UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
SOLID WASTE AND EMERGENCY
RESPONSE

NOV 10 1998

MEMORANDUM

TO: Regional Emergency Response Managers
EPA Regions I - X

FROM: Steve Luftig, Director /s/
Office of Emergency and Remedial Response

SUBJECT: Retransmittal of the latest Superfund Removal Action Levels

A variety of tools are available to On-Scene Coordinators (OSCs) and other site managers to determine whether to provide alternate drinking water supplies under Superfund removal authority. One of the key resources for this task is the Removal Action Levels (RALs), which were established in Office of Solid Waste and Emergency Response (OSWER) Directive 9360.101, *Interim Final Guidance on Numeric Removal Action Levels for Contaminated Drinking Water Sites* (October 1987.)

This directive defined two types of RALs: (1) numeric levels for individual substances, which apply generally across most sites, and (2) site-specific levels which are determined on a case-by-case basis, using a more detailed analysis of conditions at a particular site. The 1987 OSWER directive established numeric RALs for 34 substances. The Office of Emergency and Remedial Response (OERR)/Emergency Response Division (ERD) updated the table of numeric RALs in April 1991. This update used the same methodology described in the 1987 OSWER directive, and expanded the RAL list to include 165 substances.

ERD later issued OSWER Directive 9360.1-02, *Final Guidance on Numeric Removal Action Levels for Contaminated Drinking Water Sites* (October 1993.) This directive adopted a new methodology to determine RALs based on the short-term acceptable risk (STAR) procedures promulgated by the EPA Office of Water (OW) in the *Guidance for Determining Unreasonable Risks to Health* (EPA/OW/Office of Science and Technology, 1992). This method remains the primary approach to determine RALs for Superfund removal actions.

Objective

OERR last updated the RAL tables in April 1997. This memorandum retransmits the amended tables to ensure that Superfund field personnel are using the most current and appropriate tool to evaluate threats to public health caused by contaminated drinking water sources. Regions should ensure that they are using the April 1997 RALs in the same manner that previous versions were used (i.e., as one factor in determining whether to provide alternate water supplies under Superfund removal authority.) This update does not in any way restrict the flexibility to develop and apply site-specific RALs. The updated numeric RALs apply to new removal starts begun since the date of issuance, and are not intended to affect completed removal actions or actions which were ongoing at the time the update was issued.

Please note that the list of RALs is not intended to be definitive. For instance, a substance which is not included in the RAL list might be present in drinking water at a site. In this case, the site manager may refer to the attached copy of the October 1993 memo for RALs. This memo describes in detail the appropriate methodology to determine whether the non-RAL listed substance is likely to present a threat to human health. Under no circumstances should field personnel assume that response actions cannot be taken because a contaminant of concern does not appear in the RAL tables.

If you have any comments, questions or suggestions about the RAL tables or their use, please contact Dan Thornton of my staff at (703) 603-8811.

Attachments

cc: EPA HQ Emergency Response Coordinators

NUMERIC REMOVAL ACTION LEVELS FOR CONTAMINATED DRINKING WATER SITES

Tables

Office of Solid Waste and Emergency Response
U.S. Environmental Protection Agency
Washington, DC 20460

April 1997

Table Acronyms

CAS #	Chemical Abstract Number
DWEL	Drinking Water Equivalent Level (calculated by multiplying the oral RfD by 70 kilograms (adult body weight) and dividing by the average volume of water (2 liters) consumed per day)
Longer-term HA (Child)	Drinking Water Health Advisory for 10 kg child consuming 1 liter water per day for up to 7 years
MCL	Maximum Contaminant Level (National Primary Drinking Water Standard)
MCLG	Maximum Contaminant Level Goal
MFL	Million Fibers per Liter
Treat. Tech.	MCL is based on the capability of the treatment technology
URTH-STAR	Draft Short-term Risk Level (STAR) recommended for an Unreasonable Risk to Health (URTH) under Safe Drinking Water Act

NUMERIC REMOVAL ACTION LEVELS FOR CONTAMINATED DRINKING WATER SITES
PRIMARY DRINKING WATER STANDARDS AND HEALTH ADVISORIES
April 1997

