Oregon Department of Environmental Quality
Oregon Environmental Quality Commission meeting
Rulemaking, Action item K

Air Toxics Benchmarks Review

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DEQ recommendation to the EQC

DEQ recommends that the Environmental Quality Commission adopt the proposed rules as seen on pages 63 through 82 of this report as part of Chapter 340 of the Oregon Administrative Rules.

Overview

Short summary

DEQ proposes the Oregon Environmental Quality Commission adopt the proposed rules that contain revisions to 23 standing Ambient Benchmark Concentrations, and new benchmarks for phosgene, n-propyl bromide, and styrene.

Brief history

In October 2003, the commission adopted the framework for Oregon's Air Toxics Program (OAR 340-246-0010 to -0230). In September 2004, DEQ first convened the Air Toxics Science Advisory Committee, or ATSAC, to assist in determining ambient benchmark concentrations for a list of air toxics. At that time, ATSAC evaluated a list of 262 air toxics obtained from Oregon's 1999 emissions inventory, which became available in 2003. Based on certain criteria, including whether a compound had been emitted at one pound per year or more and whether toxicity information was available for the compound, ATSAC identified 164 air toxics for prioritization. As stated in rule (OAR 340-246-0090), prioritization includes the relative toxicity or potency of a pollutant; the degree of exposure and number of people at risk; the impact to sensitive human populations; the number and degree of predicted ambient benchmark exceedances; and the potential to cause harm through pollutant persistence and bioaccumulation. Through the prioritization process, ATSAC identified 52 air toxics for which ambient benchmark concentrations needed to be developed. Those first 52 benchmarks were approved by the Environmental Quality Commission in 2006.

By rule, the Air Toxics Science Advisory Committee is convened every five years to review any new toxicity information available for the 52 chemicals assigned Ambient Benchmark Concentrations and to review toxicity information for any new chemicals requested by DEQ. Most recently, DEQ reconvened ATSAC in December 2014. The committee met periodically through March 2017 to review the Ambient Benchmark Concentrations for which new toxicity information had become available since approximately 2006. The committee reviewed new toxicity information that was available for 32 of the Ambient Benchmark Concentration and then recommended revisions to 23 benchmarks and retention of nine benchmarks.

Four of the 23 compounds under review were the subjects of the majority of the committee's discussion and analysis. These include diesel particulate matter, lead, polycyclic aromatic hydrocarbons, and trichloroethylene. The committee also spent significant time discussing changes proposed for nickel compounds.

Diesel Particulate Matter

The benchmark for this air toxic has received high interest since 2006 as well as during this current iteration of the ATSAC. The bulk of six ATSAC meetings were devoted to this

topic, and a comprehensive review of recent scientific literature was conducted. The committee explored whether any new research or analysis would suggest changing DEQ's existing ambient benchmark value for diesel particulate. ATSAC ultimately concluded that there is no new decisive information that would warrant revising the current diesel benchmark. The committee recommended that DEQ retain its current ambient benchmark concentration for Diesel Particulate Matter.

A summary of this work is provided in a separate document entitled Diesel Particulate Matter Work Conducted by the 2014-2017 Air Toxics Science Advisory Committee, August 2017, and included here as an attachment to this staff report.

Lead

The committee spent considerable time exploring new toxicity information for lead. There is significant scientific information indicating that there is no safe concentration of lead to which people can be exposed without harm, particularly in regard to diminished cognitive abilities in children. Exposure to lead *in utero* and during the early years of life causes impairment of neural development and decreased mental functional capacity. In later years, associations with impaired academic performance and Attention Deficit Hyperactive Disorder have been reported, and these effects persist into adulthood. Impaired neurodevelopment and functioning is the most sensitive endpoint, and these effects have been demonstrated in multiple studies, so there is a high confidence in a causal relationship.

EPA has chosen to continue to use its National Ambient Air Quality Standard of 0.15 microgram per cubic meter as its threshold for protecting public health from lead exposure. ATSAC recommended that DEQ use that same value as the benchmark for lead as an air toxic based on the rationale presented below.

The Clean Air Act directs that NAAQS be set at a level with an adequate margin of safety to protect the most sensitive groups in the population. In the case of lead, the relevant sensitive population group is children under five years of age, including fetuses. ATSAC recognizes that the current federal lead health standard does not provide a comprehensive level of public health protection.

The committee recommended that the NAAQS value of 0.15 ug/m^3 be retained as the benchmark for lead, as this level represents the best available scientific and technical evidence. The committee acknowledged that their recommendation of a benchmark for lead is based on the current state of the available science, and that lead should be evaluated again as the available health science advances.

Polycyclic aromatic hydrocarbons

The benchmark for Polycyclic Aromatic Hydrocarbons is based on the summation of toxicity-adjusted concentrations of 32 individual PAHs. However, ATSAC has recommended changing the underlying list of individual PAHs to include new PAHs that are more directly related to air exposure, and to remove some of the PAHs from the original list, resulting in a proposed list of 26 individual PAHs.

The toxicity adjustment includes the application of specific Toxicity Equivalency Factors which are specific to each individual PAH, and which adjust to align with the toxicity of one of the most-toxic and best-researched PAH, benzo(a)pyrene. In addition to the recommended change to the benchmark for total PAHs and to the underlying list of individual PAHs, new Toxicity Equivalency Factors were proposed. The proposed revised list of individual PAHs and their respective Toxicity Equivalency Factors are presented in Table A-1 of Attachment A.

Trichloroethylene

The prior committee chose a cancer-based Unit Risk Estimate value of 2×10^{-6} per ug/m^3, which resulted in a benchmark of 0.5 ug/m^3 for Trichloroethylene. The Unit Risk Estimate value was published in 1990 by the California Office of Environmental Health Hazard Assessment. However, in 2011, new toxicity information became available from EPA indicating that a cancer-based Unit Risk Estimate value of 4.1×10^{-6} per ug/m^3 was preferable, resulting in a proposed revised benchmark for TCE of 0.2 ug/m^3. In addition, the new toxicity information indicated that the non-cancer effects of TCE were of great concern, due to a few studies that indicated that pregnant mothers exposed to TCE at or above particular levels during gestation were more likely to produce fetuses or infants with fetal heart malformation. However, because the proposed benchmark based on TCE cancer effects is set at a lower (more stringent) concentration than would have been required for non-cancer effects, the proposed benchmark is considered protective of both cancer and non-cancer chronic effects of TCE.

Three new chemicals proposed

In addition, ambient benchmark concentrations were recommended by the committee for three new chemicals: phosgene, n-propyl bromide, and styrene. Toxicity information for chronic exposure to selenium, although discussed by the ATSAC, was inadequate, and the ATSAC declined to make a recommendation for this chemical.

Regulated parties

Because the Ambient Benchmarks Concentrations are used as goals by the DEQ to prioritize resources based on air toxics exceedances, no parties are directly regulated by the proposed rule changes.

The proposed amendment of Oregon Administrative Rule 340-246-0090 to incorporate revised and new ambient benchmarks into rule does not change the regulated parties.

Request for other options

During the public comment period, DEQ requests public comment on whether to consider other options for achieving the rules' substantive goals while reducing any identified negative economic impact on business.

Scope of proposal

This proposal is limited in scope to adopting revised and new ambient benchmark concentrations as administrative rules. The ambient benchmarks proposed in this rulemaking will function within Oregon's existing air toxics program as goal reference values. Three separate actions could be triggered under the Toxics Program if monitoring data shows ambient air toxics concentration to be above a benchmark. These include:

a) The development of emission reduction strategies for specific emission source categories (like diesel engines or woodstoves),
b) Evaluation of a major industrial facility under the "Safety-Net" program, or
c) Community planning work in select geographic areas.

Currently, DEQ and the Oregon Health Authority are developing a risk-based air toxics permitting program called Cleaner Air Oregon. Under the proposed framework, Ambient Benchmark Concentrations could be used as data or reference values to inform that program's standards.

Statement of Need

What need would the proposed rule address?

Since 2006, ambient benchmark concentrations have been used by DEQ to evaluate the degree of human health risks associated with emissions of 52 chemicals. DEQ uses these benchmarks to assess the levels of air toxics in Oregon, and to prioritize which problems to address first. Although only used as goals, these benchmarks are utilized by emissions sources and the public to better understand what kinds of human health risks are potentially associated with monitored or modeled emissions of air toxics. In addition, there is a regulatory requirement for the Ambient Benchmark Concentrations to be reviewed and updated as necessary every five years; this proposed rule will serve to meet this requirement.

How would the proposed rule address the need?

Because toxicity information for chemicals is constantly changing due to new study results becoming available, the ATSAC's review of the toxicity information behind the current ambient benchmark concentrations insures that the most up-to-date and scientifically defensible toxicity information is used to generate or revise the benchmarks. Making sure that these benchmarks reflect the current, best science allows DEQ and other entities to utilize the benchmarks with confidence in making technical and policy decisions around levels of toxics in air.

How will DEQ know the rule addressed the need?

Updating the ambient benchmark concentrations provides DEQ and external users of the benchmarks confidence that the benchmarks reflect the best, most-current science, as recommended by the ATSAC. The proposed rules provide updated values for existing benchmarks and new benchmark values for n-propyl bromide, phosgene, and styrene.

Rules affected, authorities, supporting documents

Lead division
Solutions

Program or activity
Air Toxics

Chapter 340 action

Amend - OAR

340-246-0090	340-246-0010	340-246-0030	340-246-0050	340-246-0070
340-246-0110	340-246-0130	340-246-0150	340-246-0170	340-246-0190
340-246-0210				

Statutory authority - ORS
468.020, 468.065, 468.035, 468A.010(1), 468A.015

Statute implemented - ORS
468A.015 468A.025

Legislation

Not applicable

Documents relied on for rulemaking

DEQ relied on ATSAC's consensus recommendations for updates to the Ambient Benchmark Concentrations. The ATSAC relied upon credible information from a variety of peer-reviewed and technical documents, the most important being those from the:

Document title	Document location
USEPA Integrated Risk Information System (IRIS) cancer and non-cancer toxicity values	https://www.epa.gov/iris
California Office of Environmental Health Hazard Assessment (OEHHA) cancer and non-cancer toxicity values	https://www.arb.ca.gov/toxics/healthval/contable.pdf
Agency for Toxic Substances and Disease Registry cancer and non-cancer toxicity values	https://www.atsdr.cdc.gov/mrls/mrllist.asp
ATSAC meeting minutes	http://www.oregon.gov/deq/aq/air-toxics/Pages/ATSAC-Meetings.aspx

Fee Analysis

This rulemaking does not involve fees.

Statement of fiscal and economic impact

Fiscal and Economic Impact

This Fiscal Impact Statement was amended based on comments and discussion by the Fiscal Advisory Committee convened by DEQ on Sept. 12, 2017. Originally, the ATBR Public Notice packet published on July 14, 2017 included a Fiscal Impact Statement that indicated that no indirect or direct costs were expected, based on adoption of the proposed rule. The earlier statement matched two previous similar benchmark rulemaking statements on fiscal impact, and DEQ concluded the same statement was applicable to this current benchmark rulemaking. However, on July 28, 2017, Oregon Business and Industry, or OBI, submitted a letter to DEQ questioning the proposed Fiscal Impact Statement. According to ORS 183.335. Since OBI represents at least 10 interested parties that have the potential to be affected by this current rule adoption DEQ was required to convene a Fiscal Advisory Committee to formally review the proposed Fiscal Impact Statement. The Fiscal Advisory Committee met on Sept. 12, 2017, resulting in the amended Fiscal Impact Statement presented here.

The substantive goal of this rulemaking is to establish health protective values for chemicals known to be emitted in Oregon. These benchmarks are used by the agency to identify, evaluate, and address air toxics problems. The benchmarks are only a single component of the overall air toxics program. Any specific implementation, compliance, enforcement, financial, land use, or resource issues are expected to be associated with the existing overall program and subsequent community emission reduction planning, and not with adoption of these ambient benchmarks.

The proposed rules are limited to adopting recommended revisions to 23 standing Ambient Benchmark Concentrations and adding new benchmarks for phosgene, n-propyl bromide, and styrene. The Ambient Benchmark Concentrations function within Oregon's existing air toxics program as potential triggers for, and clean air goals within, the Geographic, Source Category, and Safety Net programs. Particularly in the cases of the Geographic and Safety Net programs, significant preparatory work would be necessary on the part of DEQ, and on the part of sources under the Safety Net program, before a program could be implemented. In addition, implementation of either the Geographic or Source Category programs might require a rule update, and so might also require the appointment of a Fiscal Advisory Committee at that time to determine direct impacts of those changes. It is only in the event that DEQ initiates one of the air toxics programs that direct fiscal impacts might occur.

The proposed rules may have indirect fiscal and economic impacts on businesses, state agencies, and units of local government if one or more of the three current air toxics programs mentioned above are implemented. However, this kind of indirect cost cannot be estimated at this time. Businesses may encounter indirect fiscal impacts if they voluntarily choose to initiate operational assessments and potentially make operational changes in response to an Ambient Benchmark Concentration that is made more stringent or added as a result of adoption of the proposed rules. State agencies such as DEQ and/or the Oregon

Health Authority may encounter indirect fiscal impacts if they need to provide outreach or assistance in regard to changes that might occur. These potential indirect impacts are not expected to affect federal agencies or the public.

Statement of Cost of Compliance

DEQ is unable to quantify any potential direct impacts because the benchmarks are numeric goals for the state to achieve and do not directly cause any future work, processes or events to occur. Although the advisory committee and DEQ acknowledge there is a potential for some types of indirect impacts to occur if one or more of the three programs mentioned above are triggered at some future date, due to uncertainty about costs that may be involved, DEQ does not have data available to estimate costs at this time.

State agencies

Some committee members felt that the proposed Ambient Benchmark Concentrations could potentially cause indirect fiscal impacts to DEQ if they need to be used in one or more of the three air toxics programs mentioned above. If DEQ decides to provide staff and resources to investigate one or more benchmarks under the Geographic, Source Category, or Safety Net program, then the adoption of this rule has the potential to cause indirect fiscal or economic impacts to DEQ, and to the Oregon Health Authority, which provides public health information to DEQ. These potential indirect impacts, although not currently amenable to cost estimation, might include these considerations:

- DEQ could incur staffing costs related to utilizing any or all of the three air toxics programs mentioned above as related to the revised or new benchmarks.
- If DEQ utilizes the Safety Net program and one of the revised or new benchmarks moved a large or small business into a higher, more immediate tier of agency consideration, there would be associated costs to that business and possibly to DEQ.
- One committee member asked if DEQ might update the results of the 2011 Portland Air Toxics Solution (PATS) in the future based on adoption of the proposed benchmarks under the Geographic program. If additional resources became available in the future and such a revision would result in greater protection of public health, additional costs to the DEQ might occur related to the updating of PATS by agency staff, and the need for subsequent public outreach; but the agency's current workload does not include plans for updating PATS based on the proposed benchmark changes.

Local governments

Adopting ambient benchmarks as administrative rules may have indirect fiscal or economic impacts, depending on which local government is affected. A local agency such as the Multnomah County Health Department is likely to become involved and incur costs for assigned staff if the Geographic, Source Category, or Safety Net programs are implemented. Due to the uncertainty of the potential future scope of this type of action, quantifying actual costs cannot be completed at this time.

Public

Adoption of this rule is not expected to have indirect or direct fiscal or economic impacts to the public.

Large businesses - businesses with more than 50 employees

Most committee members felt that there is a potential for indirect fiscal impacts to large businesses related to the adoption of the proposed rules. Facilities that currently emit certain chemicals, or might emit certain chemicals in the future, could incur costs in choosing to make themselves aware of the related proposed Ambient Benchmark Concentration values that have changed significantly from the previously-utilized 2010 values for those chemicals. Although sources are not required to track changes in the Ambient Benchmark Concentrations, sources could choose to do so if they are concerned with how changes might relate to their operations, and might incur costs while tracking these changes.

In regard to potential indirect impacts to large businesses, only the proposed benchmarks that are *more* stringent than the previous benchmarks, and the three new benchmarks, were discussed in detail by the committee. However, it is important to note that some of the proposed benchmarks would result in *less* stringent levels. Facilities which emit or may emit chemicals with proposed Ambient Benchmark Concentrations which are less stringent than the 2010 benchmarks could decide whether or not they want to adjust their operations based on this new information and potentially lower their costs.

In the cases of more-stringent the proposed Ambient Benchmark Concentration related to ethylene oxide is about 100 times more stringent, while the proposed benchmarks for formaldehyde, hexane, tetrachloroethylene, and hydrogen cyanide, are about 10 times lower (more stringent) than the 2010 benchmarks for these chemicals. The Ambient Benchmark Concentration for soluble nickel compounds is about five times more stringent; the benchmark for xylenes as a mixture is about 3.5 times more stringent, and the benchmark for chlorine and trichloroethylene are each about twice as stringent as 2010 benchmarks. Please see Table 1 for more details on how much the proposed Ambient Benchmark Concentrations have changed from the 2010 benchmarks.

Table 1: ABC Updates for 19 Chemicals for which National Emissions Inventory 2014 Data is Available

Chemical for which a Revised or New ABC is Proposed	Number of Facilities Emitting Chemical [1]	2010 ABC (ug/m^3)	Proposed ABC ug/m^3	Proposed ABCs Which Are More Stringent than Current ABCs
Acrolein	28	0.02	0.35	--
Ammonia	25	200	500	--
Carbon Tetrachloride	20	0.07	0.2	--

Chlorine	**27**	**0.2**	**0.1**	Twice as stringent (value halved)
Chloroform	24	98	300	--
Formaldehyde	**59**	**3**	**0.2**	About 10 times more stringent
Hexane	**37**	**7,000**	**700**	10 times more stringent
Hydrogen Fluoride	**14**	**14**	**13**	Slightly more stringent
Methyl Chloroform	23	1,000	5,000	--
Methylene Chloride	25	2.1	100	--
Nickel	61	--	--	--
Nickel (soluble compounds)	**--**	**0.05**	**0.01**	Five times more stringent
Nickel (insoluble compounds)	--	0.002-0.004	0.004	--
PAHs	57	0.0009	0.002	--
Phosgene	**1**	**NA**	**0.3**	New value
Phosphorus	22	0.07	9	--
Styrene	**32**	**NA**	**1,000**	New value
Tetrachloroethylene	**25**	**35**	**4**	About 10 times more stringent
Toluene	59	400	5,000	--
Trichloroethylene	**21**	**0.5**	**0.2**	About twice as stringent
Xylenes (Mixed Isomers)	**15**	**700**	**200**	3.5 times more stringent
Footnotes:				
[1] = Information obtained from 2014 National Emissions Inventory.				
No information available from NEI on emissions in Oregon for n-propyl bromide, ethylene oxide, phospine, hydrogen cyanide, or 2,4-, 2,6-toluene diisocyanate mixture.				
Bold font numbers indicates proposed ABC values which are new or have been proposed to be revised to a more-stringent value.				

To obtain qualitative information about types and number of facilities that might be indirectly impacted by the adoption of this rule, DEQ staff reviewed information from the 2014 National Emissions Inventory (NEI), version 1, based on North American Industry Classification System, or NAICS, categories that operating sources are placed in. The NEI is a national database to which each state agency submits data on emissions from larger permitted facilities. NEI information was available for 17 of the 23 benchmarks recommended for revision, and for 2 of the 3 benchmarks recommended for addition, for a total of 19 chemicals for which NEI data exists. Please refer to Table 2 for details on which of the 19 chemicals are emitted by particular NAICS categories of facility types. Although this information will not provide assistance in cost estimation, it can provide a qualitative idea of the kinds of permitted businesses that may be indirectly impacted by the proposed rule.

Generally, the NAICS category of Steam and Air Conditioning Supply sources in Oregon included the largest number of sources which emit one or more of the chemicals discussed above, including but not limited to nickel, PAHs, formaldehyde, and toluene. For example, 10 facilities in this category emit formaldehyde. Steam and Air Conditioning Supply sources are operations that provide steam, heated air, cooled air. The second largest category of facilities that could be affected are Sawmills, with operations such as sawing dimensional lumber, boards, beams, timbers, poles, ties, shingles, shakes, siding, and wood chips from logs or bolts. Chemicals emitted from Sawmills include but are not limited to nickel, PAHs, formaldehyde, and chlorine; for example, 8 facilities in this category emit formaldehyde. The third-largest category of facilities that could be affected is the Veneer, Plywood, and Engineered Wood Product Manufacturing category, which includes operations such as manufacturing veneer and/or plywood; manufacturing engineered wood members; and manufacturing reconstituted wood products. Chemicals emitted by sources in this category include, but are not limited to formaldehyde, nickel, PAHs, and toluene; for example, 7 facilities in this category emit nickel. Overall, the NEI data indicates that, on a chemical-by-chemical basis, the range of companies affected is between 1 (phosgene) and 71 (toluene). Please see Table 2 for further details on facility types known to emit one or more of the 19 chemicals mentioned earlier.

TABLE 2: Number of Facilities Emitting Chemicals with Proposed More-Stringent Ambient Benchmark Concentrations (Source 2014 NEI)

EPA NEI NAICS with Short Description	Acrolein	Ammonia	Carbon	Chlorine	Chloroform	Formaldehyde	Hexane	Hydrogen	Methyl	Methylene	Nickel	PAHs	Phosgene	Phosphorus	Styrene	Tetrachloroethyl	Toluene	Trichloroethylen	Xylenes (Mixed
22111 Electric Power Generation	1		1	1	1	1			1	1	1	1		1	1	1	1	1	
221112 Fossil Fuel Electric Power Generation	4	2			1	5	3	1		1	3	5			1	1	4		3
221330 Steam and Air-Conditioning Supply	6	3	4	7	5	10	8	1	5	5	11	11	1	5	4	5	9	4	1
31151 Dairy Product (except Frozen) Manufacturing		1																	
311513 Cheese Manufacturing		2																	
311812		1									1	1							

Commercial Bakeries																			
321113 Sawmills	5		5	7	6	7	4		6	6	8	8		5	5	6	6	5	
321114 Wood Preservation		1																	
32121 Veneer, Plywood, and Engineered Wood Product Manufacturing	5		5	5	5	7	1		5	5	7	7		5	5	5	6	5	
321211 Hardwood Veneer and Plywood Manufacturing		1				3	1				1	1					1		
321212 Softwood Veneer and Plywood Manufacturing	2		2	3	3	4	1		3	3	4	4		3	2	2	3	2	
321219 Reconstituted Wood Product Manufacturing	3		1	1	1	5	3		1	1	4	4		1	1	1	4	1	
321912 Cut Stock, Resawing Lumber, and Planing	1		1	1	1	1			1	1	1	1		1	1	1	1	1	
321918 Other Millwork (including Flooring)						1	1					1					1		
322121 Paper (except Newsprint) Mills		1		1		2	2				2	2					2		
322122 Newsprint Mills	1		1	1	1	1	1		1	1	1	1		1	1	1	1	1	
32213 Paperboard Mills		1				1	1				1	1					1		
324110 Petroleum Refineries						1	1				1	1					1		
324121 Asphalt Paving Mixture and Block Manufacturing						1	1				1	1			1	1	1		1
325193 Ethyl Alcohol Manufacturing		1					2												
325211		3				4	1				1	1			1		1		

Plastics Material and Resin Manufacturing																		
325311 Nitrogenous Fertilizer Manufacturing		1				1												
325412 Pharmaceutical Preparation Manufacturing							2			1							2		1
325510 Paint and Coating Manufacturing																	5		5
325991 Custom Compounding of Purchased Resins														2					
32612 Plastics Pipe, Pipe Fitting, and Unlaminated Profile Shape Manufacturing														1					
326191 Plastics Plumbing Fixture Manufacturing														4					
326199 All Other Plastics Product Manufacturing						1	1				1	1		1		1	1		
327213 Glass Container Manufacturing						1	1				1	1				1			
327310 Cement Manufacturing		1																	
327420 Gypsum Product Manufacturing						1	1				1	1				1			
331110 Iron and Steel Mills and Ferroalloy Manufacturing											1								
331513 Steel Foundries (except Investment)											3								
33152											1								

Nonferrous Metal Foundries																		
331529 Other Nonferrous Metal Foundries (except Die-Casting)								4			2							
332812 Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers																1		1
333316 Photographic and Photocopying Equipment Manufacturing																1		
334412 Bare Printed Circuit Board Manufacturing		1																
334413 Semiconductor and Related Device Manufacturing		2						7										
336120 Heavy Duty Truck Manufacturing						1	1				1	1				1		
336411 Aircraft Manufacturing												1						
336413 Other Aircraft Parts and Auxiliary Equipment Manufacturing											1				1			
336611 Ship Building and Repairing											1	1						1
337110 Wood Kitchen Cabinet and Countertop Manufacturing																2		2
337127 Institutional Furniture Manufacturing														1				

339999 All Other Miscellaneous Manufacturing		1																	
42469 Other Chemical and Allied Products Merchant Wholesalers		2						1									1		
424710 Petroleum Bulk Stations and Terminals							2				1	2					2		2
424720 Petroleum and Petroleum Products Merchant Wholesalers (except Bulk Stations and Terminals)							1					1					1		1
45431 Fuel Dealers												1					1		1
486210 Pipeline Transportation of Natural Gas	3					3						3					3		3
562212 Solid Waste Landfill			4		4		4		5	5	1	1				5	5	5	5
Sum of facilities emitting a particular chemical	31	25	24	27	28	62	44	14	28	30	63	65	1	22	32	30	71	26	27

EPA = U.S. Environmental Protection Agency
NEI = National Emissions Inventory 2014
NAICs = North American Industry Classification System.

