U-005-407.4

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NOTICE OF VIOLATION OU#3 ISA REPORT
U.S. DOE FERNALD
OH6 890 008 976

12-21-90

USEPA/DOE-ORO
3
LETTER

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
230 SOUTH DEARBORN ST.
CHICAGO, ILLINOIS 60604

DEC 21 1990

REPLY TO ATTENTION OF:

5H-12

Mr. William D. Adams
Acting Assistant Manager
Environmental Restoration and
Waste Management
U.S. Department of Energy
200 Administration Drive
Oak Ridge, Tennessee
37831-8501

Re: Notice of Violation
OU#3 ISA Report
U.S. DOE Fernald
OH6 890 008 976

Dear Mr. Adams:

On September 24, 1990, the United States Department of Energy (U.S. DOE) submitted a draft Initial Screening of Alternatives (ISA) report (a primary document) for Operable Unit (OU) #3 (Production Area and Other Suspect Areas). The United States Environmental Protection Agency (U.S. EPA) disapproved this draft report on October 24, 1990. Pursuant to Section XII of the 1990 Consent Agreement, U. S. DOE was required to submit a revised draft ISA report that addressed all the deficiencies identified by U.S. EPA.

On November 21, 1990, U.S. DOE submitted a revised draft ISA report to U.S. EPA. In accordance with Section XII.B of the Consent Agreement, U.S. EPA reviewed the revised ISA report. Based upon this review, U.S. EPA has determined that the report did not address all of the deficiencies identified in U.S. EPA's October 24, 1990, letter. U.S. EPA disapproved this revised draft ISA report on December 21, 1990. Additionally, U.S. DOE failed to address the entire operable unit, as defined by the 1990 Consent Agreement. Also, the ISA report was not developed in accordance with the requirements of the Consent Agreement, the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), and applicable U.S. EPA guidance and policy, as required by Section X.C of the 1990 Consent Agreement. Thus, for the reasons set forth is this Notice of Violation, U.S EPA hereby finds that U.S. DOE is in violation of the 1990 Consent Agreement.

Section X.C.3 of the Consent Agreement defines the scope of OU#3 as the "production area and suspect areas outside the production area, including effluent line to Great Miami River". U.S. DOE has failed to include all waste and other drummed material, underground

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storage tanks, thorium, and buildings in the ISA report. U.S. DOE's failure to include the required elements in the remedial action for OU#3 has been discussed with U.S. DOE on numerous occasions, including project management meetings and negotiations on Applicable Relevant and Appropriate Requirements (ARARs). Written notice of this deficiency was provided in U.S. EPA's disapproval of the initial draft ISA report on October 24, 1990 and a September 9, 1990, letter specifically on this issue. U.S. DOE has failed to correct this deficiency throughout the remedial effort. U.S. DOE has acknowledged an awareness of this problem and explained that they failed to direct their RI/FS contractor to do the proper work.

Section 300.430(b) of the NCP, 40 CFR 300.430(b) provides that "investigation and analytical studies should be tailored to site circumstances so that the scope and detail of the analysis is appropriate to the complexity of the site problems being addressed." The preamble to the NCP further explains that adequate scoping is necessary to develop a conceptual understanding of the site by considering in a qualitative manner, the sources of contamination, potential pathways of exposure, and potential receptors (55 Federal Register 8707, March 8, 1990). U.S. DOE's failure to adequately scope OU#3 in compliance with the NCP is reflected in the quality and content of the ISA report.

The entire facility is on the National Priorities List (NPL) and nothing in the NCP or CERCLA allows portions of the facility to be excluded from the requirements of CERCLA. U.S. DOE's failure to submit an ISA report that properly scopes the operable unit, in accordance with Section X.C.3 of the 1990 Consent Agreement, and that complies with the NCP constitutes a violation of Section X.C of the Consent Agreement.

Given the severity and extent of the violation and the effect of the violation on the implementation of the remedial action, U.S. EPA finds it is appropriate to apply the stipulated penalties provision in Section XVII of the Consent Agreement. Pursuant to Section XVII, U.S. DOE may be assessed stipulated penalties at a rate not to exceed $5,000 for the first week (or part thereof) and $10,000 for each additional week (or part thereof). Stipulated penalties begin to accrue as of the date of this letter and will continue to accrue until U.S. DOE complies with the requirements of Consent Agreement and submits a ISA report that addresses the entire operable unit.

This letter constitutes written notification of violation as required by Section XVII of the Consent Agreement. As provided by the Agreement, U.S. DOE has fifteen days from the date of this notice to invoke dispute resolution regarding U.S. EPA's determination that the ISA report was inadequate.

If you have any questions regarding this matter, please contact Ms. Mary Butler at the Office of Regional Counsel at (312/FTS) 353-8514.

Sincerely yours,

David A. Ullrich, Director
Waste Management Division

Attachments

cc: Richard Shank, OEPA - CO
Graham Mitchell, OEPA - SWDO
Joe LaGrone, U.S. DOE - ORO
Leo Duffy, U.S. DOE - HDQ

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: DEC 11 1990

SUBJECT: Update for Table of Drinking Water Standards and Health Advisories

FROM: for Christiane Sasia
Daniel A. Wilson, Chief
Drinking Water Section

TO: See Addressees

Attached is the most recent quarterly update of drinking water standards and Health Advisory levels developed and compiled by the Office of Drinking Water (ODW) in Washington, D.C.