Chemical		Cancer Risk		Standards and Health Advisories				Superfund
ORGANICS	CAS #	Cancer Group	10-4 Cancer Risk (µg/L)	DWEL (µg/L)	Longer-term HA (Child) (µg/L)	MCL/MCLG (µg/L)	URTH -STAR- Level (µg/L)	Removal Action Level (µg/L)
Acenaphthene	83329	—	—	2,100	—	—	—	2,100
Acetone	67641	D	—	3,500[a]	—	—	—	3,500
Acifluoren (tackle)	62476599	B2	100	400	100	— / 0	—	100
Acrylamide (2-Propenamide)	79061	B2	1	7	20	Treat. Tech ./ 0	1	1
Acrylonitrile	107131	B1	6	—	—	— / 0	—	6
Adipates (Diethylhexyl)	103231	C	3,000	20,000	20,000	400 / 400	—	4,000
Alachlor	15972608	B2	40	400	—	2 / 0	40	40
Aldicarb (Temik)	116063	D	—	35	—	7 / 7	—	35
Aldicarb sulfone	1646884	D	—	35	—	7 / 7	—	35
Aldicarb sulfoxide	—	D	—	35	—	7 / 7	—	35
Aldrin	309002	B2	0.2	1	0.3	—	—	0.2
Ametyrn	834128	D	—	300	900	—	—	300
Ammonium sulfamate	7773060	D	—	8,000	20,000	—	—	8,000
Anthracene	120127	D	—	11,000	—	—	—	11,000
Atrazine	1912249	C	—	200	50	3 / 3	30	30
Baygon	114261	C	—	100	40	—	—	40
Bentazon	25057890	D	—	1,000	300	— / 20	—	300
Benz(a)anthracene	56553	B2	—	—	—	—	—	—
Benzene	71432	A	100	—	—	5 / 0	100	100
Benzo(a)pyrene	50328	B2	0.2	—	—	0.2 / 0	—	0.2
Benzo(b)fluoranthene	205992	B2	—	—	—	—	—	—
Benzo(k)fluoranthene	207089	B2	—	—	—	—	—	—
bis-2-Chloroisopropyl ether	108601	D	—	1,000	4,000	—	—	1,000

NUMERIC REMOVAL ACTION LEVELS FOR CONTAMINATED DRINKING WATER SITES
PRIMARY DRINKING WATER STANDARDS AND HEALTH ADVISORIES
April 1997

Chemical ORGANICS	CAS #	Cancer Risk		Standards and Health Advisories				Superfund
		Cancer Group	10-4 Cancer Risk (µg/L)	DWEL (µg/L)	Longer-term HA (Child) (µg/L)	MCL/MCLG (µg/L)	URTH -STAR- Level (µg/L)	Removal Action Level (µg/L)
Bromacil	314409	C	—	5,000	3,000	—	—	3,000
Bromochloromethane	74975	D[a]	—	50	100	—	—	50
Bromodichloromethane	75274	B2	60	700	4,000	100 (80[b]) / 0	—	100
Bromoform	75252	B2	400	700	2,000	100 (80[b]) / 0	—	400
Bromamethane (Methyl bromide)	74839	D	—	50	100	—	—	50
Butanone (2-) (see Methyl ethyl ketone)								
Butyl benzyl phthalate	85687	C	—	7,000	—	—	—	7,000
Butylate	2008415	D	—	2,000	1,000	—	—	1,000
Carbaryl	63252	D	—	4,000	1,000	—	—	1,000
Carbofuran	1563662	E	—	200	50	40 / 40	50	50
Carbon tetrachloride	56235	B2	30	30	70	5 / 0	30	30
Carboxin	5234684	D	—	4,000	1,000	—	—	1,000
Chloral hydrate (Trichloroacetaldehyde monohydrate)	302170	C	—	60	200	60[c] / 40	—	60
Chloramben	133904	D	—	500	200	—	—	200
Chlordane	57749	B2	3	2	—	2 / 0	2	2
Chlorobenzene (see Monochlorobenzene)								
Chlorodibromomethane (Dibromochloromethane)	124481	C	—	700	2,000	100 (80[b]) / 60	—	600
Chloroform (Trichloromethane)	67663	B2	600	400	100	100 (80[b]) / 0	—	100
Chloromethane (Methyl chloride)	74873	C	—	100	400	—	—	100
Chlorophenol (2-)	95578	D	—	200	500	—	—	200
Chlorothalonil	1897456	B2	150	500	200	—	—	150
Chlorotoluene, o-	95498	D	—	700	2,000	—	—	700

