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DERIVATION OF REPORTABLE SOIL CONCENTRATIONS

The proposed revision of the Release Notification Rule that was public noticed on September 30, 1993 contains a table in Appendix I that lists 1956 names of chemical substances regulated under the Hazardous Sites Response Act. For most of those names, a value was given, either directly or indirectly, for the minimum concentration of the substance in soil which would trigger the requirement to report the contamination to EPD. The context in which reportable soil concentrations (hereafter "RCs") are applicable is described directly in the proposed rule. This paper explains how the RCs were derived.

- I. Background
 - II. RCs based on groundwater protection
 - A. Groundwater reference values
 - B. General model for soil reference values
 - C. Extrapolations and exceptions
 - D. Default values for remaining substances
 - III. RCs based on soil toxicity
 - A. General model based on direct ingestion
 - B. Clean sludge standards (U.S.EPA's 503 rule)
 - IV. Final RCs
- TABLES

I. BACKGROUND

The modelling of risks to human health or the environment from releases of regulated substances, especially for releases to soil, is accompanied by many difficulties. Certain realities, however, demand action. At many sites across all parts of Georgia, groundwater contamination has occurred which will not be adequately addressed under other regulatory programs. The full magnitude of groundwater contamination is not well represented by current groundwater monitoring programs because hazardous materials that have been released to the land surface can take a long time to migrate to aquifers where drinking water wells are typically installed. In parts of the state where we rely primarily on surface water sources today, groundwater may become essential water supply sources in the near future. These realities suggest that the first order of business for the Hazardous Site Response Program should be the protection of groundwater.

EPD approached this issue first by tentatively establishing an acceptable risk concentration for individual regulated substances in groundwater (hereafter, "groundwater reference values"). Precedents for groundwater reference values were found in maximum contaminant limits (MCLs) under Georgia's Rules for Safe Drinking Water and in the 7Q10 in-stream standards under Georgia's Rules for Water Quality Control. In deciding where the groundwater reference values should apply, EPD had a choice between the immediate vicinity of a contaminant source versus some more distant compliance point, with the latter allowing attenuation to occur in the intervening zone. Since groundwater quality in the intervening zone is equally deserving of protection, the water table immediately at or beneath the contaminant source was selected as the compliance point.

To protect groundwater quality in a comprehensive way, releases that have not had time to reach the water table must also be addressed. A realistic and protective approach would be to prohibit any soil contamination which could migrate to groundwater and cause concentrations in excess of groundwater reference values. The minimum concentration for such prohibited soil contamination is here termed the "soil reference value". In this context, the soil reference value pertains only to groundwater protection, but use of the term can be expanded to address other resources or receptors which need protection. In particular, assurance is needed that a soil reference value based on groundwater protection does not exceed a concentration that would pose a threat to human health via direct exposure to the soil itself. To the extent possible, each RC was equated with a soil reference value that is the lesser of a groundwater protection number and a soil toxicity number.

II. RCs BASED ON GROUNDWATER PROTECTION

A. Groundwater Reference Values

All maximum contaminant levels (MCLs) promulgated in the Georgia Rules for Safe Drinking Water (revised July 1992) were tentatively accepted as groundwater reference values. No distinction was made among primary MCLs (Rule 391-3-5-.18), lead and copper action levels (Rule 391-3-5-.25), and Phase V MCLs that became effective on July 27, 1993 (Rule 391-3-5-.26(1)). Secondary MCLs were not utilized. All constituent trihalomethanes (e.g. chloroform) were assigned the MCL of 0.10 mg/L for total trihalomethanes. The printing error at the MCL for 2,3,7,8-TCDD was corrected to 3×10^{-8} mg/L.

For any substance not having a MCL, values were taken from standards found in the Rules for Water Quality Control (revisions approved March 24, 1993). Initially, both in-stream criteria for 7Q10 or higher flows (Rule 391-3-6-.03(5)(d)(i) and (ii)) and in-stream criteria for annual average or higher flows (Rule 391-3-6-.03(5)(d)(iii)) were considered to be appropriate candidates for groundwater reference values. However, the criteria for annual average and higher flows are based on complex, and debatable, assumptions about bioaccumulation, human ingestion of fish, volatile losses from surface water, etc. which result not only in the extremely low values of 1.36×10^{-7} mg/L for aldrin and 1.4×10^{-4} mg/L for arsenic, but also the excessive values of 110 mg/L for anthracene, 200 mg/L for toluene, and 2,900 mg/L for dimethyl phthalate. The more straightforward aquatic toxicity assumptions for the 7Q10 criteria appear to be more transferable to a groundwater context; therefore only the 7Q10 criteria values were utilized in developing RCs. Where more than one 7Q10 criterion exists for a given substance, only the freshwater criterion at the lowest hardness level was utilized.

Substances which had no promulgated MCL or 7Q10 values, but which did have the migration coefficient (K_d) that is discussed in Section II.B, were assigned default values if they fell in certain chemical groups. These default values were established by analogy with values of other chemicals of the same group that had already been assigned values through the processes described above. Table 1 shows the breakdown by group, and Table 2 lists the substances for which groundwater reference values were assigned by any means. DDD and DDE were assigned the same value as DDT. 1,1-dichloroethane was assigned the same value as 1,2-dichloroethane. Hydrogen cyanide was assigned the value for cyanide. 2,4,5-T was given the same value as 2,4,5-TP. 1,1,1,2-tetrachloroethane was assigned the value (rounded off) of 1,1,2,2-tetrachloroethane. Values for 1,1,2,2-tetrachloroethane and 1,1,2-trichloroethane were taken from the in-stream criteria for annual average or higher flows in the Rules for Water Quality Control.

B. General Model for Soil Reference Values

For the purpose of establishing RCs, it was assumed that any water (such as rain) that infiltrates a soil that has become contaminated by a regulated substance moves slowly enough to allow equilibrium to be established between the contaminated soil solids and the associated pore water. This equilibrium is expressed: $c_w = (K_d)^{-1} c_s$, where c_w is concentration in pore water (mg/L), c_s is concentration in the solid phase of the soil (mg/kg), and K_d is an empirical equilibrium partitioning coefficient (L/kg). The pore water is assumed to merge with the zone of saturation (i.e., groundwater) at the base of the uniformly contaminated soil. Dilution of the leachate by mixing with pre-existing groundwater or by mixing with inflow from non-contaminated source areas is neglected. Pore water concentration is assumed not to diminish with time, either by leaching away of the source, losses to the atmosphere, or breakdown of the substance. This conceptual model is inherently protective; therefore, additional safety factors are not needed. Rearranging the equation above, and substituting the groundwater reference value for c_w and the soil reference value for c_s , gives the form of the equation used in deriving the soil reference value:

$$\text{soil reference value} = K_d \times \text{groundwater reference value}$$

A single source of peer-reviewed K_d values exists in the Superfund Chemical Data Matrix (SCDM), which is U.S.EPA's mandatory source of chemical information for assessing sites under the National Contingency Plan's Hazard Ranking System. SCDM uses a standardized procedure to derive singular K_d values for individual substances, a procedure which addresses the tremendous variability among soil properties that affect K_d , especially % clay and % organic matter. Therefore, all K_d values that were available in SCDM for regulated substances were utilized; these were taken from Pages B-1 to B-14 of the April 2, 1991 SCDM. The precedent in the State of Washington's Model Toxics Control Act (§173-340-740(4)(b)(ii)(A)) of establishing soil levels at 100x groundwater reference values was used only for substances in the pesticide group which had no K_d from SCDM but did have groundwater reference values; the affected substances are dalapon, diquat, and oxamyl.

Soil reference values, as calculated by the above equation, are given in Table 3.

C. Extrapolations and Exceptions

Since soil reference values were to be used as reportable concentrations (RCs), adjustments were made across certain groups of substances. The most conspicuous adjustment was applied to polycyclic aromatic hydrocarbons (PAHs). PAHs were segregated from the nonhalogenated semivolatile group because substances in this group are common soil and groundwater contaminants in Georgia, because they are usually found in mixtures due to their occurrence in petroleum products, in coal, and in products of combustion, and because many are presumed to be carcinogens. However, only benzo(a)pyrene has a promulgated water standard that is sensitive to the issue of carcinogenicity. In developing RCs for PAHs, it was assumed that the PAHs of most concern are the compounds with four or more rings. These compounds tend to have large K_d values (i.e., they bind tightly with the soil solids) when evaluated in isolation, and tend to be relatively minor components of common mixtures. The four-ringed compound with the lowest calculated soil reference value was pyrene at 9.64 mg/kg. However, the PAHs that tend to be major components of common mixtures are two- and three-ringed compounds, like naphthalene and phenanthrene, which have lower K_d values. Since the groundwater reference value for the higher-ringed compounds, esp. benzo(a)pyrene, is below the analytical detection limit and since significant concentrations of these substances can be masked, or not detected, by interferences from the solvents in which these substances are often found, the presence of PAHs that are suspected of being carcinogens should be presumed whenever a significant

presence of two- and three-ring PAHs is detected. Consequently, the soil reference value for an indicator PAH, naphthalene (1.86 mg/kg), was tripled, rounded off to a value of 5, and assigned to all PAHs as their RC.