Analyzing the change to the nickel Ambient Benchmark Concentration is a particularly challenging case, because the NEI data is presented as simple nickel data, but the nickel benchmarks are related to particular *forms* of nickel. The ATSAC has recommended that three existing nickel benchmarks (for nickel refinery dust, nickel subsulfide, and soluble nickel compounds) be replaced by two nickel benchmarks (one for soluble nickel compounds and one for insoluble nickel compounds). Therefore, in this preliminary look at which types of facilities might be impacted by changes in nickel benchmarks, only NEI data for only a single chemical entity -- nickel – is available to compare to any nickel benchmark.

As part of this rulemaking, it is recommended that Ambient Benchmark Concentrations be assigned to three new chemicals: n-propyl bromide, phosgene, and styrene. The committee expressed concern that benchmarks for the three new chemicals may be of more concern to certain sources than the benchmarks that are simply being revised. Prior to this proposed rule, sources that emitted any of these three chemicals would not have been considered by DEQ in their use of Ambient Benchmark Concentrations for planning purposes. If this proposed rule is adopted, then these three chemicals will be considered by DEQ when using Ambient Benchmark Concentrations to make decisions about where to focus agency resources. Facilities that emit or may emit any of these three chemicals could choose to consider how the new benchmarks might impact their operations and potentially lead to an indirect fiscal impact. Thus, additional facilities may incur new indirect costs as a result of these three new benchmark goals if applied under one of the three agency air toxics programs. However, this kind of indirect cost cannot be estimated at this time.

- Although the benchmark for n-propyl bromide is new, no NEI data is available for this compound, and so no information on which facilities might be impacted is available. DEQ asked the ATSAC to assign an Ambient Benchmark Concentration to n-propyl bromide because of concern that dry cleaners in Oregon might switch from using perchloroethylene, also known as PCE or tetrachloroethylene, to using n-propyl bromide based on the assumption that n-propyl bromide was less toxic. Some dry cleaners in other states have switched from using perchloroethylene to n-propyl bromide, but new toxicity information on n-propyl bromide shows that n-propyl bromide is likely to be just as toxic as perchloroethylene.

- Based on information available from the National Air Toxics Assessment, one facility in Oregon has been known to emit phosgene.

- The proposed assignment of benchmark to styrene has the potential to indirectly affect industries that emit or may emit styrene (Table 2). Prior to these proposed rules, no Ambient Benchmark Concentration for styrene existed. The types of facilities that use or emit styrene include those that produce materials using fiber and plastics, wood products, coated fabrics, wood cabinets, furniture; paper mills; facilities that utilize adhesives and sealants; and certain other chemical manufacturers.

No NEI data is currently available for four other chemicals for which Ambient Benchmark Concentrations have been recommended. These include ethylene oxide, hydrogen cyanide, phosphine, and the mixture of 2,4- and 2,6-toluene diisocyanates, as presented in Table 3. In spite of the lack of NEI data, Ambient Benchmark Concentrations for these four chemicals and for n-propyl bromide may be of concern to unknown facilities that emit them. For example, in the case of ethylene oxide, hospitals are the primary source type that might emit ethylene oxide. Because the recommended benchmark for ethylene oxide of 0.0003 ug/m^3 is approximately 100 times more stringent than the previous benchmarks of 0.01 ug/m^3, hospitals that use ethylene oxide for sterilization purposes may be indirectly affected by the proposed benchmark.

Table 3: ABC Updates for Chemicals for Which No National Emissions Inventory 2014 Data is Available			
Chemical for which a Revised or New ABC is Proposed	**2010 ABC (ug/m^3)**	**Proposed ABC ug/m^3**	**Proposed ABCs Which Are More Stringent than Current ABCs**
Ethylene oxide [1]	**0.01**	**0.0003**	About 100 times more stringent
Hydrogen Cyanide	**9**	**0.8**	About 10 times more stringent
Phosphine	0.3	0.8	--
n-Propyl bromide	**NA**	**0.5**	New value
2,4-,2,6-toluene diisocyanate	**0.07**	**0.02**	3.5 times more stringent

Footnotes:
No information available from National Emissions Inventory on emissions in Oregon of n-propyl bromide, ethylene oxide, phospine, hydrogen cyanide, or 2,4-, 2,6-toluene diisocyanate mixture.

[1] = Oregons Emissions Inventory indicates two hospitals are using ethylene oxide (to sterilize equipment).

Bold font numbers indicates proposed ABC values which are new or have been proposed to be revised to a more-stringent value.

Small businesses – businesses with 50 or fewer employees

There may be future indirect fiscal impacts to small businesses related to the adoption of the proposed benchmarks. However, similar to large business, it is prohibitively difficult to estimate potential costs associated with these indirect fiscal impacts. It is also unknown at this time what portion of businesses in Oregon that might face indirect impacts from adoption of the air benchmark rules are small businesses. The potential impacts to small businesses, would be very similar to impacts that might be encountered by large businesses. However, due to the larger economic impacts that rule changes tend to have on small businesses, if indirect impacts discussed above for large businesses occur, they could impact smaller businesses to a greater degree.

a. Estimated number of small businesses and types of businesses and industries with small businesses subject to proposed rule.

Not able to estimate at this time.

b. Projected reporting, recordkeeping and other administrative activities, including costs of professional services, required for small businesses to comply with the proposed rule.

Not able to estimate at this time.

c. Projected equipment, supplies, labor and increased administration required for small businesses to comply with the proposed rule.

Not able to estimate at this time.

d. Describe how DEQ involved small businesses in developing this proposed rule.

A small business owner served as a member on the Fiscal Advisory Committee for this rulemaking. In addition, all ATSAC meetings held from December 2014 through June 2017, where recommendations about ABC revisions were decided, were open to the public, including representatives of small businesses. Any comments made during the audience participation period were recorded and considered.

Advisory committee

DEQ appointed a Fiscal Advisory Committee to discuss the Fiscal Impact Statement for this rulemaking. On September 12, 2017, a Fiscal Advisory Committee made up of five external stakeholders met with DEQ to discuss possible fiscal and economic impacts that could occur upon rule adoption. Attending committee members included Dr. Kent Norville (Air Sciences, Inc.), Mr. Matt Hoffman (Multnomah County Health Department), Mr. Geoff Scott (Maul Foster & Alongi), and Mr. Max Hueftle (Lane Regional Air Protection Agency). Both Dr. Norville and Mr. Hueftle had also served on the Air Toxics Science Advisory Committee (or ATSAC) from December 2014 to June 2017. Mr. Mark Riskedahl (Northwest Environmental Defense Center), although a member of the committee, was unable to attend this meeting due to unforeseen circumstances. He later provided comments on the proposed rulemaking by email.

As ORS 183.33 requires, DEQ asked of the committee's recommendations on:

- Whether the proposed rules would have a fiscal impact,
- The extent of the impact, and
- Whether the proposed rules would have a significant impact on small businesses; if so, then how DEQ can comply with ORS 183.540 to reduce the impact.

The committee agreed with DEQ that costs for any potential indirect impacts that might occur in the future are too uncertain to be able to estimate at this time. However, the committee suggested that some qualitative information about which types of facilities might be impacted by changes in benchmarks would provide a more comprehensive idea of future potential indirect fiscal impacts. This information is presented above.

Advisory committee members' comments are summarized in written meeting minutes included in the list of documents relied on for rulemaking, and an audio recording of the meeting where the fiscal impact of the proposed rules was discussed is also available upon request.

Would the draft rule have a fiscal impact?

Most committee members believed that there could be potential future indirect fiscal impacts to large businesses, small businesses, state agencies, and local governments; but that related costs cannot be estimated at this time.

What would the extent of the impact be?

The committee acknowledged that adoption of the revised and new Ambient Benchmark Concentrations themselves would not cause any direct fiscal impacts. Potential future indirect impacts as discussed above may occur, but are likely to be somewhat limited. The Source Category program, the Geographic Area program or the Safety Net program would

likely cause direct fiscal impacts if initiated by DEQ, but these considerations are outside of the scope of the current proposed rule.

Would the draft rules have a significant adverse impact on small businesses, and if so, what are recommendations for potential mitigation?

Most advisory committee members believed that there could be potential indirect fiscal impacts to small businesses. The committee members acknowledged that there is no accurate way to estimate costs associated with future indirect impacts at this time, but urged DEQ to provide some qualitative information on the types of businesses that might be impacted. Although DEQ was able to do this to some degree for large businesses, available information does not currently allow DEQ to identify the types or number of small businesses that might be indirectly impacted.

Housing cost

As ORS 183.534 requires, DEQ evaluated whether the proposed rules would have an effect on the development cost of a 6,000-square-foot parcel and construction of a 1,200-square-foot detached, single-family dwelling on that parcel. DEQ determined that this proposed rulemaking will have no effect on the cost of development of a 6,000 square foot parcel and the construction of a 1,200 square foot detached single-family dwelling on that parcel.

Federal relationship

Relationship to federal requirements

The proposed rules are not different from or in addition to federal requirements. The EPA does not currently have uniform ambient benchmark concentrations for use as reference and planning values. The proposed rule changes will allow DEQ to address threats to public health from toxic air pollutants that remain after the technology-based strategies of the federal air toxics program. Although not a requirement, these changes are consistent with implementing the Federal Integrated Urban Air Toxics Strategy. The changes are not expected to affect existing federal standards for evaluating criteria pollutants.

Land Use

Land-use considerations

In adopting new or amended rules, ORS 197.180 and OAR 340-018-0070 require DEQ to determine whether the proposed rules significantly affect land use. If so, DEQ must explain how the proposed rules comply with state-wide land-use planning goals and local acknowledged comprehensive plans.

Under OAR 660-030-0005 and OAR 340 Division 18, DEQ considers that rules affect land use if:

- The statewide land use planning goals specifically refer to the rule or program, or
- The rule or program is reasonably expected to have significant effects on:
    - Resources, objectives or areas identified in the statewide planning goals, or
    - Present or future land uses identified in acknowledged comprehensive plans

To determine whether the proposed rules involve programs or actions that affect land use, DEQ reviewed its Statewide Agency Coordination plan, which describes the DEQ programs that have been determined to significantly affect land use. DEQ considers that its programs specifically relate to the following statewide goals:

Goal	Title
5	Open Spaces, Scenic and Historic Areas, and Natural Resources
6	Air, Water and Land Resources Quality
9	Ocean Resources
11	Public Facilities and Services
16	Estuarial Resources

Statewide goals also specifically reference the following DEQ programs:

- Nonpoint source discharge water quality program – Goal 16
- Water quality and sewage disposal systems – Goal 16
- Water quality permits and oil spill regulations – Goal 19

Determination

DEQ determined that these proposed rules do not affect land use under OAR 340-018-0030 or DEQ's State Agency Coordination Program

Advisory Committee

Advisory committee

DEQ used the Air Toxics Science Advisory Committee to establish the ambient benchmarks to be adopted as administrative rules.

Background

When the EQC adopted the Oregon State Air Toxics Program in 2003, DEQ was required to form, with the agreement of the EQC, an Air Toxics Science Advisory Committee. The purpose of the ATSAC is to provide DEQ, and in Lane County the Lane Regional Air Protection Agency, with advice on the state air toxics program that is scientifically sound, independent, balanced, useful, and timely. A seven-member ATSAC was formed in September 2004. Members were selected for their relevant air toxics experience, as required by rule, in: toxicology; environmental science or engineering; risk assessment, epidemiology and biostatistics, public health medicine; and air pollution modeling, monitoring, meteorology, or engineering.

DEQ used the same set of requirements to select the members of the 2014-2017 ATSAC. The present iteration of the ATSAC included three members from academia, two members from the consulting sector, and two members from state government, including a staff person from the Oregon Health Authority and a staff person from the Lane Regional Air Protection Agency. The committee's web page is located at: http://www.oregon.gov/deq/aq/air-toxics/Pages/ATSAC.aspx

The committee members were:

Air Toxics Science Advisory Committee	
Name	**Representing**
Dr. Bill Lambert	Oregon Health Sciences University, public health medicine, toxicology
Dr. Dean Atkinson	Portland State University, air pollution monitoring, modeling, meteorology, engineering
Dr. Kent Norville	Air Sciences Inc., air pollution monitoring, modeling, meteorology, engineering

Dr. Dave Farrer	Oregon Health Authority,, toxicology, environmental science
Dr. Bruce Hope	Former toxicologist for DEQ and for CH2MHill, toxicology, environmental science
Dr. David Stone	Oregon State University, environmental science, toxicology, air pollution monitoring and modeling
Mr. Max Hueftle	Lane Regional Air Protection Agency, environmental science, air pollution monitoring, modeling, meteorology, and engineering

Meeting notifications

To notify people about the advisory committee's activities, DEQ:

- Sent GovDelivery bulletins, a free e-mail subscription service, to the following lists:
    - Air Toxics State-wide
- Added advisory committee announcements to DEQ's calendar of public meetings at DEQ Calendar.

Committee discussions

The ATSAC was convened specifically to perform comprehensive review of relevant information from recognized authoritative bodies and the scientific literature in order to recommend to DEQ ambient benchmark concentrations protective of human health for a large list of air toxics. The current iteration of the ATSAC spent 12 three-hour meetings discussing toxicity information for 32 of the 52 standing benchmarks, and identifying benchmarks for three new chemicals. In addition, individual ATSAC members conducted their own individual reviews of assigned materials and prepared summaries to the present to the committee during meeting times. Minutes for all ATSAC meetings can be accessed at http://www.oregon.gov/deq/aq/air-toxics/Pages/ATSAC-Meetings.aspx .

EQC prior involvement

DEQ shares general rulemaking information with EQC through the monthly Director's Report.

DEQ shared information about this rulemaking with the EQC through the Director's Report as an informational item on the November 7, 2014 EQC agenda. At this time, Director Pederson informed the EQC of the seven appointees to the ATSAC, with two recommended alternates.

During the April 15, 2015 EQC meeting, Director Pederson informed the EQC through a Director's Report presented as an informational item that a new committee member, Dr. David Stone, would replace a departing committee member, Dr. Kim Anderson.

Public Hearings

Public hearings

DEQ held one (1) public hearing. DEQ received two (2) comments at the hearing. Later sections of this document include a summary of the comments received during the open public comment period, DEQ's responses, and a list of the commenters. Original comments are on file with DEQ.

Presiding Officers' Record

Hearing 1

Date: Thursday, July 17, 2017
Place: Conference Room A, Third Floor, 700 NE Multnomah Street, Portland, Oregon 97232.
Start Time: 9:30 a.m.
Ending Time: 10:15 a.m.
Presiding Officer: Sarah Armitage

The presiding officer convened the hearing, summarized procedures for the hearing, and explained that DEQ was recording the hearing. The presiding officer asked people who wanted to present verbal comments to sign the registration list, or if attending by phone, to indicate their intent to present comments. The presiding officer advised all attending parties interested in receiving future information about the rulemaking to sign up for GovDelivery email notices.

As Oregon Administrative Rule 137-001-0030 requires, the presiding officer summarized the content of the rulemaking notice.

Thirteen (13) people attended the hearing, seven (7) in person and nine (9) by teleconference or webinar. Only five (5) of the seven in-person attendees signed the Attendance Sheet. Two (2) people commented orally; no written comments were submitted at the hearing. In the two cases of oral comments recorded during the hearing, the same commenters later submitted written versions of their oral comments during the comment period.

Public comment period

DEQ accepted public comment on the proposed rulemaking from July 14, 2017 until 4:00 p.m. on Oct. 2, 2017.

Based on an external request received on July 28, 2017, the DEQ convened a Fiscal Advisory Committee to review the proposed Fiscal Impact Statement (FIS). Because some changes were then made to the FIS, the rulemaking comment period was re-opened on Jan. 19, 2018 and closed at 4:00 p.m. on Feb. 8, 2018.

Commenters

For public comments received by the close of the public comment period, the following table list the commenters, with cross references to the comment number. DEQ's response follows each comment. Original comments are on file with DEQ.

DEQ did not change the proposed rules in response to comments.

List of Commenters and Related Comments			
Name	**Organization**	**Comments on:**	**Comment Number**
Vickie Tatum	National Council for Air and Stream Improvement, Inc. (NCASI)	Formaldehyde	8
Kimberly White	American Chemistry Council	Formaldehyde	14, 15
Stewart E. Holm	American Forest & Paper Association, American Wood Council, Oregon Forest & Industries Council, Northwest Pulp & Paper Association, Composite Panel Association, Oregon Business & Industry	Acrolein Formaldehyde	1 (For Acrolein) 10, 11, 12 (for Formaldehyde)
Lisa Bailey, Gradient	American Forest & Paper Association, American Wood Council (and their consultant, Gradient)	Hexavalent chromium	17
Ellen Porter	Roseburg, A Forest Products Company	Formaldehyde	9
Russell Strader	Boise Cascade Company	Formaldehyde	13
Ralph J. Parod	American Chemistry Council's Diisocyanates Panel	2,4-, 2,6-Toluene diisocynates	37
Sahar Osman-Sypher	American Chemistry Council's Diisocyanates Panel	2,4-, 2,6-Toluene diisocynates	38
Robert Luedeka	Polyurethane Foam Association	2,4-, 2,6-Toluene diisocynates	39
Steve Risotto	American Chemistry Council	Chlorine	3

Neeraja K. Erraguntla	American Chemistry Council	1,3-Butadiene; asked for comment period extension for Xylenes	2 40
Bill Gulledge	Ethylene Oxide Panel, American Chemistry Council	Ethylene oxide	4
Jake Vandevort	The Ethylene Oxide Sterilization Association, Inc. (EOSA)	Ethylene oxide	5, 6
Zach Emerson	NCASI	Comment on Cleaner Air Oregon; not responded to under ATBR rulemaking	Not relevant to ATBR rulemaking
David J. Harvey	Gunderson	Comments on inconsistencies with EPA rulemaking on hazardous air pollutants/air toxics for a number of chemicals with ABCs. Did not appear to be applicable to ATBR rulemaking.	50
Michael D. Taylor	Nickel Producers Environmental Research Association (NiPERA)	Nickel soluble compounds, Nickel insoluble compounds	26, 27, 28, 29 30
Chris Myers	PCC Structurals, Inc. (and their consultant, ToxStrategies, Inc.)	Nickel insoluble compounds and Nickel metal; Fluoride anion; Hexavalent chromium	20, 21, 22, 23, 24, 25 (for Nickel) 7 (for Fluoride anion) 16 (for Hexavalent chromium)
Tom Woods	Stoel Rives LLP (and their consultant, Gradient). In addition, copies of comments from many of the above commenters were included in the letter packet.	Acrolein, 1,3-Butadiene, Chlorine, Ethylene oxide, Fluoride anion, Formaldehyde, Hexavalent chromium, Insoluble nickel	31, 32, 33 (for Nickel) 41, 42, 43, 44, 45, 46, 47, 48 (for other chemicals)

		compounds, Soluble nickel compounds, Trichloroethylene, Phosgene, Styrene, Toluene diisocyanate, Xylenes	
Tom Woods	Stoel Rives LLP	Need for ATBR and Cleaner Air Oregon rulemakings to be combined	51
Jack Snyder	Styrene Information & Research Center (SIRC)	Styrene	34, 35
Joseph J. Green	Manganese Interest Group (MIG)	Manganese	18, 19
Kirk Hanawalt	Entek International, Inc.	Trichloroethylene	36
Lori Olund	Miles Fiberglass & Composites	Some chemicals used in production do not have replacement chemicals.	49

Summary of comments and DEQ responses

Comments received by close of public comment period

Comments on the Air Toxics Benchmark Review (ATBR) rulemaking, which proposes revisions to 23 Ambient Benchmark Concentrations (ABCs) and addition of three new ABCs for n-propyl bromide, phosgene, and styrene, are presented below along with DEQ responses. DEQ identified specific comments submitted by each commenter to include in its response to comments. Those comments are the ones the agency believes were most scientifically important and the most representative of the totality of comments on the various topics.

ACROLEIN

Comment 1
Commenter supports proposed increase in the ABC for acrolein.

DEQ Response
DEQ agrees with the commenters' support for the increase in the proposed acrolein ABC.

1,3-BUTADIENE

Comment 2
"Oregon DEQ should evaluate the 2008 TCEQ assessment and base the ABC value on the more up-to-date and thorough assessment by TCEQ, not the out-of-date 2002 EPA assessment."

DEQ Response
The 2014-2017 ATSAC chose not to review the ABC for this chemical, and so 1,3-butadiene is not part of the current ATBR rulemaking. The DEQ and the ATSAC reviewed toxicological information which was available from specified authoritative bodies in 2015-2017 for all 52 of the existing ABCs, and determined that because no new information had been published by these authoritative bodies for 1,3-butadiene, the ATSAC would not have to review/reconsider the existing ABC for 1,3-butadiene.

In addition, the specified list of authoritative bodies that the ATSAC has been directed by the DEQ to depend on in regard their ABC recommendations does not include the Texas Commission on Environmental Quality.

CHLORINE

Comment 3

"The proposed ABC is based on effects of questionable clinical significance. Commenter discusses the Klonne et al 1987 study of Rhesus monkeys as a good basis, but disagree with conclusion that the LOAEL is represented by 0.1 ppm related to nasal lesions. CCD says that the study authors say that the effects seen at the lower concentrations are of "questionable clinical significance". The authors' conclusion suggests that 0.5 ppm should be considered a no-observed-adverse-effect level (NOAEL). This interpretation is consistent with the conclusions of the European Union.

The proposed ABC is inconsistent with the value for hydrogen chloride. ABC for HCl is 20 ug/m^3. "Since the mechanism by which chlorine forms lesions in the respiratory tract is through the reaction with moisture to form hydrogen chloride, it is not clear why the value for chlorine would be set three orders of magnitude lower than for hydrogen chloride. The CCD want DEQ to use the same benchmark dose (BMD) approach used by ATSDR on the data from Klonne et al. 1987."