This draft version of the drinking water standards and Health Advisories has been approved by ODW for general distribution within the Agency and to the States. **Please distribute a copy to all appropriate staff in your work unit.**

Our office has received several inquiries regarding inconsistencies between values listed in the tables and those in the individual Health Advisory documents. In addition, Health Advisory documents have not yet been prepared for many of the chemicals listed in these tables. ODW has stated that the values in the tables are always subject to change, so when in doubt, use the values listed in the most recently issued table, instead of those values in the Health Advisory documents or in the Integrated Risk Information System (IRIS) database.

Please do not hesitate to contact me if you have any questions or comments.

Attachment

Addressees:

D. Bryon	M. Clark	K. Bremer
E. Watters	C. Fuller	C. Braverman
R. Zdanowicz	J. Garl	L. Fabinski
K. Fenner	J. Karnauskas	M. Mikulka
H. Zar	J. Giattina	D. Ullrich
N. Niedergang	D. Ehorn	G. Phillips
R. Bowden	J. Kelley	V. Jones
J. Dikinis	D. Bruce	J. Adams
W. Messenger	J. Mayka	P. Reed
S. Ostrodka	W. Muno	H. Croke
T. Geischeker	J. Kertcher	S. Schiller
C. Finch		

Legend of Column Headings for Draft Version of
Drinking Water Standards and Health Advisories Table

Standards

NIPDWR - National Interim Primary Drinking Water Regulations: refers to the interim regulatory requirements under the Safe Drinking Water Act (SDWA) of 1974. The NIPDWR specified maximum allowable levels for 22 different contaminants at the consumer's drinking water tap. These interim standards, known as Maximum Contaminant Levels (MCL), were promulgated for 22 contaminants in March 1975, with the intention of revising and promulgating the final National Primary Drinking Water Regulations (NPDWR) a few years later. The values listed in this column are the original MCLs assigned under the interim regulations. The NPDWRs were effected under the SDWA Amendments of June 19, 1986. These revised regulations specify MCLs or treatment techniques for additional contaminants. At this time, 8 additional contaminants (synthetic volatile organic chemicals) have also been assigned MCLs. (Code of Federal Regulations, Chapter 40, part 141, et seq.)

MCLG - Maximum Contaminant Level Goal: Under the National Primary Drinking Water Regulations, the term MCLG now replaces the previous term RMCL or recommended Maximum Contaminant Level. Under the 1986 SDWA Amendments, any NPDWR which establishes an MCL must also simultaneously publish an MCLG at the time of proposed rulemaking and promulgation. The MCLG is the maximum level of a contaminant at which no known or anticipated adverse human health effects would occur, and which include an adequate margin of safety. MCLGs are nonenforceable health goals.

MCL - Maximum Contaminant Level: Derived from the MCLG, the MCL is the maximum permissible level of a contaminant in drinking water which is delivered to the consumers' tap and used by the general public for drinking. MCLs are legally enforceable. The standards reflect the best achievable levels considering the occurrence, relative source contribution factors, monitoring capability, cost of treatment, available technology and health effects. The standards listed in this column for each contaminant under the NIPDWR are either newly promulgated or revised from the NIPDWR. In a few cases, the enforceable standard has changed; however, in most cases (when comparing columns headed NIPDWR and MCL) the existing interim standard has been revised or has been newly developed.

Health Advisories

The Health Advisory (HA) program is sponsored by the Office of Drinking Water (ODW), and provides information on the health effects, analytical methods and treatment technology useful for dealing with drinking water contamination. Health advisories describe nonregulatory concentrations of drinking water contaminants at which adverse health effects would not be

anticipated to occur over specific exposure durations. Health advisories contain a margin of safety, to protect sensitive members of the population. The Health Advisories are developed for one-day, ten-day, longer term and lifetime exposures based on data describing non carcinogenic endpoints of toxicity. The advisories are intended to serve as informal technical guidance to assist Federal, State and local officials when emergency spills or contaminant situations occur. They are not construed as legally enforceable Federal standards and are subject to change as new information becomes available.

10-Kg Child, 1-Day, 10-Day and Longer Term

The child is assumed to be a more sensitive population entity. Included in this assumption, is that the body weight of a child is 10 kg and that one liter of water per day is ingested. Under these and other assumptions specific to the available toxicological data bases, Health Advisory values have been derived and listed in the respective columns for one-day, ten-day and longer term exposures. Longer term is defined as approximately 7 years, or 10 percent of an individual's lifetime.

70-Kg Adult

Health Advisory values for the adult are derived in the same way as for the 10-kg child. Again, certain assumptions are made: The adult is assumed to weigh 70 kg and consume 2 liters of water per day.

Longer Term: As with the 10-kg child, longer term exposure is approximately 7 years or 10 percent of an individual's lifetime.

RfD - Reference Dose: formerly known as the Acceptable Daily Intake (ADI), the RfD is an estimate of a daily exposure to the human population (including sensitive subpopulations) that is likely to be without appreciable risk or deleterious effects over a lifetime. The RfD is expressed in units of daily dose.

DWEL - Drinking Water Equivalent Lifetime: The medium-specific (i.e., drinking water) lifetime exposure level, assuming 100 percent exposure from that medium, at which adverse noncarcinogenic health effects would not be expected to occur. The DWEL is derived from multiplying the RfD by the adult body weight (70kg) and divided by the adult daily water consumption (2 liters/day).

Lifetime Health Advisory: This value is determined by factoring in other sources of exposure to the particular contaminant. The relative source contribution from drinking water is based on actual exposure data. If data are unavailable, a value of 20 percent is assumed for synthetic organic chemical contaminants and a value of 10 percent assumed for inorganic chemical contaminants. The lifetime Health Advisory is determined by multiplying the DWEL by the relative source contribution from drinking water.