Where a pesticide's calculated soil reference value exceeded 10 mg/kg, the RC was reduced to 10 mg/kg. This ceiling was suggested by data for chlordane and affected only dalapon, endrin, methoxychlor, oxamyl, and 2,4,5-TP(silvex). RCs for all VOCs (halogenated and nonhalogenated) were not allowed to exceed 20 mg/kg; this ceiling was suggested by the cleanup standard for BETX compounds in Georgia's Rules for Underground Storage Tanks. The ceiling value for halogenated semivolatiles was arbitrarily set at 25 mg/kg, and for nonhalogenated semivolatiles (other than PAHs), at 50 mg/kg. A ceiling was not imposed on naturally-occurring inorganics, such as metals, but a floor of 10 mg/kg was imposed, reflecting a rough approximation of the natural background concentrations for several of the metals. For substances in all other groupings, the RC was set at the detection limit if the calculated soil reference value was lower than the detection limit. Quoting from the proposed rule, "'detection limit' means the practical quantitation limit (PQL), defined as the lowest concentration ... at which the quantity of a regulated substance can be measured with a stated degree of confidence under routine laboratory operating conditions." For those substances with which EPD's labs had experience and had established PQLs, the actual PQL concentration was used as a floor value for the RC. For organics, the PQL was based on analysis by gas chromatography/mass spectroscopy and on the assumption that the substance was the sole contaminant in the sample. The PQLs for most VOCs were 0.005 mg/kg, and for most semivolatiles and pesticides 0.66 mg/kg. PQLs for inorganics were based on several analytical methods. All EPD PQLs for soils are provided in Table 4. If the EPD labs had no PQL for a given substance and its calculated soil reference value was substantially lower than the PQL for other substances in its class, the RC is not given as a number, but as "DL" ("detection limit").

D. Default Values for Remaining Substances

Each substance whose regulation is required by the Hazardous Site Response Act needs an RC, but for some substances data concerning their ability to migrate to groundwater is nonexistent. A means of establishing RCs for such substances was suggested in Massachusetts' cleanup regulations. Revisions to the Massachusetts Contingency Plan (310 CMR 40.000) were promulgated on July 30, 1993. Under 310 CMR 40.0399, RCs are established simply by multiplying reportable quantities (pounds) by a constant and changing the units to indicate concentrations. The Massachusetts reportable quantities are much like the reportable quantities (RQs) under the National Contingency Plan. The Massachusetts RCs ranged from 10 to 1000 mg/kg for residential soils. EPD's efforts used a modified form of the technique. First, the lower end of the range was set at 25 mg/kg while the upper end was kept at 1000 mg/kg. Second, the RQs in 40 CFR 302.4 and in 40 CFR 355, Appendix A, were used without modification. The relatively few substances found only in 40 CFR 261, Appendix VIII, were arbitrarily assigned an "rq" of 1 pound. Finally, substances were placed in one of only three categories and RCs were assigned, as follows:

- (1) For unspecified or 1 pound quantities, RC = 25 mg/kg;
- (2) For 10 pound quantities, RC = 100 mg/kg;
- (3) For 100-5000 pound quantities, RC = 1000 mg/kg.

Due to its length, a table is not provided in this paper which lists all the substances whose RCs were assigned through this default process. One can consult the table in Appendix I of the proposed rule to find substances whose final RCs were default values. In the Appendix I table, default values are enclosed in square brackets.

III. RCs BASED ON SOIL TOXICITY

A. General Model Based on Direct Ingestion

Both cancer and noncancer toxicity were considered during the development of RCs. Soil reference values for cancer and noncancer toxicity were developed only for chemicals for which a suitable base of toxicity information currently exists. Several pathways of exposure were originally considered for evaluation, including direct ingestion of soil, inhalation of volatile and respirable particle-bound emissions, and dermal contact of contaminated soil. Only the direct ingestion pathway was ultimately utilized due to limited availability of appropriate inputs (i.e., soil to air volatilization factors, particulate emissions factors, skin absorption factors) for the other exposure pathways for sufficient numbers of chemicals. The general formulas shown below were used for the calculation of soil concentrations to account for cancer (a) and noncancer (b) toxicity.

$$(a) \quad SC = \text{risk} \times BW \times AT / EF \times ED \times (IRs/10^6 \text{ mg/kg}) \times CPFo$$

$$(b) \quad SC = HQ \times RfD \times BW \times AT / EF \times ED \times IRs$$

where:

AT = averaging time, 365 days/year x 70 years for carcinogens, 365 days/year
x 30 years for toxics

ED = exposure duration, 30 years

EF = exposure frequency, 350 days/year

BW = age adjusted body weight, 59 kg

CPFo = oral cancer potency factor (mg/kg-day)⁻¹

HQ = unitless hazard quotient, 1

IRs = age adjusted soil intake rate, 120 mg/day

RfD = reference dose (mg/kg-day)

risk = unitless probability, 1×10^{-5}

SC = soil concentration (mg/kg)

Two non-overlapping sources of information for the CDFos and RfDs were used: U.S.EPA's Integrated Risk Information System (IRIS) and U.S.EPA's Health Assessment Summary Tables (HEAST). The BW and IRs are estimates for 30 years of combined childhood and adult exposure, using age-adjusted body weight and soil intake rates.

The lesser SC from equations (a) and (b) was compared to the migration-based RC for each regulated substance, both those calculated and those assigned by default. If said SC was less than the migration-based RC for the substance, the final RC was made to equal the SC (with the exception of nine metals, see Section III.B). Table 5 lists all 41 substances for which soil concentrations based on the general toxicity model affected the final RC value.

B. Clean Sludge Standards

U.S.EPA published a final rule concerning "Standards for the Use or Disposal of Sewage Sludge" in the February 19, 1993 Federal Register, pp. 9248-9404. The rule was issued under authority of the federal Clean Water Act and establishes standards for the incineration, landfilling, and land application of sewage sludge. One of the major issues that the rule addresses is the hazard to human health and the environment of the heavy metals that are inevitably found in the sludge. The

rule's concentration standards for nine heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, and zinc) were based on a risk assessment. The final rule also provides, for those nine metals, maximum concentrations for sewage sludges that are deemed to be sufficiently clean that their management need not be regulated. Deregulated sludges can be distributed to the public for unrestricted use. It is likely therefore that some property owners will incorporate substantial quantities of such sludges into their landscaping or even vegetable gardens. The risk assessment anticipated such uses. The precedent established by these "clean sludge concentrations" is significant. The establishment of RCs at concentrations lower than the concentrations in deregulated sludges which may be added to a vegetable garden would be problematic; therefore, the clean sludge concentrations were made the final RCs for the nine metals. The clean sludge concentrations are all higher than the soil reference values that were described earlier for groundwater protection. The column labelled "sludge" in Table 4 provides the clean sludge concentrations for the nine metals.

IV. FINAL RCs

The final RCs are given in the table in the proposed rule's Appendix I. Notes are used extensively where it could not be justified to assign a unique concentration to a given substance. For all substances which were given numerical RCs, the derivation of the final RCs are summarized as follows, with the up and down arrows indicating operations which tended to increase or decrease the final values, respectively.

groundwater reference value → (ceiling ↓) → (group defaults) → final groundwater reference value

final groundwater reference value $\times K_d$ = soil reference value

soil reference value → (PQLs ↑) → (other floors ↑) → (group ceilings ↓) → migration-based RC

[others given default migration-based RCs based on RQs]

migration-based RC → (toxicity model's SC ↓) → (clean sludge value ↑) → FINAL RC

Table 1. Groupings used to handle substances that do not have promulgated water standards, concentrations assigned as default groundwater reference values, and general comments

SUBSTANCE GROUP	Defaults (mg/L)	COMMENTS
Polycyclic aromatic hydrocarbons (PAH)	.001/.005	larger value is for naphthalene, creosote, and total PAHs; lower value is 5x that of benzo(a)pyrene
Pesticides (PES)	none assigned	
Nonhalogenated volatile organics (VOC)	.9999	ceiling of 2.0 mg/L imposed; affects only xylene (10.0 → 2.0)
Halogenated volatile organics (VOC)	.0499	
Halogenated semivolatile organics (HALO)	.0499	
tri ⁺ -chlorophenols (HALO)	.02	subsetting as a known dioxin source
Nonhalogenated semivolatile organics (SVOC)	.0499	
Naturally-occurring inorganics (NAT)	none assigned	only metal without water standard is vanadium
RCRA toxicity characteristic standards utilized (TC)	0.01 of value in 40 CFR 261.24	other groupings may preempt

TABLE 2: DERIVATION OF FINAL GROUNDWATER REFERENCE VALUES (mg/L)