DEQ Response
ATSDR is one of the recognized authoritative bodies that DEQ and the ATSAC use in choosing appropriate toxicity values for use as ABCs. In their 2010 Toxicological Profile, Appendix A, Minimal Risk Level (MRL) Worksheet for chronic inhalation, ATSDR discusses their evaluation of the 1987 Klonne et al. study, and clearly states that the exposure concentration of 0.1 ppm is considered a lowest-observed-adverse-effect level (LOAEL) for nasal lesions in monkeys.

The Air Toxics Science Advisory Committee (ATSAC) is a volunteer body of experts who contribute their time and expertise to the committee. The range of expertise on the committee is stipulated in the enabling State legislation. The ATSAC's charter, which the DEQ drafted and the ATSAC approved unanimously on Jan. 21, 2015, prompts the ATSAC not to conduct their own primary review, such as attempting to consider the entire universe of toxicology studies and papers for a particular chemical before selecting an ABC, or to calculate their own inhalation unit risk estimate (URE). Similarly, the DEQ is a state agency with limited resources and staff, and therefore cannot conduct comprehensive reviews of all available evidence for a particular chemical, nor develop their own URE. Nor can DEQ simply accept toxicological information provided by commenters, because it may or may not contain all relevant information or be fully representative of the state of the science. That is why the ATSAC and DEQ obtain UREs from an identified list of acceptable, recognized authoritative bodies that are sufficiently resourced to conduct comprehensive reviews of available scientific information.

ETHYLENE OXIDE

Comment 4
"ACC says that the EPA IRIS assessment is scientifically flawed, because the assessment did not consider concentrations of ethylene oxide in ambient air or endogenous levels, which are orders of magnitude lower than the IRIS value (upon which the proposed ABC is based). Also, EPA used a supralinear spline model, which shouldn't be applied to a chemical that is a high-exposure mutagen. Carcinogenicity studies in rodents do not support

human relevance. International authoritative bodies (IARC, European Commission, SCOEL) do not support EPA's IRIS Assessment. The ACC Ethylene Oxide Panel thus recommends a 10^{-6} (1 in 1 million) risk-protective concentration of 1 ppb (1.8 ug/m^3 when converted) as the basis for regulatory decisions."

Comment 5
"EOSA also argues that the EPA IRIS assessment is flawed. NIOSH study in the IRIS assessment is based on inadequate body of evidence from human studies that includes historical exposure levels to ethylene oxide that are significantly higher than current exposure limit (in other words, the limits became stricter over time as more information became available about ethylene oxide toxicity). 'The limitations contained within the NIOSH study largely invalidate the decision to rely solely on it and EPA failed to justify the exclusion of the industry cohort study.'"

DEQ Response
The DEQ understands that the American Chemistry Council and EOSA view the IRIS value for ethylene oxide, which the ATSAC chose as an ABC for ethylene oxide, as flawed. However, the ATSAC is a volunteer body of experts who contribute their time and expertise to the committee. The range of expertise on the committee is stipulated in the enabling State legislation. The ATSAC's charter, which the DEQ drafted and the ATSAC approved unanimously on Jan. 21, 2015, prompts the ATSAC not to conduct their own primary review, such as attempting to consider the entire universe of toxicology studies and papers for a particular chemical before selecting an ABC, or to calculate their own inhalation unit risk estimate (URE). Similarly, the DEQ is a state agency with limited resources and staff, and therefore cannot conduct comprehensive reviews of all available evidence for a particular chemical, nor develop their own URE. Nor can DEQ simply accept toxicological information provided by commenters, because it may or may not contain all relevant information or be fully representative of the state of the science. That is why the ATSAC and DEQ obtain UREs from an identified list of acceptable, recognized authoritative bodies that are sufficiently resourced to conduct comprehensive reviews of available scientific information.

Comment 6
The commenter states that the ethylene chloride sterilization industry closely monitors and is committed to worker safety. Workplace safety and practices continuously improve as EO sterilization equipment and processes advance with the introduction of superior technology. In addition, sterilization processes are designed for worker safety, and have been approved by the U.S. Food and Drug Administration (FDA) for use in the healthcare industry.

DEQ Response
ABCs are used to evaluate health risk to the general population throughout Oregon that may be exposed to emissions from sources to outdoor air. Occupational worker exposure parameters are very different than those of the general population, as is demonstrated by the ongoing differences between protective levels used as OSHA standards versus those used in EPA human health risk assessments. We understand that EOSA feels that the recommended ABC for ethylene oxide is overly protective in regard to worker safety, but the DEQ

believes that the proposed ABC is appropriately protective for all human receptors in the state of Oregon when exposed to concentrations in outdoor air.

FLUORIDE ANION

Comment 7
The commenter states that DEQ does not provide a singular basis for the proposed value of 13 ug/m^3, despite the fact that the source of the current value for hydrogen fluoride also includes the proposed value for fluoride anion. Commenter says that DEQ makes several relatively vague, unreferenced statements in support of their proposal. For example, the DEQ states that "There are multiple protective values available for fluoride. All different sources coalesce on the same value of 13 micrograms per cubic meter (ug/m^3) or 14 ug/m^3. Most regulatory agencies recognize a value around 13 ug/m^3 for protection of human health." DEQ did not specify that Washington State has adopted a value of 14 ug/m^3 for fluoride, but fails to note that Washington simply adopted the OEHHA value. More importantly, DEQ does not explain why they dismissed a chronic effects screening level of 27 ug/m^3 developed by the Texas Commission on Environmental Quality (TCEQ). The TCEQ value is based on a preferred and well-accepted method of dose-response modeling (benchmark dose modeling) using the EPA model (TCEQ, 2015)."

DEQ Response
We agree the wording of our previous statement may have been confusing. Below we provide a clarification:

During the October 2015 ATSAC where hydrogen fluoride and fluorides in general were discussed, a summary of available toxicological values available was presented to the ATSAC and to attending members of the public. The summary table included technical sources of toxicity values for both fluorides (fluoride ion) and hydrogen fluoride. Specifically, a hydrogen fluoride toxicological value of 14 ug/m^3 was published by California OEHHA in 2003, by USEPA in the 2015 Regional Screening Levels table, and by the EPA Office of Air Quality Planning and Standards in 2014. The fluoride-ion-based value of 13 ug/m^3 was published by the same three sources that provided the value for hydrogen fluoride, above. Because the fluoride ion is considered to be the source of toxicity for any fluoride compound, the ATSAC agreed that the value of 13 ug/m^3 was appropriate for recommendation as an ABC.

The Texas Commission on Environmental Quality is not included in the list of authoritative bodies used by the ATSAC for their reviews of ABCs. The ATSAC and DEQ utilize toxicity values already available from recognized authoritative bodies, including USEPA's Integrated Risk Information System (IRIS); USEPA's Provisional Peer-Reviewed Toxicity Values (PPRTVs); the International Agency for Research on Cancer (IARC), which is part of the World Health Organization; the California Office of Environmental Health Hazard Assessment (OEHHA); the Agency for Toxic Substances and Disease Registry (ATSDR), and USEPA's Office of Air Quality Planning and Standards (OAQPS).
Also, please refer to our response for Comment 3, above.

FORMALDEHYDE

Comment 8
"NCASI argues that the proposed ABC for formaldehyde is not based on the best and most-current science, cites the use of a biologically based dose-response (BBDR) model used by that National Academy of Sciences (NAS), and identifies the cancer threshold approach discussed in WHO 2010 as the appropriate one to use in choosing the ABC. They also state that the September 2015 ATSAC meeting minutes indicate that discussion centered on various older regulatory findings and air quality standards and did not consider more recent research or regulatory findings. NCASI wants the DEQ to rescind the proposed formaldehyde ABC, and re-convene the ATSAC to conduct a thorough review of the available formaldehyde science."

DEQ Response
The 2010 WHO document refers to an indoor air quality guideline of 100 ug/m^3 that is based on the assumption that formaldehyde cancer effects occur via a threshold response, rather than a linear dose-response. Within the scientific community, there remains considerable controversy in the evaluation of cancer risks posed to human populations, including the mode of action of carcinogenic effects. Goodson et al, 2015, for example, provides evidence that out of studies performed on 85 chemicals, 50 (59%) exerted low-dose effects, while only 13 (15%) were found to have a dose-response threshold, and the remaining 22 (26%) had no dose-response information.

Thus, the ATSAC chose to continue to use toxicity values based on a linear, no-threshold approach, and the Committee defends its conservative decision-making as being consistent with the directive of the State statute and with its need to rely on the use of trusted authoritative U.S. agencies, which make decisions based on the context of population exposure and risk similar to those faced by people in Oregon. While the WHO approach to indoor air quality guidelines does represent an emerging approach for evaluating risk, this approach has not yet been adopted by IRIS or California OEHHA. In future reviews of benchmark values, a decision-making approach can be devised that could include the possible use of non-linear approaches to the analysis of cancer risk to populations.

DEQ recommends redirection of your comment to the US EPA and California OEHHA, which currently utilize a more mainstream approach in their calculation of toxicity values, and who have sufficient resources to evaluate new approaches to population risk assessment and the development of Inhalation Unit Risk estimates (IURs).
Also, please refer to our response for Comment 5, above.

Comment 9
"The commenter believes that reducing the allowable formaldehyde ambient benchmark concentration is not supported by the science and is unwarranted, and states that they agree with comments made American Wood Council (AWC), American Forest and Paper Association (AF&PA), and the ACC's Formaldehyde Panel."

DEQ Response

We acknowledge this comment. Please see our responses to Comments 8, 10, 11, 12, 14, 15.

Comment 10
"Further, the proposed value was calculated using an unduly conservative methodology that is inconsistent with how EPA calculates its Regional Screening Values and how DEQ calculates its Residential Screening Values." [A very similar comment is repeated later in the comment letter under its own section, titled "DEQ Uses Unduly Conservative Exposure Assumptions for Calculating ABCs."

DEQ Response
The assumptions behind USEPA's RSLs take specific exposure scenarios into account. An ABC, or Ambient Benchmark, on the other hand, refers to the protective concentration of an air toxic in outdoor air that would result in an excess lifetime cancer risk level of one in one million (1×10^{-6}) or a non-cancer hazard quotient of one.

Ambient benchmark concentrations are in units of micrograms of air toxic per cubic meter of ambient air, on an average annual basis (OAR 340-246-0090 [3]) for use in Oregon. ABCs are compared to monitored or modeled concentrations of pollutants in air on an annual average basis. In addition, DEQ makes the assumption that any one person could live in a single location his/her entire life, or could live in multiple locations over a lifetime and be exposed to a pollutant from the same or different sources over a lifetime; this assumption is consistent with the approach used by USEPA, for example, in their National Air Toxics Assessment program. This approach does not include the use of only 26 years out of a 70-year lifetime as a reasonable maximum exposure duration, nor does it include an exposure frequency of 350 out of 365 days per year. The ATSAC has stated more than once that if an ABC were to be used in a risk assessment, then that is the place for specific exposure scenario assumptions to be taken into account.

Comment 11
"Formaldehyde emissions from stationary sources are a small percent (<2%) of total formaldehyde emissions according to the USEPA's latest National Air Toxics Assessment (NATA). Air emissions have been declining from stationary sources as exemplified by a 57% reduction in emissions for AWC wood product member mills between 2006 and 2014."

DEQ Response
DEQ directs the ATSAC to identify a protective value for formaldehyde, apart from consideration of decreases in formaldehyde emissions. Thus, if there is a chance that any amount of formaldehyde will be emitted, then an ABC is necessary.

Comment 12
"The ATSAC inappropriately states that "Cancer is induced at levels much lower than levels at which non-cancer effects occur, such as irritation of the mucous membranes and inflammation of the respiratory tract." These non-cancer effects of formaldehyde are actually observed at lower concentrations than tumor formation, which, if prevented, would prevent cancer formation. Thus, the basis for the ATSAC's recommendation is incorrect.

Commenter opposes DEQ's proposed ABC for formaldehyde of 0.2 ug/m^3 (down from 3 ug/m^3), and says that DEQ is relying on decades-old information and ignores World Health Organization (WHO) and National Academy of Science (NAS) information. Commenter points out that NAS criticized EPA's methods in deriving a protective level for formaldehyde.

The existing formaldehyde ABC of 3 ug/m^3 is already protective enough."

DEQ Response
Please refer to our response to Comment 8, above.

Comment 13
The commenter refers to the Coalition's comments on Formaldehyde. They say the existing ABC for Formaldehyde of 3 ug/m^3 should be retained.

DEQ Response
DEQ acknowledges your statements, and suggests that you refer to our responses to Comments 8, 10, 11, 12, 14, 15.

Comment 14
The ATSAC recommendations documented in the September 2015 ATSAC meeting minutes note that "Formaldehyde previously had been estimated to have a high risk of cancer, based on information from EPA's National Air Toxics Assessment (NATA) program; and based on the newer pre-public review of the 2011 data, formaldehyde will still have one of the highest cancer risks estimated." Commenter states that not only does NATA use an outdated (1991) IRIS value, but it also relied primarily on biogenic releases of formaldehyde from plants and trees when modeling formaldehyde levels. Despite warnings on EPA's website that NATA's estimates of risk are likely to overestimate impacts, DEQ has relied on NATA's estimate of formaldehyde emissions, most of which come from natural sources. Also the 1991 IRIS value, which NATA employs for formaldehyde, is based on a linear no-threshold approach and does not incorporate newer science that illustrates a threshold for formaldehyde exposures.

DEQ Response
The September 2015 ATSAC meeting minutes reflect a piece of information regarding NATA data provided by one of the ATSAC members, Max Hueftle. The ATSAC considered this piece of information within the much larger discussion of formaldehyde toxicology and epidemiology, and so the NATA information was not the deciding factor in proposing a new ABC for formaldehyde.

Based on 2011 National Emissions Inventory data available for air toxics emitted in Oregon at that time, formaldehyde had the third-highest emission rate, at approximately 39 tons/year, within a list of approximately 200 chemicals.

Comment 15

“The proposed ABC value for formaldehyde does not represent the best available science and sets an ABC that is out of step with current knowledge on formaldehyde risk and exposures. The 1992 OEHHA value relies on a default assumption that no threshold exists for effects from formaldehyde exposure, this assumption is not supported by recent scientific knowledge. By using an outdated OEHHA value as the basis for the ABC, the DEQ ignores 25 years of scientific knowledge regarding exposures from naturally occurring formaldehyde and discounts available data that indicate *de minimis* potential for carcinogenicity at environmental exposure levels.

Commenter provides details on the natural and endogenous levels of formaldehyde present in ambient air, in certain fruits eaten by people, and in human breath and human systems, and argues that the proposed ABC for formaldehyde is lower than these natural/endogenous levels.

Commenter states that “The World Health Organization (WHO, 2010) also has conducted an evaluation of potential non-cancer and cancer effects and established air quality guidelines for short-term and long-term formaldehyde exposures of 100 ug/m^3. The proposed ABC is orders of magnitude below this level and it remains unclear what public health benefit setting this ABC will provide. Notably, a 2016 re-evaluation of the WHO value by Nielsen et al. [*2016, Re-evaluation of the WHO (2010) formaldehyde indoor air quality guideline for cancer risk assessment. Archives of Toxicology, 91(1):35-61*] found that the guideline value was still scientifically valid, that it remained health protective, and that the new data did not indicate a need to revise the value.”

The commenters then advise DEQ to (1) rescind the proposed formaldehyde ABC, (2) re-convene the ATSAC to conduct a thorough review of the available formaldehyde science, including the most recently published literature, (3) ensure adequate expertise is available on the ATSAC to effectively evaluate the toxicology and epidemiology data for derivation of a formaldehyde ABC, (4) revise the ABC to incorporate the current state of the science and set a threshold-based ABC which utilizes the biologically-based dose-response (BBDR) model, and (5) make all the underlying information used to set the ABC available, including specific references and publications relied upon.”

DEQ Response
Please refer to our responses for Comments 3 and 8, above.

HEXAVALENT CHROMIUM

Comment 16
The commenters argue that the IRIS study, upon which the ABC for hexavalent chromium is based, is flawed; and that the Inhalation Unit Risk values calculated by the Texas Commission on Environmental Quality should be used instead, because the values are based on “far-superior epidemiological data and more refined modeling approaches than the IUR developed by EPA.”

DEQ Response

Please refer to our response to Comment 3, above.
In addition, the Texas Commission on Environmental Quality is not included in the list of authoritative bodies used by the ATSAC for their reviews of ABCs.
Since some of the comments from AFPA and AWC are specific to the Cleaner Air Oregon rulemaking process, DEQ will not address those comments here (as part of the ABC rulemaking).

Comment 17
The commenters urge DEQ to consider information available from more-recent studies on the inhalation toxicity of hexavalent chromium, and revise the recommended ABCs accordingly.

DEQ Response
Please refer to our response to Comment 3, above.

MANGANESE

Since most of the comments from MIG are specific to the Cleaner Air Oregon rulemaking process, DEQ will not address those comments in this current response document.

Comment 18
"The proposed Toxicity Reference Values (TRVs) and Risk-Based Concentrations (RBCs) fail to reflect application of the latest science. The 2008 CalEPA value that DEQ selected (via the ATSAC) is outdated, and DEQ should use the 2012 ATSDR MRL instead. The commenter says that TCEQ (August 2017) built upon the ATSDR info in concert with applying the most up-to-date science."

DEQ Response
Although the 2012 ATSDR MRL was one of the toxicity values considered as an ABC for manganese, the ATSAC decided that the 2008 OEHHA REL for manganese should be retained, based primarily on concerns about children's higher vulnerability to exposure to manganese through the inhalation pathway. The commenter states that ATSDR [raised their 2000 MRL value from 0.04 ug/m^3 to the currently recommended REL of 0.3 ug/m^3] "by removing an uncertainty factor of 5 that was previously applied for 'potentially increased susceptibility in children based on differential kinetics in the young', and that "ATSDR determined that the….Mn PBPK model for fetuses, suckling neonates, and 3-year-old children demonstrated that the additional uncertainty factor was not necessary' ".

The ATSAC chair stated that studies conducted by Roels et al. (which includes the 1992 study referred to by both OEHHA and ATSDR concerning manganese) provide very limited information, but is the best information available. Because the information is limited, application of uncertainty factors [as was done by OEHHA to obtain the chronic REL of 0.09 ug/m3) is warranted. In addition, note that Section 6.6 of OEHHA's 2008 Appendix D2 of the Technical Support Document for Noncancer RELs goes into comprehensive detail on the types of effects manganese exposure has on infants and children. Based on everything

considered by the ATSAC, their decision was to retain the 2008 OEHHA REL of 0.09 ug/m3 as the ABC for Manganese compounds.

Comment 19
The commenter emphasizes that the risk thresholds established by ATSDR, EPA, and CalEPA are based on manganese concentrations in the respirable particle size (particles of 5 microns or less, "PM_5"), which represents the biologically relevant fraction of total particulates. Commenter then quotes ATSDR:

"Many of the studies, especially those dealing with occupational exposures, make the distinction between respirable and total manganese dust. Respirable dust is usually defined by a particular dust particle size that varies from study to study. It is typically defined as those particles < or = to 5 microns; these smaller dust particles can enter the lower areas of the lungs, including the bronchioles and the alveoli. These particles can be absorbed by the lung and will enter the bloodstream immediately, thus avoiding clearance by the liver. Total dust represents larger particles that cannot travel as deeply into the lungs as respirable dust, and will largely be coughed up and swallowed."

Reliance on total dust concentrations overstates significantly the potential risks associated with inhalation of manganese in respirable dust. For risk assessment purposes, evaluation of the potential risks associated with manganese inhalation should compare the chosen risk value (i.e., the ATSDR MRL) to PM_5- manganese air concentrations. Absent PM_5 data, an adjustment should be made to the manganese risk value that reflects the application to total particulate or PM_{10}- manganese air concentrations. The appropriate PM_5 adjustment factor should be determined on a case-by-case basis using particle size reference values from industry/source-specific published documents or from actual source emission testing with particle size distribution information.

DEQ Response
We recognize that larger particulates, such as those that are present in total dust, are not drawn as deeply into the lungs as are the smaller-diameter particles present in respirable dust. However, basing the recommended ABC for manganese on total dust concentrations, rather than on the potentially smaller-diameter particles present in respirable dust, is conservatively and appropriately protective of human receptors present in Oregon statewide, and in the absence of specific information about the form in which manganese may reach and be inhaled by residents, children, and sensitive populations. DEQ agrees that within the context of a comprehensive risk assessment, the form of manganese that actually causes potential health risks to a specific type of human receptor could be and should be taken into account.

NICKEL

Comment 20
"The commenter states that the proposed revised ABCs for soluble nickel and insoluble nickel should take into account the current toxicological data and should not be adopted as proposed. In addition, the ABCs should distinguish between insoluble nickel, nickel metal

and nickel present in alloys". Commenter then recommends use of a value of 0.09 ug/m^3 as an ABC for nickel metal."

DEQ Response
Please refer to our response to Comment 3, above.

After reviewing nickel toxicity information available from the listed authoritative bodies, the ATSAC recommended ABCs for both insoluble and soluble nickel compounds based on OEHHA's Consolidated Table of OEHHA/ARB Approved Risk Assessment Health Values. The cancer-based ABC for insoluble nickel compounds is based on an inhalation unit risk value published by OEHHA in 1991; the ABC for noncancer-based soluble nickel compounds is the noncancer chronic inhalation value published by OEHHA in 2012.

The details of the cancer-based OEHHA inhalation unit risk value are presented in the State of California Air Resources Board "Initial Statement of Reasons for Rulemaking: Proposed Identification of Nickel as a Toxic Air Contaminant" Staff Report dated June 1991. The Staff Report clearly states that metallic nickel is included under the category of nickel and nickel compounds, with a related inhalation unit risk value of 2.6 x 10^{-4} per ug /m^3. When this value is used to generate an ABC that is protective to a 1-in-1-million excess cancer risk, the resulting ABC is 0.0038 ug/m^3, or 0.004 ug/m^3 when rounded up.

In a discussion on Jan. 26, 2018 with a senior toxicologist with OEHHA, he stated that OEHHA believes that its inhalation unit risk value is still sufficiently protective of human health, and does not believe that a new comprehensive evaluation of nickel information is currently warranted. The Staff Report calls out the IARC's classification of nickel compounds as "causally associated with cancer in humans", and stated that all nickel compounds should be considered potentially carcinogenic to humans by inhalation. The Staff Report also asserted that there is "an association between respiratory cancer mortality and nickel exposure." The California Department of Health Services staff found this association to be consistent, reliable, of substantial magnitude, and having a clear dose-response relationship with high statistical significance. DHS staff further concluded that based on available genotoxicity data, carcinogenicity data and physicochemical properties of nickel compounds, all nickel compounds should be considered potentially carcinogenic to humans by inhalation and total nickel should be considered when evaluating the risk by inhalation.

IARC (1990) and the International Committee on Nickel Carcinogenesis in Man (ICNCM, 1990) indicated that the epidemiological evidence points to insoluble and soluble nickel compounds as contributing to the cancers seen in occupationally exposed persons. Currently, the IARC Monograph on Nickel and nickel compounds updated in 2017 concludes that in view of the overall findings in animals, there is sufficient evidence in experimental animals for the carcinogenicity of nickel compounds and nickel metals. In addition, the National Toxicology Program's 14th Report on Carcinogens (2016) states that: "Nickel and Certain Nickel Compounds were listed in the First Annual Report on Carcinogens (1980) as reasonably anticipated to be human carcinogens. Nickel compounds as a class were first listed as known to be human carcinogens in the Tenth Report on

Carcinogens (2002); this listing supersedes the listing of "certain nickel compounds" and applies to all members of the class. Metallic nickel was reevaluated in 2000 and remains listed as reasonably anticipated to be a human carcinogen."