Ug/l at 10^{-4} Cancer Risk: This column contains values indicating the concentration of the particular contaminant in drinking water that would produce a 10^{-4} excess lifetime cancer risk. Simply stated, if a group of 10,000 persons was exposed to the contaminant at its respective concentration listed in this column, then one individual in the group might be expected to develop cancer (above background incidence) solely from exposure to that contaminant in drinking water.

Cancer Group: The Office of Health and Environmental Assessment (OHEA) within EPA's Office of Research and Development (ORD) has developed guidelines for carcinogen risk assessment. These guidelines discuss weighing the evidence that a substance is a carcinogen, and classifying the chemical into one of five groups, based on the weight of evidence:

Group A - Human carcinogen
Group B - Probable human carcinogen
  Group B consists of two sub-classifications:
    B_1 - limited human evidence but sufficient animal evidence
    B_2 - Sufficient animal evidence, but inadequate or no human evidence
Group C - Possible human carcinogen
Group D - Not classified as to human carcinogenicity
Group E - Evidence of noncarcinogenicity for humans

(*) The codes for the Status Reg and Status HA columns are as follows:

F - final
D - draft
L - listed for regulation
P - proposed (Phase II draft proposal, based on levels proposed in 1985)

Other codes found in the table include the following:

NA - not applicable
PS - performance standard 0.5 NTU - 1.0 NTU
TT - treatment technique
** - no more than 5% of the samples may be positive. For systems collecting fewer than 40 samples/month, no more than 1% may be positive.
*** - guidance
† - large discrepancies between Lifetime and Longer term HA values may occur because of the Agency's conservative policies, especially with regard to carcinogenicity, relative source contribution, and less than lifetime exposures in chronic toxicity testing. These factors can result in a cumulative UF (uncertainty factor) of 10 to 1,000 when calculating a Lifetime HA.

DRINKING WATER REGULATIONS AND HEALTH ADVISORIES

by

Office of Drinking Water
U.S. Environmental Protection Agency
Washington, D.C.
202-382-7571

SAFE DRINKING WATER HOTLINE
1-800-426-4791 (Toll-Free)
202-382-5533 (Washington, D.C.)
Monday thru Friday, 8:30 AM to 4:30 PM EST

November 1990

LEGEND

Abbreviations column descriptions are:

MCLG - Maximum Contaminant Level Goal. A non-enforceable concentration of a drinking water contaminant that is protective of adverse human health effects and allows an adequate margin of safety.

MCL - Maximum Contaminant Level. Maximum permissible level of a contaminant in water which is delivered to any user of a public water system.

RfD - Reference Dose. An estimate of a daily exposure to the human population that is likely to be without appreciable risk of deleterious effects over a lifetime.

DWEL - Drinking Water Equivalent Level. A lifetime exposure concentration protective of adverse, non-cancer health effects, that assumes all of the exposure to a contaminant is from a drinking water source.

(*) The codes for the Status Reg and Status HA columns are as follows:

F - final
D - draft
L - listed for regulation
P - proposed (Phase II and V draft proposals)

Other codes found in the table include the following:

NA - not applicable
PS - performance standard 0.5 NTU - 1.0 NTU
TT - treatment technique

** - No more than 5% of the samples per month may be positive. For systems collecting fewer than 40 samples/month, no more than 1 sample per month may be positive.

*** - guidance

- Large discrepancies between Lifetime and Longer-term HA values may occur because of the Agency's conservative policies, especially with regard to carcinogenicity, relative source contribution, and less than lifetime exposures in chronic toxicity testing. These factors can result in a cumulative UF (uncertainty factor) of 10 to 1000 when calculating a Lifetime HA.

DRINKING WATER STANDARDS AND HEALTH ADVISORIES

November 1990

Chemicals	Standards: Status Reg.*	Standards: MCLG (µg/l)	Standards: MCL (µg/l)	Health Advisories: Status HA*	10-kg Child: One-day µg/l	10-kg Child: Ten-day µg/l	10-kg Child: Longer-term µg/l	70-kg Adult: Longer-term µg/l	70-kg Adult: RfD µg/kg/day	70-kg Adult: DWEL µg/l	70-kg Adult: Lifetime µg/l	µg/l at 10^{-4} Cancer Risk	Cancer Group
ORGANICS													
Acenaphthylene	-	-	-	-	-	-	-	-	60	-	-	-	-
Acifluorfen	-	-	-	F	2000	2000	100	400	13	400	-	100	B2
Acrylamide	P	zero	TT	F	1500	300	20	70	0.2	7	-	1	B2
Acrylonitrile	L	-	-	D	20	20	1	4	0.1	4	-	7	B1
Adipates (diethylhexyl)	P	500	500	-	-	-	-	-	700	20000	500	-	C
Alachlor	P	zero	2	F	100	100	-	-	10	400	-	40	B2
Aldicarb	P	10	10*	F	-	-	-	-	1.3	40	10	-	D
Aldicarb sulfone	P	40	40*	F	-	-	-	-	6.0	200	40	-	D
Aldicarb sulfoxide	P	10	10*	F	-	-	-	-	1.3	40	10	-	D
Aldrin	-	-	-	D	0.3	0.3	0.3	0.3	0.03	1	-	0.2	B2
Ametryn	-	-	-	F	9000	9000	900	3000	9	300	60	-	D
Ammonium Sulfamate	-	-	-	F	20000	20000	20000	80000	250	8000	2000	-	D
Anthracene (PAH)	L	-	-	-	-	-	-	-	300	-	-	-	D
Atrazine	P	3	3	F	100	100	50	200	5	200	3	-	C
Baygon	-	-	-	F	40	40	40	100	4	100	3	-	C
Bentazon	-	-	-	F	300	300	300	900	2.5	90	20	-	D
Benz(a)anthracene (PAH)	P	zero	0.2	-	-	-	-	-	-	-	-	-	B2
Benzene	F	zero	5	F	200	200	-	-	-	-	-	100	A
Benzo(a)pyrene (PAH)	P	zero	0.2	-	-	-	-	-	-	-	-	-	B2*
Benzo(b)fluoranthene (PAH)	P	zero	0.2	-	-	-	-	-	-	-	-	-	B2
Benzo(g,h,i)perylene (PAH)	P	-	-	-	-	-	-	-	-	-	-	-	D
Benzo(k)fluoranthene (PAH)	P	zero	0.2	-	-	-	-	-	-	-	-	-	B2
bis-2-Chloroisopropyl ether	-	-	-	F	4000	4000	4000	13000	40	1000	300	-	-
Bromacil	-	-	-	F	5000	5000	3000	9000	130	5000	90	-	C
Bromobenzene	-	-	-	D	-	-	-	-	-	-	-	-	-