NUMERIC REMOVAL ACTION LEVELS FOR CONTAMINATED DRINKING WATER SITES
PRIMARY DRINKING WATER STANDARDS AND HEALTH ADVISORIES
April 1997

Chemical		Cancer Risk		Standards and Health Advisories				Superfund
ORGANICS	CAS #	Cancer Group	10-4 Cancer Risk (µg/L)	DWEL (µg/L)	Longer-term HA (Child) (µg/L)	MCL/MCLG (µg/L)	URTH -STAR- Level (µg/L)	Removal Action Level (µg/L)
Chlorotoluene, p-	106434	D	—	700	2,000	—	—	700
Chloropyrifos	2921882	D	—	100	30	—	—	30
Chrysene	218019	B2	—	—	—	—	—	—
Cumene (see Isopropylbenzene)								
Cyanazine	21725462	C	—	70	20	— / 1	—	10
2,4-D (2,4-Dichlorophenoxyacetic acid)	94757	D	—	400	100	70 / 70	100	100
Dacthal (DCPA)	1861321	D	—	400	5,000	—	—	400
Dalapon	75990	D	—	900	300	200 / 200	—	300
Di[2-ethylhexy1]adipate	103231	C	3,000	20,000	20,000	400 / 400	—	4,000
Diazinon	333415	E	—	3	5	—	—	3
Dibenzo[a,h]anthracene	53703	B2	—	—	—	—	—	—
Dibromoacetonitrile	3252435	C	—	800	2,000	—	—	800
Dibromochloromethane (see Chlorodibromomethane)								
Dibromochloropropane (DBCP)	96128	B2	3	—	—	0.2 / 0	3	3
Dibromomethane (Methylene Bromide)	74953	D	—	—	—	—	—	—
Dibutyl phthalate (Di-n-butyl phthalate)	84742	D	—	4,000	—	—	—	4,000
Diacamba	1918009	D	—	1,000	300	—	—	300
Dichloroacetic acid	79436	B2	—	100	1,000	600[c] / 0	—	100
Dichloroacetonitrile	3018120	C	—	300	800	—	—	300
Dichlorobenzene -o (1,2)	95501	D	—	3,000	9,000	600 / 600	3,000	3,000
D chlorobenzene -m (1,3-)	541731	D	—	3,000	9,000	—	—	3,000
Dichlorobenzene -p (1,4-)	106467	C	—	4,000	10,000	75 / 75	750	750
Dichlorodifluoromethane (Freon-12)	75718	D	—	5,000	9,000	—	—	5,000

NUMERIC REMOVAL ACTION LEVELS FOR CONTAMINATED DRINKING WATER SITES
PRIMARY DRINKING WATER STANDARDS AND HEALTH ADVISORIES
April 1997

Chemical		Cancer Risk		Standards and Health Advisories				Superfund
ORGANICS	CAS #	Cancer Group	10-4 Cancer Risk (µg/L)	DWEL (µg/L)	Longer-term HA (Child) (µg/L)	MCL/MCLG (µg/L)	URTH -STAR- Level (µg/L)	Removal Action Level (µg/L)
Dichloroethane (1,1-)	75343	C[a]	—	—	—	—	—	—
Dichloroethane (1,2-) (Ethylene dichloride)	107062	B2	40	—	700	5/ 0	40	40
Dichloroethylene (1,1-)	75354	C	—	400	1,000	7 / 7	70	70
Dichloroethylene (cis- 1,2-)	156592	D	—	400	3,000	70 / 70	400	400
Dichloroethylene (trans- 1,2-)	156605	D	—	600	2,000	100 / 100	600	600
Dichloromethane (Methylene chloride)	75092	B2	500	2,000	—	5 / 0	—	500
Dichlorophenol (2,4-)	120832	D	—	100	30	—	—	30
Dichloropropene (1,2-)	78875	B2	60	—	—	5 / 0	—	60
Dichloropropene (1,3-) (cis and trans)	542756	B2	20	10	30	— / 0	—	10
Dieldrin	60571	B2	0.2	2	0.5	—	—	0.2
Diethyl phthalate	84662	D	—	30,000	—	—	—	30,000
Diethylhexyl (see Adipates)								
Diethylhexyl phthalate	117817	B2	300	700	—	6.0	—	300
Dimethrin	70382	D	—	10,000	10,000	—	—	10,000
Diethyl methylphosphonate	756796	C	700	7,000	2,000	—	—	2,000
Diethyl phthalate	131113	D	—	—	—	—	—	—
DIMP (Diisopropylmethylphosphonate)	1445756	D	—	3,000	8,000	—	—	3,000
Dinitrobenzene (1,3-)	99650	D	—	5	40	—	—	5
Dinitrotoluene (2,4-)	121142	B2	5	100	300	—	—	5
Dinitrotoluene (2,6-)	25321146	B2	5	40	400	—	—	5
Dinitrotoluene, tg[d] (2,6- & 2,4-)	—	B2	5	—	—	—	—	5
Dinoseb	88857	D	—	40	10	7 / 7	—	10
Dioxane p- (1,4-)	123911	B2	700	—	—	—	—	700