Currently, IRIS lists the inhalation unit risk for nickel refinery dust, assumed to contain nickel subsulfide, nickel oxide, and metallic nickel, of 2.4 x 10^{-4} per ug/m^3 (last revised by IRIS in 1987). This inhalation unit risk value nearly matches the inhalation unit risk value published by OEHHA: thus, IRIS and OEHHA are in agreement about the inhalation risk unit.

Thus, although additional toxicity information on various forms of nickel has become available in the last 10 to 15 years (Oller et al., 2008, 2009, 2014; Goodman et al., 2011; Sivulka, 2005; Buekers et al. 2015; Haney et al., 2012 to name a few) outside of the authoritative bodies listed above, DEQ cannot assume without conducting its own comprehensive review of nickel toxicity information that the references used by the commenter provide an inclusive, balanced grouping of all scientific studies available for nickel and nickel compounds.

Comment 21
Commenter recommends use of alternative ABCs of 0.017 ug/m^3 for nickel insoluble compounds based on TCEQ 2011, and of 0.093 ug/m^3 for nickel metal based on Oller et al. 2008.

DEQ Response
The Texas Environmental Quality Commission, or TCEQ, is not one of the authoritative bodies that the ATSAC has relied upon to obtain toxicity values that form the basis of the ABCs. A policy-based decision was made by the ATSAC and DEQ to utilize a certain group of national toxicity databases to obtain numeric toxicity values, including the recognized authoritative bodies listed above. In addition, California's Office of Health Hazard Environmental Assessment published toxicity values that are nationally recognized, and in some cases used by USEPA, as with many of the USEPA Regional Screening Levels. Other authoritative bodies that provide related toxicity information, such as the World Health Organization and the International Agency for Research on Cancer, are also used by the ATSAC; but since these entities provide only qualitative toxicity information that does not typically include numerical estimates, ABC values are not drawn from these entities. The ATSAC and the DEQ determined that the authoritative bodies they have chosen to depend on provide toxicity values that have been carefully reviewed by well-funded, expertly staffed organizations that have the time and resources to fully evaluate the entire scientific body of work on a particular chemical.

In addition, papers like Oller et al. 2008 are recognized as containing important information on studies related to nickel toxicity; but it, and the other papers mentioned by commenters, cannot automatically be assumed to include all such papers that are relevant. In addition, different experts tend to interpret the same study results in different ways, which is another area of uncertainty that must be taken into account when trying to weigh multiple scientific opinions.

Comment 22
"ODEQ ABCs should align with EPA methodology. EPA RSLs incorporate residential exposure assumptions that include 26 years out of a 70-year lifetime and 350 days out of 365 days per year. Thus, ODEQ should incorporate less-than-lifetime assumptions for exposure frequency and exposure duration, such as those used by EPA, into the derivation of ABCs, so as not to grossly underestimate nor grossly overestimate risk, as stated in OAR 340-246-0090(2)(d)."

DEQ Response
ABCs are calculated differently and used for different purposes than are EPA RSLs. Therefore, DEQ does not agree that being inconsistent with EPA RSL exposure assumptions results in ABCs that grossly underestimate or overestimate risk. The assumptions behind USEPA's RSLs take specific exposure scenarios into account. ABCs, on the other hand, refer to the protective concentration of an air toxic in outdoor air that would result in an excess lifetime cancer risk level of one in a million (1×10^{-6}) or a non-cancer hazard quotient of one for the general population throughout the state of Oregon, on an annual basis.

In addition, DEQ assumes that any one person in Oregon could live in a single location his/her entire life, or could live in multiple locations over a lifetime and be exposed to a pollutant from the same or different sources over a lifetime. These same assumptions are consistent with the approach used by USEPA, for example, in their National Air Toxics Assessment program. These ABC exposure assumptions are not the same as the more-specific exposure assumptions used to derive EPA RSLs. The ATSAC advises that if an ABC were to be used in a risk assessment, then that is the place for specific exposure scenario assumptions to be taken into account.

Comment 23
"Nickel metal and nickel oxide should not be treated the same as nickel subsulfide and nickel sulfide. The ODEQ insoluble nickel ABC for nickel subsulfide should not be applied to assess the potential inhalation hazard posed by nickel oxide, nickel metal, or nickel in an alloy form, because doing so substantially exaggerates the potential risk."

DEQ Response
The ABCs for nickel compounds were based on values available from OEHHA. In a telephone conversation on January 26, 2018 with a senior toxicologist with California's OEHHA program, he did not agree that grouping nickel oxide and nickel metal with nickel subsulfide substantially exaggerates the potential risk associated with nickel oxide and nickel metal. As explained in more detail above, the ATSAC and DEQ depend on values available from widely recognized authoritative bodies, including OEHHA.

Comment 24
The proposed ABC for insoluble nickel compounds of 0.004 ug/m^3 is based on an inhalation unit risk value derived by OEHHA (2011) for nickel subsulfide. This form of nickel is primarily associated with nickel mining and smelting and is unlikely to be the form of nickel

released from most, if not all, Oregon facilities. This same issue was recognized by the Texas Commission on Environmental Quality (TCEQ) when they derived an inhalation unit risk for nickel and inorganic nickel compounds (TCEQ, 2017), and where they explicitly excluded studies of cohorts exposed to high levels of sulfidic nickel, including the cohort relied upon by OEHHA for its cancer potency estimate, which is also the same value used by DEQ.

DEQ Response
In reviewing the TCEQ information in preparation for responding to this comment, it does not appear to DEQ that TCEQ's work negates the work conducted by the OEHHA in 2011. Again, as stated previously, the TCEQ is not one of the authoritative bodies used by the ATSAC and DEQ in their consideration of relevant toxicity information and subsequent choice of ABCs. In addition, please see our response to Comment 20, above.

Comment 25
"It is important to recognize that OEHHA specifically exempts nickel in the form of alloys from regulation under Proposition 65."

DEQ Response
The primary focus of Proposition 65 is to prevent releases of listed chemicals (including nickel and nickel compounds) to drinking water sources; under Proposition 65, nickel alloys have been excluded from the related list. As described above, however, OEHHA's toxicity values for nickel compounds do include nickel metal, and do not call out an exclusion of nickel alloys.

Comment 26
"The DEQ should refine its listings of compounds included in the "soluble" and "insoluble' categories to better reflect the water solubility of the chemicals."

DEQ Response
DEQ has determined that the ATSAC decision varying solubilities and cancer potencies of specific nickel compounds is sufficient to support the proposed benchmarks for soluble and insoluble nickel compounds.

Comment 27
"The DEQ should consider removing nickel metal from the ABC listings altogether, since it is not likely to be found in ambient air. If nickel metal remains in the ABC listings, it should be excluded from any benchmark category that is based on a cancer URE, because metallic nickel has not been shown to increase respiratory cancer risks in epidemiological studies and was not found to be an inhalation carcinogen in rat studies."

DEQ Response
The ATSAC pointed out in their March 2015 meeting that the Hanna Mine on Nickel Mountain near Riddle, Oregon was Oregon's only nickel and mine smelter and closed in 1980; but the smelter seemed to continue to operate in some form as Glenbrook Mining into the 1990s, using ore imported from New Caledonia. At the time of the ATSAC meeting, one

member stated that a United Kingdom-based mining company had recently proposed to open two nickel mines in Curry County. So, although the ATSAC acknowledged that current industrial sources are likely to be primarily metals-processing or plating operations, nickel emissions in Oregon cannot be assumed to be limited only to those industrial sources. In regard to the part of the above comment that urges DEQ to exclude nickel metal from any cancer-based ABC grouping, please see previous responses to similar concerns from commenters.

Comment 28
"Using the most up-to-date dosimetric and species-sensitivity information, an ABC value of 3 ug /m^3 is found to be the most scientifically supportable and appropriate benchmark for "soluble" nickel compounds."

DEQ Response
As explained in responses to other comments, above, neither the ATSAC nor the DEQ has the resources to allow calculation of alternate ABCs, and instead depends on toxicity values already vetted and available from recognized authoritative bodies. Also, as explained above, DEQ cannot simply accept calculations from outside entities as being correct and appropriate without first conducting a full-scale review of their own – which, as explained above, is not possible given agency resources.

Comment 29
"There are significant problems and drawbacks in using a URE-based approach to derive an ABC value designed to protect the general population against potential respiratory cancer risks associated with exposure to "insoluble" nickel compounds. An alternative approach that takes into account new information on the indirect genotoxic mode of action for nickel-related carcinogenicity allows for the identification of a practical threshold for the cancer risk associated with exposure to "insoluble" nickel compounds. The comment continues by saying that Beukers et al. (2015) obtained alternative cancer-based reference concentrations by using dosimetric modeling as part of the suggested approach."

DEQ Response
Please refer to response to Comment 3, above.

Comment 30
"If the Oregon DEQ nevertheless is determined to use a Unit Risk Estimate-based approach to deriving the ABC for "insoluble" nickel compounds, it should use the more up-to-date URE calculated by the TCEQ (and applied barely a month ago by the Michigan DEQ) and should make a speciation adjustment to account for the differences in sulfidic nickel content of exposures in the workplace studies as compared to general population exposures in ambient air. When that adjustment is made, the resulting ABC values for "insoluble" nickel compounds is found to be 0.01 ug Ni/m^3."

DEQ Response
*T*he TCEQ URE (same as inhalation unit risk, or IUR) for nickel is 1.7×10^{-4} per ug/m^3, which would result in an ABC of 0.006 ug/m^3 (0.01 ug/m^3 when rounded up) when based on

a 1-in-1-million cancer risk (TCEQ screening levels are based on a cancer risk of 1 in 100,000, which is a less-stringent cancer risk level than is required by Oregon DEQ). It is important to note that the ABC value of 0.006 ug/m3 (based on a risk of 1 in 1 million), when calculated from the TCEQ IUR, is only two thousandths of a point different from the ABC value of 0.004 ug/m^3 chosen by the ATSAC for insoluble nickel compounds; the minor difference between these two values makes them nearly equivalent, for all practical purposes. TCEQ uses their URE as the basis of their protective Effects Screening Levels for a number of nickel compounds, including both nickel subsulfide and nickel metal, without any speciation adjustment.

Comment 31
"Assuming a continuous exposure for a full lifetime of 70 years is much higher than what is reasonably or typically assumed for cancer risk assessment implying USEPA risk assessment guidelines, and therefore does not meet the requirement within the OAR 340-246-0090(2)(d) to set the ABCs based on "reasonable estimates of plausible upper-bound exposures that neither grossly underestimate nor grossly overestimate risks". The USEPA Residential Screening Levels for residential air, which ATSAC members suggested should be considered (per meeting notes January 2015), are based on a more reasonable exposure duration of 26 years for carcinogenic and non-carcinogenic chemicals. Oregon DEQ's ABCs should likewise be established by reference to USEPA's 26-year duration assumption."

DEQ Response
Please see our response to Comment 10 regarding the differences between EPA and DEQ assumptions, above. DEQ acknowledges that in many cases, ATSAC reviews did include looking at EPA's RSL values. But this was only done as a kind of "reality check" in regard to deciding whether a particular toxicology value from an authoritative body seemed to be in the right range.

Comment 32
The commenter says that in past meeting minutes, the ATSAC stated that both [proposed ABC] values are from "OEHHA 2011", but provides no citations to documentation that support these values.

DEQ Response
We apologize for this lack of documentation. The OEHHA 2011 reference can be found in Appendix B (updated 2011) of the Technical Support Document for Cancer Potency Factors (CalEPA/OEHHA, 2009) and can be directly accessed here: https://oehha.ca.gov/media/downloads/crn_r/appendixb.pdf.

The correct reference for the non-cancer chronic OEHHA Reference Exposure Level, or REL, used as the basis of the ABC for soluble nickel compounds is actually from a 2012 OEHHA document entitled Nickel Reference Exposure Levels, Nickel and Nickel Compounds. Nickel Oxide. Reference Exposure Levels (RELs). Final, February 2012. The chronic inhalation REL given for nickel and nickel compounds, except nickel oxide, is

0.014 μg /m^3, with the hazard index targets of the respiratory and hematopoietic systems. The ATSAC rounded this value to 0.01 ug/m3.

Comment 33
"Gradient states that the toxicological work done by the Texas Commission of Environmental Quality for nickel compounds is more scientifically robust than that associated with the OEHHA cancer-based Inhalation Unit Risk value and the non-cancer-based chronic REL, and also refers to Initial Threshold Screening Levels recently revised by the Michigan Department of Environmental Quality. In each case, Gradient urges DEQ to use the TCEQ toxicity values, rather than the OEHHA values, as the bases for the ABCs for DEQ's two nickel groupings.

Gradient recommends that metallic nickel be separated from the grouping of insoluble nickel compounds and assigned its own ABC, based primarily on Gradient's use of the Lowest Observed Adverse Effect Level, or LOAEL, value from the study by Oller et al. 2008 in combination with Gradient's use of the 2016 Multiple-Path Particle Dosimetry Model."

DEQ Response
Please refer to our response to Comment 3.
In addition, please see our response to Comment 20 above, which explains why DEQ does not believe that assigning a separate ABC to metallic nickel is warranted.

STYRENE

Comment 34
The commenter has concerns with DEQ finalizing a styrene ABC, in particular:

1. Limitations of recent styrene carcinogen listings that DEQ may review, including the National Toxicology Program (NTP) Report on Carcinogens, and the California EPA's Office of Environmental Health Hazard Assessment (OEHHA) listing of styrene under Proposition 65;
2. Recent animal data on styrene mode of action that show that mouse lung tumors seen in styrene inhalation studies are not relevant to humans, and;
3. A current, comprehensive systematic styrene risk assessment project being conducted by SIRC.

Consequently, the commenters want DEQ to postpone finalization of a styrene ABC until SIRC completes their styrene risk assessment.

DEQ Response
The Air Toxics Science Advisory Committee (ATSAC) chose the cancer-based IRIS Inhalation Unit Risk value as the basis for the ABC for styrene, although the OEHHA value was also considered.

The ATSAC and DEQ utilize toxicity values already available from recognized authoritative bodies, including USEPA's Integrated Risk Information System (IRIS); USEPA's Provisional Peer-Reviewed Toxicity Values (PPRTVs); the International Agency

for Research on Cancer (IARC), which is part of the World Health Organization; the California Office of Environmental Health Hazard Assessment (OEHHA); the Agency for Toxic Substances and Disease Registry (ATSDR), and USEPA's Office of Air Quality Planning and Standards (OAQPS).
Please refer to our response to Comment 3, above.

In regards to the pending SIRC risk assessment results, SIRC is urged to submit these to the DEQ during the next round of benchmark review.

Comment 35
"Arguably, the IRIS RfC value may be acceptable for general population exposures, but separate exposure values have been set by the Occupational Safety and Health Administration (OSHA) and others for safe workplace exposure levels. In 1997, the industry signed an agreement with OSHA to encourage compliance with an 8-hour workplace limit of 50 parts per million (ppm), in recognition of data showing that OSHA's official Permissible Exposure Limit of 100 ppm may not be sufficiently protective. SIRC more recently recommended a 20 ppm 8-hour exposure limit based on data demonstrating very mild hearing loss at some frequencies following long-term occupational exposure at 30 ppm and above. SIRC's 20 ppm recommendation is consistent with both European and Japanese workplace limits. It is critical that any styrene ABC be distinguished from appropriate workplace exposure limits."

DEQ Response
ABCs are applied to Oregon populations state-wide which may be exposed to emissions from sources to outdoor air. Occupational worker exposure parameters are very different than those of the general population, as is demonstrated by the ongoing differences between protective levels used as OSHA standards versus those used in EPA human health risk assessments for almost any chemical you can name. DEQ believes that the proposed ABC is appropriately protective for all human receptors in the state of Oregon.

TRICHLOROETHYLENE

Comment 36
The commenter objected to adoption of the proposed trichloroethylene (TCE) ABC on the grounds that the record reflected that the proposed value was based on the "material misrepresentation by the Oregon Health Authority to the ATSAC". They then point out numerical inconsistencies present in the September 2015 ATSAC meeting minutes, and state that newer information is available with which to make an ABC decision.

DEQ Response
DEQ acknowledges the error in regard to the TCE toxicity values presented in the September 2015 ATSAC meeting minutes; most of this was due to an inadvertent failure to revise the original meeting notes; corrections were made to an internal version that was mistakenly thought to have been re-posted to the ATSAC website in June 2015.
The description of the ATSAC's review of trichloroethylene toxicology values that is available in the rulemaking website's Notice Packet, and also part of the Staff Report,

includes correct information, and so the September 2015 ATSAC meeting minutes will not be revised based on the clarifications provided above.

TOLUENE DIISOCYANATES

Comment 37
The current ABC for toluene diisocyanates (TDI) is based on the Diem (1982) study used by EPA to derive the TDI Reference Concentration. ODEQ proposes to replace the Diem study with the Clark (1998) study, which it claims is 'focused on a more sensitive endpoint.' For the following three reasons, the commenter urges DEQ to withdraw its proposal:

- First, ODEQ proposal is inappropriately based on a draft Agency for Toxics Substances and Disease Registry (ATSDR) Toxicological Profile. ODEQ provides no evidence that it has critically examined the available epidemiological data; it simply accepts the ATSDR rationale for using the Clark study to derive its MRL and proposes to use it similarly for the proposed TDI ABC. The Panel provided extensive comments to ATSDR regarding its failure to provide an unbiased and comprehensive review of the literature on TDI. A copy of our comments will be provided to ODEQ.
- Second, the claim that the Clark study is focused on a more sensitive endpoint lacks foundation. Among the concerns addressed by the Panel was ATSDR's use of the first two Clark studies to derive an MRL for TDI. In the first study, Clark evaluated the effect of TDI on the pulmonary function of workers over a five-year period; in the second, he examined the survivor population over an additional 12 years. Although Clark concluded in both studies that there was no evidence of a TDI-related decline in pulmonary function, the first study reported that naïve workers (i.e., a subset of the worker population with no prior TDI exposure) exhibited a significant decline in pulmonary function during the first few months of exposure. Presumably, this is the 'more sensitive endpoint' ODEQ refers to in its proposal. However, given that this early, transient naïve-worker effect noted in the first Clark study: (a) has not been reported by others in over 50 years of TDI-lung function investigations, (b) disappeared by study end, and (c) was not observed in Clark's follow-up study, it is reasonable to question whether this putative effect is biologically meaningful or even real.
- Third, the ATSDR (2015) selection of Clark lacks a cogent rationale and is based on a less than objective discussion of Diem. *For example*,
    - ATSDR fails to mention that the Diem study is the stronger of the two because it had a larger number (168 vs 157) and fraction (61% vs 20%) of naïve workers than did Clark.
    - In addition, the exposure metric chosen by ATSDR to describe the Diem study (ppm-months) is, inexplicably, different than the metric (ppm) it used for all other studies, precluding comparisons between Diem and the other studies. If ATSDR had instead reported the Diem study NOAEC and LOAEC used by EPA, 6 ug/m3 and 14 ug/m3, respectively, the Diem results would have been seen as entirely consistent with the Clark LOAEC of 8.6 ug/m3 identified by ATSDR. Common risk assessment practice would have then resulted in the Diem

study NOAEC, not the Clark study LOAEC, being selected as the point of departure for MRL and ABC derivation.

- And finally, ATSDR's failure to acknowledge the Diem study no-observed-adverse-effect concentration (NOAEC) of 6 ug/m3 prevents the casual reader from comparing this conservative point of departure to the range of TDI concentrations (10 – 100 ug/m3) that ATSDR states does not alter lung function in other longitudinal studies."

DEQ Response
Please refer to our response to Comment 3, above.

The ATSAC did discuss whether to depend on the Clark or the Diem study for their recommendation of an ABC for 2,4-2,6 toluene diisocyanates, and decided that the Clark study was an exceptionally well-done study. Although the American Chemistry Council does not find the Clark study as credible as the Diem study, opinions of experts routinely differ, and in this case the ATSAC chose the Clark study as the basis for the benchmark. In addition, information about the chemical toxicity of toluene diisocyanates is constantly evolving and there will always be studies in progress. Recognizing this fact, the air toxics program rule already requires DEQ to review benchmark values every five years.

Comment 38
The commenter does not believe that DEQ has transparently established specific guidance on the use of experimental or epidemiological data to derive an ABC, or with the application of uncertainty factors to the selected point of departure. Also:

- If one accepts the naïve worker effect, the weight of evidence from all available data indicate that the putative LOAEC of 8.6 ug/m3 is very close to the TDI NOAEC for decrements in lung function. The default application of a 10-fold UF for LOAEC to NOAEC conversion is unwarranted.
- A default UF of 10 to account for intraspecies differences in toxicokinetics and toxicodynamics is excessive and unwarranted for a point-of-contact chemical such as TDI. In contrast to systemic toxins, variability in toxicokinetic factors such as adsorption, distribution, metabolism, and excretion will have little if any influence on the lung effects of TDI.
- In adjusting the exposure concentration for workers to one for the general population, ATSDR (and ODEQ) propose to multiply the acceptable worker exposure by one-third (i.e., 8 hrs / 24 hrs). This choice is inappropriate. For inhalation exposures, it is standard risk assessment practice (e.g., USEPA 2003) to multiply the worker exposure by 0.5 to reflect the assumption that workers inhale 10 m^3 of air during an 8-hour workday, while the inhalation rate for the general public is 20 m^3 of air/day."

DEQ Response
Please refer to our response to Comment 3, above.

Comment 39

The commenter asks DEQ to maintain the current ABC for TDI, because scientific data demonstrate that the current permissible levels for TDI are sufficient to protect public health. The commenter argues that more than 85% of U.S. TDI production is used by flexible polyurethane foam manufacturers, where virtually all (99.9%) of the TDI used is consumed during foam-making process, leaving little TDI for possible emissions. Ambient concentrations [of TDI] below 0.1 ug/m^3 (1 part per billion) are extremely low and emissions must be modeled. Validation using air sample collection can be difficult, and monitoring/detection of TDI becomes exponentially more difficult and less reliable at the ABC level proposed by DEQ. Facilities currently estimate emissions using modeling techniques.

DEQ Response
The ATSAC was directed by DEQ to make recommendations on benchmark values based entirely on toxicological information and the protection of human health, not on the potential feasibility (or non-feasibility) of the use of the benchmarks to inform air quality goals. In its review of the toxicological information for 2,4/2,6-toluene diisocyanates, the ATSAC decided that a recommendation to make the benchmark more stringent was necessary to adequately protect human health from emissions that may occur in Oregon.

XYLENES

Comment 40
Requested extension to submit comments for xylenes.

DEQ Response
DEQ cannot grant this request, as the Air Toxics Benchmark rulemaking comment period was already extended 40 days in 2017, and then re-opened again for 20 days in January 2018.

GENERAL COMMENTS ON PROPOSED ATBR RULEMAKING

Comment 41
The commenter wants DEQ to reconvene ATSAC to reconsider proposed ABCs for 14 chemicals, including acrolein, 1,3-butadiene, chlorine, ethylene oxide, fluoride anion, formaldehyde, hexavalent chromium, insoluble nickel compounds, soluble nickel compounds, trichloroethylene, phosgene, styrene, toluene diisocyanates, and xylenes.

DEQ Response
Stoel Rives did not provide reasons for their request that the ATSAC reconsider their ABC recommendation for xylenes. For all other chemicals mentioned by the commenter, DEQ directs Stoel Rives to the specific and comprehensive answers provided to other commenters for those chemicals in this response document, with the exception of phosgene. For comments made by Stoel Rives for phosgene, please refer to Comment 3, above.

