derived by those agencies are incorrect, he*

*should petition those agencies to change the values. RI DEM will change the AALs at the time of the next review to correspond to any changes made by those agencies.*

The AALs for propionaldehyde are based on NY DEC short-term and annual guideline levels, which were based on acetaldehyde values. NY DEC plans to abandon guideline levels based on analogy with other chemicals in favor of a TLV/420 approach. If this approach were used for propionaldehyde, the annual average would be 100  $\mu\text{g}/\text{m}^3$ , as compared to 0.4  $\mu\text{g}/\text{m}^3$  currently in the proposal. (ACC) *RI DEM discussed this issue with the NY DEC staff person quoted by ACC, who stated that NY DEC has not decided to abandon all guideline values based on analogy, but does plan to change the propionaldehyde value as stated in the comment. RI DEM will adjust its AAL and MQ for this substance accordingly.*

Propylene glycol is not a HAP and does not meet any of the other criteria for listing, so it should not be included in the regulation. (ACC) *It has been removed.*

Propylene glycol monomethyl ether (PGME) is not included in EPA's "glycol ethers" category and is therefore not a HAP. (ACC) *Although not a HAP, PGME meets another criterion for listing because there is an inhalation RfC listed for this substance in EPA's IRIS database. The "reason for listing" for this substance in Table A of the Guideline was changed from "HAP" to "IRIS."*

No annual average AAL for propylene oxide should be adopted because, although the AAL is based on a cancer potency value currently listed in EPA's IRIS database, data exist that will probably cause EPA to revise that value. (ACC) *The RI Air Toxics Guideline commits RI DEM to reviewing the air toxics list, along with associated AALs and MRLs, every two years. If the EPA value changes, the value in the RI regulation will be updated at the review. No change is indicated at this time because the IRIS value is still endorsed by EPA.*

MEK and MIBK should not be included because they are listed on EPA's EPCRA list only because of their ozone precursor activity. (ACC) *If these compounds were removed from HAP list, RI DEM would also remove them from the RI list unless they met another of the criterion for listing.*

RI DEM used CAL's acute REL for its one-hour MEK AAL. This number is overly conservative and RI DEM should instead use the ACGIH TLV. (ACC) *RI DEM does not have the capacity to develop case-by-case AALs. If the commenter believes that the CAL REL is too conservative, she should petition that agency to revise it, and RI DEM will revise the AAL at the next periodic review to correspond with that change. ACGIH numbers are set for a different purpose than ambient standards and are thus not appropriate to be used for AALs, except with a safety factor if no other data are available.*

The EPA RfC for MEK is not compatible with EPA's current guidelines and thus shouldn't be used to derive AALs. (ACC) *This RfC is still included in the current*

*version of EPA's IRIS database, and thus is still advocated by the EPA. If the commenter believes that this value is inappropriate, she should petition the EPA to change it.*

The NY SGC for MIBK is too conservative. For the one-hour AAL, RI DEM should use the ACGIH TLV. (ACC) *ACGIH numbers are set for a different purpose than ambient standards and are thus not appropriate to be used for AALs, except with a safety factor if no other data are available.*

RI DEM's 24-hour AAL for MIBK, which is based on a value in EPA's Health Effects Assessment Tables (HEAST), grossly overestimates the risk. Instead, RI DEM should use EPA's proposed inhalation RfC of 15 mg/m<sup>3</sup>. (ACC) *No reference for this proposed RfC was provided by the commenter, and it is not included in HEAST, on IRIS or in EPA's Health Effects Notebook for Hazardous Air Pollutants. If EPA does post a RfC for MIBK, RI DEM will adopt that number at its next periodic review.*

Isophorone should not be regulated on the basis of carcinogenicity because the animal toxicity mechanism is probably not applicable to humans. (ACC) *Although the current IRIS summary for isophorone acknowledges that "The apparent renal tubular cell tumor in the male rat is associated with alpha-2u-globulin, considered to be of questionable relevance to humans," IRIS goes on to classify isophorone as a Classification C – Possible Human Carcinogen. RI DEM derived its AAL consistent with the methodology for C carcinogens prescribed in the Guideline. If the commenter believes that EPA's classification is incorrect, she should petition EPA to change that classification and RI will alter its AAL accordingly at the next periodic review.*