CAS No.	Chemical Name	MCL	"7Q10"	Group	GW Ref Val
00083-32-9	ACENAPHTHENE			PAH	0.001000
00208-96-8	ACENAPHTHYLENE			PAH	0.001000
00075-07-0	ACETALDEHYDE			SVOC	0.049990
00067-64-1	ACETONE			VOC	0.999990
00075-05-8	ACETONITRILE			SVOC	0.049990
00098-86-2	ACETOPHENONE			SVOC	0.049990
00079-06-1	ACRYLAMIDE			SVOC	0.049990
00079-10-7	ACRYLIC ACID			SVOC	0.049990
00107-13-1	ACRYLONITRILE			SVOC	0.049990
00124-04-9	ADIPIC ACID			SVOC	0.049990
00309-00-2	ALDRIN			PES	
07664-41-7	AMMONIA			MISC	
00062-53-3	ANILINE			SVOC	0.049990
00120-12-7	ANTHRACENE			PAH	0.001000
07440-36-0	ANTIMONY	0.0060000		NAT	0.006000
07440-38-2	ARSENIC	0.0500000	0.0500000	NAT	0.050000
07440-39-3	BARIUM	2.0000000		NAT	2.000000
00071-43-2	BENZENE	0.0050000		VOC	0.005000
00098-88-4	BENZENE CARBONYL CHLORIDE			HALO	0.049990
00092-87-5	BENZIDINE			SVOC	0.049990
00056-55-3	BENZO(A)ANTHRACENE			PAH	0.001000
00050-32-8	BENZO(A)PYRENE	0.0002000		PAH	0.000200
00191-24-2	BENZO(GH)PERYLENE			PAH	0.001000
00207-08-9	BENZO(K)FLUORANTHENE			PAH	0.001000
00205-99-2	BENZOFLUORANTHENE, 3,4-			PAH	0.001000
00065-85-0	BENZOIC ACID			VOC	0.999990
00100-47-0	BENZONITRILE			SVOC	0.049990
00100-44-7	BENZYL CHLORIDE			HALO	0.049990
07440-41-7	BERYLLIUM	0.0010000		NAT	0.001000
00111-91-1	BIS(2-CHLOROETHOXY)METHANE			HALO	0.049990
00111-44-4	BIS(2-CHLOROETHYL)ETHER			HALO	0.049990
00117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	0.0060000		SVOC	0.006000
00075-27-4	BROMOCHLOROMETHANE	0.1000000		VOC	0.100000
00075-25-2	BROMOFORM	0.1000000		VOC	0.100000
00071-36-3	BUTANOL			SVOC	0.049990
00085-68-7	BUTYLBENZYL PHTHALATE			SVOC	0.049990
07440-43-9	CADMIUM	0.0050000	0.0007000	NAT	0.005000
00133-06-2	CAPTAN			PES	
00063-25-2	CARBARYL			PES	
01563-66-2	CARBOFURAN	0.0400000		PES	0.040000
00056-23-5	CARBON TETRACHLORIDE	0.0050000		VOC	0.005000
00786-19-6	CARBOPHENOTHION			PES	
00057-74-9	CHLORDANE	0.0020000	0.0000043	PES	0.002000
00059-50-7	CHLORO-3-METHYLPHENOL, 4-			HALO	0.049990
00108-90-7	CHLOROBENZENE	0.1000000		VOC	0.100000
00067-66-3	CHLOROFORM	0.1000000		VOC	0.100000
00107-30-2	CHLOROMETHYL METHYL ETHER			HALO	0.049990
00106-89-8	CHLOROMETHYLOXIRANE, 2-			HALO	0.049990
00091-58-7	CHLORONAPHTHALENE, 2-			HALO	0.049990
00095-57-8	CHLOROPHENOL, 2-			HALO	0.049990
02921-88-2	CHLORPYRIFOS			PES	
07440-47-3	CHROMIUM	0.1000000	0.1200000	NAT	0.100000
00218-01-9	CHRYSENE			PAH	0.001000
07440-50-8	COPPER	1.3000000	0.0065000	NAT	1.300000
00056-72-4	COUMAPHOS			PES	
08001-58-9	CREOSOTE			PAH	0.005000
00108-39-4	CRESOL, M-			SVOC	0.049990
00095-48-7	CRESOL, O-			SVOC	0.049990
00106-44-5	CRESOL, P-			SVOC	0.049990
01319-77-3	CRESOLS			SVOC	0.049990
00098-82-8	CUMENE			SVOC	0.049990
00057-12-5	CYANIDE	0.2000000	0.0052000	MISC	0.200000
00110-82-7	CYCLOHEXANE			VOC	0.999990
00108-94-1	CYCLOHEXANONE			SVOC	0.049990
00075-99-0	DALAPON	0.2000000		PES	0.200000
00072-54-8	DDD			PES	0.000001
00072-55-9	DDE			PES	0.000001
00050-29-3	DDT		0.0000010	PES	0.000001

00084-74-2	DI-N-BUTYL PHTHALATE		SVOC	0.049990
00117-84-0	DI-N-OCTYL PHTHALATE		SVOC	0.049990
00333-41-5	DIAZINON		PES	
00053-70-3	DIBENZ(A,H)ANTHRACENE		PAH	0.001000
00096-12-8	DIBROMO-3-CHLOROPROPANE, 1,2-	0.0002000	HALO	0.000200
00124-48-1	DIBROMOCHLOROMETHANE	0.1000000	VOC	0.100000
00106-93-4	DIBROMOETHANE, 1,2-	0.0000500	VOC	0.000050
01918-00-9	DICAMBA		PES	
00095-50-1	DICHLOROBENZENE, 1,2-	0.6000000	HALO	0.600000
00541-73-1	DICHLOROBENZENE, 1,3-		HALO	0.049990
00106-46-7	DICHLOROBENZENE, 1,4-	0.0750000	HALO	0.075000
00091-94-1	DICHLOROBENZIDINE, 3,3'-		HALO	0.049990
00075-71-8	DICHLORODIFLUOROMETHANE		VOC	0.049990
00075-34-3	DICHLOROETHANE, 1,1-		VOC	0.005000
00107-06-2	DICHLOROETHANE, 1,2-	0.0050000	VOC	0.005000
00075-35-4	DICHLOROETHENE, 1,1-	0.0070000	VOC	0.007000
00156-60-5	DICHLOROETHYLENE, TRANS-1,2-	0.1000000	VOC	0.100000
00120-83-2	DICHLOROPHENOL, 2,4-		HALO	0.049990
00094-75-7	DICHLOROPHENOXYACETIC ACID, 2,4-(2,4-D)	0.0700000	PES	0.070000
00078-87-5	DICHLOROPROPANE, 1,2-	0.0050000	VOC	0.005000
00542-75-6	DICHLOROPROPENE, 1,3-		VOC	0.049990
00062-73-7	DICHLORVOS		PES	
00115-32-2	DICOFOL		PES	
00060-57-1	DIELDRIN	0.0000019	PES	0.000002
00084-66-2	DIETHYL PHTHALATE		SVOC	0.049990
00119-90-4	DIMETHOXYBENZIDINE, 3,3-		SVOC	0.049990
00105-67-9	DIMETHYL PHENOL, 2,4-		SVOC	0.049990
00131-11-3	DIMETHYL PHTHALATE		SVOC	0.049990
00077-78-1	DIMETHYL SULFATE		SVOC	0.049990
00099-65-0	DINITROBENZENE, 1,3-		SVOC	0.049990
00051-28-5	DINITROPHENOL, 2,4-		SVOC	0.049990
00121-14-2	DINITROTOLUENE, 2,4-		TC	0.001300
00606-20-2	DINITROTOLUENE, 2,6-		SVOC	0.049990
00088-85-7	DINOSEB	0.0070000	PES	0.007000
00123-91-1	DIOXANE, 1,4-		SVOC	0.049990
00078-34-2	DIOXATHION		SVOC	0.049990
00122-66-7	DIPHENYLHYDRAZINE, 1,2-		SVOC	0.049990
00085-00-7	DIQUAT	0.0200000	PES	0.020000
00115-29-7	ENDOSULFAN (I & II)		PES	0.0000560
01031-07-8	ENDOSULFAN SULFATE		PES	
00145-73-3	ENDOTHALL	0.1000000	PES	0.100000
00072-20-8	ENDRIN	0.0020000	PES	0.002000
07421-93-4	ENDRIN ALDEHYDE		PES	
00141-78-6	ETHYL ACETATE		SVOC	0.049990
00100-41-4	ETHYL BENZENE	0.7000000	VOC	0.700000
00075-00-3	ETHYL CHLORIDE		VOC	0.049990
00060-29-7	ETHYL ETHER		VOC	0.999990
00110-80-5	ETHYLENE GLYCOL MONOETHYL ETHER		SVOC	0.049990
00206-44-0	FLUORANTHENE		PAH	0.001000
00086-73-7	FLUORENE		PAH	0.001000
07782-41-4	FLUORINE (-ide)	4.0000000	NAT	4.000000
00050-00-0	FORMALDEHYDE		SVOC	0.049990
00110-00-9	FURAN		SVOC	0.049990
00098-01-1	FURFURAL		SVOC	0.049990
00765-34-4	GLYCIGYLALDEHYDE		SVOC	0.049990
00076-44-8	HEPTACHLOR	0.0004000	PES	0.000400
01024-57-3	HEPTACHLOR EPOXIDE	0.0002000	PES	0.000038
- -	HEPTACHLORODIBENZO-P-DIOXINS		HALO	
- -	HEPTACHLORODIBENZOFURANS		HALO	
00118-74-1	HEXACHLOROBENZENE	0.0010000	HALO	0.001000
00087-68-3	HEXACHLOROBUTADIENE		TC	0.005000
00319-84-6	HEXACHLOROCYCLOHEXANE, ALPHA-		PES	
00319-85-7	HEXACHLOROCYCLOHEXANE, BETA-		PES	
00608-73-1	HEXACHLOROCYCLOHEXANE, N.O.S.		PES	
00077-47-4	HEXACHLOROCYCLOPENTADIENE	0.0500000	HALO	0.050000
- -	HEXACHLORODIBENZO-P-DIOXINS		HALO	
- -	HEXACHLORODIBENZOFURANS		HALO	
00067-72-1	HEXACHLOROETHANE		TC	0.030000
00070-30-4	HEXACHLOROPHENE		HALO	0.049990
00302-01-2	HYDRAZINE		SVOC	0.049990
00193-39-5	INDENO(1,2,3-CD)PYRENE		PAH	0.001000

