APPENDIX A — AQUEOUS IDW

EXPLANATION OF APPENDIX A

The chemical tables in Appendix A apply to aqueous Investigation-Derived Waste (IDW) and identify many constituents used to determine if aqueous IDW requires containerization and subsequent management, in some cases as Resource Conservation and Recovery Act (RCRA) hazardous waste. In the Appendix A tables, the Health-Based Levels (HBLs) are shown for application to both RCRA listed and non-listed waste.

In all cases (except tritium, gross alpha, and non-volatile beta) a dilution attenuation factor (DAF) of 10 is applied to the HBL for non-RCRA-listed Aqueous IDW to attain the IDW Management Level. If it (the material) is non-listed but fails Toxicity Characteristic Leaching Procedure (TCLP), it must be managed as a hazardous waste. For RCRA-listed aqueous IDW, the HBL will be the IDW Management Level. Aqueous IDW will be containerized and managed when any constituent is found to equal or exceed the IDW Management Level. Aqueous IDW with constituents below the IDW Management Level will be returned to the ground.

The choice of a DAF of 10 for determining the management level for non-RCRA-listed aqueous IDW is based on employing a prudent approach to the management of IDW that is protective of human health and the environment. A technical explanation for the use of a DAF is presented in Addendum 5.

Note that radionuclides included in this IDW Management Plan Appendix are in the Radioactive Aqueous IDW table that follows the chemical listings. IDW Management Levels have been listed for the radionuclides, even though they are not hazardous according to the definition of the South Carolina Hazardous Waste Management Regulations (SCHWMR) R61-79.

For quantifying radionuclides in aqueous IDW, the screening levels of 15 pCi/L gross alpha (excluding uranium and radon activities) and 50 pCi/L non-volatile beta (excluding potassium 40 activity) are used with aqueous IDW. The DAF is not applied to these screening levels. When IDW is equal to or exceeds the screening levels, IDW may be speciated for individual radionuclide contributors to determine if the radioactivity is from a natural radioactive source (i.e., represents normal background radioactivity), or to determine if the radioactivity is equal to or exceeds the IDW Management Levels.

The following paragraphs provide information referring to the regulatory sources cited as the basis for the HBLs, the selection hierarchy for HBLs, and an explanation of notes and figures. Savannah River Site (SRS) will use the promulgated MCLs for chemicals and radionuclides (see Addendum 1 for explanation of radionuclide references).

REGULATORY SOURCES AND ORDER OF PRIORTY FOR HEALTH-BASED LEVELS

Several regulatory sources are cited as the basis for HBLs. The hierarchy selection (or order of priority) for cases in which an HBL is set for a particular constituent is as follows:

1) Safe Drinking Water Act (SDWA), which includes maximum contaminant levels (MCLs) promulgated in the South Carolina (R.61-58.5, "Maximum Contaminant Levels in Drinking Water") and U.S. Environmental Protection Agency (USEPA) Primary Drinking Water Standard (PDWS) Regulations (https://www.epa.gov/ground-water-and-drinking-water), associated treatment technology limits (MCL alternative).
2) SCHWMR, which includes pH; toxic metals; and TCLP constituents.
3) USEPA RSLs, November 2024 revision for chemicals, using the residential tap water value set at 1.0E-06 risk or 1.0 Hazard Quotient (HQ). MCLs published in the USEPA Preliminary Remediation Goals (PRG) Website, December 2016 for radionuclides.

Most HBLs are based on PDWS of the SDWA promulgated as MCLs. Nonvolatile beta radiation's MCL is not activity-based; the table presents the best technical judgment of a limit appropriate for SRS constituents of concern and is annotated Est. PDWS.

