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EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
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MEMORANDUM

TO: Bob Donaldson, Donald Squires, Steve Dennis, Don Steele, Tom Denormandie, Nancy Seidman, Leah Weiss, Bob Boiselle, Ed MacDonald-NERO, Mike Maher-CRO, Chris Tilden-SERO, Loretta Oi-WRO, Mark Scheelweis-WRO, Tom Cusson-CRO, John Winkler-SERO, Jim Belsky-NERO

FROM: Carol Rowan West, Director, Office of Research and Standards
Barbara Kwetz, Director, Division of Air Quality Control

DATE: December 6, 1995

SUBJECT: Revised Air Guidelines

We are pleased to provide you with an updated list of DEP's ambient air guidelines. This list represents the culmination of work of staff of the Office of Research and Standards (ORS) who have reviewed the scientific literature and revised the guidelines to take into account new toxicity data. The revisions have undergone external scientific peer review.

A notable change we would like to call to your attention is the use of Reference Concentrations (RfCs) as a starting point for noncancer effects rather than occupational limits. The U.S. EPA establishes RfCs which are defined as air concentrations of a chemical to which a person can be exposed for a lifetime without any anticipated adverse health effects. In addition, ORS has set air guidelines for a few new chemicals including carbon disulfide, carbonyl sulfide, antimony, arsenic, hydrogen bromide, and hydrogen cyanide.

As you may know, the Clean Air Act Amendments require the U.S. EPA to develop and implement a national air toxics program which will be implemented by DEP. As the national program develops further, we will be developing and sending you a policy to clarify how the new EPA standards will be utilized in place of these air guidelines. Until that time, you should continue to use these updated air guidelines in your work.

If you have any questions about the changes in the air guidelines, please contact Diane Manganaro or Tsedash Zewdie at ORS' (292-5570). Thank you.

cc: Michael Hutcheson
Diane Manganaro
Tsedash Zewdie

(December, 1995)

Massachusetts Threshold Effects Exposure Limits (TELs) and Allowable Ambient Limits (AALs) for Ambient Air

CHEMICAL	CAS NUMBER	Threshold Effects Exposure Limit (TEL)		Allowable Ambient Limit (AAL)	
		(24-hour average)		(annual average)	
		ug/m3	(ppb)	ug/m3	(ppb)
* Acetaldehyde	75070	2	(1.11)	0.5	(0.28)
Acetone	67641	160.54	(68.03)	160.54	(68.03)
* Acrylonitrile	107131	0.4	(0.18)	0.01	(0.0046)
Alkanes/Alkenes (not to exceed 25% n-hexane)		95.24	-	47.62	-
* Ammonia	7664417	100	(143.57)	100	(143.57)
* Aniline	62533	0.2	(0.053)	0.1	(0.026)
Antimony	7440360	2	-	1	-
Arsenic	7440382	0.0005	-	0.0002	-
Asbestos	1332214	0.0002 f/cm3		0.000004 f/cm3	
Benzene	71432	1.74	(0.54)	0.12	(0.04)
Benzyl Chloride	100447	14.08	(2.72)	0.94	(0.18)
Beryllium	7440417	0.001	-	0.0004	-
1,3-Butadiene	106990	1.20	(0.54)	0.003	(0.002)
n-Butyl Alcohol	71363	412.24	(136.05)	412.24	(136.05)
Cadmium	7440439	0.003	-	0.001	-
Calcium Chromate	13765190	0.003	-	0.0001	-
Carbon Disulfide	75150	0.1	(0.032)	0.1	(0.032)
Carbon Tetrachloride	56235	85.52	(13.61)	0.07	(0.01)
Carbonyl Sulfide	463581	0.1	(0.041)	0.1	(0.041)
Chlordane	57749	0.14	(0.008)	0.03	(0.002)