00078-83-1	ISOBUTANOL			SVOC	0.049990
00078-59-1	ISOPHORONE			SVOC	0.049990
07439-92-1	LEAD	0.0150000	0.0013000	NAT	0.015000
00058-89-9	LINDANE	0.0002000	0.0000800	PES	0.000200
00121-75-5	MALATHION			PES	
00123-33-1	MALEIC HYDRAZIDE			SVOC	0.049990
07439-97-6	MERCURY, Total	0.0020000	0.0000120	NAT	0.002000
00126-98-7	METHACRYLONITRILE			SVOC	0.049990
00067-56-1	METHANOL			VOC	0.999990
00072-43-5	METHOXYCHLOR	0.0400000	0.0000300	PES	0.040000
00074-83-9	METHYL BROMIDE			VOC	0.049990
00074-87-3	METHYL CHLORIDE			VOC	0.049990
00078-93-3	METHYL ETHYL KETONE			VOC	0.999990
00108-10-1	METHYL ISOBUTYL KETONE			SVOC	0.049990
00080-62-6	METHYL METHACRYLATE			SVOC	0.049990
00056-49-5	METHYLCHOLANTHRENE, 3-			PAH	0.001000
00101-14-4	METHYLENE BIS (2-CHLOROANILINE), 4,4-			HALO	0.049990
00075-09-2	METHYLENE CHLORIDE			VOC	0.049990
00091-20-3	NAPHTHALENE			PAH	0.005000
07440-02-0	NICKEL	0.1000000	0.0880000	NAT	0.100000
00098-95-3	NITROBENZENE			SVOC	0.020000
00100-02-7	NITROPHENOL, 4-			SVOC	0.049990
00924-16-3	NITROSO-DI-N-BUTYLAMINE, N-			SVOC	0.049990
00055-18-5	NITROSODIETHYLAMINE, N-			SVOC	0.049990
00062-75-9	NITROSODIMETHYLAMINE, N-			SVOC	0.049990
00086-30-6	NITROSODIPHENYLAMINE, N-			SVOC	0.049990
00930-55-2	NITROSOPYRROLIDINE, N-			SVOC	0.049990
00099-99-0	NITROTOLUENE, 4-			SVOC	0.049990
23135-22-0	OXAMYL (Vydate)	0.2000000		PES	0.200000
01336-36-3	PCBs	0.0005000	0.0000140	HALO	0.000500
00608-93-5	PENTACHLORO BENZENE			HALO	0.049990
- - -	PENTACHLORODIBENZO-P-DIOXINS			HALO	
- - -	PENTACHLORODIBENZOFURANS			HALO	
00076-01-7	PENTACHLOROETHANE			HALO	0.049990
00082-68-8	PENTACHLORONITROBENZENE			PES	
00087-86-5	PENTACHLOROPHENOL	0.0010000	0.0021000	PES	0.001000
00085-01-8	PHENANTHRENE			PAH	0.001000
00108-95-2	PHENOL		0.3000000	SVOC	0.300000
00062-38-4	PHENYLMERCURIC ACETATE			SVOC	0.049990
00129-00-0	PYRENE			PAH	0.001000
00110-86-1	PYRIDINE			SVOC	0.050000
00091-22-5	QUINOLINE			SVOC	0.049990
00108-46-3	RESORCINOL			SVOC	0.049990
07782-49-2	SELENIUM	0.0500000	0.0050000	NAT	0.050000
07440-22-4	SILVER			TC	0.050000
00100-42-5	STYRENE	0.1000000		VOC	0.100000
01746-01-6	TCDD, 2,3,7,8- ("dioxin")	0.0000000		HALO	0.000000
00095-94-3	TETRACHLORO BENZENE, 1,2,4,5-			HALO	0.049990
- - -	TETRACHLORODIBENZO-P-DIOXINS			HALO	
- - -	TETRACHLORODIBENZOFURANS			HALO	
00630-20-6	TETRACHLOROETHANE, 1,1,1,2-			VOC	0.010000
00079-34-5	TETRACHLOROETHANE, 1,1,2,2-			VOC	0.010800
00127-18-4	TETRACHLOROETHENE	0.0050000		VOC	0.005000
00058-90-2	TETRACHLOROPHENOL, 2,3,4,6-			HALO	0.020000
00109-99-9	TETRAHYDROFURAN			SVOC	0.049990
07440-28-0	THALLIUM	0.0020000		NAT	0.002000
00108-88-3	TOLUENE	1.0000000		VOC	1.000000
08001-35-2	TOXAPHENE	0.0030000	0.0000002	PES	0.003000
00076-13-1	TRICHLORO-1,2,2-TRIFLUOROETHANE, 1,1,2-			HALO	0.049990
00120-82-1	TRICHLOROBENZENE, 1,2,4-			HALO	0.049990
00071-55-6	TRICHLOROETHANE, 1,1,1-	0.2000000		VOC	0.200000
00079-00-5	TRICHLOROETHANE, 1,1,2-			VOC	0.042000
00079-01-6	TRICHLOROETHYLENE	0.0050000		VOC	0.005000
00075-69-4	TRICHLOROFUOROMETHANE			VOC	0.049990
00933-78-8	TRICHLOROPHENOL, 2,3,5-			HALO	0.020000
00933-75-5	TRICHLOROPHENOL, 2,3,6-			HALO	0.020000
00095-95-4	TRICHLOROPHENOL, 2,4,5-			HALO	0.020000
00088-06-2	TRICHLOROPHENOL, 2,4,6-			TC	0.020000
00609-19-8	TRICHLOROPHENOL, 3,4,5-			HALO	0.020000
00093-76-5	TRICHLOROPHENOXYACETIC ACID, 2,4,5-			PES	0.050000

00093-72-1	(2,4,5-T) TRICHLOROPHOXYPROPIONIC ACID, 2,4,5- (Silvex)	0.0500000	0.0500000	PES	0.050000
00096-18-4	TRICHLOROPROPANE, 1,2,3-			VOC	0.049990
00099-35-4	TRINITROBENZENE, 1,3,5-			SVOC	0.049990
00126-72-7	TRIS (2,3-DIBROMOPROPYL) PHOSPHATE			HALO	0.049990
01314-62-1	VANADIUM			NAT	
00108-05-4	VINYL ACETATE			VOC	0.999990
00075-01-4	VINYL CHLORIDE	0.0020000		VOC	0.002000
00108-38-3	XYLENE, M-			VOC	
00095-47-6	XYLENE, O-			VOC	
00106-42-3	XYLENE, P-			VOC	
01330-20-7	XYLENES (TOTAL)	10.0000000		VOC	2.000000
07440-66-6	ZINC		0.0600000	NAT	0.060000
===== Count:	===== 221	===== 0.0600000	===== 0.0600000	===== NAT	===== 0.060000

TABLE 3. SOIL REFERENCE VALUES (mg/kg) FOR GROUNDWATER PROTECTION

CAS No.	Chemical Name	GW Ref Val	Kd	Soil Ref Val
00083-32-9	ACENAPHTHENE	0.001000	314.00	0.31400
00208-96-8	ACENAPHTHYLENE	0.001000	144.00	0.14400
00075-07-0	ACETALDEHYDE	0.049990	0.06	0.00300
00067-64-1	ACETONE	0.999990	2.74	2.74000
00075-05-8	ACETONITRILE	0.049990	0.04	0.00200
00098-86-2	ACETOPHENONE	0.049990	5.14	0.25695
00079-06-1	ACRYLAMIDE	0.049990	0.02	0.00100
00079-10-7	ACRYLIC ACID	0.049990	0.16	0.00800
00107-13-1	ACRYLONITRILE	0.049990	1.37	0.06849
00124-04-9	ADIPIC ACID	0.049990	0.12	0.00600
00309-00-2	ALDRIN		7370.00	
07664-41-7	AMMONIA		9.90	
00062-53-3	ANILINE	0.049990	0.76	0.03799
00120-12-7	ANTHRACENE	0.001000	2400.00	2.40000
07440-36-0	ANTIMONY	0.006000	45.00	0.27000
07440-38-2	ARSENIC	0.050000	200.00	10.00000
07440-39-3	BARIUM	2.000000	60.00	120.00000
00071-43-2	BENZENE	0.005000	4.71	0.02355
00098-88-4	BENZENE CARBONYL CHLORIDE	0.049990	0.10	0.00500
00092-87-5	BENZIDINE	0.049990	34500.00	1724.65500
00056-55-3	BENZO(A)ANTHRACENE	0.001000	210000.00	210.00000
00050-32-8	BENZO(A)PYRENE	0.000200	771000.00	154.20000
00191-24-2	BENZO(GHI)PERYLENE	0.001000		
00207-08-9	BENZO(K)FLUORANTHENE	0.001000		
00205-99-2	BENZOFLUORANTHENE, 3,4-	0.001000	355782.14	355.78214
00065-85-0	BENZOIC ACID	0.999990	7.10	7.09993
00100-47-0	BENZONITRILE	0.049990	3.48	0.17397
00100-44-7	BENZYL CHLORIDE	0.049990	21.10	1.05300
07440-41-7	BERYLLIUM	0.001000	650.00	0.65000
00111-91-1	BIS(2-CHLOROETHOXY)METHANE	0.049990	0.54	0.02700
00111-44-4	BIS(2-CHLOROETHYL)ETHER	0.049990	12.00	0.59990
00117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	0.006000	13300.00	79.80000
00075-27-4	BROMODICHLOROMETHANE	0.100000	11.78	1.17800
00075-25-2	BROMOFORM	0.100000		
00071-36-3	BUTANOL	0.049990	10.90	0.54489
00085-68-7	BUTYLBENZYL PHTHALATE	0.049990	7783.67	389.10566
07440-43-9	CADMIUM	0.005000	6.50	0.03250
00133-06-2	CAPTAN		28.90	
00063-25-2	CARBARYL		9.58	
01563-66-2	CARBOFURAN	0.040000	20.01	0.80028
00056-23-5	CARBON TETRACHLORIDE	0.005000	34.00	0.17000
00786-19-6	CARBOPHENOTHION		20473.13	
00057-74-9	CHLORDANE	0.002000	5780.00	11.56000
00059-50-7	CHLORO-3-METHYLPHENOL, 4-	0.049990	120.55	6.02600