* Under review.

Chemicals	Standards: Status Reg.*	Standards: MCLG (µg/l)	Standards: MCL (µg/l)	Health Advisories: Status HA*	10-kg Child: One-day µg/l	10-kg Child: Ten-day µg/l	10-kg Child: Longer-term µg/l	70-kg Adult: Longer-term µg/l	70-kg Adult: RfD µg/kg/day	70-kg Adult: DWEL µg/l	70-kg Adult: Lifetime µg/l	70-kg Adult: µg/l at 10^{-4} Cancer Risk	Cancer Group
Bromochloroacetonitrile	L	-	-	D	-	-	-	-	-	-	-	-	-
Bromochloromethane	-	-	-	D	50000	1000	1000	5000	13	500	90	-	-
Bromodichloromethane (THM)	L	-	-	D	7000	7000	400	1300	20	600	-	30	B2
Bromoform (THM)	L	-	-	D	5000	2000	2000	6000	20	600	-	-	B2
Bromomethane	-	-	-	F	100	100	100	500	1	50	10	-	D
Butyl benzyl phthalate (PAE)	P	zero	4	-	-	-	-	-	200	-	-	-	C
Butylate	-	-	-	F	2000	2000	1000	4000	50	2000	350	-	D
Butylbenzene n-	-	-	-	D	-	-	-	-	-	-	-	-	-
Butylbenzene sec-	-	-	-	D	-	-	-	-	-	-	-	-	-
Butylbenzene tert-	-	-	-	D	-	-	-	-	-	-	-	-	-
Carbaryl	-	-	-	F	1000	1000	1000	1000	100	4000	700	-	D
Carbofuran	P	40	40	F	50	50	50	200	5	200	40	-	E
Carbon Tetrachloride	F	zero	5	F	4000	200	70	300	0.7	30	-	30	B2
Carboxin	-	-	-	F	1000	1000	1000	4000	100	4000	700	-	D
Chloral Hydrate	L	-	-	D	7000	1000	200	600	2	60	50	-	D
Chloramben	-	-	-	F	3000	3000	200	500	15	500	100	-	D
Chlordane	P	zero	2	F	60	60	-	-	0.06	2	-	3	B2
Chlorodibromomethane (THM)	L	-	-	D	7000	7000	2000	8000	20	800	20	-	C
Chloroethane	L	-	-	D	-	-	-	-	-	-	-	-	-
Chloroform (THM)	L	-	-	D	4000	4000	100	500	10	500	-	600	B2
Chloromethane	L	-	-	D	9000	400	400	1000	4	100	3	-	C
Chlorophenol (2-)	L	-	-	D	50	50	50	200	5	200	40	-	D
p-Chlorophenyl methyl sulfide/sulfone/sulfoxide	D	-	-	-	-	-	-	-	-	-	-	-	-
Chloropicrin	L	-	-	-	-	-	-	-	-	-	-	-	-
Chlorothalonil	-	-	-	F	200	200	200	500	15	500	-	150	B2
Chlorotoluene o-	L	-	-	F	2000	2000	2000	7000	20	700	100	-	D
Chlorotoluene p-	L	-	-	F	2000	2000	2000	7000	20	700	100	-	D
Chlorpyrifos	-	-	-	D	30	30	30	100	3	100	20	-	D
Chrysene (PAH)	-	zero	0.2	-	-	-	-	-	-	-	-	-	B2
Cyanazine	L	-	-	F	100	100	20	70	2	70	10	-	D