NUMERIC REMOVAL ACTION LEVELS FOR CONTAMINATED DRINKING WATER SITES
PRIMARY DRINKING WATER STANDARDS AND HEALTH ADVISORIES
April 1997

Chemical ORGANICS	CAS #	Cancer Risk		Standards and Health Advisories				Superfund
		Cancer Group	10-4 Cancer Risk (µg/L)	DWEL (µg/L)	Longer-term HA (Child) (µg/L)	MCL/MCLG (µg/L)	URTH -STAR- Level (µg/L)	Removal Action Level (µg/L)
Dioxin (see 2,3,7,8-TCDD)								
Diphenamid	957517	D	—	1,000	300	—	—	300
Diphenylamine	122394	D	—	1,000	300	—	—	300
Diquat	85007	D	—	80	—	20 / 20	—	80
Disulfoton	298044	E	—	1	3	—	—	1
Dithiane (1,4-)	505293	D	—	400	400	—	—	400
Diuron	330541	D	—	70	300	—	—	70
Endothall	145733	D	—	700	200	100 / 100	—	200
Endrin	72208	D	—	10	3	2 / 2	—	3
Epichlorohydrin	106898	B2	400	70	70	Treat. Tech. / 0	70	70
Ethylbenzene	100414	D	—	3,000	1,000	700 / 700	1,000	1,000
Ethylene dibromide (1,2-) (EDB)	106934	B2	0.04	—	—	0.05 / 0	0.05	0.05
Ethylene dichlode (see 1,2-Dichloroethane)								
Ethylene glycol	107211	D	—	40,000	6,000	—	—	6,000
Ethyl ether	60297	—	—	7,000[a]	—	—	—	7,000
Ethylene thiourea (ETU)	96457	B2	30	3	100	—	—	3
Fenamipos	22224926	D	—	9	5	—	—	5
Fluometuron	2164172	D	—	400	2,000	—	—	400
Fluorene	86737	D	—	1,400	—	—	—	1,400
Fluorotrichloromethane (Freon-11)	75694	D	—	10,000	3,000	—	—	3,000
Fonofos	944229	D	—	70	20	—	—	20
Formaldehyde	50000	B1	—	5,000	5,000	—	—	5,000
Freon-11(see Fluorotrichloromethane)								

NUMERIC REMOVAL ACTION LEVELS FOR CONTAMINATED DRINKING WATER SITES
PRIMARY DRINKING WATER STANDARDS AND HEALTH ADVISORIES
April 1997

Chemical		Cancer Risk		Standards and Health Advisories				Superfund
ORGANICS	CAS #	Cancer Group	10-4 Cancer Risk (µg/L)	DWEL (µg/L)	Longer-term HA (Child) (µg/L)	MCL/MCLG (µg/L)	URTH -STAR- Level (µg/L)	Removal Action Level (µg/L)
Freon-12 (see Dichloroodifluoromethane)								
Freon 113 (1,1,2-Trichloro-1,2,2-trifluoroethane)	76131	—	—	1,100,000[a]	—	—	—	1,100,000
Gylphosate	1071836	E	—	4,000	1,000	700 / 700	—	1,000
Heptachlor	76448	B2	0.8	20	5	0.4 / 0	0.8	0.8
Heptachlor epoxide	1024573	B2	0.4	0.4	0.1	0.2 / 0	0.4[e]	0.4
Hexachlorobenzene	118741	B2	2	30	50	1 / 0	—	2
Hexachlorobutadiene	87683	C	—	70	100	— / 1	—	10
Hexachlorocyclohexane, gamma (see Lindane)								
Hexachlorocyclopentadiene	77474	D	—	200	—	50 / 50	—	200
Hexachloroethane	67721	C	—	40	100	—	—	40
Hexane (n-)	110543	D	—	—	4,000	—	—	4,000
Hexazinone	51235042	D	—	1,000	3,000	—	—	1,000
HMX (Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	2691410	D	—	2,000	5,000	—	—	2,000
Ideno[1,2,3-c,d]pyrene	193395	B2	—	—	—	—	—	—
Isophorone	78591	C	4,000	7,000	15,000	—	—	7,000
Isopropyl methylphosophonate	6838933	D	—	4,000	30,000	—	—	4,000
Isopropylbenzene (Cumene)	98828	—	—	1,400[a]	—	—	—	1,400
Kerb (see Pronamide)								
Lindane (Hexachlorocyclohexane, gamma)	58899	C	—	10	30	0.2 / 0.2	2	2
Malathion	121755	D	—	800	200	—	—	200
Maleic hydrazide	123331	D	—	20,000	5,000	—	—	5,000
MCPA (4-Chloro-2-methylphenoxy)-acetic acid)	94746	E	—	50	100	—	—	50