00108-90-7	CHLOROBENZENE	0.100000	41.80	4.18000
00067-66-3	CHLOROFORM	0.100000	6.84	0.68400
00107-30-2	CHLOROMETHYL METHYL ETHER	0.049990	0.25	0.01200
00106-89-8	CHLOROMETHYLOXIRANE, 2-	0.049990	0.06	0.00300
00091-58-7	CHLORONAPHTHALENE, 2-	0.049990	1074.44	53.71100
00095-57-8	CHLOROPHENOL, 2-	0.049990	13.53	0.67600
02921-88-2	CHLORPYRIFOS		12336.28	
07440-47-3	CHROMIUM	0.100000	850.00	85.00000
00218-01-9	CHRYSENE	0.001000	20200.00	20.20000
07440-50-8	COPPER	1.300000	35.00	45.50000
00056-72-4	COUMAPHOS		1291.77	
08001-58-9	CREOSOTE	0.005000		
00108-39-4	CRESOL, M-	0.049990	76.00	3.79924
00095-48-7	CRESOL, O-	0.049990	76.00	3.79924
00106-44-5	CRESOL, P-	0.049990	76.00	3.79924
01319-77-3	CRESOLs	0.049990	76.00	3.79924
00098-82-8	CUMENE	0.049990	437.70	21.88062
00057-12-5	CYANIDE	0.200000		
00110-82-7	CYCLOHEXANE	0.999990	263.75	263.74700
00108-94-1	CYCLOHEXANONE	0.049990	0.62	0.03099
00075-99-0	DALAPON	0.200000	-100.00	19.99998
00072-54-8	DDD	0.000001	2490.00	0.00249
00072-55-9	DDE	0.000001	7610.00	0.00761
00050-29-3	DDT	0.000001	23100.00	0.02310
00084-74-2	DI-N-BUTYL PHTHALATE	0.049990	274.00	13.69726
00117-84-0	DI-N-OCTYL PHTHALATE	0.049990	151769372.11	7586950.91178
00333-41-5	DIAZINON		618.28	
00053-70-3	DIBENZ(A,H)ANTHRACENE	0.001000	308000.00	308.00000
00096-12-8	DIBROMO-3-CHLOROPROPANE, 1,2-	0.000200	15.50	0.00310
00124-48-1	DIBROMOCHLOROMETHANE	0.100000	16.26	1.62600
00106-93-4	DIBROMOETHANE, 1,2-	0.000050	8.73	0.00044
01918-00-9	DICAMBA		0.29	
00095-50-1	DICHLOROBENZENE, 1,2-	0.600000	42.60	25.56000
00541-73-1	DICHLOROBENZENE, 1,3-	0.049990	44.50	2.22000
00106-46-7	DICHLOROBENZENE, 1,4-	0.075000	91.20	6.84000
00091-94-1	DICHLOROBENZIDINE, 3,3'-	0.049990	28900.00	1444.70000
00075-71-8	DICHLORODIFLUOROMETHANE	0.049990	29.90	1.49470
00075-34-3	DICHLOROETHANE, 1,1-	0.005000	6.08	0.03040
00107-06-2	DICHLOROETHANE, 1,2-	0.005000	4.86	0.02430
00075-35-4	DICHLOROETHENE, 1,1-	0.007000	52.10	0.36470
00156-60-5	DICHLOROETHYLENE, TRANS-1,2-	0.100000	5.32	0.53200
00120-83-2	DICHLOROPHENOL, 2,4-	0.049990	19.20	0.96000
00094-75-7	DICHLOROPHOXYACETIC ACID, 2,4- (2,4-D)	0.070000	16.60	1.16200
00078-87-5	DICHLOROPROPANE, 1,2-	0.005000	4.10	0.02050
00542-75-6	DICHLOROPROPENE, 1,3-	0.049990	3.95	0.19746
00062-73-7	DICHLORVOS		2.83	
00115-32-2	DICOFOL		109947.19	
00060-57-1	DIELDRIN	0.000002	1270.00	0.00241
00084-66-2	DIETHYL PHTHALATE	0.049990	14.90	0.74485
00119-90-4	DIMETHOXYBENZIDINE, 3,3-	0.049990	35.00	1.74965
00105-67-9	DIMETHYL PHENOL, 2,4-	0.049990	30.28	1.51370
00131-11-3	DIMETHYL PHTHALATE	0.049990	12.62	0.63087
00077-78-1	DIMETHYL SULFATE	0.049990	2.43	0.12148
00099-65-0	DINITROBENZENE, 1,3-	0.049990	21.00	1.04979
00051-28-5	DINITROPHENOL, 2,4-	0.049990	3.32	0.16597
00121-14-2	DINITROTOLUENE, 2,4-	0.001300	13.70	0.01781
00606-20-2	DINITROTOLUENE, 2,6-	0.049990	15.20	0.75985
00088-85-7	DINOSEB	0.007000	18.80	0.13160
00123-91-1	DIOXANE, 1,4-	0.049990	2.58	0.12897
00078-34-2	DIOXATHION	0.049990	93.58	4.67806
00122-66-7	DIPHENYLHYDRAZINE, 1,2-	0.049990	144.00	7.19856
00085-00-7	DIQUAT	0.020000	-100.00	2.00000
00115-29-7	ENDOSULFAN (I & II)	0.000056	995.00	0.05572
01031-07-8	ENDOSULFAN SULFATE		112.51	
00145-73-3	ENDOTHALL	0.100000	0.03	0.00270
00072-20-8	ENDRIN	0.002000	38122.74	76.24548
07421-93-4	ENDRIN ALDEHYDE			
00141-78-6	ETHYL ACETATE	0.049990	1.34	0.06699
00100-41-4	ETHYL BENZENE	0.700000	38.00	26.60000
00075-00-3	ETHYL CHLORIDE	0.049990	3.32	0.16597
00060-29-7	ETHYL ETHER	0.999990	0.56	0.55999
00110-80-5	ETHYLENE GLYCOL MONOETHYL ETHER	0.049990	3.19	0.15947

00206-44-0	FLUORANTHENE	0.001000		
00086-73-7	FLUORENE	0.001000	495.00	0.49500
07782-41-4	FLUORINE (-ide)	4.000000	150.00	600.00000
00050-00-0	FORMALDEHYDE	0.049990	0.21	0.01050
00110-00-9	FURAN	0.049990		
00098-01-1	FURFURAL	0.049990	0.25	0.01250
00765-34-4	GLYCIGYLALDEHYDE	0.049990	1.44	0.07199
00076-44-8	HEPTACHLOR	0.000400	528.00	0.21120
01024-57-3	HEPTACHLOR EPOXIDE	0.000200	1.61	0.00032
- - -	HEPTACHLORODIBENZO-P-DIOXINS			
- - -	HEPTACHLORODIBENZOFURANS			
00118-74-1	HEXACHLOROETHANE	0.001000	2140.00	2.14000
00087-68-3	HEXACHLOROBUTADIENE	0.005000	3500.00	17.50000
00319-84-6	HEXACHLOROCYCLOHEXANE, ALPHA-		303.00	
00319-85-7	HEXACHLOROCYCLOHEXANE, BETA-		647.00	
00608-73-1	HEXACHLOROCYCLOHEXANE, N.O.S.			
00077-47-4	HEXACHLOROCYCLOPENTADIENE	0.050000	304.00	15.20000
- - -	HEXACHLORODIBENZO-P-DIOXINS			
- - -	HEXACHLORODIBENZOFURANS			
00067-72-1	HEXACHLOROETHANE	0.030000	333.00	9.99000
00070-30-4	HEXACHLOROPHENE	0.049990	760.00	37.99000
00302-01-2	HYDRAZINE	0.049990	0.00	0.00004
00193-39-5	INDENO(1,2,3-CD)PYRENE	0.001000		
00078-83-1	ISOBUTANOL	0.049990	1.37	0.06849
00078-59-1	ISOPHORONE	0.049990	3.80	0.18996
07439-92-1	LEAD	0.015000	900.00	13.50000
00058-89-9	LINDANE	0.000200	1321.86	0.26437
00121-75-5	MALATHION		273.00	
00123-33-1	MALEIC HYDRAZIDE	0.049990	0.01	0.00050
07439-97-6	MERCURY, Total	0.002000	10.00	0.02000
00126-98-7	METHACRYLONITRILE	0.049990	0.33	0.01650
00067-56-1	METHANOL	0.999990	1.37	1.36999
00072-43-5	METHOXYCHLOR	0.040000	6474.17	258.96680
00074-83-9	METHYL BROMIDE	0.049990	16.10	0.80484
00074-87-3	METHYL CHLORIDE	0.049990	0.78	0.03899
00078-93-3	METHYL ETHYL KETONE	0.999990	0.79	0.79000
00108-10-1	METHYL ISOBUTYL KETONE	0.049990	2.89	0.14447
00080-62-6	METHYL METHACRYLATE	0.049990	3.34	0.16697
00056-49-5	METHYLCHOLANTHRENE, 3-	0.001000		
00101-14-4	METHYLENE BIS (2-CHLOROANILINE), 4,4-	0.049990	1220.00	60.99000
00075-09-2	METHYLENE CHLORIDE	0.049990	1.70	0.08498
00091-20-3	NAPHTHALENE	0.005000	372.55	1.86275
07440-02-0	NICKEL	0.100000	150.00	15.00000
00098-95-3	NITROBENZENE	0.020000	35.00	0.70000
00100-02-7	NITROPHENOL, 4-	0.049990	7.78	0.38892
00924-16-3	NITROSO-DI-N-BUTYLAMINE, N-	0.049990	7.97	0.39842
00055-18-5	NITROSODIETHYLAMINE, N-	0.049990	0.29	0.01450
00062-75-9	NITROSODIMETHYLAMINE, N-	0.049990	0.03	0.00150
00086-30-6	NITROSODIPHENYLAMINE, N-	0.049990	129.18	6.45771
00930-55-2	NITROSOPYRROLIDINE, N-	0.049990	2.89	0.14447
00099-99-0	NITROTOLUENE, 4-	0.049990	22.45	1.12228
23135-22-0	OXAMYL (Vydate)	0.200000	-100.00	19.99998
01336-36-3	PCBs	0.000500	80600.00	40.30000
00608-93-5	PENTACHLOROBENZENE	0.049990	828.00	41.39000
- - -	PENTACHLORODIBENZO-P-DIOXINS			
- - -	PENTACHLORODIBENZOFURANS			
00076-01-7	PENTACHLOROETHANE	0.049990	107.44	5.37000
00082-68-8	PENTACHLORONITROBENZENE		921.00	
00087-86-5	PENTACHLOROPHENOL	0.001000	137.00	0.13700
00085-01-8	PHENANTHRENE	0.001000	3500.00	3.50000
00108-95-2	PHENOL	0.300000	2.43	0.72900
00062-38-4	PHENYLMERCURIC ACETATE	0.049990	0.49	0.02450
00129-00-0	PYRENE	0.001000	9640.00	9.64000
00110-86-1	PYRIDINE	0.050000	0.76	0.03800
00091-22-5	QUINOLINE	0.049990	10.26	0.51290
00108-46-3	RESORCINOL	0.049990	0.60	0.02999
07782-49-2	SELENIUM	0.050000	300.00	15.00000
07440-22-4	SILVER	0.050000	45.00	2.25000
00100-42-5	STYRENE	0.100000	140.00	14.00000
01746-01-6	TCDD, 2,3,7,8- ("dioxin")	0.000000	3650000.00	0.10950
00095-94-3	TETRACHLOROBENZENE, 1,2,4,5-	0.049990	6326.80	316.30000
- - -	TETRACHLORODIBENZO-P-DIOXINS			