920

Chemicals	Standards: Status Reg.*	Standards: MCLG (µg/l)	Standards: MCL (µg/l)	Health Advisories: Status HA*	10-kg Child: One-day µg/l	10-kg Child: Ten-day µg/l	10-kg Child: Longer-term µg/l	70-kg Adult: Longer-term µg/l	70-kg Adult: RfD µg/kg/day	70-kg Adult: DWEL µg/l	70-kg Adult: Lifetime µg/l	µg/l at 10^{-4} Cancer Risk	Cancer Group
Cyanogen Chloride	L	-	-	-	-	-	-	-	-	-	-	-	-
Cymene p-	-	-	-	D	-	-	-	-	-	-	-	-	-
2,4-D	P	70	70	F	1000	300	100	400	10	400	70	-	D
DCPA (Dacthal)	-	-	-	F	80000	80000	5000	20000	500	20000	4000	-	D
Dalapon	P	200	200	F	3000	3000	300	900	26	900	200	-	D
Dichloroethylene (cis-1,2-)	P	70	70	F	4000	1000	3500	11000	10	400	70	-	D
Dichloroethylene (trans-1,2-)	P	100	100	F	20000	2000	2000	6000	20	600	100	-	D
Dichlorophenol (2,4-)	L	-	-	D	30	30	30	100	3	100	20	-	D
Diazinon	-	-	-	F	20	20	5	20	0.09	3	0.6	-	E
Dibenz(a,h)anthracene (PAH)	P	zero	0.2	-	-	-	-	-	-	-	-	-	B2
Dibromoacetonitrile	L	-	-	D	2000	2000	2000	8000	20	800	20	-	C
Dibromochloropropane (DBCP)	P	zero	0.2	F	200	50	-	-	-	-	-	3	B2
Dibromomethane	L	-	-	-	-	-	-	-	-	-	-	-	D
Dibutyl phthalate (PAE)	P	zero	4	-	-	-	-	-	-	-	-	-	D
Dicamba	L	-	-	F	300	300	300	1000	100	1000	200	-	D
Dichloroacetaldehyde	L	-	-	D	-	-	-	-	30	-	-	-	-
Dichloroacetic acid	L	-	-	D	50000	50000	500	2000	5	200	3	-	C
Dichloroacetonitrile	L	-	-	D	1000	1000	800	3000	8	300	6	-	C
Dichlorobenzene p-	F	75	75	F	10000	10000	10000	40000	100	4000	75	-	C
Dichlorobenzene o-,m-	P	600	600	F	9000	9000	9000	30000	89	3000	600	-	D
Dichlorodifluoromethane	-	-	-	F	40000	40000	9000	30000	200	5000	1000	-	D
Dichloroethane (1,1-)	L	-	-	D	-	-	-	-	-	-	-	-	-
Dichloroethane (1,2-)	F	zero	5	F	700	700	700	2600	-	-	-	40	B2
Dichloroethylene (1,1-)	F	7	7	F	2000	1000	1000	4000	9	400	7	-	C
Dichloromethane	P	zero	5	F	10000	2000	-	-	60	2000	-	500	B2
Dichloropropane (1,1-)	-	-	-	D	-	-	-	-	-	-	-	-	-
Dichloropropane (1,2-)	P	zero	5	F	-	-	-	-	-	-	-	50	B2
Dichloropropane (1,3-)	L	-	-	D	-	-	-	-	-	-	-	-	-
Dichloropropane (2,2-)	L	-	-	D	-	-	-	-	-	-	-	-	-
Dichloropropene (1,1-)	L	-	-	D	-	-	-	-	-	-	-	-	-

Chemicals	Standards: Status Reg.*	MCLG (µg/l)	MCL (µg/l)	Health Advisories: Status HA*	10-kg Child: One-day µg/l	Ten-day µg/l	Longer-term µg/l	70-kg Adult: Longer-term µg/l	RfD µg/kg/day	DWEL µg/l	Lifetime µg/l	µg/l at 10^{-4} Cancer Risk	Cancer Group
Dichloropropene (1,3-)	L	-	-	F	30	30	30	100	0.3	10	-	20	B2
Dieldrin	L	-	-	F	0.5	0.5	0.5	2	0.05	2	-	0.2	B2
Diethyl phthalate (PAE)	P	zero	4	D	-	-	-	-	800	-	-	-	D
Diethylhexyl phthalate (PAE	P	zero	4	D	-	-	-	-	20	-	-	300	B2*
Diisopropyl methylphosphonate	-	-	-	F	8000	8000	8000	30000	80	3000	600	-	D
Dimethrin	-	-	-	F	10000	10000	10000	40000	300	10000	2000	-	D
Dimethyl methylphosphonate	-	-	-	D	-	-	-	-	-	-	-	-	-
Dimethyl phthlate (PAE	P	zero	4	-	-	-	-	-	-	-	-	-	D
1,3-Dinitrobenzene	-	-	-	D	40	40	40	140	0.1	5	1	-	D
Dinitrotoluene (2,4-)	L	-	-	D	-	-	-	-	-	-	-	-	-
2,4-/2,6-Dinitrotoluene	-	-	-	D	-	-	-	-	-	-	-	-	-
Dinoseb	P	7	7	F	300	300	10	40	1	40	7	-	D
Dioxane p-	-	-	-	F	4000	400	-	-	-	-	-	700	B2
Diphenamid	-	-	-	F	300	300	300	1000	30	1000	200	-	D
Diquat	P	20	20	-	-	-	-	-	2.2	-	-	-	D
Disulfoton	-	-	-	F	10	10	3	9	0.04	1	0.3	-	E
1,4-Dithiane	-	-	-	D	-	-	-	-	-	-	-	-	-
Diuron	-	-	-	F	1000	1000	300	900	2	70	10	-	D
Endothall	P	100	100	F	800	800	200	200	20	700	100	-	D
Endrin	P	2	2	F	20	20	3	10	3	9	2	-	D
Epichlorohydrin	P	zero	TT	F	100	100	70	70	2	70	-	400	B2
Ethylbenzene	P	700	700	F	30000	3000	1000	3000	100	3000	700	-	D
Ethylene dibromide (EDB)	P	zero	0.05	F	8	8	-	-	-	-	-	0.04	B2
Ethylene glycol	-	-	-	F	20000	6000	6000	20000	2000	40000	7000	-	D
ETU	L	-	-	F	300	300	100	400	0.03	1	-	6	B2
Fenamiphos	-	-	-	F	9	9	5	20	0.25	9	2	-	D
Fluometuron	-	-	-	F	2000	2000	2000	5000	13	400	90	-	D
Fluorene (PAH)	P	zero	0.2	-	-	-	-	-	40	-	-	-	D
Fluorotrichloromethane	-	-	-	F	7000	7000	3000	10000	300	10000	2000	-	D
Fog Oil	-	-	-	D	-	-	-	-	-	-	-	-	-