Comment 42
Commenter says DEQ has not considered toxicological information from:

- USEPA current inhalation gas dosimetry guidelines
- USEPA's recommended benchmark concentration lower bound limit (BCLD)
- USEPA's current benchmark dose (BMD) software for derivation of inhalation toxicity values
- Application of USEPA's recommended upper-bound exposure assumptions
- Up-to date epidemiology data.

DEQ Response
The commenter is correct, for the most part. The ATSAC and DEQ utilize toxicity values already available from recognized authoritative bodies, including USEPA's Integrated Risk Information System (IRIS); USEPA's Provisional Peer-Reviewed Toxicity Values (PPRTVs); the International Agency for Research on Cancer (IARC), which is part of the World Health Organization; the California Office of Environmental Health Hazard Assessment (OEHHA); the Agency for Toxic Substances and Disease Registry (ATSDR), and USEPA's Office of Air Quality Planning and Standards (OAQPS). Toxicological information from these authoritative bodies is assumed to be adequately protective of human health. Additional epidemiology data from other sources was discussed by the Committee during ATSAC meetings for some chemicals.

Comment 43
Commenter recommends that derivation of independent values for ABCs should be considered by the ATSAC.

DEQ Response
Please refer to our response to Comment 3, above.

Comment 44
The commenter says that consulting toxicologists determined that insufficient discussion and support for various proposed ABCs was provided in the publicly available documentation. Wants citations for all documents considered in deriving the ABCs.

DEQ Response
As part of the rulemaking notice, DEQ provided streamlined summaries of discussions held by the ATSAC during their discussions at meetings that were open to the public. The full relevant science was produced and studied during the ATSAC meetings, and is appropriately summarized now in the rulemaking notice and will appear in the future Staff Report. Further details are available in the meeting minutes posted for each ATSAC meeting on the ATSAC website. A short list of "documents relied on for rulemaking" is available in the Air Toxics Benchmark Review rulemaking notice, accessible here: https://www.oregon.gov/deq/Rulemaking%20Docs/airtoxics2017packet.pdf.

Comment 45
The commenter says DEQ should pursue the proposed Rule and the CAO Program as a single rulemaking.

DEQ Response

The two rulemakings are separate based on the different potential outcomes of each one, and are not required to be combined. This concern was also discussed in detail by the benchmark rulemaking Fiscal Advisory Committee on Sept. 12, 2017, and DEQ explained that the two rulemakings will be treated as separate rulemakings. DEQ also advised FAC members that if there are concerns in regard to proposed CAO risk-based concentrations, then comments should be submitted during the CAO rulemaking comment period.

Comment 46
The commenter says that more discussion of scientific basis for proposed ABC values is needed -- e.g.,

- bigger discussion of known health effects per chemical,
- better citation documentation,
- bigger discussion of basis for each regulatory value and better justification of one over another,
- the key study should be ID'd for every single chemical with a bigger discussion of key study,
- lack of discussion by DEQ or ATSAC of exposure assumptions applied to derivation of ABCs,
- bigger discussion of target cancer and non-cancer risks that apply to derivation of proposed ABCs.

DEQ Response
As part of the rulemaking notice, DEQ provided streamlined summaries of discussions held by the ATSAC during their discussions at meetings that were open to the public. The full relevant science was produced and studied during the ATSAC meetings, and is appropriately summarized now in the rulemaking notice and will appear in the future Staff Report. Further details are available in the meeting minutes posted for each ATSAC meeting on the ATSAC website. A short list of "documents relied on for rulemaking" is available in the Air Toxics Benchmark Review rulemaking notice, accessible here: https://www.oregon.gov/deq/Rulemaking%20Docs/airtoxics2017packet.pdf.

Comment 47
"Plausible upper-bound exposure assumptions should be incorporated into ABC values."

DEQ Response
An ABC refers to the protective concentration of an air toxic in outdoor air that would result in an excess lifetime cancer risk level of one in a million (1×10^{-6}) or a non-cancer hazard quotient of one. Ambient benchmark concentrations are in units of micrograms of air toxic per cubic meter of ambient air, on an average annual basis (OAR 340-246-0090 [3]) for use in Oregon. ABCs are compared to monitored or modeled concentrations of pollutants in air on an annual average basis. In addition, DEQ assumes that any one person could live in a single location his/her entire life, or could live in multiple locations over a lifetime and be exposed to a pollutant from the same or different sources over a lifetime; this assumption is consistent with the approach used by USEPA, for example, in their National Air Toxics Assessment program. The ATSAC has recommended that if an ABC were to be used in a

risk assessment, then that is the place for specific exposure scenario assumptions to be taken into account.
Also, please see our response to Comment 3.

Comment 48
Commenter requests more-complete discussion of how to interpret the toxicity values that serve as the basis of the ABCs (e.g., NOAELs and use of Uncertainty Factors, so that the ABCs will be interpreted and implemented appropriately during risk management decisions).

Commenter points out that IRIS values and ATSDR MRLs are not bright-line values, and cannot be used to predict whether adverse health effects will occur, but instead may indicate the need for further evaluation. In the cases of IRIS and ATSDR values, exceeding one of their values does not automatically mean that adverse health effects will occur.

DEQ Response
It appears that a portion of the set of comments from the comment letter is actually related to the Cleaner Air Oregon rulemaking, and thus DEQ will not respond to them here. But for the remainder of the comments above, please refer to DEQ's responses to other Stoel Rives comments.

In regard to the commenter's request that the details of how each ABC will be implemented be explained, the aspects of how a particular ABC will be implemented was outside of the ATSAC's scope of work. DEQ informed the ATSAC that DEQ itself will make decisions about the implementation of ABCs.
DEQ agrees with the idea that exceedance of a particular ABC does not mean that people are actually being adversely impacted by related emissions in Oregon air, but rather indicates the need for further evaluation to determine the nature of the problem.

USE OF REPLACEMENT CHEMICALS MAY NOT BE POSSIBLE IN SOME CASES

Comment 49
When considering benchmarks and reduction of pollutants, please consider that not all chemicals have substitutions that are viable. There may be ways to reduce emissions if those have not already been implemented. However, some chemicals do not have replacement chemicals available.

DEQ Response
DEQ understands that replacement chemicals may not be available in these situations in some cases. If this concern does become an issue in any future initiation of Air Toxics Program requirements based on the use of Ambient Benchmark Concentrations, DEQ will work with the source to determine the best course going forward.

INCONSISTENCIES BETWEEN EPA NESHAPS & SUBPART MMMM, AND PROPOSED AMBIENT BENCHMARK CONCENTRATIONS

Comment 50
The bulk of the comment text, in summary, argues that Federal standards, including 40 CFR Part 63, Subpart 11 – National Emission Standards for Shipbuilding and Ship Repair, and Subpart MMMM –NESHAPs for Surface Coating of Miscellaneous Metal Part and Products, which are currently in place for Gunderson, and with which Gunderson is in compliance, are already sufficiently protective of potential human health risks due to exposure to Gunderson emissions. Thus, application of any further requirements that may occur in the future in regard to Ambient Benchmark Concentrations (ABCs) is unnecessary and overly protective.

DEQ Response
We have reviewed the information provided in the table in your comment letter, and acknowledge your comments specific to that table. A few of the chemicals mentioned in your table were not reviewed by the 2014-2017 ATSAC, and as such, are not a part of the current ATBR rulemaking. These include acetaldehyde, benzene, copper and compounds, and naphthalene. Similarly, zinc, which was included in your table but for which no information was provided, is also not a part of the current ABC rulemaking.

In regard to Gunderson already being in compliance with the previously mentioned Federal standards that make applications of ABCs unnecessary: ABCs under the current Air Toxics program are used primarily by DEQ to set goals and apportion agency resources, and if applied to Gunderson emissions, would be separate from the use of the Federal standards. Benchmarks (the ABCs) are triggers and goals that DEQ uses, to differing degrees, in the Geographic, Source Category, and Safety Net programs within the Air Toxics program. None of the three programs have been used on a routine basis. ABCs can trigger formal process and serve as targets in the Geographic program (an example being the Portland Air Toxics Solution project); guide actions in the Source Category program; and would trigger process and work that could lead to regulatory consequences under the Safety Net program. The Safety Net program has yet to b activated by DEQ. It could be used at DEQ's discretion in cases where a source's emissions are not covered by federal regulations, such as Maximum Achievable Control Technology (MACT) requirements, or through the federal Residual Risk program. To use the Safety Net process, DEQ would first have to spend significant time obtaining monitoring information about the types and degree of emissions and risk at a source. Then DEQ would have to present their findings to the ATSAC, and the ATSAC would have 120 days to review the information and make a finding. If the ATSAC concurs with DEQ's findings, only then would DEQ be able to notify the source and require the source to conduct a risk assessment.

ATBR RULEMAKING AND CLEANER AIR OREGON RULEMAKING SHOULD BE COMBINED; RELATED ISSUES WITH ATBR RULEMAKING FISCAL IMPACT STATEMENT

Comment 51
The commenter wants DEQ to combine the Proposed Rule and the CAO Program, and argues that combining the two rulemakings will help Oregonians gauge the potential

negative economic impact that will result from the Proposed Rule as a critical component of the large COA program. They claim that by refusing this request, DEQ would be violating the letter and the spirit of the Administrative Procedures Act by breaking the CAO rulemaking into two artificially separate bits, depriving the public of the ability to provide meaningful content. The commenter also believes there are still fundamental flaws remaining in the amended FIS for the Proposed Rule [the ATBR rulemaking], and that the conclusions of the amended FIS don't differ much from the original proposed FIS, and are therefore incomplete and flawed.

DEQ Response
DEQ reiterates that the two rulemakings should be and are separate based on the different potential outcomes of each one. The Fiscal Advisory Committee for the ATBR rulemaking discussed this issue in detail on Sept. 12, 2017, focusing on the relationship between ABCs and upcoming CAO risk-based concentrations. DEQ explained that the two rulemakings will be treated as separate rulemakings, and that any concerns about proposed CAO risk-based concentrations should be submitted as comments under the CAO rulemaking.

During the preceding 2006 and 2010 benchmark rulemakings, DEQ didn't receive any public comments regarding the conclusion that setting the benchmark values didn't have a fiscal impact. On that basis, DEQ originally presented a similar FIS for the current benchmark rulemaking. When Oregon Business and Industry (OBI) submitted a letter to DEQ on July 28, 2017 that disagreed with the original FIS for this current benchmark rulemaking, DEQ convened a Fiscal Advisory Committee to review the FIS.

The Fiscal Advisory Committee met on September 12, 2017 to discuss possible changes to the proposed FIS for the benchmark rulemaking. The committee was made up of six members that included Geoff Scott of MFA, representing OBI; Al Hooton, vice-president of Glass Alchemy, a small business; Matt Hoffman of the Multnomah County Public Health department; Max Hueftle, air permit manager for LRAPA and a member of the ATSAC; Kent Norville, an air quality consultant and a member of the ATSAC; and Mark Riskedahl of the Northwest Defense Council.

The committee discussed the proposed FIS in detail and suggested changes to make it more useful to businesses that might have the potential to be affected by the changes in benchmark values for 23 chemicals and addition of benchmarks for three chemicals recommended by the ATSAC. The minutes of the Fiscal Advisory Committee meeting are available at http://www.oregon.gov/deq/Regulations/rulemaking/Pages/ratbr2017.aspx. The amended FIS, then, utilizes the decisions and discussions of the FAC.

The FAC did discuss possible direct and indirect fiscal impacts related to adoption of the proposed benchmark values. DEQ emphasized the fact that benchmark values have been used and will be used only as goals in the Air Toxics program, and as a way to direct agency resources to the highest-priority concerns. DEQ acknowledged that the ABCs being proposed under the ATBR rulemaking will also be used as Risk-Based Concentrations, or RBCs, (and thus as enforceable standards) in the CAO program if the proposed CAO rules are adopted. However, a separate FIS has been created for the CAO rulemaking, and any

comments regarding the use of specific RBCs as standards need to be addressed as part of the CAO rulemaking process.

Benchmarks are triggers and goals that DEQ uses, to differing degrees, in the Geographic, Source Category, and Safety Net programs within the Air Toxics program. Benchmarks trigger formal process and serve as targets in the Geographic program (an example being the Portland Air Toxics Solution project); guide actions in the Source Category program; and would trigger process and work almost like standards under the Safety Net program. DEQ has yet to initiate the Safety Net program, which has the potential to be used in cases where a source's emissions are not covered by federal regulations, such as Maximum Achievable Control Technology (MACT) requirements, or through the federal Residual Risk program.

In order for the Safety Net program to be triggered, DEQ would first have to spend significant time obtaining modeling information in regard to the types and degree of emissions and risk coming from a source. Then DEQ would have to present their findings to the ATSAC, and the ATSAC would have 120 days to review the information and make a finding. If the ATSAC concurs with DEQ's findings, only then would DEQ be able to notify the source and require the source to conduct a risk assessment. Since none of the three programs have been used on a routine basis, and work already conducted under the Geographic and Source Category programs has been very area- or category-specific, it is difficult to impossible to estimate potential costs that might be incurred if any of the three programs were triggered by comparison of air toxics data to benchmark values. The Fiscal Advisory Committee acknowledged the limits on being able to estimate potential future costs, but asked DEQ to describe the types and numbers of sources that might be impacted in the event that one of the three Air Toxics programs mentioned above was triggered, particularly for the three new air toxics: phosgene, n-propyl bromide, and styrene. To address this suggestion, DEQ added summary tables of data obtained from the 2014 National Emissions Inventory, as well as calling out the air toxics (and ABCs) that are likely to be associated with various source types. DEQ understands that this newly added information does not provide a basis for quantifying potential future costs to industry under the benchmark rulemaking, but it does provide an alert to those industries likely to emit air toxics that have been assigned benchmark concentrations.

DEQ declines to re-convene the Fiscal Advisory Committee for the benchmark rulemaking in order to discuss and quantify impacts that might occur once the CAO rules have been adopted. As stated previously, these two rulemaking are separate and will be dealt with individually.

Implementation

Notification

The proposed rules would become effective upon filing on approximately May 12, 2018. DEQ would notify affected parties by:

- Posting a bulletin in GovDelivery to the topic “Air Toxics State-wide”, which has 5,142 subscribers.

Five-year review

ORS 183.405

Requirement

Oregon law requires DEQ to review new rules within five years after EQC adopts them. The law also exempts some rules from review. DEQ determined whether the rules described in this report are subject to the five-year review. DEQ based its analysis on the law in effect when EQC adopted these rules.

Exemption from five-year rule review

The Administrative Procedures Act exempts all of the proposed rules from the five-year review because the proposed rules would:

- Amend or repeal an existing rule. ORS 183.405(4).

Air Toxics Benchmark Review Rulemaking

Apart from the broader requirement for all new rules described above, DEQ‘s Air Toxics Science Advisory Committee is required to review the Ambient Benchmark Concentrations every five years in order to integrate any new toxicological information that has become available during that time for the chemicals with assigned Ambient Benchmark Concentrations. Any changes to the Ambient Benchmark Concentrations at that time must be included in the rule, and so a rule revision must also occur.

Draft Rules – With Edits Highlighted

Key to Identifying Changed Text:
~~Deleted Text~~
New/inserted text
~~Text deleted from one location~~ - and moved to another location

DEPARTMENT OF ENVIRONMENTAL QUALITY

DIVISION 246

Oregon State Air Toxics Program

340-246-0010,

Policy and Purpose

The purpose of Oregon's state air toxics program is to address threats to public health and the environment from toxic air pollutants that remain after implementing the state delegated technology-based strategies of the federal air toxics program. Oregon's program meets the goals of the federal Urban Air Toxics Strategy by using a community-based effort that focuses on geographic areas of concern. It also addresses cases of elevated health risks from unregulated air toxics emissions at stationary sources and source categories of air toxics emissions.

Stat. Auth.: ORS 468.035, 468A.010(1), 468A.015
Stats. Implemented: ORS 468A.015, 468A.025
Hist.: DEQ 15-2003, f. & cert. ef. 11-3-03

340-246-0030,

Definitions

The definitions in OAR 340-200-0020, 340-218-0030, 340-244-0030 and this rule apply to this division. If the same term is defined in this division and elsewhere, the definition in this division applies.

(1) "Air toxics" means those pollutants known or suspected to cause cancer or other serious health effects, including but not limited to "hazardous air pollutants" or "HAPs" listed by the EPA ~~pursuant to~~under section 112(b) of the Federal Clean Air Act.

(2) "Ambient benchmark" means the concentration of an air toxic in outdoor air that would result in an excess lifetime cancer risk level of one in a million (1 x 10-6) or a non-cancer hazard quotient of one.

(3) "Bio-accumulation" means the net accumulation of a substance by an organism as a result of uptake from all routes of exposure (e.g., ingestion of food, intake of drinking water, direct contact, or inhalation).

(4) "Geographic area" means an area identified by ~~the Department~~DEQ where air toxics concentrations are estimated or measured at levels that exceed ambient benchmark concentrations.

(5) "Hazard quotient" means the ratio of the potential exposure to a single air toxic to the reference concentration for that pollutant. If the hazard quotient is calculated to be less than or equal to 1, then no adverse health effects are expected as a result of exposure. If the hazard quotient is greater than 1, then adverse health effects are possible.

(6) "High priority geographic area" means an area identified by ~~the Department~~DEQ where air toxics concentrations are estimated or measured at levels that exceed ambient benchmark concentrations and pose excess cancer risk above ten in a million, or non-cancer risk above a hazard quotient of one with the potential for serious adverse health effects.

(7) "Public receptor" means any outdoor area where members of the public have unrestricted access, including but not limited to residences, institutions (e.g. schools, hospitals), industrial, commercial, or office buildings, parks, recreational areas, public lands, streets or sidewalks.

(8) "Reference concentration" means an estimate of a continuous exposure or a daily exposure to the human population (including sensitive populations) that is likely to be without an appreciable risk of adverse non-cancer effects during a lifetime. The reference concentration can be derived from various types of human or animal data, with uncertainty factors generally applied to reflect limitations of the data used.

(9) "Sensitive human populations" means humans with increased susceptibility to the adverse effects of air toxics, including humans in prenatal or postnatal periods of development.

(10) "Source" means:

(a) An activity conducted by a person at a point, area, on-road mobile, or off-road mobile operation that emits air toxics; or

(b) Any building, structure, facility, installation or combination thereof that emits or is capable of emitting air contaminants to the atmosphere, is located on one or more contiguous or adjacent properties and is owned or operated by the same person or by persons under common control. The term includes all pollutant emitting activities that belong to a single major industrial group (i.e., that have the same two-digit code) as described in the **Standard**

Industrial Classification Manual, (U.S. Office of Management and Budget, 1987) or that support the major industrial group.

(11) "Source Category" means:

(a) A source or group of sources that emit air toxics due to the use of the same or similar processes, including commercial, residential, public or private processes, which as a group can reduce air toxics emissions by employing similar control or prevention strategies or;

(b) All the pollutant emitting activities that belong to the same industrial grouping (i.e., that have the same two-digit code) as described in the **Standard Industrial Classification Manual**, (U.S. Office of Management and Budget, 1987).

(12) "Toxics Best Available Retrofit Technology", or "TBART" means an air toxics emissions limitation based on the maximum degree of reduction of air toxics, determined on a case-by-case basis, that is feasible taking into consideration:

(a) What has been achieved in practice for that source category, or for similar processes or emissions;

(b) Energy and non-air quality health or environmental impacts; and

(c) Economic impacts, including the costs of changing existing processes or equipment or adding equipment or controls to existing processes and equipment. Such limitation may be based on a design, equipment, work practice or other operational standard, or combination thereof.

[Publications: Publications referenced are available from the agency.]

Stat. Auth.: ORS 468.035, 468A.010(1), 468A.015
Stats. Implemented: ORS 468A.015, 468A.025
Hist.: DEQ 15-2003, f. & cert. ef. 11-3-03

340-246-0050,

Pollution Prevention

The Environmental Quality Commission encourages the use of pollution prevention for all sources of air toxics statewide. The Commission encourages use of the following hierarchy to reduce air toxics:

(1) Modify the process, raw materials, or product to reduce the quantity and toxicity of air contaminants generated;

(2) Capture and reuse air contaminants;

(3) Treat to reduce the quantity and toxicity of air contaminants released; or

(4) Otherwise control air toxics emissions.

Stat. Auth.: ORS 468.035, 468A.010(1), 468A.015
Stats. Implemented: ORS 468A.015, 468A.025
Hist.: DEQ 15-2003, f. & cert. ef. 11-3-03

340-246-0070,

Air Toxics Science Advisory Committee

(1) Purpose. The Commission recognizes the many scientific uncertainties associated with the effects of air toxics, and the continuing development of new information in this field. An Air Toxics Science Advisory Committee (ATSAC), will advise ~~the Department~~DEQ, and in its jurisdiction, the Lane Regional Air Pollution Authority, on technical issues and evaluation of the state air toxics program. The ATSAC will provide advice on the technical aspects of risk assessment. It will not provide risk management or policy recommendations. The ATSAC will perform the following functions:

(a) Review ambient benchmarks for the state air toxics program;

(b) Advise ~~the Department~~DEQ on developing a risk assessment methodology to be used in the Safety Net Program in OAR 340-246-0190 (5) and (6);

(c) Advise ~~the Department~~DEQ on selecting sources for the Safety Net program. The ATSAC will evaluate potential Safety Net sources identified by ~~the Department~~DEQ to determine whether they qualify for the Safety Net Program, as specified in OAR 340-246-0190 through 0230;

(d) Evaluate overall progress in reducing emissions of and exposure to air toxics by considering trends in emissions and ambient concentrations of air toxics. The ATSAC will periodically advise ~~the Department~~DEQ on air toxics program effectiveness and make technical recommendations for program development concerning the possible adverse environmental effects of air toxics and risk from exposure to multiple air toxics; and

(e) Provide advisory opinions on questions requiring scientific expertise, as requested by ~~the Department~~DEQ.

(2) Membership. The ATSAC will be composed of highly qualified members with experience relevant to air toxics. There will be at least five but no more than seven members. The following disciplines will be represented on the ATSAC:

(a) Toxicology;

(b) Environmental Science or Environmental Engineering;

(c) Risk Assessment;

(d) Epidemiology/Biostatistics;

(e) Medicine (Physician) with training or experience in Public Health; and

(f) Air Pollution Modeling, Monitoring, Meteorology or Engineering.

(3) Appointment. ~~The Department~~DEQ's Air Quality Division Administrator will nominate potential members to the Director. Before making these nominations, the Administrator will develop a list of candidates by consulting with government, public, and private organizations involved in work relevant to air toxics. The Director will appoint ATSAC members with concurrence by the Commission.

(4) Term. Air Toxics Science Advisory Committee members will serve a three-year term. Initial terms will be staggered for continuity and transfer of work so that members of the first ATSAC may serve more or less than three years.

(5) Operation.

(a) No member may have an actual or potential conflict of interest, as those terms are defined by ORS 244.020.

(b) The ATSAC will meet as necessary.

(6) Procedures, Bylaws, and Decision-making Process. At a minimum, the ATSAC will observe the procedures specified below. The ATSAC will develop other necessary procedures and bylaws in consultation with ~~the Department~~DEQ.

(a) Final decisions must be made by a quorum of members, based on consensus when possible. If consensus is not possible, decisions will be made by majority vote with a quorum present.

(b) If necessary, ~~the Department~~DEQ may obtain a facilitator to assist the ATSAC.

(c) The bylaws will include provisions for removing a member for cause, with concurrence by the Commission.