	TETRACHLORODIBENZOFURANS			
00630-20-6	TETRACHLOROETHANE, 1,1,1,2-	0.010000	102.61	1.02610
00079-34-5	TETRACHLOROETHANE, 1,1,2,2-	0.010800	12.00	0.12960
00127-18-4	TETRACHLOROETHENE	0.005000	36.20	0.18100
00058-90-2	TETRACHLOROPHENOL, 2,3,4,6-	0.020000	2698.88	53.98000
00109-99-9	TETRAHYDROFURAN	0.049990	0.28	0.01400
07440-28-0	THALLIUM	0.002000	1500.00	3.00000
00108-88-3	TOLUENE	1.000000	14.40	14.40000
08001-35-2	TOXAPHENE	0.003000	912.00	2.73600
00076-13-1	TRICHLORO-1,2,2-TRIFLUOROETHANE, 1,1,2-	0.049990	138.42	6.92000
00120-82-1	TRICHLOROBENZENE, 1,2,4-	0.049990	217.00	10.82800
00071-55-6	TRICHLOROETHANE, 1,1,1-	0.200000	27.20	5.44000
00079-00-5	TRICHLOROETHANE, 1,1,2-	0.042000	12.00	0.50400
00079-01-6	TRICHLOROETHYLENE	0.005000	25.19	0.12595
00075-69-4	TRICHLOROFUROMETHANE	0.049990	14.10	0.70486
00933-78-8	TRICHLOROPHENOL, 2,3,5-	0.020000	3476.84	69.54000
00933-75-5	TRICHLOROPHENOL, 2,3,6-	0.020000	502.56	10.05000
00095-95-4	TRICHLOROPHENOL, 2,4,5-	0.020000	228.00	4.56000
00088-06-2	TRICHLOROPHENOL, 2,4,6-	0.020000	1.06	0.02120
00609-19-8	TRICHLOROPHENOL, 3,4,5-	0.020000	979.91	19.60000
00093-76-5	TRICHLOROPHENOXYACETIC ACID, 2,4,5- (2,4,5-T)	0.050000	12.20	0.61000
00093-72-1	TRICHLOROPHENOXYPROPIONIC ACID, 2,4,5- (Silvex)	0.050000	526.24	26.31200
00096-18-4	TRICHLOROPROPANE, 1,2,3-	0.049990	10.90	0.54489
00099-35-4	TRINITROBENZENE, 1,3,5-	0.049990	1.45	0.07249
00126-72-7	TRIS (2,3-DIBROMOPROPYL) PHOSPHATE	0.049990	9145.01	457.16000
01314-62-1	VANADIUM			
00108-05-4	VINYL ACETATE	0.999990	0.51	0.51000
00075-01-4	VINYL CHLORIDE	0.002000	20.50	0.04100
00108-38-3	XYLENE, M-		25.20	
00095-47-6	XYLENE, O-		19.60	
00106-42-3	XYLENE, P-		39.50	
01330-20-7	XYLENES (TOTAL)	2.000000	28.10	56.20000
07440-66-6	ZINC	0.060000	40.00	2.40000
=====	=====	=====	=====	=====

Count:

221

TABLE 4. FURTHER STEPS IN DERIVATION OF RCs (mg/kg)

CAS No.	Chemical Name	Soil Ref Val	Soil PQL	Group	RC	Sludge
00083-32-9	ACENAPHTHENE	0.31400	0.660	PAH	5.00	
00208-96-8	ACENAPHTHYLENE	0.14400	0.660	PAH	5.00	
00075-07-0	ACETALDEHYDE	0.00300		SVOC	DL	
00067-64-1	ACETONE	2.74000	0.100	VOC	2.74	
00075-05-8	ACETONITRILE	0.00200		SVOC	DL	
00098-86-2	ACETOPHENONE	0.25695		SVOC	DL/.26	
00079-06-1	ACRYLAMIDE	0.00100		SVOC	DL	
00079-10-7	ACRYLIC ACID	0.00800		SVOC	DL	
00107-13-1	ACRYLONITRILE	0.06849		SVOC	DL/.07	
00124-04-9	ADIPIC ACID	0.00600		SVOC	DL	
00309-00-2	ALDRIN		0.660	PES	0.66	
07664-41-7	AMMONIA		10.000	MISC	500.00	
00062-53-3	ANILINE	0.03799		SVOC	DL	
00120-12-7	ANTHRACENE	2.40000	0.660	PAH	5.00	
07440-36-0	ANTIMONY	0.27000	0.300	NAT	10.00	
07440-38-2	ARSENIC	10.00000	2.500	NAT	41.00	41
07440-39-3	BARIUM	120.00000	5.000	NAT	120.00	
00071-43-2	BENZENE	0.02355	0.005	VOC	0.02	
00098-88-4	BENZENE CARBONYL CHLORIDE	0.00500		HALO	DL	
00092-87-5	BENZIDINE	1724.65500	5.280	SVOC	50.00	
00056-55-3	BENZO(A)ANTHRACENE	210.00000	0.660	PAH	5.00	
00050-32-8	BENZO(A)PYRENE	154.20000	0.660	PAH	5.00	
00191-24-2	BENZO(GHI)PERYLENE			PAH	5.00	
00207-08-9	BENZO(K)FLUORANTHENE		0.660	PAH	5.00	
00205-99-2	BENZOFLUORANTHENE, 3,4-	355.78214		PAH	5.00	
00065-85-0	BENZOIC ACID	7.09993		VOC	7.10	
00100-47-0	BENZONITRILE	0.17397		SVOC	DL/.17	
00100-44-7	BENZYL CHLORIDE	1.05300		HALO	1.05	
07440-41-7	BERYLLIUM	0.65000	0.500	NAT	10.00	
00111-91-1	BIS(2-CHLOROETHOXY)METHANE	0.02700	0.660	HALO	DL	
00111-44-4	BIS(2-CHLOROETHYL)ETHER	0.59990		HALO	DL/.60	
00117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	79.80000	0.660	SVOC	50.00	
00075-27-4	BROMODICHLOROMETHANE	1.17800	0.005	VOC	1.18	
00075-25-2	BROMOFORM		0.005	VOC	DL	
00071-36-3	BUTANOL	0.54489		SVOC	DL/.54	
00085-68-7	BUTYLBENZYL PHTHALATE	389.10566	0.660	SVOC	50.00	
07440-43-9	CADMIUM	0.03250	0.500	NAT	39.00	39
00133-06-2	CAPTAN			PES	DL	
00063-25-2	CARBARYL			PES	DL	
01563-66-2	CARBOFURAN	0.80028		PES	0.80	
00056-23-5	CARBON TETRACHLORIDE	0.17000	0.005	VOC	0.17	
00786-19-6	CARBOPHENOTHION			PES	DL	
00057-74-9	CHLORDANE	11.56000	13.200	PES	13.20	
00059-50-7	CHLORO-3-METHYLPHENOL, 4-	6.02600	13.200	HALO	13.20	
00108-90-7	CHLOROBENZENE	4.18000	0.005	VOC	4.18	
00067-66-3	CHLOROFORM	0.68400	0.005	VOC	0.68	
00107-30-2	CHLOROMETHYL METHYL ETHER	0.01200		HALO	DL	
00106-89-8	CHLOROMETHYLOXIRANE, 2-	0.00300		HALO	DL	
00091-58-7	CHLORONAPHTHALENE, 2-	53.71100	0.660	HALO	25.00	
00095-57-8	CHLOROPHENOL, 2-	0.67600	0.660	HALO	0.68	
02921-88-2	CHLORPYRIFOS			PES	DL	
07440-47-3	CHROMIUM	85.00000	5.000	NAT	1200.00	1200
00218-01-9	CHRYSENE	20.20000	0.660	PAH	5.00	
07440-50-8	COPPER	45.50000	5.000	NAT	1500.00	1500
00056-72-4	COUMAPHOS			PES	DL	
08001-58-9	CREOSOTE			PAH	5.00	
00108-39-4	CRESOL, M-	3.79924		SVOC	3.80	
00095-48-7	CRESOL, O-	3.79924		SVOC	3.80	
00106-44-5	CRESOL, P-	3.79924		SVOC	3.80	
01319-77-3	CRESOLS	3.79924		SVOC	3.80	
00098-82-8	CUMENE	21.88062		SVOC	21.90	
00057-12-5	CYANIDE		10.000	MISC	10.00	
00110-82-7	CYCLOHEXANE	263.74700		VOC	20.00	
00108-94-1	CYCLOHEXANONE	0.03099		SVOC	DL	
00075-99-0	DALAPON	19.99998		PES	10.00	
00072-54-8	DDD	0.00249	0.660	PES	0.66	
00072-55-9	DDE	0.00761	0.660	PES	0.66	
00050-29-3	DDT	0.02310	0.660	PES	0.66	