NUMERIC REMOVAL ACTION LEVELS FOR CONTAMINATED DRINKING WATER SITES
PRIMARY DRINKING WATER STANDARDS AND HEALTH ADVISORIES
April 1997

Chemical ORGANICS	CAS #	Cancer Risk		Standards and Health Advisories				Superfund
		Cancer Group	10-4 Cancer Risk (µg/L)	DWEL (µg/L)	Longer-term HA (Child) (µg/L)	MCL/MCLG (µg/L)	URTH -STAR- Level (µg/L)	Removal Action Level (µg/L)
Methomyl	16752775	D	—	900	300	—	—	300
Methoxychlor	72435	D	—	200	50	40 / 40	50	50
Methyl bromide (see Bromomethane)								
Methyl chloride (see Chloromethane)								
Methyl ethyl ketone (2-Butanone)	78933	D[a]	—	21,000[a]	—	—	—	21,000
Methyl parathion	298000	D	—	9	30	—	—	9
Methyl tert butyl ether	1634044	C	—	1,000	3,000	—	—	1,000
Methylene bromide (see Dibromomethane)								
Methylene chloride (see Dichloromethane)								
Metolachlor	51218452	C	—	3,500	2,000	—	—	2,000
Metribuzin	21087649	D	—	500	300	—	—	300
Monochloracetic acid (Chloroacetic acid)	79118	—	—	70[a]	—	—	—	70
Monochlorobenzene (Chlorobenzene)	108907	D	—	700	2,000	100 / 100	700	700
Napthalene	91203	D	—	100	400	—	—	100
Nitroguanidine	556887	D	—	4,000	10,000	—	—	4,000
Nitrophenols p-	25154556	D	—	300	800	—	—	300
Octachlorocamphene (see Toxaphene)								
Oxamyl	23135220	E	—	900	200	200 / 200	—	200
Paraquat	1910425	E	—	200	50	—	—	50
Pentachloronitrobenzene (PCNB)	82688	C[a]	—	100[a]	—	—	—	20
Pentachlorophenol	87865	B2	30	1,000	300	1 / 0	30	30
Perchloroethylene (see Tetrachloroethylene)								
Phenol	108952	D	—	20,000	6,000	—	—	6,000

NUMERIC REMOVAL ACTION LEVELS FOR CONTAMINATED DRINKING WATER SITES
PRIMARY DRINKING WATER STANDARDS AND HEALTH ADVISORIES
April 1997