Chemicals	Standards: Status Reg.*	Standards: MCLG (µg/l)	Standards: MCL (µg/l)	Health Advisories: Status HA*	10-kg Child: One-day µg/l	10-kg Child: Ten-day µg/l	10-kg Child: Longer-term µg/l	70-kg Adult: Longer-term µg/l	70-kg Adult: RfD µg/kg/day	70-kg Adult: DWEL µg/l	70-kg Adult: Lifetime µg/l	µg/l at 10^{-4} Cancer Risk	Cancer Group
Fonofos	-	-	-	F	20	20	20	70	2	70	10	-	D
Formaldehyde	-	-	-	D	10000	5000	5000	20000	150	5000	1000	-	B1-Inhal
Gasoline	-	-	-	D	-	-	-	-	-	-	5(benzene)	-	-
Glyphosate	P	700	700	F	20000	20000	1000	1000	100	4000	700	-	D
Heptachlor	P	zero	0.4	F	10	10	5	5	0.5	20	-	0.8	B2
Heptachlor epoxide	P	zero	0.2	F	10	-	0.1	0.1	0.013	0.4	-	0.4	B2
Hexachlorobenzene	P	zero	1	F	50	50	50	200	0.8	30	-	2	B2
Hexachlorobutadiene	-	-	-	F	300	300	100	400	2	70	1	-	C
Hexachlorocyclopentadiene	P	50	50	-	-	-	-	-	7	200	-	-	D
Hexachloroethane	-	-	-	D	5000	5000	100	500	1	40	1	-	C
Hexane (n-)	-	-	-	F	10000	4000	4000	10000	-	-	-	-	D
Hexazinone	-	-	-	F	3000	3000	3000	9000	30	1000	200	-	D
HMX	-	-	-	F	5000	5000	5000	20000	50	2000	400	-	D
Hypochlorite	L	-	-	-	-	-	-	-	-	-	-	-	-
Hypochlorous acid	L	-	-	-	-	-	-	-	-	-	-	-	-
Indeno(1,2,3,-c,d)pyrene (PAH)	P	zero	0.2	D	-	-	-	-	-	-	-	-	B2
Isophorone	L	-	-	D	15000	15000	15000	15000	200	7000	100	-	C
Isopropyl methylphosphonate	-	-	-	-	-	-	-	-	-	-	-	-	-
Isopropylbenzene	-	-	-	D	-	-	-	-	-	-	-	-	-
Lindane	P	0.2	0.2	F	1000	1000	30	100	0.3	10	0.2	-	C
Malathion	-	-	-	D	200	200	200	800	20	800	200	-	D
Maleic hydrazide	-	-	-	F	10000	10000	5000	20000	500	20000	4000	-	D
MCPA	-	-	-	F	100	100	100	400	1.5	53	11	-	E
Methomyl	-	-	-	F	300	300	300	300	25	900	200	-	D
Methoxychlor	P	400	400	F	6000	2000	500	2000	50	2000	400	-	D
Methyl ethyl ketone	-	-	-	F	80000	8000	3000	9000	25	900	200	-	D
Methyl parathion	-	-	-	F	300	300	30	100	0.25	9	2	-	D
Methyl tert butyl ether	L	-	-	D	3000	3000	500	2000	5	200	40	-	D
Metolachlor	L	-	-	F	2000	2000	2000	5000	150	5000	100	-	C
Metribuzin	L	-	-	F	5000	5000	300	900	25	900	200	-	D

Chemicals	Standards: Status Reg.*	Standards: MCLG (µg/l)	Standards: MCL (µg/l)	Health Advisories: Status HA*	10-kg Child: One-day µg/l	10-kg Child: Ten-day µg/l	10-kg Child: Longer-term µg/l	70-kg Adult: Longer-term µg/l	70-kg Adult: RfD µg/kg/day	70-kg Adult: DWEL µg/l	70-kg Adult: Lifetime µg/l	70-kg Adult: µg/l at 10^{-4} Cancer Risk	Cancer Group
Monochloroacetic acid	L	-	-	D	-	-	-	-	-	-	-	-	-
Monochlorobenzene	P	100	100	F	2000	2000	2000	7000	20	700	100	-	D
Naphthalene	-	-	-	D	500	500	400	1000	4	100	20	-	D
Nitrocellulose (non-toxic)	-	-	-	F	-	-	-	-	-	-	-	-	-
Nitroguanidine	-	-	-	F	10000	10000	10000	40000	100	4000	700	-	D
Nitrophenols p-	-	-	-	D	800	800	800	3000	8	300	60	-	D
Oxamyl (Vydate)	P	200	200	F	200	200	200	900	25	900	200	-	E
Ozone by-products	L	-	-	-	-	-	-	-	-	-	-	-	-
Paraquat	-	-	-	F	100	100	50	200	4.5	200	30	-	E
Pentachloroethane	-	-	-	D	-	-	-	-	-	-	-	-	-
Pentachlorophenol	P	200/zero	200/0.1*	F	1000	300	300	1000	30	1000	-	30	B2
Phenanthrene (PAH)	P	zero	0.2	-	-	-	-	-	-	-	-	-	-
Phenol	-	-	-	D	6000	6000	6000	20000	600	20000	4000	-	D
Picloram	P	500	500	F	20000	20000	700	2000	70	2000	500	-	D
Polychlorinated byphenyls (PCBs)	P	zero	0.5	P	-	-	-	-	-	-	-	0.5	B2
Prometon	-	-	-	F	200	200	200	500	15	500	100	-	D
Pronamide	-	-	-	F	800	800	800	3000	75	3000	50	-	C
Propachlor	-	-	-	F	500	500	100	500	13	500	90	-	D
Propazine	-	-	-	F	1000	1000	500	2000	20	700	10	-	C
Propham	-	-	-	F	5000	5000	5000	20000	20	600	100	-	D
Propylbenzene n-	-	-	-	D	-	-	-	-	-	-	-	-	-
Pyrene (PAH)	P	zero	0.2	-	-	-	-	-	30	-	-	-	D
RDX	-	-	-	F	100	100	100	400	3	100	2	30	C
Simazine	P	1	1	F	500	500	50	200	2	60	1	-	C
Styrene	P	zero/100	5/100*	F	20000	2000	2000	7000	200	7000	0/100	1	B2/C
2,4,5-T	L	-	-	F	800	800	800	1000	10	350	70	-	D
2,3,7,8-TCDD (Dioxin)	P	zero	$5x10^{-8}$mg/L	F	0.0011	E-04	1E-05	4E-05	1E-06	4E-05	-	2E-05	B2
Tebuthiuron	-	-	-	F	3000	3000	700	2000	70	2000	500	-	D
Terbacil	-	-	-	F	300	300	300	900	13	400	90	-	E
Terbufos	-	-	-	F	5	5	1	5	0.13	5	0.9	-	D