Ethylene glycol monobutyl ether (EGBE) should not be regulated as a carcinogen because IRIS states that "EGBE is generally negative in genotoxic tests" and that there is a "lack of human data to support the [cancer] findings in rodents." (ACC) *IRIS goes on to say that "the human carcinogenic potential of EGBE... cannot be determined at this time, but suggestive evidence exists from rodent studies" and classifies EGBE as "a possible human carcinogen, Group C." Therefore, RI DEM's derivation is correct, given the procedures outlined in the Guideline.*

Ethylene glycol monoethyl ether (EGEE) is not manufactured in Rhode Island and there was no use reported in Rhode Island on the 2000 EPA Toxics Release Inventory. Ethylene glycol monomethyl ether acetate (EGMEA) is no longer produced or consumed anywhere in the US. Neither ethylene glycol monomethyl ether (EGME) nor ethylene glycol monoethyl ether acetate (EGEEA) are manufactured or significantly used in Rhode Island. Therefore, none of these substances would affect public health in Rhode Island and they should all be removed from RI's toxics lists. (ACC) *These substances were included because they are on EPA's HAP list as part of the classification "glycol ethers." If they are not significantly used in the State, inclusion on the list will not result in additional regulatory requirements for sources.*

RI DEM should use the CAL REL rather than the EPA RfC value to derive the AAL for PGME. (ACC) *RI DEM's procedure uses the EPA RfC values preferentially as 24-hour*

AALs. *If the commenter believes that EPA's value is outdated, she should ask EPA to review that value.*

The AAL and MQ for phenol and diethanolamine are inappropriately conservative because phenol has a low volatility. (ACC) *The AAL is developed from dose- response information. Lower volatility would be associated with lower air levels and would make it more likely that concentrations of that substance would not exceed AALs, but volatility doesn't have anything to do with the development of AALs as such. Since the MQs will now be based on emissions rather than use, the low volatility will also make it less likely that the MQs will be exceeded.*

The RfC for 1,6-hexamethylene diisocyanate (HDI) is too conservative because it includes a factor of 3 to account for the absence of developmental/reproductive studies. Such studies have since been completed and those effects were not observed. (ACC) *ACC should petition the EPA to change their IRIS value, and RI DEM will alter its AAL accordingly at its next periodic review.*

Table B in the Guideline lists California acute or chronic RELs for the following substances that are not on the current CalEPA website. These should be removed and not used for AAL derivations: acrylamide, benzidine, benzyl chloride, bis(2-ethylhexyl)phthalate, bromine, bromates, 2-chlorophenol, chloroprene, copper, 1,2-dibromo-3-chloropropane, n,n-dimethylaniline, ethyl acrylate, hexachlorobenzene, hexachlorocyclohexane, hexachlorocyclopentadiene, hydrogen bromide, methyl ethyl ketone, methyl methacrylate, nickel, nickel oxide, nitrobenzene, 2-nitropropane, pentachlorophenol, sodium hydroxide, sulfates, tetrachlorophenols, toluene diisocyanates, vanadium, vinyl chloride and zinc. (ESS) *RI DEM used California numbers from two sources, both of which have been recently updated, the Office of Environmental Health Hazard Assessment (OEHHA) web pages ([http://www.oehha.ca.gov/air/hot\\_spots/index.html](http://www.oehha.ca.gov/air/hot_spots/index.html)) and the California Air Resources Board (CARB) Consolidated Table of OEHHA/ARB Approved Risk Assessment Health Values (<http://www.arb.ca.gov/toxics/healthval/contable.pdf>). The Consolidated Table uses OEHHA values preferentially, but also includes some older values previously developed by CARB. The derivations of ARB values are, in some cases, supported by information in Toxic Air Contaminant Fact Sheets, which are available at <http://arbis.arb.ca.gov/toxics/tac/toctbl.htm>. For the chemicals cited above, RI DEM used CARB values from the Consolidated Table.*

The chronic REL for acrylonitrile should be 5, not 2  $\mu\text{g}/\text{m}^3$ , in Table B of the Guidelines. This doesn't change the AAL. (ESS) *This discrepancy is the result of recent updates of the California REL. Table B has been updated.*

The units on the asbestos AAL are wrong. The proposed AALs for asbestos should be 4 and 40 fibers/ $\text{m}^3$  in Table I and II respectively. (ESS) *This error, which results in a change in the AALs and MQ, has been corrected in the Guideline and regulations.*

The chronic oral MRL for beryllium was omitted from Table B. (ESS) *A chronic REL of 3.5 µg/m<sup>3</sup>, derived from the oral MRL, was added to Table B. This did not result in a change to the AAL.*