Chemical		Cancer Risk		Standards and Health Advisories				Superfund
ORGANICS	CAS #	Cancer Group	10-4 Cancer Risk (µg/L)	DWEL (µg/L)	Longer-term HA (Child) (µg/L)	MCL/MCLG (µg/L)	URTH -STAR- Level (µg/L)	Removal Action Level (µg/L)
Picloram	1918021	D	—	2,000	700	500 / 500	—	700
Polychloroinated biphenyls (PCBs)	1336363	B2	0.5	—	—	0.5 / 0	0.5	0.5
Prometon	1610180	D	—	500	200	—	—	200
Pronamide (Kerb)	23950585	C	—	3,000	800	—	—	800
Propachlor	1918167	D	—	500	100	—	—	100
Propazine	139402	C	—	700	500	—	—	500
Propham	122429	D	—	600	5,000	—	—	600
Pyrene	129000	D	—	1,100	—	—	—	1,100
RDX (Hexahydro-1,3,5-trinitro-1,3,5,triazine)	121824	C	30	100	100	—	—	100
Simazine	122349	C	—	200	70	4 / 4	—	40
Styrene	100425	C	—	7,000	2,000	100 / 100	1,000	1,000
T (2,4,5-)	93765	D	—	350	800	—	—	350
Tackle (See Acifluorfen)								
TCDD (2,3,7,8-) (v) (Dioxin)	1746016	B2	0.00002	0.00004	0.00001	0.00003 / 0	—	0.00003
Tebuthiuron	34014181	D	—	2,000	700	—	—	700
Temik (see Aldicarb)								
Terbacil	5902512	E	—	400	300	—	—	300
Terbufos	13071799	D	—	5	1	—	—	1
Tetrachloroethane (1,1,1,2-)	630206	C	100	1,000	900	—	—	900
Tetrachlorothane (1,1,2,2-)	79345	C[a]	20[a]	—	—	—	—	20
Tetrachloroethylene (Perchloroethylene)	127184	—	70	500	1,000	5 / 0	70	70
Toluene	108883	D	—	7,000	2,000	1,000 / 1,000	—	2,000
Toxaphene (Octachlorocamphene)	8001352	B2	3	400	—	3 / 0	3	3

NUMERIC REMOVAL ACTION LEVELS FOR CONTAMINATED DRINKING WATER SITES
PRIMARY DRINKING WATER STANDARDS AND HEALTH ADVISORIES
April 1997

Chemical ORGANICS	CAS #	Cancer Risk		Standards and Health Advisories				Superfund
		Cancer Group	10-4 Cancer Risk (µg/L)	DWEL (µg/L)	Longer-term HA (Child) (µg/L)	MCL/MCLG (µg/L)	URTH -STAR- Level (µg/L)	Removal Action Level (µg/L)
TP (2,4,5-) (2(2,4,5-Trichlorophenoxy-propionic acid)	93721	D	—	300	70	50 / 50	70	70
Trichloroacetaldehyde (Chloral) See Chloral hydrate (hydrated form of trichloroacetaldehyde)								
Trichloroacetic acid	76039	C	—	4,000	4,000	60[c] / 300	—	3,000
Trichlorobenzene (1,2,4-)	120821	D	—	400	100	70 / 70	—	100
Trichlorobenzene (1,3,5-)	108703	D	—	200	600	—	—	200
Trichloroethane (1,1,1-)	71556	D	—	1,000	40,000	200 / 200	1,000	1,000
Trichloroethane (1,1,2-)	79005	C	—	100	400	5 / 3	—	30
Trichloroethylene (Trichloroethane)	79016	B2	300	300	—	5 / 0	300	300
Trichloromethane (see Chloroform)								
Trichlorophenol (2,4,6-)	88062	B2	300	—	—	—	—	300
Trichlorophenoxypropionic acid (2(2,4,5-)) (see 2,4,5-TP)								
Trichloropropane (1,2,3-)	98184	B2	500	200	600	—	—	200
1,1,2-Trichloro-1,2,2,-trifluoroethane (see Freon 113)								
Trifluralin	1582098	C	500	300	80	—	—	80
Trinitroglycerol	55630	—	—	—	5	—	—	5
Trinitrotoluene (2,4,6-)	118967	C	100	20	20	—	—	20
Vinyl chloride	75014	A	1.5	—	10	2 / 0	2	2
Vydate (see Oxamyl)								
Xylenes (mixed)	1330207	D	—	60,000	40,000	10,000 / 10,000	40,000	40,000

[a] Based on data from IRIS or HEAST in the absence of a published U.S. EPA, Office of Water value

[b] Total for all trihalomethanes combined cannot exceed 80 µg/L

[c] Total for all haloacetic acids cannot exceed 60 µg/L

NUMERIC REMOVAL ACTION LEVELS FOR CONTAMINATED DRINKING WATER SITES
PRIMARY DRINKING WATER STANDARDS AND HEALTH ADVISORIES
April 1997

[d] Technical Grade (tg); 2,4- and 2,6-Dinitrotoluene are unlikely to occur alone

[e] Based on special considerations

NUMERIC REMOVAL ACTION LEVELS FOR CONTAMINATED DRINKING WATER SITES
PRIMARY DRINKING WATER STANDARDS AND HEALTH ADVISORIES
April 1997