* Under review.

Chemicals	Standards: Status Reg.*	MCLG (µg/l)	MCL (µg/l)	Health Advisories: Status HA*	10-kg Child: One-day µg/l	Ten-day µg/l	Longer-term µg/l	70-kg Adult: Longer-term µg/l	RfD µg/kg/day	DWEL µg/l	Lifetime µg/l	µg/l at 10^{-4} Cancer Risk	Cancer Group
Tetrachloroethane (1,1,1,2-)	L	-	-	F	2000	2000	900	3000	30	1000	70	100	C
Tetrachloroethane (1,1,2,2-)	L	-	-	D	-	-	-	-	-	-	-	-	-
Tetrachloroethylene	P	zero	5	F	2000	2000	1000	5000	10	500	-	70	B2
Toluene	P	2000	2000*	F	20000	3000	3000	10000	100	5	1000	-	D
Toxaphene	P	zero	5*	F	500	40	-	-	100	3.5	-	3	B2
2,4,5-TP	P	50	50	F	200	200	70	300	7.5	300	50	-	D
1,1,2-Trichloro-1,2,2-trifluoroethane	-	-	-	-	-	-	-	-	-	-	-	-	-
Trichloroacetic acid	L	-	-	D	30000	30000	30000	100000	300	10000	200	-	C
Trichloroactonitrile	L	-	-	D	50	50	-	-	-	-	-	-	-
Trichlorobenzene (1,2,4-)	P	9	9	F	100	100	100	500	1	50	9	-	D
Trichlorobenzene (1,3,5-)	-	-	-	F	600	600	600	2000	6	200	40	-	D
Trichloroethane (1,1,1-)	F	200	200	F	100000	40000	40000	100000	35	1000	200	-	D
Trichloroethane (1,1,2-)	P	3	5	F	600	400	400	1000	4	100	3	-	C
Trichloroethanol (2,2,2-)	L	-	-	-	-	-	-	-	-	-	-	-	-
Trichloroethylene	F	zero	5	F	-	-	-	-	7	300	-	300	B2
Trichlorophenol (2,4,6-)	L	-	-	D	-	-	-	-	-	-	-	300	B2
Trichloropropane (1,1,1-)	-	-	-	D	-	-	-	-	-	-	-	-	-
Trichloropropane (1,2,3-)	-	-	-	F	600	600	600	2000	6	200	40	-	-
Trifluralin	L	-	-	F	80	80	80	300	7.5	300	5	-	C
Trimethylbenzene (1,2,4-)	-	-	-	D	-	-	-	-	-	-	-	-	-
Trimethylbenzene (1,3,5-)	-	-	-	D	-	-	-	-	-	-	-	-	-
Trinitroglycerol	-	-	-	F	5	5	5	5	-	-	5	-	-
Trinitrotoluene	-	-	-	F	20	20	20	20	0.5	20	2	-	C
Vinyl chloride	F	zero	2	F	3000	3000	10	50	-	-	-	1.5	A
White phosphorus	-	-	-	D	-	-	-	-	0.02	0.5	0.1	-	-
Xylenes	P	10000	10000	F	40000	40000	40000	100000	2000	60000	10000	-	D
Zinc chloride	-	-	-	D	-	-	-	-	-	-	-	-	-

* Under review.