Stat. Auth.: ORS 468.035, 468A.010(1), 468A.015
Stats. Implemented: ORS 468A.015, 468A.025
Hist.: DEQ 15-2003, f. & cert. ef. 11-3-03

340-246-0090,

Ambient Benchmarks for Air Toxics

(1) Purpose. Ambient benchmarks are concentrations of air toxics that serve as goals in the Oregon Air Toxics Program. They are based on human health risk and hazard levels considering sensitive populations. Ambient benchmarks are not regulatory standards, but reference values by which air toxics problems can be identified, addressed and evaluated. ~~The Department~~DEQ will use ambient benchmarks as indicated in these rules, to implement the Geographic, Source Category, and Safety Net Programs. Ambient benchmarks set by the procedures described in this rule apply throughout Oregon, including that area within the jurisdiction of the Lane Regional Air Protection Agency. Ambient benchmarks are subject to public notice and comment before adoption by the Environmental Quality Commission as administrative rules.

(2) Establishing Ambient Benchmarks

(a) ~~The Department~~DEQ will consult with the ATSAC to prioritize air toxics for ambient benchmark development. Highest priority air toxics are those that pose the greatest risk to public health.

(b) To prioritize air toxics, ~~the Department~~DEQ will apply the criteria described in OAR 340-246-0090(2)(c) to modeling, monitoring, and emissions inventory data.

(c) Ambient benchmark prioritization criteria will include at least the following:

(A) Toxicity or potency of a pollutant;

(B) Exposure and number of people at risk;

(C) Impact on sensitive human populations;

(D) The number and degree of predicted ambient benchmark exceedances; and

(E) Potential to cause harm through persistence and bio-accumulation.

(d) ~~The Department~~DEQDEQ will develop ambient benchmarks for proposal to the ATSAC based upon a protocol that uses reasonable estimates of plausible upper-bound exposures that neither grossly underestimate nor grossly overestimate risks.

(e) Within three months of the first meeting of the ATSAC, ~~the Department~~DEQ will propose ambient benchmark concentrations for the highest priority air toxics for review by the ATSAC. ~~The Department~~DEQ will propose additional and revised air toxics ambient benchmarks for review by the ATSAC based on the prioritization criteria in OAR 340-246-0090(2)(c). Once the ATSAC has completed review of each set of proposed ambient benchmarks, ~~the Department~~DEQ will, within 60 days, begin the process to propose ambient benchmarks as administrative rules for adoption by the Environmental Quality Commission.

(f) If ~~the Department~~DEQ is unable to propose ambient benchmarks to the ATSAC by the deadlines specified in OAR 340-246-0090(2)(e), the ATSAC will review the most current

EPA ambient benchmarks. If EPA ambient benchmarks are not available, the ATSAC will review the best available information from other states and local air authorities.

(g) The ATSAC will consider proposed ambient benchmarks and evaluate their adequacy for meeting risk and hazard levels, considering human health, including sensitive human populations, scientific uncertainties, persistence, bio-accumulation, and, to the extent possible, multiple exposure pathways. The ATSAC will conduct this review consistent with the criteria in OAR 340-246-0090(2)(c) and (d). The ATSAC will report these findings to ~~the Department~~DEQDEQ. If the ATSAC unanimously disagrees with ~~the Department's~~ DEQ's recommendation, ~~the Department~~DEQ will re-consider and re-submit its recommendation at a later date.

(h) The ATSAC will complete review of and report findings on each set of ambient benchmarks as ~~expeditiously~~ quickly as possible, but no later than 12 months after ~~the Department~~DEQ has proposed them. If the ATSAC is unable to complete review of ambient benchmarks within 12 months after ~~the Department~~DEQ's proposal, ~~the Department~~DEQ will initiate rulemaking to propose ambient benchmarks.

(i) ~~The Department~~DEQ will review all ambient benchmarks at least every five years and, if necessary, propose revised or additional ambient benchmarks to the ATSAC. At its discretion, ~~the Department~~DEQ may review and propose a benchmark for review by the ATSAC at any time when new information is available.

(3) Ambient Benchmarks. Benchmark concentrations are in units of micrograms of air toxic per cubic meter of ambient air, on an average annual basis. The Chemical Abstract Service Registry Number (CASRN) is shown in parentheses.

(a) The ambient benchmark for acetaldehyde (75-07-0) is 0.45 micrograms per cubic meter.

(b) The ambient benchmark for acrolein (107-02-8) is 0.35~~02~~ micrograms per cubic meter.

(c) The ambient benchmark for acrylonitrile (107-13-1) is 0.01 micrograms per cubic meter.

(d) The ambient benchmark for ammonia (7664-41-7) is ~~200~~500 micrograms per cubic meter.

(e) The ambient benchmark for arsenic (7440-38-2) is 0.0002 micrograms per cubic meter.

(f) The ambient benchmark for benzene (71-43-2) is 0.13 micrograms per cubic meter.

(g) The ambient benchmark for beryllium (7440-41-7) is 0.0004 micrograms per cubic meter.

(h) The ambient benchmark for 1,3-butadiene (106-99-0) is 0.03 micrograms per cubic meter.

(i) The ambient benchmark for cadmium and cadmium compounds (7440-43-9) is 0.0006 micrograms per cubic meter.

(j) The ambient benchmark for carbon disulfide (75-15-0) is 800 micrograms per cubic meter.

(k) The ambient benchmark for carbon tetrachloride (56-23-5) is 0.2~~07~~ micrograms per cubic meter.

(l) The ambient benchmark for chlorine (7782-50-5) is 0.1~~2~~ micrograms per cubic meter.

(m) The ambient benchmark for chloroform (67-66-3) is 300~~98~~ micrograms per cubic meter.

(n) The ambient benchmark for chromium, hexavalent (18540-29-9) is 0.00008 micrograms per cubic meter.

(o) The ambient benchmark for cobalt and cobalt compounds (7440-48-4) is 0.1 micrograms per cubic meter.

(p) The ambient benchmark for 1,4-dichlorobenzene (106-46-7) is 0.09 micrograms per cubic meter.

(q) The ambient benchmark for 1,3-dichloropropene (542-75-6) is 0.25 micrograms per cubic meter.

(r) The ambient benchmark for diesel particulate matter (none) is 0.1 micrograms per cubic meter. The benchmark for diesel particulate matter applies only to such material from diesel-fueled internal combustion sources.

(s) The ambient benchmark for dioxins and furans (1746-01-6) is 0.00000003 micrograms per cubic meter. The benchmark for dioxin is for total chlorinated dioxins and furans expressed as 2,3,7,8-TCDD toxicity equivalents.

(t) The ambient benchmark for ethyl benzene (100-41-4) is 0.4 micrograms per cubic meter.

(u) The ambient benchmark for ethylene dibromide (106-93-4) is 0.002 micrograms per cubic meter.

(v) The ambient benchmark for ethylene dichloride (107-06-2) is 0.04 micrograms per cubic meter.

(w) The ambient benchmark for ethylene oxide (75-21-8) is 0.0003 ~~0.01~~ micrograms per cubic meter.

(x) The ambient benchmark for formaldehyde (50-00-0) is ~~3~~ 0.2 micrograms per cubic meter.

(y) The ambient benchmark for n-hexane (110-54-3) is 700~~0~~ micrograms per cubic meter.

(z) The ambient benchmark for hydrogen chloride (7647-01-0) is 20 micrograms per cubic meter.

(aa) The ambient benchmark for hydrogen cyanide (74-90-8) is 0.8~~9~~ micrograms per cubic meter.

(bb) The ambient benchmark for ~~hydrogen~~ fluoride anion (7664-39-3) is 13~~4~~ micrograms per cubic meter.

(cc) The ambient benchmark for lead and lead compounds (7439-92-1) is 0.15 micrograms per cubic meter.

(dd) The ambient benchmark for manganese and manganese compounds (7439-96-5) is 0.09 micrograms per cubic meter.

(ee) The ambient benchmark for elemental mercury (7439-97-6) is 0.3 micrograms per cubic meter.

(ff) The ambient benchmark for methyl bromide (74-83-9) is 5 micrograms per cubic meter.

(gg) The ambient benchmark for methyl chloride (74-87-3) is 90 micrograms per cubic meter.

(hh) The ambient benchmark for methyl chloroform (71-55-6) is ~~1000~~ 5,000 micrograms per cubic meter.

(ii) The ambient benchmark for methylene chloride (75-09-2) is ~~2.1~~ 100 micrograms per cubic meter.

(jj) The ambient benchmark for naphthalene (91-20-3) is 0.03 micrograms per cubic meter.

~~(kk) The ambient benchmark for nickel refinery dust (7440-02-0) is 0.004 micrograms per cubic meter.~~

~~(ll) The ambient benchmark for nickel subsulfide (12035-72-2) is 0.002 micrograms per cubic meter.~~

~~(mm) The ambient benchmark for soluble nickel compounds (various) is 0.05 micrograms per cubic meter, where soluble nickel compounds may include any or all of the following: nickel acetate (373-02-4), nickel chloride (7718-54-9), nickel carbonate (3333-39-3), nickel carbonyl (13463-39-3), nickel hydroxide (12054-48-7), nickelocene (1271-28-9), and nickel sulfate (7786-81-4).~~

(kk) The benchmark for soluble nickel compounds (various) is 0.01 micrograms per cubic meter, where soluble nickel compounds include nickel acetate (373-20-4), nickel chloride (7718-54-9), nickel carbonate (3333-39-3), nickel carbonyl (13463-39-3), nickel hydroxide (12054-48-7), nickelocene 1271-28-9), nickel sulfate 7786-81-4), nickel sulfate hexahydrate 10101-97-0), nickel nitrate hexahydrate (13478-00-7), and nickel carbonate hydroxide (12607-70-4).

(ll) The ambient benchmark for insoluble nickel compounds (various) is 0.004 micrograms per cubic meter, where insoluble nickel compounds include nickel subsulfide (12035-72-2), nickel oxide (1313-99-1), nickel sulfide (11113-75-0), and nickel metal (7440-02-0).

(~~nn~~mm) The ambient benchmark for phosphine (7803-51-2) is ~~0.3~~ 0.8 micrograms per cubic meter.

(~~oo~~nn) The ambient benchmark for phosphoric acid (7664-38-2) is 10 micrograms per cubic meter.

(~~pp~~oo) The ambient benchmark for total (as the sum of congeners) polychlorinated biphenyls (1336-36-3) is 0.01 micrograms per cubic meter.

(~~qq~~pp) The ambient benchmark for total polycyclic aromatic hydrocarbons (none) is ~~0.0009~~ 0.002 micrograms per cubic meter, where total polycyclic aromatic hydrocarbons are the sum of the toxicity equivalency factor (with respect to benzo(a)pyrene (50-32-8)) adjusted concentrations for all of the following individual 26 polycyclic aromatic hydrocarbons:~~-~~ 5-methylchrysene (3697-24-3); 6-nitrochrysene (7496-02-8); acenaphthene (83-32-9); acenaphthylene (208-96-8); anthanthrene (191-26-4); anthracene (120-12-7); benz(a)anthracene (56-55-3); benzo(a)pyrene (50-32-8); benzo(b)fluoranthene (205-99-6); benzo(c)fluoranthene (243-17-4); benzo(e)pyrene (192-97-2); benzo(g,h,i)perylene (191-24-2); benzo(j)fluoranthene (205-82-3); benzo(k)fluoranthene (207-08-9); chrysene (218-01-9); cyclopenta(c,d)pyrene (27208-37-3); dibenz(a,h)anthracene (226-36-8); dibenzo(a,e)pyrene (192-65-4); dibenzo(a,h)pyrene (189-64-0); dibenzo(a,i)pyrene (189-55-9); dibenzo(a,l)pyrene (191-30-0); fluoranthene (206-44-0); fluorene (86-73-7); indeno(1,2,3-c,d)pyrene (193-39-5); phenanthrene (85-01-8); and pyrene (129-00-0).

~~benzo(a)anthracene (56-55-3), benzo(a)pyrene (50-32-8), benzo(b)fluoranthene (205-99-2), benzo(k)fluoranthene (207-08-9), carbazole (86-74-8), chrysene (218-01-9), dibenz(a,h)acridine (226-36-8), dibenz(a,h)anthracene (226-36-8), dibenz(a,j)acridine (224-42-0), 7H-dibenzo(c,g)carbazole (194-59-2), dibenzo(a,e)pyrene (192-65-4), dibenzo(a,i)pyrene (189-55-9), dibenzo(a,l)pyrene (191-30-0), 7,12-dimethylbenz(a)anthracene (57-97-6), 1,6-dinitropyrene (42397-64-8), 1,8-dinitropyrene (42397-65-9), indeno(1,2,3-c,d)pyrene (193-39-5), 3-methylcholanthrene (56-49-5), 5-methylchrysene (3697-24-3), 1-nitropyrene (5522-43-0), 2-nitrofluorene (607-57-8), 4-nitropyrene (59865-13-3), 5-nitroacenaphthene (607-87-9) 6-nitrochrysene (7496-02-8), acenaphthene (83-32-9), acenaphthylene (208-96-8), anthracene (120-12-7), benzo(g,h,i)perylene (191-24-2), fluoranthene (206-44-0), fluorene (86-73-7), phenanthrene~~

~~(85-01-8), and pyrene (129-00-0)~~(~~rr~~qq) The ambient benchmark for tetrachloroethylene (127-18-4) is ~~35~~ 4 micrograms per cubic meter.

(~~ss~~rr) The ambient benchmark for toluene (108-88-3) is ~~400~~ 5,000 micrograms per cubic meter.

(ss~~tt~~) The ambient benchmark for 2,4- & 2,6 toluene diisocyanate, mixture (26471-62-5) is ~~0.07~~ 0.02 micrograms per cubic meter.

(tt~~uu~~) The ambient benchmark for trichloroethylene (79-01-6) is ~~0.5~~ 0.2 micrograms per cubic meter.

(uu~~vv~~) The ambient benchmark for vinyl chloride (75-01-4) is 0.1 micrograms per cubic meter.

(vv~~ww~~) The ambient benchmark for white phosphorus (7723-14-0) is ~~0.07~~ 9 micrograms per cubic meter.

(ww~~xx~~) The ambient benchmark for xylenes, mixed (1330-20-7) is ~~700~~ 200 micrograms per cubic meter.

(xx~~yy~~) The ambient benchmark for hydrogen sulfide (7783-06-4) is 2.0 micrograms per cubic meter.

(yy~~zz~~) The ambient benchmark for methanol (67-56-1) is 4,000 micrograms per cubic meter.

(zz) The ambient benchmark for phosgene (75-44-5) is 0.3 micrograms per cubic meter.

(aaa) The ambient benchmark for n-propyl bromide (106-94-5) is 0.5 micrograms per cubic meter.

(bbb) The ambient benchmark concentration for styrene (100-42-5) is 1,000 micrograms per cubic meter.

Stat. Auth.: ORS 468.035, 468A.010(1) & 468A.015
Stats. Implemented: ORS 468A.015, 468A.025
Hist.: DEQ 15-2003, f. & cert. ef. 11-3-03; DEQ 12-2006, f. & cert. ef. 8-15-06

340-246-0110

Source Category Rules and Strategies

(1) ~~The Department~~DEQ may identify the need for source category rules and strategies through the following methods:

(a) The emissions inventory, modeling or monitoring, shows air toxics emissions from point, area, or mobile sources associated with public health risk at public receptors;

(b) Development of a local air toxics reduction plan provides source category controls that could be effectively applied to sources existing in other parts of the state; or

(c) When implementing the Safety Net Program, ~~the Department~~DEQ establishes air toxics emissions reductions for a source and determines that there are other similar sources in the state to which the reductions ~~should~~ must apply.

(2) Subject to the requirements in this rule, the Lane Regional Air Pollution Authority is designated by the Commission as the agency responsible for implementing Source Category Rules and Strategies within its area of jurisdiction. The requirements and procedures contained in this rule must be used by the Regional Authority to implement Source Category Rules and Strategies unless the Regional Authority adopts superseding rules that are at least as restrictive as the rules adopted by the Commission.

(3) ~~The Department~~DEQ will consider the following criteria in determining whether to propose source category strategies under this division:

(a) Whether air toxics emissions from the source category are not, or will not, be addressed by other regulations or strategies, including emissions reduction requirements under the Geographic Program (OAR 340-246-0130 through 340-246-0170), or the Safety Net Program (OAR 340-246-0190 through 340-246-0230);

(b) Whether air toxic emissions from the source category can be effectively reduced through regulations or voluntary strategies; and

(c) Whether the source category contributes to ambient benchmark exceedances at public receptors statewide, in multiple geographic areas, or in multiple counties

Stat. Auth.: ORS 468.035, 468A.010(1), 468A.015
Stats. Implemented: ORS 468A.015, 468A.025
Hist.: DEQ 15-2003, f. & cert. ef. 11-3-03

340-246-0130

Geographic Program (0130 through 0170)

(1) Purpose. The Geographic Program addresses emissions from multiple sources of air toxics. It requires prioritizing and selecting geographic areas of concern, forming a local advisory committee, developing a specific local plan to control air toxics, a public participation and comment process, EQC adoption or approval, implementing reduction strategies, and periodically evaluating the effectiveness by ~~the Department~~DEQ.

(2) Subject to the requirements in OAR 340-246-0130 through 0170, the Lane Regional Air Pollution Authority is designated by the Commission as the agency to implement the Geographic Program within its area of jurisdiction. The requirements and procedures contained in this rule ~~shall~~ must be used by the Regional Authority to implement the Geographic Program unless the Regional Authority adopts superseding rules which are at

least as restrictive as state rules. The Regional Authority will address geographic areas as resources allow, considering the prioritization criteria in 340-246-0150.

Stat. Auth.: ORS 468.035, 468A.010(1), 468A.015
Stats. Implemented: ORS 468A.015, 468A.025
Hist.: DEQ 15-2003, f. & cert. ef. 11-3-03

340-246-0150

Prioritizing and Selecting Geographic Areas

(1) ~~The Department~~DEQ will prioritize geographic areas by considering the total cancer and non-cancer risk from air toxics to the population in the area, as indicated by:

(a) The number and degree of ambient benchmark exceedances;

(b) The toxicity or potency of air toxics exceeding ambient benchmarks;

(c) The level of exposure and number of people at risk in areas of concern;

(d) The presence of sensitive populations;

(e) The effectiveness of local control strategies; and

(f) To the extent known, the risk posed by multiple pollutants and pollutant mixtures.

(2) Not later than 18 months after the first set of benchmarks is adopted, ~~the Department~~DEQ will select the first geographic area for air toxics reduction planning. ~~The Department~~DEQ will base selection on representative monitoring compared to the ambient benchmark concentrations at public receptors. To the extent possible, geographic areas will be identified using monitoring data generated following EPA monitoring guidelines. Subsequent geographic areas will be selected after completion of monitoring. A geographic area is formally selected upon publication of a notice in the Oregon Secretary of State's Bulletin. Once an area is selected for air toxics reduction planning, it will retain the status of a selected geographic area until ~~the Department~~DEQ determines through an evaluation of data that a reduction plan is no longer necessary for the area to meet all air toxics ambient benchmarks.

(3) ~~The Department~~DEQ will first select for emissions reduction planning the high priority geographic areas, where concentrations of air toxics are more than ten times above the ambient benchmarks or above a hazard quotient of one with the potential for serious adverse health effects. ~~The Department~~DEQ will select all other geographic areas, where air toxics concentrations are above benchmarks, after air toxics emissions reduction plans have been approved for the high priority geographic areas.

(4) Geographic Area Boundaries. ~~The Department~~DEQ will establish general geographic area boundaries on a neighborhood or urban area scale. ~~The Department~~DEQ will consider feasibility of administration when setting the boundaries of a geographic area. In setting

geographic area boundaries, ~~the Department~~DEQ will consider criteria including but not limited to the following:

(a) Areas of impact (where people are exposed);

(b) Population density;

(c) Areas of influence (where sources are located);

(d) Meteorology;

(e) Geography and topography;

(f) Including all air toxics exceeding ambient benchmarks; and

(g) Coordination with criteria pollutant boundaries for attainment of the National Ambient Air Quality Standards (NAAQS).

Stat. Auth.: ORS 468.035, 468A.010(1), 468A.015
Stats. Implemented: ORS 468A.015, 468A.025
Hist.: DEQ 15-2003, f. & cert. ef. 11-3-03

340-246-0170

Local Air Toxics Emissions Reduction Planning

(1) ~~The Department~~DEQ will develop air toxics reduction plans for selected geographic areas with the advice of local advisory committees. The main role of a local advisory committee is to consider air toxics reduction options and to recommend a specific air toxics reduction plan for their geographic area. The Director will appoint a local air toxics advisory committee.

(a) Local advisory committees will generally be composed of a balanced representation of members from affected local government, local health departments, the public, small businesses (50 or fewer employees), larger businesses (if present in the area), and interest groups represented in the area.

(2) Local Advisory Committee Tasks.

(a) Within 18 months of their first meeting, the committee will evaluate options for reducing emissions of air toxics that exceed ambient benchmarks, and recommend a local air toxics reduction plan to ~~the Department~~DEQ.

(b) ~~The Department~~DEQ may grant an extension of time to the local committee if requested by the committee, if ~~the Department~~DEQ believes the extension is technically justified and the committee is making reasonable progress in developing a local air toxics reduction plan.

(c) If the committee is unable to recommend a local air toxics reduction plan to ~~the Department~~DEQ within 18 months, or the date of an extension, ~~the Department~~DEQ will formulate a plan for the area within six months.

(d) ~~The Department~~DEQ and the local advisory committee will seek local government support for the proposed local air toxics emissions reduction plan.

(e) The local advisory committee will evaluate the plan's effectiveness as it is implemented and recommend changes to ~~the Department~~DEQ.

(f) At ~~the Department~~DEQ's request, the local advisory committee will reconvene to implement contingency planning and recommend contingency measures as specified by OAR 340-246-0170(4)(l).

(g) If the committee is unable to recommend contingency measures within 18 months, ~~the Department~~DEQ will formulate contingency measures for the area within 6 months.

(3) Public Notice, Comment, Approval and Adoption by the Environmental Quality Commission. ~~The Department~~DEQ will provide an opportunity for public notice and comment on proposed local emissions reduction plans. After the public notice and comment process is complete, ~~the Department~~DEQ will present local air toxics reduction plans to the Commission for approval, including adoption of appropriate administrative rules. The Environmental Quality Commission may delegate the approval of plans that do not contain administrative rules to the Director of ~~the Department~~DEQ.

(4) Elements of an Air Toxics Reduction Plan:

(a) Local air toxics reduction plans must focus on the air toxic or air toxics measured or modeled above the ambient benchmarks.

(b) Local air toxics reduction plans must be based on sound data analysis. This includes developing enhanced emissions inventory information for the local area using source-specific information to the extent possible. This may also include enhanced modeling and monitoring to better characterize ambient concentrations. Plans also must rely on sound analysis of the effectiveness and cost of air toxics emissions reduction options. Where needed to fill specific information gaps, ~~the Department~~DEQ may require air toxics emissions reporting for specific sources or source categories within the geographic area on a case-by-case basis.

(c) The emissions reduction goals for individual air toxics are ambient benchmarks in local air toxics reduction plans.

(d) Local air toxics reduction plans must be designed to reduce air toxics emissions in a timely manner.

(A) When feasible, local air toxics reduction plans will be designed to reach levels that are equal to or below ambient benchmark concentrations. Plans will be designed to achieve emissions reductions within ten years, beginning at the date the Commission approves the

plan. Local plans must provide for the timeliest reductions possible for each air toxic exceeding ambient benchmarks.

(B) Local air toxics reduction plans must include specific three-year milestones that ~~the Department~~DEQ and the local advisory committee will evaluate every three years, in coordination with ~~the Department~~DEQ's air toxics emissions inventory update.