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		(24-hour average)		(annual average)	
		ug/m3	(ppb)	ug/m3	(ppb)
Chlorine	7782505	3.95	(1.36)	3.95	(1.36)
Chlorobenzene	108907	93.88	(20.41)	6.26	(1.36)
Chloroethane	75003	717.55	(272.11)	358.78	(136.05)
Chloroform	67663	132.76	(27.21)	0.04	(0.01)
Chloroprene	126998	0.98	(0.27)	0.98	(0.27)
Chromic Acid	7738945	0.003	-	0.0001	-
Chromium (metal)	7440473	1.36	-	0.68	-
Chromium (VI) Compounds		0.003	-	0.0001	-
Copper	7440508	0.54	-	0.54	-
p-Cresol	106445	24.05	(5.44)	12.02	(2.72)
Cyclohexane	110827	280.82	(81.63)	280.82	(81.63)
o-Dichlorobenzene	95501	81.74	(13.61)	81.74	(13.61)
p-Dichlorobenzene	106467	122.61	(20.41)	0.18	(0.03)
1,2-Dichloroethane	107062	11.01	(2.72)	0.04	(0.01)
1,2-Dichloroethylene	540590	215.62	(54.42)	107.81	(27.21)
Dichloromethane	75092	9.45	(2.72)	0.24	(0.07)
* 1,2-Dichloropropane	78875	0.9	(0.19)	0.05	(0.01)
Diethylamine	109897	8.13	(2.72)	4.07	(1.36)
Di(2-ethylhexyl)phthalate	117817	1.36	(0.09)	0.77	(0.05)
* Dimethylformamide	68122	6	(2.01)	3	(1.004)

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		(24-hour average)		(annual average)	
		ug/m3	(ppb)	ug/m3	(ppb)
1,4-Dioxane	123911	24.49	(6.80)	0.24	(0.07)
Diphenyl	92524	0.34	(0.05)	0.09	(0.01)
Diphenylamine	122394	2.72	(0.39)	0.68	(0.10)
* Epichlorohydrin	106898	0.08	(0.021)	0.08	(0.021)
Ethanol	64175	51.24	(27.21)	51.24	(27.21)
Ethyl Acetate	141786	391.84	(108.84)	391.84	(108.84)
Ethyl Acrylate	140885	0.56	(0.14)	0.28	(0.07)
* Ethylbenzene	100414	300	(69.09)	300	(69.09)
Ethylene Glycol	107211	34.50	(13.61)	34.50	(13.61)
Ethyl Ether	60297	329.80	(108.84)	164.90	(54.42)
Fluoride	16984488	6.80	(8.76)	6.80	(8.76)
Formaldehyde	50000	0.33	(0.27)	0.08	(0.06)
Furan	110009	0.40	(0.14)	0.02	(0.007)
Heptachlor	76448	0.14	(0.009)	0.001	(0.0001)
Hexachlorocyclopentadiene	77474	0.006	(0.0005)	0.006	(0.0005)
Hexachloroethane	67721	0.53	(0.05)	0.25	(0.03)
2-Hexanone	591786	10.88	(2.66)	10.88	(2.66)
Hydrazine	302012	0.007	(0.005)	0.002	(0.001)
Hydrogen Bromide	10035106	5	(1.51)	5	(1.51)
* Hydrogen Chloride	7647010	7	(4.69)	7	(4.69)

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		(24-hour average)		(annual average)	
		ug/m3	(ppb)	ug/m3	(ppb)
* Hydrogen Cyanide	74908	0.6	(0.54)	0.3	(0.27)
Hydrogen Fluoride	7664393	0.68	(0.83)	0.34	(0.42)
* Hydrogen Sulfide	7783064	0.9	(0.65)	0.9	(0.65)
Isoamyl Acetate	123922	144.76	(27.21)	144.76	(27.21)
Isobutyl Acetate	110190	193.77	(40.82)	193.77	(40.82)
Isobutyl Alcohol	78831	41.22	(13.61)	41.22	(13.61)
Isopropyl Acetate	108214	283.81	(68.03)	283.81	(68.03)
Lead	7439921	0.14	-	0.07	-
Lead Subacetate	1335326	0.14	-	0.01	-
Lindane	58899	0.14	(0.11)	0.003	(0.0002)
Maleic Anhydride	108316	0.27	(0.07)	0.14	(0.03)
Mercury (elemental)	7439976	0.14	-	0.07	-
(inorganic)		0.14	-	0.01	-
(methylmercury)		0.003	-	0.0014	-
Methanol	67561	7.13	(5.44)	7.13	(5.44)
* 2-Methoxy Ethanol	109864	3	(0.96)	2	(0.64)
Methyl Acrylate	96333	9.57	(2.72)	4.79	(1.36)
Methyl Bromide	74839	5.28	(1.36)	2.64	(0.68)
* Methyl Ethyl Ketone (MEK)	78933	200	(67.82)	10	(3.39)
Methyl Isobutyl Ketone	108101	55.70	(13.61)	55.70	(13.61)