Chemicals	Standards: Status Reg.*	MCLG (µg/l)	MCL (µg/l)	Health Advisories: Status HA*	10-kg Child: One-day µg/l	Ten-day µg/l	Longer-term µg/l	70-kg Adult: Longer-term µg/l	RfD µg/kg/day	DWEL µg/l	Lifetime µg/l	µg/l at 10^{-4} Cancer Risk	Cancer Group
INORGANICS													
Aluminum	L	-	-	D	-	-	-	-	-	-	-	-	-
Ammonia	L	-	-	D	-	-	-	-	-	-	30000	-	D
Antimony	P	3	10/5	D	15	15	15	15	0.4	15	3	-	D
Arsenic	P	zero	-	D	-	-	-	-	1	-	-	3	A
Asbestos (fibers/l > 10um)	P	7E+06	7E+06	-	-	-	-	-	-	-	-	-	-
Barium	P	5000	5000*	F	-	-	-	-	70	-	2000	-	D
Beryllium	P	zero	1	D	30000	30000	4000	20000	5	200	-	0.8	B2
Boron	L	-	-	D	4000	900	900	3000	90	3000	600	-	D
Cadmium	P	5	5	F	40	40	5	20	0.5	20	5	-	D
Chloramine	L	-	-	D	1000	1000	1000	4000	10	400	300	-	D
Chlorate	L	-	-	D	40	40	40	100	0.4	10	10	-	D
Chlorine	L	-	-	D	3000	3000	400	2000	40	2000	1000	-	D
Chlorine dioxide	L	-	-	D	300	300	300	1000	3	100	80	-	D
Chlorite	L	-	-	D	100	100	400	400	1	40	30	-	-
Chromium (total)	P	100	100	F	1000	1000	200	800	5	200	100	-	D
Copper	P	1300	1300	-	-	-	-	-	-	-	-	-	D
Cyanide	P	200	200	F	200	200	200	800	22	800	200	-	D
Fluoride	F	4000	4000	-	-	-	-	-	60	-	-	-	-
Lead (at source)	P	zero	5*	-	-	-	-	-	-	-	-	-	B2
Lead (at tap)	P	zero	TT*	-	-	-	-	-	-	-	-	-	B2
Manganese	-	-	-	D	-	-	-	-	140	-	-	-	-
Mercury	P	2	2	F	-	-	-	2	0.3	10	2	-	D
Molybdenum	L	-	-	D	80	80	10	50	1	50	50	-	D
Nickel	P	100	100	F	1000	1000	100	600	20	600	100	-	D
Nitrate (as N)	P	10000	10000	F	-	10000	-	-	1600	-	-	-	D

* Under review.

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Chemicals	Standards: Status Reg.*	MCLG (µg/l)	MCL (µg/l)	Health Advisories: Status HA*	10-kg Child: One-day µg/l	Ten-day µg/l	Longer-term µg/l	70-kg Adult: Longer-term µg/l	RfD µg/kg/day	DWEL µg/l	Lifetime µg/l	µg/l at 10^{-4} Cancer Risk	Cancer Group
Nitrite (as N)	P	1000	1000	F	-	1000	-	-	1600	-	-	-	D
Nitrate + Nitrite	P	10000	10000	-	-	-	-	-	-	-	-	-	-
Selenium	P	50	50	-	-	-	-	-	-	-	-	-	-
Silver	L	-	-	D	200	200	200	200	5	200	100	-	D
Sodium	L	-	-	D	-	-	-	-	-	20000***	-	-	-
Strontium	L	-	-	D	25000	25000	25000	90000	2500	90000	17000	-	D
Sulfate	P	400000/500000	400000/500000	-	-	-	-	-	-	-	-	-	-
Thallium	P	0.5	2/1	D	7	7	7	20	0.07	2	0.4	-	-
Vanadium	L	-	-	D	80	80	30	100	3	100	20	-	D
Zinc	L	-	-	D	4000	4000	4000	4000	100	4000	4000	-	D
RADIONUCLIDES													
Beta particle and photon activity (formerly man-made radionuclides)	F	zero	4 mrem	-	-	-	-	-	-	-	-	4 mrem/y	A
Gross alpha particle activity	F	zero	15 pCi/L	-	-	-	-	-	-	-	-	-	A
Radium 226/228	F	zero	5 pCi/L	-	-	-	-	-	-	-	-	21/28 pCi/l	A
Radon	T	zero	-	-	-	-	-	-	-	-	-	160 pCi/l	A
Uranium	T	zero	-	-	-	-	-	-	-	-	-	26 pCi/l	A

SECONDARY MAXIMUM CONTAMINANT LEVELS

Chemicals	Status*	SMCLs (mg/l)
Aluminum	P	0.05 to 0.2
Chloride	F	250
Color	F	15 color units
Copper	F	1
Corrosivity	F	non-corrosive
Dichlorobenzene -o	P	0.01
Dichlorobenzene -p	P	0.005
Ethylbenzene	P	0.03
Fluoride	F	2
Foaming Agents	F	0.5
Hexachlorocyclopentadiene		0.008
Iron	F	0.3
Manganese	F	0.05
Odor	F	3 threshold odor numbers
Pentachlorophenol	P	0.03
pH	F	6.5 - 8.5
Silver	P	0.09
Sulfate	F	250
Toluene	P	0.04
Total Dissolved Solids (TD)	F	500
Xylene	P	0.02
Zinc	F	5

* Status Codes: P - proposed, F - final

MICROBIOLOGY

	Status	MCLG	MCL
Cryptosporidium	L	-	-
Giardia lamblia	F	zero	TT
Legionella	F[§]	zero	TT
Standard Plate Count	F[§]	NA	TT
Total Coliforms (Current)	F	NA	varies
Total Coliforms (after 12/31/90)	F	zero	**
Turbidity (before 1/1/91)	F	NA	1 and 5 NTU
Turbidity (after 12/31/90)	F	NA	PS
Viruses	F[§]	zero	TT

Key: PS, TT, F, defined as previously stated.

[§]: Final for systems using surface water; also being considered for regulation under groundwater disinfection rule.

Varies: MCL varies based on analytical method used, sample volume, and number of samples collected per month. Also, two types of MCLs = the monthly average and the "single sample" MCL. Both are based on coliform density.

"1 and 5 NTU": These are two MCLs for turbidity. The monthly average MCL is 1 NTU; the two-day consecutive average MCL is 5 NTU.