00084-74-2	DI-N-BUTYL PHTHALATE	13.69726	0.660	SVOC	13.70
00117-84-0	DI-N-OCTYL PHTHALATE	7586950.91178	0.660	SVOC	50.00
00333-41-5	DIAZINON			PES	DL
00053-70-3	DIBENZ(A,H)ANTHRACENE	308.00000	0.660	PAH	5.00
00096-12-8	DIBROMO-3-CHLOROPROPANE, 1,2-	0.00310		HALO	DL
00124-48-1	DIBROMOCHLOROMETHANE	1.62600	0.005	VOC	1.63
00106-93-4	DIBROMOETHANE, 1,2-	0.00044	0.005	VOC	0.01
01918-00-9	DICAMBA			PES	DL
00095-50-1	DICHLOROBENZENE, 1,2-	25.56000	0.660	HALO	25.00
00541-73-1	DICHLOROBENZENE, 1,3-	2.22000	0.660	HALO	2.22
00106-46-7	DICHLOROBENZENE, 1,4-	6.84000	0.660	HALO	6.84
00091-94-1	DICHLOROBENZIDINE, 3,3'-	1444.70000	1.320	HALO	25.00
00075-71-8	DICHLORODIFLUOROMETHANE	1.49470		VOC	1.49
00075-34-3	DICHLOROETHANE, 1,1-	0.03040	0.005	VOC	0.03
00107-06-2	DICHLOROETHANE, 1,2-	0.02430	0.005	VOC	0.02
00075-35-4	DICHLOROETHENE, 1,1-	0.36470	0.005	VOC	0.36
00156-60-5	DICHLOROETHYLENE, TRANS-1,2-	0.53200	0.005	VOC	0.53
00120-83-2	DICHLOROPHENOL, 2,4-	0.96000	0.660	HALO	0.96
00094-75-7	DICHLOROPHENOXYACETIC ACID, 2,4- (2,4-D)	1.16200		PES	1.16
00078-87-5	DICHLOROPROPANE, 1,2-	0.02050	0.005	VOC	0.02
00542-75-6	DICHLOROPROPENE, 1,3-	0.19746	0.005	VOC	0.20
00062-73-7	DICHLORVOS			PES	DL
00115-32-2	DICOFOL			PES	DL
00060-57-1	DIELDRIN	0.00241	0.660	PES	0.66
00084-66-2	DIETHYL PHTHALATE	0.74485	0.660	SVOC	0.74
00119-90-4	DIMETHOXYBENZIDINE, 3,3-	1.74965		SVOC	1.75
00105-67-9	DIMETHYL PHENOL, 2,4-	1.51370	0.660	SVOC	1.51
00131-11-3	DIMETHYL PHTHALATE	0.63087	0.660	SVOC	0.66
00077-78-1	DIMETHYL SULFATE	0.12148		SVOC	DL/.12
00099-65-0	DINITROBENZENE, 1,3-	1.04979		SVOC	1.05
00051-28-5	DINITROPHENOL, 2,4-	0.16597	3.300	SVOC	3.30
00121-14-2	DINITROTOLUENE, 2,4-	0.01781	0.660	TC	0.66
00606-20-2	DINITROTOLUENE, 2,6-	0.75985	0.660	SVOC	0.76
00088-85-7	DINOSEB	0.13160		PES	0.66
00123-91-1	DIOXANE,1,4-	0.12897		SVOC	DL/.13
00078-34-2	DIOXATHION	4.67806		SVOC	4.68
00122-66-7	DIPHENYLHYDRAZINE, 1,2-	7.19856		SVOC	7.20
00085-00-7	DIQUAT	2.00000		PES	2.00
00115-29-7	ENDOSULFAN (I & II)	0.05572	3.300	PES	3.30
01031-07-8	ENDOSULFAN SULFATE		1.650	PES	1.65
00145-73-3	ENDOTHALL	0.00270		PES	0.66
00072-20-8	ENDRIN	76.24548	1.320	PES	10.00
07421-93-4	ENDRIN ALDEHYDE		0.660	PES	10.00
00141-78-6	ETHYL ACETATE	0.06699		SVOC	DL/.07
00100-41-4	ETHYL BENZENE	26.60000	0.005	VOC	20.00
00075-00-3	ETHYL CHLORIDE	0.16597	0.010	VOC	0.17
00060-29-7	ETHYL ETHER	0.55999		VOC	0.56
00110-80-5	ETHYLENE GLYCOL MONOETHYL ETHER	0.15947		SVOC	DL/.16
00206-44-0	FLUORANTHENE			PAH	5.00
00086-73-7	FLUORENE	0.49500		PAH	5.00
07782-41-4	FLUORINE (-ide)	600.00000	25.000	NAT	600.00
00050-00-0	FORMALDEHYDE	0.01050		SVOC	DL
00110-00-9	FURAN			SVOC	DL
00098-01-1	FURFURAL	0.01250		SVOC	DL
00765-34-4	GLYCIGYLALDEHYDE	0.07199		SVOC	DL/.07
00076-44-8	HEPTACHLOR	0.21120	0.660	PES	0.66
01024-57-3	HEPTACHLOR EPOXIDE	0.00032	1.650	PES	1.65
- -	HEPTACHLORODIBENZO-P-DIOXINS			HALO	0.10
- -	HEPTACHLORODIBENZOFURANS			HALO	0.10
00118-74-1	HEXACHLOROBENZENE	2.14000	0.660	HALO	2.14
00087-68-3	HEXACHLOROBUTADIENE	17.50000	0.660	TC	17.50
00319-84-6	HEXACHLOROCYCLOHEXANE, ALPHA-		0.660	PES	0.66
00319-85-7	HEXACHLOROCYCLOHEXANE, BETA-		0.660	PES	0.66
00608-73-1	HEXACHLOROCYCLOHEXANE, N.O.S.			PES	0.66
00077-47-4	HEXACHLOROCYCLOPENTADIENE	15.20000	0.660	HALO	15.20
- -	HEXACHLORODIBENZO-P-DIOXINS			HALO	0.10
- -	HEXACHLORODIBENZOFURANS			HALO	0.10
00067-72-1	HEXACHLOROETHANE	9.99000	0.660	TC	9.99
00070-30-4	HEXACHLOROPHENE	37.99000		HALO	25.00
00302-01-2	HYDRAZINE	0.00004		SVOC	DL