(e) Every three years, ~~the Department~~DEQ will assess the effectiveness of local plans and make recommendations for plan revision based on progress meeting milestones or new information. If ~~the Department~~DEQ finds lack of progress at year three, it will work with the local advisory committee to provide corrective measures. If ~~the Department~~DEQ finds lack of progress at year six and projects that ten-year goals in OAR 340-246-0170(4)(d)(A) will not be met, it will implement the contingency plan in 340-246-0170(4)(l). If at year nine ~~the Department~~DEQ projects that ten year goals in 340-246-0170(4)(d)(A) will not be met, it will work with the local advisory committee to propose and seek adoption of measures necessary to reach these goals.

(f) Local air toxics reduction plans must evaluate air toxics emissions from all types of sources, including point, area, and mobile sources. Plans must require emissions reductions from the most significant sources of air toxics. Mandatory emissions reduction strategies will be commensurate with source contributions, considering relative emissions, toxicity, technical feasibility, cost-effectiveness and equity.

(g) Local air toxics reduction plans must include strategies to reduce high concentrations of air toxics that are limited to smaller portions of a geographic area as well as pollutants causing public health risk throughout the area.

(h) Local air toxics reduction plans may include a variety of mandatory and voluntary approaches to reducing emissions of air toxics. Depending on the type of source, local air toxics reduction plans may include public education, pollution prevention alternatives, economic incentives and disincentives, technical assistance and regulatory requirements.

(i) ~~The Department~~DEQ will ensure the opportunity for public involvement during the plan development process. This includes involving those affected by the air toxics emissions and those affected by the proposals to reduce air toxics emissions. Proposed local air toxics reduction plans must be available for public hearing and comment.

(j) Local air toxics reduction plans must be coordinated with other local, state, and federal requirements to the extent possible. This includes considerations of any ozone or particulate control requirements for the area, any federal standard applicable to sources in the area, any strategies that are federally pre-empted, and any impacts on water or land, such as water pollution or hazardous waste.

(k) Local air toxics reduction plans will include specific recommendations for developing ongoing emissions inventory or ambient air monitoring to track local trends in air toxics.

(l) Local air toxics reduction plans must include a contingency plan that will be implemented if evaluation at year six shows that an area is not meeting milestones and will not achieve the

ten year goals established under OAR 340-246-0170(4)(d)(A). The contingency plan, like the original plan, must require emissions reductions from the most significant sources of air toxics. Mandatory emissions reduction strategies will be commensurate with source contributions, considering relative emissions, toxicity, technical feasibility cost-effectiveness and equity. Contingency plans must include but are not limited to:

(i) Re-evaluation of planning assumptions, such as emissions factors, motor vehicle data and background pollutants;

(ii) Evaluation of existing conditions and effectiveness of emissions reduction strategies, including reasons for success or failure; and

(iii) New or progressively more mandatory strategies that will be considered.

Stat. Auth.: ORS 468.035, 468A.010(1), 468A.015
Stats. Implemented: ORS 468A.015, 468A.025
Hist.: DEQ 15-2003, f. & cert. ef. 11-3-03

340-246-0190

Air Toxics Safety Net Program (0190 through 0230)

(1) The purpose of the Air Toxics Safety Net Program is to address human exposures at public receptors to air toxics emissions from stationary sources that are not addressed by other regulatory programs or the Geographic Program. It is the Commission's expectation that the Safety Net Program in OAR 340-246-0190 through 340-246-0230 will apply only rarely.

(2) Subject to the requirements contained in OAR 340-246-0190 through 340-246-0230, the Lane Regional Air Pollution Authority is designated by the Commission as the agency responsible for implementing the Air Toxics Safety Net Program within its area of jurisdiction. The requirements and procedures contained in this rule must be used by the Regional Authority to implement the Air Toxics Safety Net Program unless the Regional Authority adopts superseding rules, which are at least as restrictive as the rules adopted by the Commission.

(3) Selection of Sources. ~~The Department~~DEQ will select a source for the Air Toxics Safety Net Program if all of the following criteria are met:

(a) ~~The Department~~DEQ has ambient monitoring information, gathered using appropriate EPA or other published international, national, or state standard methods that concentrations of air toxics have caused an exceedance of at least one ambient benchmark at a site representing expected human exposure to air toxics from the source at a public receptor in a location outside of the source's ownership or control.

(b) ~~The Department~~DEQ has information that the source's air toxics emissions alone have caused an exceedance of at least one ambient benchmark at a site representing expected human exposure to air toxics from the source at a public receptor, in a location outside of the

source's ownership or control. This could be based on emissions inventory, modeling or other information.

(c) The source is not subject to or scheduled for a federal residual risk assessment under the federal Clean Air Act section 112(f)(2) through (6).

(d) The source is not subject to an emissions limit or control requirement imposed as the result of modeling or a risk assessment performed or required by ~~the Department~~DEQ prior to November 1, 2003 for the air toxics that exceed the ambient benchmarks.

(e) The source is located outside of a selected geographic area, as designated in OAR 340-246-0130 through 0170.

(4) Air Toxics Science Advisory Committee Review. Before requiring a source to conduct a source-specific risk assessment, ~~the Department~~DEQ will present its analysis to the ATSAC. Within 120 days, the ATSAC will review the analysis and make a finding. If the ATSAC concurs with ~~the Department~~DEQ or takes no action, ~~the Department~~DEQ may proceed ~~pursuant to~~under this rule. If the ATSAC objects, ~~the Department~~DEQ will not proceed until it receives concurrence from the Commission.

(5) Source-Specific Exposure Modeling and Risk Assessment. Upon written notification by ~~the Department~~DEQ, a source must conduct a risk assessment including exposure modeling for the air toxics measured at levels above ambient benchmarks. The source must use a risk assessment methodology provided by ~~the Department~~DEQ. This risk assessment will provide the basis for establishing air toxics emissions reductions or demonstrating that at public receptors in areas outside of a source's ownership or control, people are not being exposed to air toxics at levels that exceed the ambient benchmarks.

(6) Risk Assessment Methodology ~~The Department~~DEQ will provide guidance on the methods to be used. The risk assessment methodology will be developed in consultation with the ATSAC and will result in a protocol that:

(a) Uses reasonable estimates of plausible upper-bound exposures that neither grossly underestimate nor grossly overestimate risks;

(b) Considers the range of probabilities of risks actually occurring, the range of size of the populations likely to be exposed to the risk, and current and reasonably likely future land uses;

(c) Defines the use of high-end and central-tendency exposure cases and assumptions;

(d) Develops values associated with chronic exposure for carcinogens; and

(e) Addresses both carcinogenic and non-carcinogenic air toxics and allows for detailed exposure assessments to the extent possible.

(7) Review and Acceptance by ~~the Department~~DEQ. ~~The Department~~DEQ will evaluate the risk assessment for adequacy and completeness before accepting the results. If the results

demonstrate that the source is not causing human exposures to air toxics at levels that exceed the ambient benchmarks at public receptors, in areas outside the source's ownership or control, and ~~the Department~~DEQ has received concurrence from the ATSAC, ~~the Department~~DEQ will notify the source that air toxics emissions reductions will not be required ~~pursuant to~~under this rule.

Stat. Auth.: ORS 468.035, 468A.010(1), 468A.015
Stats. Implemented: ORS 468A.015, 468A.025
Hist.: DEQ 15-2003, f. & cert. ef. 11-3-03

340-246-0210

Safety Net Source Air Toxics Emissions Reductions

(1) Air Toxics Emissions Reduction Analysis:

(a) If source-specific exposure modeling and risk assessment show that the source is causing exceedances of ambient benchmarks at public receptors in areas outside the source's ownership or control, the source must perform an analysis showing how air toxics could be reduced to meet ambient benchmarks. ~~The Department~~DEQ and the safety net source will develop proposed air toxics emissions reduction measures based on modeling and, when available, monitoring information.

(b) As part of the air toxics emissions reduction analysis, the source will analyze pollution prevention options, and is encouraged to use the hierarchy stated in OAR 340-246-0050.

(2) Air Toxics Emissions Reduction Requirements:

(a) A safety net source emitting air toxics causing exposure resulting in excess lifetime cancer risk greater than one in a million (1x10-6) or a hazard quotient of one for non-carcinogens must, as soon as practicable but no later than three years after the effective date of the permit imposing such conditions, meet toxics best available retrofit technology (TBART) for each air toxic that exceeds an ambient benchmark.

(b) A safety net source may use a means of air toxics reduction, other than TBART, if it can demonstrate to ~~the Department~~DEQ that it will achieve a risk level at or below one in a million, or a hazard quotient at or below one, within three years of using the other means of air toxics emissions reductions.

(c) A safety net source emitting a carcinogenic air toxic causing excess lifetime cancer risk at or above one hundred in a million (1x10-4) must reduce its air toxic emissions to achieve a risk level below one hundred in a million as soon practicable but no later than one year after the effective date of the permit imposing such conditions.

(d) A safety net source emitting a non-carcinogenic air toxic at a level above a hazard quotient of one that ~~the Department~~DEQ finds to have a potential for causing very serious or irreversible adverse health effects must reduce its air toxic emissions below this level as soon

practicable, but no later than one year after the effective date of the permit imposing such conditions.

(3) If a safety net source cannot reach a risk level at or below excess lifetime cancer risk of one in a million, or a hazard quotient at or below one in three years, even though it meets TBART, the TBART determination for the source will be subject to periodic review under this section until the source achieves a risk level at or below one in a million or a hazard quotient at or below one. Upon each renewal of the source's permit, TBART for the source must be reviewed, taking into consideration retrofit costs and the remaining useful life of controls installed or other measures taken to meet a prior TBART determination. Upon renewal of the source's permit, ~~the Department~~DEQ must include conditions requiring the source to meet TBART as determined for that permit renewal.

Stat. Auth.: ORS 468.035, 468A.010(1), 468A.015
Stats. Implemented: ORS 468A.015, 468A.025
Hist.: DEQ 15-2003, f. & cert. ef. 11-3-03

Draft Rules – With Edits Included

DEPARTMENT OF ENVIRONMENTAL QUALITY

DIVISION 246

Oregon State Air Toxics Program

340-246-0010, Policy and Purpose

The purpose of Oregon's state air toxics program is to address threats to public health and the environment from toxic air pollutants that remain after implementing the state delegated technology-based strategies of the federal air toxics program. Oregon's program meets the goals of the federal Urban Air Toxics Strategy by using a community-based effort that focuses on geographic areas of concern. It also addresses cases of elevated health risks from unregulated air toxics emissions at stationary sources and source categories of air toxics emissions.

Stat. Auth.: ORS 468.035, 468A.010(1), 468A.015
Stats. Implemented: ORS 468A.015, 468A.025
Hist.: DEQ 15-2003, f. & cert. ef. 11-3-03

340-246-0030, Definitions

The definitions in OAR 340-200-0020, 340-218-0030, 340-244-0030 and this rule apply to this division. If the same term is defined in this division and elsewhere, the definition in this division applies.

(1) "Air toxics" means those pollutants known or suspected to cause cancer or other serious health effects, including but not limited to "hazardous air pollutants" or "HAPs" listed by the EPA under section 112(b) of the Federal Clean Air Act.

(2) "Ambient benchmark" means the concentration of an air toxic in outdoor air that would result in an excess lifetime cancer risk level of one in a million (1 x 10-6) or a non-cancer hazard quotient of one.

(3) "Bio-accumulation" means the net accumulation of a substance by an organism as a result of uptake from all routes of exposure (e.g., ingestion of food, intake of drinking water, direct contact, or inhalation).

(4) "Geographic area" means an area identified by DEQ where air toxics concentrations are estimated or measured at levels that exceed ambient benchmark concentrations.

(5) "Hazard quotient" means the ratio of the potential exposure to a single air toxic to the reference concentration for that pollutant. If the hazard quotient is calculated to be less than or equal to 1, then no adverse health effects are expected as a result of exposure. If the hazard quotient is greater than 1, then adverse health effects are possible.

(6) "High priority geographic area" means an area identified by DEQ where air toxics concentrations are estimated or measured at levels that exceed ambient benchmark concentrations and pose excess cancer risk above ten in a million, or non-cancer risk above a hazard quotient of one with the potential for serious adverse health effects.

(7) "Public receptor" means any outdoor area where members of the public have unrestricted access, including but not limited to residences, institutions (e.g. schools, hospitals), industrial, commercial, or office buildings, parks, recreational areas, public lands, streets or sidewalks.

(8) "Reference concentration" means an estimate of a continuous exposure or a daily exposure to the human population (including sensitive populations) that is likely to be without an appreciable risk of adverse non-cancer effects during a lifetime. The reference concentration can be derived from various types of human or animal data, with uncertainty factors generally applied to reflect limitations of the data used.

(9) "Sensitive human populations" means humans with increased susceptibility to the adverse effects of air toxics, including humans in prenatal or postnatal periods of development.

(10) "Source" means:

(a) An activity conducted by a person at a point, area, on-road mobile, or off-road mobile operation that emits air toxics; or

(b) Any building, structure, facility, installation or combination thereof that emits or is capable of emitting air contaminants to the atmosphere, is located on one or more contiguous or adjacent properties and is owned or operated by the same person or by persons under common control. The term includes all pollutant emitting activities that belong to a single major industrial group (i.e., that have the same two-digit code) as described in the **Standard Industrial Classification Manual**, (U.S. Office of Management and Budget, 1987) or that support the major industrial group.

(11) "Source Category" means:

(a) A source or group of sources that emit air toxics due to the use of the same or similar processes, including commercial, residential, public or private processes, which as a group can reduce air toxics emissions by employing similar control or prevention strategies or;

(b) All the pollutant emitting activities that belong to the same industrial grouping (i.e., that have the same two-digit code) as described in the **Standard Industrial Classification Manual**, (U.S. Office of Management and Budget, 1987).

(12) "Toxics Best Available Retrofit Technology", or "TBART" means an air toxics emissions limitation based on the maximum degree of reduction of air toxics, determined on a case-by-case basis, that is feasible taking into consideration:

(a) What has been achieved in practice for that source category, or for similar processes or emissions;

(b) Energy and non-air quality health or environmental impacts; and

(c) Economic impacts, including the costs of changing existing processes or equipment or adding equipment or controls to existing processes and equipment. Such limitation may be based on a design, equipment, work practice or other operational standard, or combination thereof.

[Publications: Publications referenced are available from the agency.]

Stat. Auth.: ORS 468.035, 468A.010(1), 468A.015
Stats. Implemented: ORS 468A.015, 468A.025
Hist.: DEQ 15-2003, f. & cert. ef. 11-3-03

340-246-0050, Pollution Prevention

The Environmental Quality Commission encourages the use of pollution prevention for all sources of air toxics statewide. The Commission encourages use of the following hierarchy to reduce air toxics:

(1) Modify the process, raw materials, or product to reduce the quantity and toxicity of air contaminants generated;

(2) Capture and reuse air contaminants;

(3) Treat to reduce the quantity and toxicity of air contaminants released; or

(4) Otherwise control air toxics emissions.

Stat. Auth.: ORS 468.035, 468A.010(1), 468A.015
Stats. Implemented: ORS 468A.015, 468A.025
Hist.: DEQ 15-2003, f. & cert. ef. 11-3-03

340-246-0070, Air Toxics Science Advisory Committee

(1) Purpose. The Commission recognizes the many scientific uncertainties associated with the effects of air toxics, and the continuing development of new information in this field. An Air Toxics Science Advisory Committee (ATSAC), will advise DEQ, and in its jurisdiction, the Lane Regional Air Pollution Authority, on technical issues and evaluation of the state air toxics program. The ATSAC will provide advice on the technical aspects of risk assessment. It will not provide risk management or policy recommendations. The ATSAC will perform the following functions:

(a) Review ambient benchmarks for the state air toxics program;

(b) Advise DEQ on developing a risk assessment methodology to be used in the Safety Net Program in OAR 340-246-0190 (5) and (6);

(c) Advise DEQ on selecting sources for the Safety Net program. The ATSAC will evaluate potential Safety Net sources identified by DEQ to determine whether they qualify for the Safety Net Program, as specified in OAR 340-246-0190 through 0230;

(d) Evaluate overall progress in reducing emissions of and exposure to air toxics by considering trends in emissions and ambient concentrations of air toxics. The ATSAC will periodically advise DEQ on air toxics program effectiveness and make technical recommendations for program development concerning the possible adverse environmental effects of air toxics and risk from exposure to multiple air toxics; and

(e) Provide advisory opinions on questions requiring scientific expertise, as requested by DEQ.

(2) Membership. The ATSAC will be composed of highly qualified members with experience relevant to air toxics. There will be at least five but no more than seven members. The following disciplines will be represented on the ATSAC:

(a) Toxicology;

(b) Environmental Science or Environmental Engineering;

(c) Risk Assessment;

(d) Epidemiology/Biostatistics;

(e) Medicine (Physician) with training or experience in Public Health; and

(f) Air Pollution Modeling, Monitoring, Meteorology or Engineering.

(3) Appointment. DEQ's Air Quality Division Administrator will nominate potential members to the Director. Before making these nominations, the Administrator will develop a list of candidates by consulting with government, public, and private organizations involved

in work relevant to air toxics. The Director will appoint ATSAC members with concurrence by the Commission.

(4) Term. Air Toxics Science Advisory Committee members will serve a three-year term. Initial terms will be staggered for continuity and transfer of work so that members of the first ATSAC may serve more or less than three years.

(5) Operation.

(a) No member may have an actual or potential conflict of interest, as those terms are defined by ORS 244.020.

(b) The ATSAC will meet as necessary.

(6) Procedures, Bylaws, and Decision-making Process. At a minimum, the ATSAC will observe the procedures specified below. The ATSAC will develop other necessary procedures and bylaws in consultation with DEQ.

(a) Final decisions must be made by a quorum of members, based on consensus when possible. If consensus is not possible, decisions will be made by majority vote with a quorum present.

(b) If necessary, DEQ may obtain a facilitator to assist the ATSAC.

(c) The bylaws will include provisions for removing a member for cause, with concurrence by the Commission.

Stat. Auth.: ORS 468.035, 468A.010(1), 468A.015
Stats. Implemented: ORS 468A.015, 468A.025
Hist.: DEQ 15-2003, f. & cert. ef. 11-3-03

340-246-0090, Ambient Benchmarks for Air Toxics

(1) Purpose. Ambient benchmarks are concentrations of air toxics that serve as goals in the Oregon Air Toxics Program. They are based on human health risk and hazard levels considering sensitive populations. Ambient benchmarks are not regulatory standards, but reference values by which air toxics problems can be identified, addressed and evaluated. DEQ will use ambient benchmarks as indicated in these rules, to implement the Geographic, Source Category, and Safety Net Programs. Ambient benchmarks set by the procedures described in this rule apply throughout Oregon, including that area within the jurisdiction of the Lane Regional Air Protection Agency. Ambient benchmarks are subject to public notice and comment before adoption by the Environmental Quality Commission as administrative rules.

(2) Establishing Ambient Benchmarks

(a) DEQ will consult with the ATSAC to prioritize air toxics for ambient benchmark development. Highest priority air toxics are those that pose the greatest risk to public health.

(b) To prioritize air toxics, DEQ will apply the criteria described in OAR 340-246-0090(2)(c) to modeling, monitoring, and emissions inventory data.

(c) Ambient benchmark prioritization criteria will include at least the following:

(A) Toxicity or potency of a pollutant;

(B) Exposure and number of people at risk;

(C) Impact on sensitive human populations;

(D) The number and degree of predicted ambient benchmark exceedances; and

(E) Potential to cause harm through persistence and bio-accumulation.

(d) DEQDEQ will develop ambient benchmarks for proposal to the ATSAC based upon a protocol that uses reasonable estimates of plausible upper-bound exposures that neither grossly underestimate nor grossly overestimate risks.

(e) Within three months of the first meeting of the ATSAC, DEQ will propose ambient benchmark concentrations for the highest priority air toxics for review by the ATSAC. DEQ will propose additional and revised air toxics ambient benchmarks for review by the ATSAC based on the prioritization criteria in OAR 340-246-0090(2)(c). Once the ATSAC has completed review of each set of proposed ambient benchmarks, DEQ will, within 60 days, begin the process to propose ambient benchmarks as administrative rules for adoption by the Environmental Quality Commission.

(f) If DEQ is unable to propose ambient benchmarks to the ATSAC by the deadlines specified in OAR 340-246-0090(2)(e), the ATSAC will review the most current EPA ambient benchmarks. If EPA ambient benchmarks are not available, the ATSAC will review the best available information from other states and local air authorities.

(g) The ATSAC will consider proposed ambient benchmarks and evaluate their adequacy for meeting risk and hazard levels, considering human health, including sensitive human populations, scientific uncertainties, persistence, bio-accumulation, and, to the extent possible, multiple exposure pathways. The ATSAC will conduct this review consistent with the criteria in OAR 340-246-0090(2)(c) and (d). The ATSAC will report these findings to DEQDEQ. If the ATSAC unanimously disagrees with DEQ's recommendation, DEQ will re-consider and re-submit its recommendation at a later date.

(h) The ATSAC will complete review of and report findings on each set of ambient benchmarks as quickly as possible, but no later than 12 months after DEQ has proposed

them. If the ATSAC is unable to complete review of ambient benchmarks within 12 months after DEQ's proposal, DEQ will initiate rulemaking to propose ambient benchmarks.

(i) DEQ will review all ambient benchmarks at least every five years and, if necessary, propose revised or additional ambient benchmarks to the ATSAC. At its discretion, DEQ may review and propose a benchmark for review by the ATSAC at any time when new information is available.

(3) Ambient Benchmarks. Benchmark concentrations are in units of micrograms of air toxic per cubic meter of ambient air, on an average annual basis. The Chemical Abstract Service Registry Number (CASRN) is shown in parentheses.

(a) The ambient benchmark for acetaldehyde (75-07-0) is 0.45 micrograms per cubic meter.

(b) The ambient benchmark for acrolein (107-02-8) is 0.35 micrograms per cubic meter.

(c) The ambient benchmark for acrylonitrile (107-13-1) is 0.01 micrograms per cubic meter.

(d) The ambient benchmark for ammonia (7664-41-7) is 500 micrograms per cubic meter.

(e) The ambient benchmark for arsenic (7440-38-2) is 0.0002 micrograms per cubic meter.

(f) The ambient benchmark for benzene (71-43-2) is 0.13 micrograms per cubic meter.

(g) The ambient benchmark for beryllium (7440-41-7) is 0.0004 micrograms per cubic meter.

(h) The ambient benchmark for 1,3-butadiene (106-99-0) is 0.03 micrograms per cubic meter.

(i) The ambient benchmark for cadmium and cadmium compounds (7440-43-9) is 0.0006 micrograms per cubic meter.

(j) The ambient benchmark for carbon disulfide (75-15-0) is 800 micrograms per cubic meter.

(k) The ambient benchmark for carbon tetrachloride (56-23-5) is 0.2 micrograms per cubic meter.

(l) The ambient benchmark for chlorine (7782-50-5) is 0.1 micrograms per cubic meter.

(m) The ambient benchmark for chloroform (67-66-3) is 300 micrograms per cubic meter.

(n) The ambient benchmark for chromium, hexavalent (18540-29-9) is 0.00008 micrograms per cubic meter.

(o) The ambient benchmark for cobalt and cobalt compounds (7440-48-4) is 0.1 micrograms per cubic meter.

(p) The ambient benchmark for 1,4-dichlorobenzene (106-46-7) is 0.09 micrograms per cubic meter.

(q) The ambient benchmark for 1,3-dichloropropene (542-75-6) is 0.25 micrograms per cubic meter.