Chemical		Cancer Risk		Standards and Health Advisories				Superfund
INORGANICS	CAS #	Cancer Group	10-4 Cancer Risk (µg/L)	DWEL (µg/L)	Longer-term HA (Child) (µg/L)	MCL/MCLG (µg/L)	URTH -STAR- Level (µg/L)	Removal Action Level (µg/L)
Ammonia	7664417	D	—	—	—	—	—	34,000[a] (taste)
Antimony	7440360	D	—	10	10	6 / 6	—	10
Arsenic	7440382	A	2	—	—	50 / —	—	50
Asbestos fibers > 10 µm	1332214	A	700 MFL	—	—	7 MFL / 7 MFL	70 MFL	70 MFL[b]
Barium	7440393	D	—	2,000	—	2,000 / 2,000	—	2,000
Beryllium	7440417	B2	0.8	200	4,000	4 / 4	—	4
Boron	7440428	D	—	3,000	900	—	—	900
Bromate	15541454	—	—	—	—	10 / 0	—	10
Cadmium	7440439	D	—	20	5	5 / 5	5	5
Chloramines (measured free chlorine)	10599903	D[a]	—	3,300	1,000	4,000 / 4,000	—	4,000
Chlorine	7782505	D	—	4,000	—	4,000 / 4,000	—	4,000
Chlorine dioxide	10049044	D	—	350	—	800 / 300	—	800
Chlorite	7758192	D	—	100	—	1,000 / 80	—	1,000
Chromium III (see Chromium total)	16065831							
Chromium VI (see Chromium total)	18540299							
Chromium (total)	—	D	—	200	200	100 / 100	200	200
Copper	7440508	D	—	—	—	Treat. Tech. / 1,300	1,300	1,300
Cyanide	57125	D	—	800	200	200 / 200	—	200
Fluoride	16984488	—	—	4,200	—	4,000 / 4,000	5,000[c]	5,000
Hypochlorite	7681529	—	—	—	—	— / 4,000	—	—
Hypochlorous acid	7790923	—	—	—	—	— / 4,000	—	—
Lead at tap	7349921	B2	—	—	—	Treat. Tech. / 0	30[c]	30

NUMERIC REMOVAL ACTION LEVELS FOR CONTAMINATED DRINKING WATER SITES
PRIMARY DRINKING WATER STANDARDS AND HEALTH ADVISORIES
April 1997

Chemical		Cancer Risk		Standards and Health Advisories				Superfund
INORGANICS	CAS #	Cancer Group	10-4 Cancer Risk (µg/L)	DWEL (µg/L)	Longer-term HA (Child) (µg/L)	MCL/MCLG (µg/L)	URTH -STAR- Level (µg/L)	Removal Action Level (µg/L)
Manganese	7439965	D[a]	—	—	—	— / —	—	—
Mercury	7439976	D	—	10	—	2 / 2	10	10
Molybdeum	7439987	D	—	200	10	—	—	10
Nickel	7440020	D	—	600	500	100 / 100	—	500
Nitrate	14797558	—	—	56,000	—	10,000 / 10,000	10,000	10,000
Nitrite	14797650	—	—	5,600	—	1,000 / 1,000	1,000	1,000
Nitrate+Nitrite	—	—	—	—	—	10,000 / 10,000	10,000	10,000
Selenium	7782492	—	—	200	—	50 / 50	200	200
Silver	7440224	D	—	200	200	—	—	100[d]
Strontium	7440246	D	—	9,000	25,000	—	—	25,000
Sulfate	7757826	—	—	—	—	500,000/ 500,000	—	250,000 (aesthetics)
Thallium	7440280	—	—	2	7	2 / 0.5	—	2
Vanadium	7440622	D	—	250[a]	—	—	—	250
White phosphorus	772314	D	—	0.5	—	—	—	0.5
Zinc	7440666	D	—	10,000	3,000	—	—	3,000
Zinc chloride (measured as zinc)		D	—	10,000	3,000	—	—	3,000

[a] Based on data from IRIS or HEAST in the absence of a published U.S. EPA, Office of Water value

[b] MFL = million fibers per liter

[c] Based on special considerations

[d] Secondary Maximum Contaminant Level intended to protect general public from argyuria (a cosmetic effect) over a lifetime