00193-39-5	INDENO(1,2,3-CD)PYRENE		0.660	PAH	5.00	
00078-83-1	ISOBUTANOL	0.06849		SVOC	DL/.07	
00078-59-1	ISOPHORONE	0.18996		SVOC	DL/.19	
07439-92-1	LEAD	13.50000	12.500	NAT	300.00	300
00058-89-9	LINDANE	0.26437	0.660	PES	0.66	
00121-75-5	MALATHION			PES	DL	
00123-33-1	MALEIC HYDRAZIDE	0.00050		SVOC	DL	
07439-97-6	MERCURY, Total	0.02000	0.100	NAT	17.00	17
00126-98-7	METHACRYLONITRILE	0.01650		SVOC	DL	
00067-56-1	METHANOL	1.36999		VOC	1.37	
00072-43-5	METHOXYCHLOR	258.96680		PES	10.00	
00074-83-9	METHYL BROMIDE	0.80484	0.010	VOC	0.80	
00074-87-3	METHYL CHLORIDE	0.03899	0.010	VOC	0.04	
00078-93-3	METHYL ETHYL KETONE	0.79000	0.100	VOC	0.79	
00108-10-1	METHYL ISOBUTYL KETONE	0.14447	3.300	SVOC	3.30	
00080-62-6	METHYL METHACRYLATE	0.16697		SVOC	DL/.17	
00056-49-5	METHYLCHOLANTHRENE, 3-			PAH	5.00	
00101-14-4	METHYLENE BIS (2-CHLOROANILINE), 4,4-	60.99000		HALO	25.00	
00075-09-2	METHYLENE CHLORIDE	0.08498	0.005	VOC	0.08	
00091-20-3	NAPHTHALENE	1.86275	0.660	PAH	5.00	
07440-02-0	NICKEL	15.00000	5.000	NAT	420.00	420
00098-95-3	NITROBENZENE	0.70000	0.660	SVOC	0.70	
00100-02-7	NITROPHENOL, 4-	0.38892	3.300	SVOC	3.30	
00924-16-3	NITROSO-DI-N-BUTYLAMINE, N-	0.39842		SVOC	DL/.40	
00055-18-5	NITROSODIETHYLAMINE, N-	0.01450		SVOC	DL	
00062-75-9	NITROSODIMETHYLAMINE, N-	0.00150	0.660	SVOC	0.66	
00086-30-6	NITROSODIPHENYLAMINE, N-	6.45771	0.660	SVOC	6.46	
00930-55-2	NITROSOPYRROLIDINE, N-	0.14447		SVOC	DL/.14	
00099-99-0	NITROTOLUENE, 4-	1.12228		SVOC	1.12	
23135-22-0	OXAMYL (Vydate)	19.99998		PES	10.00	
01336-36-3	PCBs	40.30000	3.300	HALO	25.00	
00608-93-5	PENTACHLOROBENZENE	41.39000		HALO	25.00	
- -	PENTACHLORODIBENZO-P-DIOXINS			HALO	0.10	
- -	PENTACHLORODIBENZOFURANS			HALO	0.10	
00076-01-7	PENTACHLOROETHANE	5.37000		HALO	5.37	
00082-68-8	PENTACHLORONITROBENZENE			PES	DL	
00087-86-5	PENTACHLOROPHENOL	0.13700	3.300	PES	3.30	
00085-01-8	PHENANTHRENE	3.50000	0.660	PAH	5.00	
00108-95-2	PHENOL	0.72900	0.660	SVOC	0.73	
00062-38-4	PHENYLMERCURIC ACETATE	0.02450		SVOC	DL	
00129-00-0	PYRENE	9.64000	0.660	PAH	5.00	
00110-86-1	PYRIDINE	0.03800		SVOC	DL	
00091-22-5	QUINOLINE	0.51290		SVOC	DL/.51	
00108-46-3	RESORCINOL	0.02999		SVOC	DL	
07782-49-2	SELENIUM	15.00000	1.250	NAT	36.00	36
07440-22-4	SILVER	2.25000	0.500	TC	10.00	
00100-42-5	STYRENE	14.00000	0.005	VOC	14.00	
01746-01-6	TCDD, 2,3,7,8- ("dioxin")	0.10950		HALO	0.11	
00095-94-3	TETRACHLOROBENZENE, 1,2,4,5-	316.30000		HALO	25.00	
- -	TETRACHLORODIBENZO-P-DIOXINS			HALO	0.10	
- -	TETRACHLORODIBENZOFURANS			HALO	0.10	
00630-20-6	TETRACHLOROETHANE, 1,1,1,2-	1.02610		VOC	1.03	
00079-34-5	TETRACHLOROETHANE, 1,1,2,2-	0.12960	0.005	VOC	0.13	
00127-18-4	TETRACHLOROETHENE	0.18100	0.005	VOC	0.18	
00058-90-2	TETRACHLOROPHENOL, 2,3,4,6-	53.98000		HALO	25.00	
00109-99-9	TETRAHYDROFURAN	0.01400		SVOC	DL	
07440-28-0	THALLIUM	3.00000		NAT	10.00	
00108-88-3	TOLUENE	14.40000	0.005	VOC	14.40	
08001-35-2	TOXAPHENE	2.73600	33.000	PES	33.00	
00076-13-1	TRICHLORO-1,2,2-TRIFLUOROETHAN E, 1,1,2-	6.92000		HALO	6.92	
00120-82-1	TRICHLOROBENZENE, 1,2,4-	10.82800		HALO	10.80	
00071-55-6	TRICHLOROETHANE, 1,1,1-	5.44000	0.005	VOC	5.44	
00079-00-5	TRICHLOROETHANE, 1,1,2-	0.50400	0.005	VOC	0.50	
00079-01-6	TRICHLOROETHYLENE	0.12595	0.005	VOC	0.13	
00075-69-4	TRICHLOROFLUOROMETHANE	0.70486	0.005	VOC	0.70	
00933-78-8	TRICHLOROPHENOL, 2,3,5-	69.54000		HALO	25.00	
00933-75-5	TRICHLOROPHENOL, 2,3,6-	10.05000		HALO	10.10	
00095-95-4	TRICHLOROPHENOL, 2,4,5-	4.56000		HALO	4.56	
00088-06-2	TRICHLOROPHENOL, 2,4,6-	0.02120	0.660	TC	0.66	
00609-19-8	TRICHLOROPHENOL, 3,4,5-	19.60000		HALO	19.60	

00093-76-5	TRICHLOROPHENOXYACETIC ACID, 2,4,5- (2,4,5-T)	0.61000		PES	0.66	
00093-72-1	TRICHLOROPHENOXYPROPIONIC ACID, 2,4,5- (Silvex)	26.31200		PES	10.00	
00096-18-4	TRICHLOROPROPANE, 1,2,3-	0.54489		VOC	0.54	
00099-35-4	TRINITROBENZENE, 1,3,5-	0.07249		SVOC	DL/.07	
00126-72-7	TRIS (2,3-DIBROMOPROPYL) PHOSPHATE	457.16000		HALO	25.00	
01314-62-1	VANADIUM		5.000	NAT	10.00	
00108-05-4	VINYL ACETATE	0.51000	0.050	VOC	0.51	
00075-01-4	VINYL CHLORIDE	0.04100	0.010	VOC	0.04	
00108-38-3	XYLENE, M-			VOC	20.00	
00095-47-6	XYLENE, O-			VOC	20.00	
00106-42-3	XYLENE, P-			VOC	20.00	
01330-20-7	XYLENES (TOTAL)	56.20000	0.005	VOC	20.00	
07440-66-6	ZINC	2.40000	10.000	NAT	2800.00	2800
===== Count:	===== 221	===== 221	===== 221	===== 221	===== 221	===== 221

Table 5. Substances which have RCs (mg/kg) adjusted downward by the general model for direct human ingestion

Basis: C=carcinogenicity; T=noncancer toxicity)

CAS No.	Chemical Name	Final RC	Basis
50328	Benzo(a)pyrene	1.639	C
	3,4-Benzopyrene	1.639	C
56531	Diethylstilbestrol	DL	C
	Stilbestrol	DL	C
57147	UDMH	4.601	C
	Hydrazine, 1,1-dimethyl	4.601	C
57749	Toxichlor	9.203	C
	Chlordane	9.203	C
75218	Ethylene oxide	11.729	C
	Oxirane	11.729	C
92875	(1,1'-Biphenyl)-4,4'-diamine	DL	C
95534	2-Amino-1-methylbenzene	49.850	C
	o-Toluidine	49.850	C
95807	Toluene, 2,4-diamino-	3.739	C
	2,4-Diaminotoluene	3.739	C
	1,3-Benzenediamine, 4-methyl-	3.739	C
96457	1,3-Ethylenethiourea	19.94	C
	2-Imidazolidinethione	19.940	C
	Ethylenethiourea	19.940	C
	Mercaptoimidazoline	19.940	C
99558	Benzenamine, 2-methyl-5-nitro-	362.542	C
	5-Nitro-o-toluidine	362.542	C
100254	p-Dinitrobenzene	205.10	T
	Benzene, 1,4-dinitro-	205.10	T
106490	p-Toluidine	62.968	C
	4-Amino-1-methylbenzene	62.968	C
	Benzenamine, 4-methyl-	62.968	C
108601	bis(2-Chloro-1-methylethyl) ether	170.913	C
	DCIP	170.913	C
	bis(2-Chloroisopropyl) ether	170.913	C
109773	Methane, dicyano-	10.25	T
	Malononitrile	10.25	T
	Propanedinitrile	10.25	T
110009	Furfuran	512.74	T
	Furan	512.74	T
119937	o-Tolidine	1.300	C
	3,3'-Dimethylbenzidine	1.300	C

123739	(1,1'-Biphenyl)-4,4'-diamine, 3,3'-dimethyl-	1.300	C
140885	2-Butenal, (E)-	6.297	C
510156	2-Propenoic acid, ethyl ester	249.248	C
528290	Ethyl-4,4'-dichlorobenzilate	44.311	C
540738	Benzene, 1,2-Dinitro-	205.10	T
	o-Dinitrobenzene	205.10	T
	Hydrazine, 1,2-dimethyl	0.323	C
	1,2-Dimethylhydrazine	0.323	C
621647	Di-n-propylnitrosamine	1.709	C
	N-Nitrosodi-n-propylamine	1.709	C
	1-Propanamine, N-nitroso-n-propyl-	1.709	C
759739	N-Nitroso-N-ethylurea	DL	C
	Urea, N-ethyl-N-nitroso-	DL	C
1116547	Ethanol, 2,2'-(nitrosoimino)bis-	4.273	C
	N-Nitrosodiethanolamine	4.273	C
1300716	Dimethylphenol	307.64	T
	Hydroxydimethylbenzene	307.64	T
	Xylenol	307.64	T
1336363	PCBs	1.554	C
1746016	Dibenzo[b,e][1,4]dioxin, 2,3,7,8-tetrachloro-	8.0E-5	C
	2,3,7,8-Tetrachlorodibenzo-p-dioxin	8.0E-5	C
	Dioxin	8.0E-5	C
	TCDD, 2,3,7,8-	8.0E-5	C
2303164	S-(2,3-Dichloroallyl) diisopropyl-thiocarbamate	196.129	C
	Diallate	196.129	C
	Avadex	196.129	C
	Carbamothioic acid, bis(1-methylethyl)-S-(2,3-dichloro-2-propenyl) ester	196.129	C
3165933	Benzenamine, 4-chloro-2-methyl, hydrochloride	26.008	C
	4-Chloro-o-toluidine, hydrochloride	26.008	C
7440417	Beryllium	2.8/BG	C
7723140	Yellow phosphorus	10.25	T
	Phosphorus, elemental	10.25	T
	Red phosphorus	10.25	T
	Violet phosphorus	10.25	T
	White phosphorus	10.25	T
8001352	Toxaphene	10.876	C
8065483	Demeton	20.51	T
10265926	Methamidophos	25.64	T
10595956	N-Nitrosomethylethylamine	DL	C
13071799	Terbufos	12.82	T
19408743	Hexachlorodibenzo-p-dioxins	1.9E-3	C
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Count: 41