(r) The ambient benchmark for diesel particulate matter (none) is 0.1 micrograms per cubic meter. The benchmark for diesel particulate matter applies only to such material from diesel-fueled internal combustion sources.

(s) The ambient benchmark for dioxins and furans (1746-01-6) is 0.00000003 micrograms per cubic meter. The benchmark for dioxin is for total chlorinated dioxins and furans expressed as 2,3,7,8-TCDD toxicity equivalents.

(t) The ambient benchmark for ethyl benzene (100-41-4) is 0.4 micrograms per cubic meter.

(u) The ambient benchmark for ethylene dibromide (106-93-4) is 0.002 micrograms per cubic meter.

(v) The ambient benchmark for ethylene dichloride (107-06-2) is 0.04 micrograms per cubic meter.

(w) The ambient benchmark for ethylene oxide (75-21-8) is 0.0003 micrograms per cubic meter.

(x) The ambient benchmark for formaldehyde (50-00-0) is 0.2 micrograms per cubic meter.

(y) The ambient benchmark for n-hexane (110-54-3) is 700 micrograms per cubic meter.

(z) The ambient benchmark for hydrogen chloride (7647-01-0) is 20 micrograms per cubic meter.

(aa) The ambient benchmark for hydrogen cyanide (74-90-8) is 0.8 micrograms per cubic meter.

(bb) The ambient benchmark for fluoride anion (7664-39-3) is 13micrograms per cubic meter.

(cc) The ambient benchmark for lead and lead compounds (7439-92-1) is 0.15 micrograms per cubic meter.

(dd) The ambient benchmark for manganese and manganese compounds (7439-96-5) is 0.09 micrograms per cubic meter.

(ee) The ambient benchmark for elemental mercury (7439-97-6) is 0.3 micrograms per cubic meter.

(ff) The ambient benchmark for methyl bromide (74-83-9) is 5 micrograms per cubic meter.

(gg) The ambient benchmark for methyl chloride (74-87-3) is 90 micrograms per cubic meter.

(hh) The ambient benchmark for methyl chloroform (71-55-6) is 5,000 micrograms per cubic meter.

(ii) The ambient benchmark for methylene chloride (75-09-2) is 100 micrograms per cubic meter.

(jj) The ambient benchmark for naphthalene (91-20-3) is 0.03 micrograms per cubic meter.

(kk) The benchmark for soluble nickel compounds (various) is 0.01 micrograms per cubic meter, where soluble nickel compounds include nickel acetate (373-20-4), nickel chloride (7718-54-9), nickel carbonate (3333-39-3), nickel carbonyl (13463-39-3), nickel hydroxide (12054-48-7), nickelocene 1271-28-9), nickel sulfate 7786-81-4), nickel sulfate hexahydrate 10101-97-0), nickel nitrate hexahydrate (13478-00-7), and nickel carbonate hydroxide (12607-70-4).

(ll) The ambient benchmark for insoluble nickel compounds (various) is 0.004 micrograms per cubic meter, where insoluble nickel compounds include nickel subsulfide (12035-72-2), nickel oxide (1313-99-1), nickel sulfide (11113-75-0), and nickel metal (7440-02-0).

(mm) The ambient benchmark for phosphine (7803-51-2) is 0.8 micrograms per cubic meter.

(nn) The ambient benchmark for phosphoric acid (7664-38-2) is 10 micrograms per cubic meter.

(oo) The ambient benchmark for total (as the sum of congeners) polychlorinated biphenyls (1336-36-3) is 0.01 micrograms per cubic meter.

(pp) The ambient benchmark for total polycyclic aromatic hydrocarbons (none) is 0.002 micrograms per cubic meter, where total polycyclic aromatic hydrocarbons are the sum of the toxicity equivalency factor (with respect to benzo(a)pyrene (50-32-8)) adjusted concentrations for all of the following individual 26 polycyclic aromatic hydrocarbons: 5-methylchrysene (3697-24-3); 6-nitrochrysene (7496-02-8); acenaphthene (83-32-9); acenaphthylene (208-96-8); anthanthrene (191-26-4); anthracene (120-12-7); benz(a)anthracene (56-55-3); benzo(a)pyrene (50-32-8); benzo(b)fluoranthene (205-99-6); benzo(c)fluoranthene (243-17-4); benzo(e)pyrene (192-97-2); benzo(g,h,i)perylene (191-24-2); benzo(j)fluoranthene (205-82-3); benzo(k)fluoranthene (207-08-9); chrysene (218-01-9); cyclopenta(c,d)pyrene (27208-37-3); dibenz(a,h)anthracene (226-36-8); dibenzo(a,e)pyrene (192-65-4); dibenzo(a,h)pyrene (189-64-0); dibenzo(a,i)pyrene (189-55-9);

dibenzo(a,l)pyrene (191-30-0); fluoranthene (206-44-0); fluorene (86-73-7); indeno(1,2,3-c,d)pyrene (193-39-5); phenanthrene (85-01-8); and pyrene (129-00-0).

(qq) The ambient benchmark for tetrachloroethylene (127-18-4) is 4 micrograms per cubic meter.

(rr) The ambient benchmark for toluene (108-88-3) is 5,000 micrograms per cubic meter.

(ss) The ambient benchmark for 2,4- & 2,6 toluene diisocyanate, mixture (26471-62-5) is 0.02 micrograms per cubic meter.

(tt) The ambient benchmark for trichloroethylene (79-01-6) is 0.2 micrograms per cubic meter.

(uu) The ambient benchmark for vinyl chloride (75-01-4) is 0.1 micrograms per cubic meter.

(vv) The ambient benchmark for white phosphorus (7723-14-0) is 9 micrograms per cubic meter.

(ww) The ambient benchmark for xylenes, mixed (1330-20-7) is 200 micrograms per cubic meter.

(xx) The ambient benchmark for hydrogen sulfide (7783-06-4) is 2.0 micrograms per cubic meter.

(yy) The ambient benchmark for methanol (67-56-1) is 4,000 micrograms per cubic meter.

(zz) The ambient benchmark for phosgene (75-44-5) is 0.3 micrograms per cubic meter.

(aaa) The ambient benchmark for n-propyl bromide (106-94-5) is 0.5 micrograms per cubic meter.

(bbb) The ambient benchmark concentration for styrene (100-42-5) is 1,000 micrograms per cubic meter.

Stat. Auth.: ORS 468.035, 468A.010(1) & 468A.015
Stats. Implemented: ORS 468A.015, 468A.025
Hist.: DEQ 15-2003, f. & cert. ef. 11-3-03; DEQ 12-2006, f. & cert. ef. 8-15-06

340-246-0110, Source Category Rules and Strategies

(1) DEQ may identify the need for source category rules and strategies through the following methods:

(a) The emissions inventory, modeling or monitoring, shows air toxics emissions from point, area, or mobile sources associated with public health risk at public receptors;

(b) Development of a local air toxics reduction plan provides source category controls that could be effectively applied to sources existing in other parts of the state; or

(c) When implementing the Safety Net Program, DEQ establishes air toxics emissions reductions for a source and determines that there are other similar sources in the state to which the reductions must apply.

(2) Subject to the requirements in this rule, the Lane Regional Air Pollution Authority is designated by the Commission as the agency responsible for implementing Source Category Rules and Strategies within its area of jurisdiction. The requirements and procedures contained in this rule must be used by the Regional Authority to implement Source Category Rules and Strategies unless the Regional Authority adopts superseding rules that are at least as restrictive as the rules adopted by the Commission.

(3) DEQ will consider the following criteria in determining whether to propose source category strategies under this division:

(a) Whether air toxics emissions from the source category are not, or will not, be addressed by other regulations or strategies, including emissions reduction requirements under the Geographic Program (OAR 340-246-0130 through 340-246-0170), or the Safety Net Program (OAR 340-246-0190 through 340-246-0230);

(b) Whether air toxic emissions from the source category can be effectively reduced through regulations or voluntary strategies; and

(c) Whether the source category contributes to ambient benchmark exceedances at public receptors statewide, in multiple geographic areas, or in multiple counties

Stat. Auth.: ORS 468.035, 468A.010(1), 468A.015
Stats. Implemented: ORS 468A.015, 468A.025
Hist.: DEQ 15-2003, f. & cert. ef. 11-3-03

340-246-0130, Geographic Program (0130 through 0170)

(1) Purpose. The Geographic Program addresses emissions from multiple sources of air toxics. It requires prioritizing and selecting geographic areas of concern, forming a local advisory committee, developing a specific local plan to control air toxics, a public participation and comment process, EQC adoption or approval, implementing reduction strategies, and periodically evaluating the effectiveness by DEQ.

(2) Subject to the requirements in OAR 340-246-0130 through 0170, the Lane Regional Air Pollution Authority is designated by the Commission as the agency to implement the Geographic Program within its area of jurisdiction. The requirements and procedures contained in this rule must be used by the Regional Authority to implement the Geographic Program unless the Regional Authority adopts superseding rules which are at least as restrictive as state rules. The Regional Authority will address geographic areas as resources allow, considering the prioritization criteria in 340-246-0150.

Stat. Auth.: ORS 468.035, 468A.010(1), 468A.015
Stats. Implemented: ORS 468A.015, 468A.025
Hist.: DEQ 15-2003, f. & cert. ef. 11-3-03

340-246-0150, Prioritizing and Selecting Geographic Areas

(1) DEQ will prioritize geographic areas by considering the total cancer and non-cancer risk from air toxics to the population in the area, as indicated by:

(a) The number and degree of ambient benchmark exceedances;

(b) The toxicity or potency of air toxics exceeding ambient benchmarks;

(c) The level of exposure and number of people at risk in areas of concern;

(d) The presence of sensitive populations;

(e) The effectiveness of local control strategies; and

(f) To the extent known, the risk posed by multiple pollutants and pollutant mixtures.

(2) Not later than 18 months after the first set of benchmarks is adopted, DEQ will select the first geographic area for air toxics reduction planning. DEQ will base selection on representative monitoring compared to the ambient benchmark concentrations at public receptors. To the extent possible, geographic areas will be identified using monitoring data generated following EPA monitoring guidelines. Subsequent geographic areas will be selected after completion of monitoring. A geographic area is formally selected upon publication of a notice in the Oregon Secretary of State's Bulletin. Once an area is selected for air toxics reduction planning, it will retain the status of a selected geographic area until DEQ determines through an evaluation of data that a reduction plan is no longer necessary for the area to meet all air toxics ambient benchmarks.

(3) DEQ will first select for emissions reduction planning the high priority geographic areas, where concentrations of air toxics are more than ten times above the ambient benchmarks or above a hazard quotient of one with the potential for serious adverse health effects. DEQ will select all other geographic areas, where air toxics concentrations are above benchmarks, after air toxics emissions reduction plans have been approved for the high priority geographic areas.

(4) Geographic Area Boundaries. DEQ will establish general geographic area boundaries on a neighborhood or urban area scale. DEQ will consider feasibility of administration when setting the boundaries of a geographic area. In setting geographic area boundaries, DEQ will consider criteria including but not limited to the following:

(a) Areas of impact (where people are exposed);

(b) Population density;

(c) Areas of influence (where sources are located);

(d) Meteorology;

(e) Geography and topography;

(f) Including all air toxics exceeding ambient benchmarks; and

(g) Coordination with criteria pollutant boundaries for attainment of the National Ambient Air Quality Standards (NAAQS).

Stat. Auth.: ORS 468.035, 468A.010(1), 468A.015
Stats. Implemented: ORS 468A.015, 468A.025
Hist.: DEQ 15-2003, f. & cert. ef. 11-3-03

340-246-0170, Local Air Toxics Emissions Reduction Planning

(1) DEQ will develop air toxics reduction plans for selected geographic areas with the advice of local advisory committees. The main role of a local advisory committee is to consider air toxics reduction options and to recommend a specific air toxics reduction plan for their geographic area. The Director will appoint a local air toxics advisory committee.

(a) Local advisory committees will generally be composed of a balanced representation of members from affected local government, local health departments, the public, small businesses (50 or fewer employees), larger businesses (if present in the area), and interest groups represented in the area.

(2) Local Advisory Committee Tasks.

(a) Within 18 months of their first meeting, the committee will evaluate options for reducing emissions of air toxics that exceed ambient benchmarks, and recommend a local air toxics reduction plan to DEQ.

(b) DEQ may grant an extension of time to the local committee if requested by the committee, if DEQ believes the extension is technically justified and the committee is making reasonable progress in developing a local air toxics reduction plan.

(c) If the committee is unable to recommend a local air toxics reduction plan to DEQ within 18 months, or the date of an extension, DEQ will formulate a plan for the area within six months.

(d) DEQ and the local advisory committee will seek local government support for the proposed local air toxics emissions reduction plan.

(e) The local advisory committee will evaluate the plan's effectiveness as it is implemented and recommend changes to DEQ.

(f) At DEQ's request, the local advisory committee will reconvene to implement contingency planning and recommend contingency measures as specified by OAR 340-246-0170(4)(l).

(g) If the committee is unable to recommend contingency measures within 18 months, DEQ will formulate contingency measures for the area within 6 months.

(3) Public Notice, Comment, Approval and Adoption by the Environmental Quality Commission. DEQ will provide an opportunity for public notice and comment on proposed

local emissions reduction plans. After the public notice and comment process is complete, DEQ will present local air toxics reduction plans to the Commission for approval, including adoption of appropriate administrative rules. The Environmental Quality Commission may delegate the approval of plans that do not contain administrative rules to the Director of DEQ.

(4) Elements of an Air Toxics Reduction Plan:

(a) Local air toxics reduction plans must focus on the air toxic or air toxics measured or modeled above the ambient benchmarks.

(b) Local air toxics reduction plans must be based on sound data analysis. This includes developing enhanced emissions inventory information for the local area using source-specific information to the extent possible. This may also include enhanced modeling and monitoring to better characterize ambient concentrations. Plans also must rely on sound analysis of the effectiveness and cost of air toxics emissions reduction options. Where needed to fill specific information gaps, DEQ may require air toxics emissions reporting for specific sources or source categories within the geographic area on a case-by-case basis.

(c) The emissions reduction goals for individual air toxics are ambient benchmarks in local air toxics reduction plans.

(d) Local air toxics reduction plans must be designed to reduce air toxics emissions in a timely manner.

(A) When feasible, local air toxics reduction plans will be designed to reach levels that are equal to or below ambient benchmark concentrations. Plans will be designed to achieve emissions reductions within ten years, beginning at the date the Commission approves the plan. Local plans must provide for the timeliest reductions possible for each air toxic exceeding ambient benchmarks.

(B) Local air toxics reduction plans must include specific three-year milestones that DEQ and the local advisory committee will evaluate every three years, in coordination with DEQ's air toxics emissions inventory update.

(e) Every three years, DEQ will assess the effectiveness of local plans and make recommendations for plan revision based on progress meeting milestones or new information. If DEQ finds lack of progress at year three, it will work with the local advisory committee to provide corrective measures. If DEQ finds lack of progress at year six and projects that ten-year goals in OAR 340-246-0170(4)(d)(A) will not be met, it will implement the contingency plan in 340-246-0170(4)(l). If at year nine DEQ projects that ten year goals in 340-246-0170(4)(d)(A) will not be met, it will work with the local advisory committee to propose and seek adoption of measures necessary to reach these goals.

(f) Local air toxics reduction plans must evaluate air toxics emissions from all types of sources, including point, area, and mobile sources. Plans must require emissions reductions from the most significant sources of air toxics. Mandatory emissions reduction strategies will be commensurate with source contributions, considering relative emissions, toxicity, technical feasibility, cost-effectiveness and equity.

(g) Local air toxics reduction plans must include strategies to reduce high concentrations of air toxics that are limited to smaller portions of a geographic area as well as pollutants causing public health risk throughout the area.

(h) Local air toxics reduction plans may include a variety of mandatory and voluntary approaches to reducing emissions of air toxics. Depending on the type of source, local air toxics reduction plans may include public education, pollution prevention alternatives, economic incentives and disincentives, technical assistance and regulatory requirements.

(i) DEQ will ensure the opportunity for public involvement during the plan development process. This includes involving those affected by the air toxics emissions and those affected by the proposals to reduce air toxics emissions. Proposed local air toxics reduction plans must be available for public hearing and comment.

(j) Local air toxics reduction plans must be coordinated with other local, state, and federal requirements to the extent possible. This includes considerations of any ozone or particulate control requirements for the area, any federal standard applicable to sources in the area, any strategies that are federally pre-empted, and any impacts on water or land, such as water pollution or hazardous waste.

(k) Local air toxics reduction plans will include specific recommendations for developing ongoing emissions inventory or ambient air monitoring to track local trends in air toxics.

(l) Local air toxics reduction plans must include a contingency plan that will be implemented if evaluation at year six shows that an area is not meeting milestones and will not achieve the ten year goals established under OAR 340-246-0170(4)(d)(A). The contingency plan, like the original plan, must require emissions reductions from the most significant sources of air toxics. Mandatory emissions reduction strategies will be commensurate with source contributions, considering relative emissions, toxicity, technical feasibility cost-effectiveness and equity. Contingency plans must include but are not limited to:

(i) Re-evaluation of planning assumptions, such as emissions factors, motor vehicle data and background pollutants;

(ii) Evaluation of existing conditions and effectiveness of emissions reduction strategies, including reasons for success or failure; and

(iii) New or progressively more mandatory strategies that will be considered.

Stat. Auth.: ORS 468.035, 468A.010(1), 468A.015
Stats. Implemented: ORS 468A.015, 468A.025
Hist.: DEQ 15-2003, f. & cert. ef. 11-3-03

340-246-0190, Air Toxics Safety Net Program (0190 through 0230)

(1) The purpose of the Air Toxics Safety Net Program is to address human exposures at public receptors to air toxics emissions from stationary sources that are not addressed by other regulatory programs or the Geographic Program. It is the Commission's expectation

that the Safety Net Program in OAR 340-246-0190 through 340-246-0230 will apply only rarely.

(2) Subject to the requirements contained in OAR 340-246-0190 through 340-246-0230, the Lane Regional Air Pollution Authority is designated by the Commission as the agency responsible for implementing the Air Toxics Safety Net Program within its area of jurisdiction. The requirements and procedures contained in this rule must be used by the Regional Authority to implement the Air Toxics Safety Net Program unless the Regional Authority adopts superseding rules, which are at least as restrictive as the rules adopted by the Commission.

(3) Selection of Sources. DEQ will select a source for the Air Toxics Safety Net Program if all of the following criteria are met:

(a) DEQ has ambient monitoring information, gathered using appropriate EPA or other published international, national, or state standard methods that concentrations of air toxics have caused an exceedance of at least one ambient benchmark at a site representing expected human exposure to air toxics from the source at a public receptor in a location outside of the source's ownership or control.

(b) DEQ has information that the source's air toxics emissions alone have caused an exceedance of at least one ambient benchmark at a site representing expected human exposure to air toxics from the source at a public receptor, in a location outside of the source's ownership or control. This could be based on emissions inventory, modeling or other information.

(c) The source is not subject to or scheduled for a federal residual risk assessment under the federal Clean Air Act section 112(f)(2) through (6).

(d) The source is not subject to an emissions limit or control requirement imposed as the result of modeling or a risk assessment performed or required by DEQ prior to November 1, 2003 for the air toxics that exceed the ambient benchmarks.

(e) The source is located outside of a selected geographic area, as designated in OAR 340-246-0130 through 0170.

(4) Air Toxics Science Advisory Committee Review. Before requiring a source to conduct a source-specific risk assessment, DEQ will present its analysis to the ATSAC. Within 120 days, the ATSAC will review the analysis and make a finding. If the ATSAC concurs with DEQ or takes no action, DEQ may proceed under this rule. If the ATSAC objects, DEQ will not proceed until it receives concurrence from the Commission.

(5) Source-Specific Exposure Modeling and Risk Assessment. Upon written notification by DEQ, a source must conduct a risk assessment including exposure modeling for the air toxics measured at levels above ambient benchmarks. The source must use a risk assessment methodology provided by DEQ. This risk assessment will provide the basis for establishing air toxics emissions reductions or demonstrating that at public receptors in areas outside of a source's ownership or control, people are not being exposed to air toxics at levels that exceed the ambient benchmarks.

(6) Risk Assessment Methodology DEQ will provide guidance on the methods to be used. The risk assessment methodology will be developed in consultation with the ATSAC and will result in a protocol that:

(a) Uses reasonable estimates of plausible upper-bound exposures that neither grossly underestimate nor grossly overestimate risks;

(b) Considers the range of probabilities of risks actually occurring, the range of size of the populations likely to be exposed to the risk, and current and reasonably likely future land uses;

(c) Defines the use of high-end and central-tendency exposure cases and assumptions;

(d) Develops values associated with chronic exposure for carcinogens; and

(e) Addresses both carcinogenic and non-carcinogenic air toxics and allows for detailed exposure assessments to the extent possible.

(7) Review and Acceptance by DEQ. DEQ will evaluate the risk assessment for adequacy and completeness before accepting the results. If the results demonstrate that the source is not causing human exposures to air toxics at levels that exceed the ambient benchmarks at public receptors, in areas outside the source's ownership or control, and DEQ has received concurrence from the ATSAC, DEQ will notify the source that air toxics emissions reductions will not be required under this rule.

Stat. Auth.: ORS 468.035, 468A.010(1), 468A.015
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340-246-0210, Safety Net Source Air Toxics Emissions Reductions

(1) Air Toxics Emissions Reduction Analysis:

(a) If source-specific exposure modeling and risk assessment show that the source is causing exceedances of ambient benchmarks at public receptors in areas outside the source's ownership or control, the source must perform an analysis showing how air toxics could be reduced to meet ambient benchmarks. DEQ and the safety net source will develop proposed air toxics emissions reduction measures based on modeling and, when available, monitoring information.

(b) As part of the air toxics emissions reduction analysis, the source will analyze pollution prevention options, and is encouraged to use the hierarchy stated in OAR 340-246-0050.

(2) Air Toxics Emissions Reduction Requirements:

(a) A safety net source emitting air toxics causing exposure resulting in excess lifetime cancer risk greater than one in a million (1x10-6) or a hazard quotient of one for non-carcinogens must, as soon as practicable but no later than three years after the effective date of the permit imposing such conditions, meet toxics best available retrofit technology (TBART) for each air toxic that exceeds an ambient benchmark.

(b) A safety net source may use a means of air toxics reduction, other than TBART, if it can demonstrate to DEQ that it will achieve a risk level at or below one in a million, or a hazard quotient at or below one, within three years of using the other means of air toxics emissions reductions.

(c) A safety net source emitting a carcinogenic air toxic causing excess lifetime cancer risk at or above one hundred in a million (1x10-4) must reduce its air toxic emissions to achieve a risk level below one hundred in a million as soon practicable but no later than one year after the effective date of the permit imposing such conditions.

(d) A safety net source emitting a non-carcinogenic air toxic at a level above a hazard quotient of one that DEQ finds to have a potential for causing very serious or irreversible adverse health effects must reduce its air toxic emissions below this level as soon practicable, but no later than one year after the effective date of the permit imposing such conditions.

(3) If a safety net source cannot reach a risk level at or below excess lifetime cancer risk of one in a million, or a hazard quotient at or below one in three years, even though it meets TBART, the TBART determination for the source will be subject to periodic review under this section until the source achieves a risk level at or below one in a million or a hazard quotient at or below one. Upon each renewal of the source's permit, TBART for the source must be reviewed, taking into consideration retrofit costs and the remaining useful life of controls installed or other measures taken to meet a prior TBART determination. Upon renewal of the source's permit, DEQ must include conditions requiring the source to meet TBART as determined for that permit renewal.

Stat. Auth.: ORS 468.035, 468A.010(1), 468A.015
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