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		(24-hour average)		(annual average)	
		ug/m3	(ppb)	ug/m3	(ppb)
(MIBK)					
Methyl Methacrylate	80626	22.27	(5.44)	22.27	(5.44)
Naphthalene (including 2-methylnaphthalene)	91203	14.25	(2.72)	14.25	(2.72)
Nickel (metal)	7440020	0.27	-	0.18	-
Nickel Oxide	1313991	0.27	-	0.01	-
Nitrobenzene	98953	13.69	(2.72)	6.84	(1.36)
Pentachlorophenol	87865	0.01	(0.001)	0.01	(0.001)
Phenol	108952	52.33	(13.61)	52.33	(13.61)
Phosphoric Acid	7664382	0.27	(0.07)	0.27	(0.07)
Phthalic Anhydride	85449	1.65	(0.27)	0.82	(0.14)
PCBs	1336363	0.003	-	0.0005	-
Propyl Alcohol	71238	133.63	(54.42)	133.63	(54.42)
* Propylene Oxide	75569	6	(2.53)	0.3	(0.13)
Resorcinol	108463	12.24	(2.72)	3.06	(0.68)
Selenium	7782492	0.54	-	0.54	-
Selenium Sulfide	7446346	0.54	-	0.05	-
* Styrene	100425	200	(46.96)	2	(0.47)
Sulfuric Acid	7664939	2.72	(0.68)	2.72	(0.68)
1,1,2,2-Tetrachloro-1,2-Difluoroethane	76120	1133.33	(136.05)	566.67	(68.03)
1,1,2,2-Tetrachloroethane	79345	18.67	(2.72)	0.02	(0.003)

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		(24-hour average)		(annual average)	
		ug/m3	(ppb)	ug/m3	(ppb)
Tetrachloroethylene	127184	922.18	(136.05)	0.02	(0.003)
Tetrahydrofuran	109999	160.35	(54.42)	80.18	(27.21)
* Toluene	108883	80	(21.23)	20	(5.31)
Toluene Diisocyanate	584849	0.10	(0.01)	0.10	(0.01)
o-Toluidine	95534	2.38	(0.54)	0.17	(0.04)
1,1,1-Trichloroethane	71556	1038.37	(190.48)	1038.37	(190.48)
1,1,2-Trichloroethane	79005	14.84	(2.72)	0.06	(0.01)
Trichloroethylene	79016	36.52	(6.80)	0.61	(0.11)
2,4,6-Trichlorophenol	88062	-	-	0.16	-
* Triethylamine	121448	1	(0.24)	0.7	(0.17)
Vanadium	1314621	0.27	-	0.27	-
Vanadium Pentoxide	1314621	0.14	(0.02)	0.03	(0.005)
* Vinyl Acetate	108054	30	(8.52)	8	(2.27)
Vinyl Chloride	75014	3.47	(1.36)	0.38	(0.15)
Vinylidene Chloride	75354	1.08	(0.27)	0.02	(0.01)
Xylenes (m-,o-,p- isomers)	1330207	11.80	(2.72)	11.80	(2.72)

All new and revised values are expressed in ug/m^3 to one significant figure. To allow for more accurate interconversion between ug/m^3 and ppb, no rounding of the ppb-equivalent values was conducted.

New and revised criteria are shaded.

*Criteria which were derived based on an Environmental Protection Agency Reference Concentration (RfC)