IRIS lists an oral RfD of 0.02 mg/kg/d which could be used to derive a RfC for bromoform. (ESS) *This value was added to Table B of the Guideline and resulted in a change in the AALs and MQ for this substance.*

The chlordane MRLs in Table B are wrong. (ESS) *The MRLs in Table B were updated in response to this comment. This change resulted in a change of the Table II annual average AAL for this substance but did not trigger a change in the MQ.*

The reference for the EPA chloromethyl methyl ether risk level in Table B was not listed. (ESS) *A footnote with the reference has been added.*

The ATSDR MRL for cobalt should be changed to a chronic inhalation value of 0.1 µg/m<sup>3</sup>. It is inappropriate to base the annual AAL for this substance on carcinogenicity because the majority of the studies in the IARC monograph show it to be carcinogenic specifically at the site of administration. (ESS) *The MRL discrepancy is due to a recent ATSDR update. RI DEM has modified the proposed the AALs and MQ for this substance to take into account this change. RI DEM did not remove the additional safety factor of 10 from the annual average AAL because IARC ranks of this substance as a Class 2B carcinogen.*

The RfD for 4-cresol has been withdrawn by EPA and shouldn't be listed in Table B. (ESS) *Table B has been updated in response to this comment. This change did not affect the AALs or MQ for this substance.*

The ATSDR website lists an acute oral MRL for di-n-butylphthalate which should be included in Table B. (ESS) *This value was added to Table B and resulted in the addition of a one-hour AAL and a slight alteration in the MQ.*

The RfC for 1,2-dichlorobenzene should be flagged as being calculated from an oral RfD. (ESS) *Table B of the Guideline was updated in response to this comment. No change in the AALs or MQ were required.*

The Table II annual AAL for n,n-dimethylaniline should be 0.007, not 0.02 µg/m<sup>3</sup>. (ESS) *The correct annual AALs for this substance are 0.2 µg/m<sup>3</sup> for both Table I and Table II. This was derived by dividing the CalEPA chronic REL of 2 µg/m<sup>3</sup> by 10 because IARC has classified this substance as a Class 2B carcinogen.*

Table B lists a provisional RfC or RfD for dimethylphthalate, ethylene dibromide, ethylidene dichloride, hydroquinone, 4,4'-methylene bis(2-chloroaniline), methyl isobutyl ketone, nitrobenzene, parathion and aroclor 1254. These are not in IRIS. (ESS) *The source of the provisional RfCs/RfDs was EPA's draft Health Effects Notebook for Hazardous Air Pollutants (December 1994). RI DEM has decided to not use any of the*

*provisional RfCs/RfDs that haven't since been adopted or that aren't included in the latest HEAST document. Because of this change and the fact that there are no other health benchmarks for dimethylphthalate in Table B, this substance was added to Table C and the NY AGC was used as the basis for the AAL and MQ. Dropping the provisional RfCs/RfDs did not result in a change in the AALs and MQs for ethylene dibromide, ethylidene dichloride, hydroquinone, 4,4'-methylene bis(2-chloroaniline), methyl isobutyl ketone, nitrobenzene, parathion or aroclor 1254.*

The MRL for 2,4-dinitrotoluene is derived from the chronic, not intermediate oral MRL. (ESS) *Table B has been updated in response to this comment. No change to the AAL or REL was required.*

ATSDR and CAL don't list benchmarks from ethylene glycol monobutyl ether, so these should be removed from Table B and there should be no one-hour AAL for this substance. (ESS) *The CAL acute REL is listed on the OEHHA website. The ATSDR values are listed under the synonym 2-butoxyethanol. No change was made as a result of this comment.*

There are no RfCs for ethylene glycol monoethyl ether or ethylene glycol monomethyl ether in IRIS. (ESS) *IRIS lists RfCs for these substances under the synonyms 2-ethoxyethanol and 2-methoxyethanol, respectively. An error in the Table B listing for ethylene glycol monoethyl ether was corrected. No change in the AALs or MQ for either substance was required.*

No chronic REL for ethyleneimine or hexachloroethane are listed by CAL. (ESS) *The chronic REL for these substances were removed from Table B. This did not change the AALs or MQs for these substance. However, the AALs and MQ for hexachlorethane were altered because, since the cancer potency value was derived for inhalation while the RfC was converted from an oral RfD, the cancer potency value was given precedence.*

CAL does not list a chronic REL for hydrogen fluoride and ATSDR does list acute and intermediate MRLs for this substance. (ESS) *The CAL chronic REL is listed on the Consolidated Table, and thus was retained as the basis of the annual average AAL. The ATSDR acute MRL is more stringent than the CAL acute number, so the one-hour AAL was changed to use the ATSDR number. This also resulted in a change to the MQ for this substance.*

An RfC of 1.1  $\mu\text{g}/\text{m}^3$ , calculated from the IRIS RfD, should be added for mercuric chloride. (ESS) *This RfC was added, but didn't change the AAL because an inhalation RfC was available for inorganic mercury which prevailed. RI DEM did decide to list mercuric chloride separately, however. The AALs for this substance are the same as those for other inorganic and elemental mercury compounds, except that the annual AAL for mercuric chloride is reduced by a factor of 10 because EPA classifies it as a C carcinogen.*

No reference is included for the B2 carcinogen classification of 4,4'-methylene bis(2-chloroaniline). (ESS) *This classification is listed in EPA's draft Health Effects Assessment Notebook. Note that, even without this classification, the AAL would not change, because IARC has classified the substance as a Class 2A carcinogen.*

The AALs for methyl isobutyl ketone are not based on Table B data. (ESS) *There were no Table B benchmarks for this substance except for the provisional RfC, which has been removed as discussed above. Therefore, the AALs were based on the additional data compiled in Table C, in keeping with the derivation procedure in the Guideline.*

A CAL cancer risk value of  $3.85 \mu\text{g}/\text{m}^3$  should be listed and should be used to derive the annual AAL for MTBE. (ESS) *This value was added to Table B, but was not used to derive the annual AAL because MTBE has not been classified by any of the applicable agencies (EPA, IARC, NCI) as a carcinogen.*

No cancer slope value is listed for Michler's ketone on CAL's website. (ESS) *This potency is listed in CAL's Consolidated Table, on CAL's "Hot Spots Unit Risk and Cancer Potency Values" table ([http://www.oehha.ca.gov/air/hot\\_spots/pdf/TSDlookup2002.pdf](http://www.oehha.ca.gov/air/hot_spots/pdf/TSDlookup2002.pdf)) and in the OEHHA database under NSRLs (NSRLs correspond to  $10^{-5}$  risk).*

The RfC for molybdenum is wrong. (ESS) *This was corrected and the AAL and MQ for this substance were adjusted accordingly.*

No cancer slope value is listed for nickel compounds and nickel oxide on CAL's website. (ESS) *This potency is listed in CAL's Consolidated Table and on CAL's "Hot Spots Unit Risk and Cancer Potency Values" table.*

IRIS lists a RfD for nitrobenzene that could be used to calculate a RfC of  $2 \mu\text{g}/\text{m}^3$  for this substance. (ESS) *That value was added to Table B, but the AAL was not changed because the inhalation based chronic CAL number took precedence over the oral RfD.*

A CAL cancer risk benchmark of  $0.0003 \mu\text{g}/\text{m}^3$  should be added for n-nitroso-di-n-butylamine and a value of  $0.0001 \mu\text{g}/\text{m}^3$  should be added for n-nitrosodiethylamine. (ESS) *These benchmarks were added to Table B, but the AALs for those substances continue to be based on the EPA risk number, in keeping with the procedures in the Guideline.*

ATSDR lists intermediate and chronic oral MRLs for pentachlorophenol which can be converted to inhalation MRLs. (ESS) *These numbers were added to Table B, but the AALs continue to be based on the RfD/10, in keeping with the Guideline procedures.*

CAL lists a chronic REL for phosphine that is different from the one in Table B. (ESS) *This discrepancy is due to a recent CAL update, and has been changed in Table B. The change does not alter the AAL or MQ for this substance, which is based on the RfC.*

The AALs for phosphorus should apply to white phosphorus only. (ESS) *The word “white” was added to the phosphorus listing in the Guideline and regulation.*

The IRIS RfD for phthalic anhydride can be used to derive an AAL for that substance. (ESS) *This value was added to Table B and used to derive a 24-hour AAL.*

The cancer risk benchmark for PCBs should be changed to correspond to the CAL database. The database does not list a chronic REL for these substances. (ESS) *The chronic REL is listed in the Consolidated Table and the range of cancer risk benchmarks on both the Consolidated Table and the table of Cancer Potency Values. Note that the CAL values were not used to calculate AALs because an EPA potency value was available.*

A RfD-derived RfC of 0.07  $\mu\text{g}/\text{m}^3$  for aroclor 1254 should be listed in Table B. (ESS) *This value was added to Table B but had already been used to calculate AALs, so this change did not alter AALs or MQ.*

EPA has published a draft reassessment of dioxin’s toxicity which should be considered in deriving the AALs for this substance. (ESS) *When this reassessment has completed SAB review and has been finalized, RI DEM will use the EPA benchmarks. In the meantime, the CAL benchmarks will be used for the AAL.*

The ATSDR intermediate MRL for propylene dichloride is incorrect. (ESS) *Table B has been updated in response to this comment, but this change did not alter the AALs.*

IRIS now lists quinoline as a B2 carcinogen and provides an oral potency factor for this substance that can be used to derive an annual AAL. (ESS) *The AALs and MQ for this substance were altered to correspond to EPA’s new evaluation.*

The chronic REL on the CAL website for selenium sulfide is 20  $\mu\text{g}/\text{m}^3$ . (ESS) *The AALs and MQ for this substance were adjusted in response to this recent update.*

A chronic MRL of 210  $\mu\text{g}/\text{m}^3$  can be calculated from the ATSDR oral chronic MRL for sodium fluoride. (ESS) *This value was added to Table B but did not change the AALs.*

An RfC of 105  $\mu\text{g}/\text{m}^3$  can be calculated from the IRIS RfD of 1,1,1,2-tetrachloroethane. (ESS) *This value was added to Table B and was used to calculate a 24-hour AAL for this substance.*

The ATSDR MRL for tetrachloroethene should be listed as chronic, not intermediate. (ESS) *This change was made to Table B and resulted in the dropping of the 24-hour AAL. RI DEM could have derived a 24-hour AAL based on the EPA RfD for this substance, but it would have been 10 times more stringent than the CAL inhalation chronic REL and 100 times more stringent than the ATSDR inhalation chronic MRL, and thus wouldn’t make sense.*

The CAL website does not list a cancer potency factor for 2,4- and 2,6- toluene diisocyanate. Table D lists a 24-hour AAL based on the RfC, but Table B does not list a RfC. (ESS) *Both the CAL Consolidated Table and the CAL Cancer Potency Factors table list a cancer risk factor for these substances. Table B does list the RfC that is used to calculate the AAL.*

The CAL potency for 1,2,4-trichlorobenzene should be used to calculate an annual AAL for this substance. (ESS) *This is not appropriate because EPA classifies this substance as a D carcinogen.*

CAL lists a chronic REL of 200  $\mu\text{g}/\text{m}^3$  for triethylamine. (ESS) *This new REL was added to Table B but was not used to derive an annual AAL because the EPA RfC was used to derive a more stringent 24-hour AAL that takes precedence.*

It would be better to use the RfC for antimony trioxide to derive an AAL antimony compounds than to use the converted RfD. (ESS) *RI DEM has modified the antimony AALs in response to this comment. Antimony compounds will only have a 24-hour AAL, while antimony trioxide will also have an annual average AAL that takes into account its IARC 2B cancer classification.*

CAL considers its acute arsenic REL, on which the RI one-hour AAL is based, to apply to a four hour averaging time. That standard is based on trivalent arsenic, which is generally considered to be more toxic than pentavalent, which is more prevalent. RI DEM should consider these factors. (ESS) *This is still under consideration.*

The 24-hour AAL for cadmium, which is based on the RfD, may not be protective, since cadmium is not absorbed well through ingestion. Both the 24-hour and annual AAL should be based on carcinogenicity. (ESS) *As discussed previously, RI DEM and HEALTH believe that there is no basis for using a 24-hour average time in conjunction with cancer risk benchmarks. The RfD to RfC conversion that RI DEM uses does use a safety factor of 10 to account for inter-route difference in absorption or toxicity. We will look into whether an additional factor may be warranted in this case.*

A person continuously exposed to the current proposed one-hour AAL for copper would have a daily intake of 2 mg/day, assuming 100% absorption. Since the USDA recommended daily allowance for copper is 1.5-3 mg/day, the AAL is not necessary. (ESS) *The CAL acute REL for copper is based on respiratory irritation, and so is specific to the exposure route. Substances that are relatively nontoxic, or even essential to bodily function, when ingested may cause respiratory effects when inhaled. RI DEM is continuing to propose the CAL acute REL for its one-hour AAL.*