Enforceable MCLs (R.61-58.5 and 40 CFR Parts 141 and 142) are annotated as PDWS in the "Source of HBL" column of the Appendix A table. The HBL for 1,2-dichloroethylene was set at the PDWS for cis-1,2-dichloroethylene which is the lower of the two isomers that comprise 1,2-dichloroethylene. All salts, isomers, and derivatives of the regulated per- and polyfluoroalkyl substances (PFAS) compounds (perfluorobutanesulfonate [PFBS]; 2, 3, 3, 3-tetrafluoro-2-(heptafluoropropoxy) propanoate [HFPO-DA]; perfluorohexanesulfonate [PFHxS]; perfluorononanoate [PFNA]; perfluorooctanesulfonate [PFOS]; and perfluorooctanoate [PFOA]) are set at their respective regulated PFAS compound MCL. The limit for copper and lead are based on treatment technology standards rather than an MCL and are annotated as "PDWS TT". The HBLs for bromodichloromethane, bromoform, chloroform, and dibromochloromethane are based on the MCL for Total Trihalomethanes (TTHMs) per the USEPA Stage 1 Disinfectants and Disinfection Byproducts Rule and are annotated as PDWS TT.

MCLs are absent for a few SCHWMR constituents; in the case of pH, §261.22(a)(1), the regulatory source is annotated as SCHWMR.

Limits for most remaining constituents are set to the current (November 2024 revision) values of the USEPA RSLs for tap water, annotated as RSL.

A few of these limits, annotated as technical, represent estimated SRS background levels based on those typically observed in SRS monitoring wells; such values were used if and only if no health-based standard could be found or inferred.

NOTES:

1) Units represent either activity measured in picoCuries (pCi) or mass measured in milligrams (mg) per liter (L) or milliliter (mL).

2) SRS Analyte Codes are used internally within the SRS groundwater database.

3) The Chemical Abstracts Service (CAS) number is from the CAS Registry and is unique to each identified chemical or mixture of chemicals. Some analytes lack CAS numbers due to non-uniqueness (e.g., an analyte which groups all compounds containing a particular ion or element, such as metals).

4) The common chemical names are listed in the table and may not match the CAS name. Some analytes have been reported in multiple environmental management system (EMS designators, such as 2HXONE and MIBK; in all such cases, the CAS number, if defined, is identical.

5) Entries marked with an asterisk (*) refer to combinations of chemicals. If analytical results for chemical combinations are not available, then the sum of the results for the individual constituents should be used instead (e.g., “m/p-cresol” should be evaluated against the sum of results for “m-cresol”, “o-cresol”, and “p-cresol”).

6) Entries marked with two asterisks (**) refer to compounds (i.e., isomers, associated salts, conjugated acids, or derivatives) that must be evaluated against the PFHxS, PFNA, HFPO-DA, PFBS Hazards Quotient of 1 (i.e., Sum of Fraction of 1).

7) Entries marked with three asterisks (***) refer to PFOA related compounds (i.e., isomers, associated salts, conjugated acids, or derivatives) that must be combined and evaluated against the PFOA IDW Limit.

8) Entries marked with four asterisks (****) refer to PFOS related compounds (i.e., isomers, associated salts, conjugated acids, or derivatives) that must be combined and evaluated against the PFOS IDW Limit.

9) A summary of the columns in this table is as follows, from left to right:

   a. Chemical name in common use.
   b. SRS Analyte Code, 1-6 alphanumeric characters.
   c. CAS number, for cross-verification between chemical names that may differ between source documents.
   d. RCRA Listed IDW Management Level (HBL).
   e. Non-RCRA Listed IDW Management Level (10X HBL).
   f. Unit of measurement applicable to the numerical limit in the previous column.
   g. Identification of the analyte as being a toxicity-characteristic analyte as defined in SCHWMR R.61-79 §261.24(b) Table 1.
   h. Source of the HBLs (e.g., PDWS, RSL, TCLP, Technical, etc.).

Appendix A — Health-Based Levels for Aqueous IDW

Common Chemical Name	SRS Analyte Code	CAS Number	RCRA-Listed IDW MGT Level — Health-Based Level (HBL)	Non-RCRA-Listed IDW MGT Level (10X HBL)	Units	TCLP Regulatory Limit (mg/L)	Source of HBL
1,1,1-Trichloroethane	111TCE	71-55-6	0.2	2.0	mg/L		PDWS
1,1,2-Trichloroethane	112TCE	79-00-5	0.005	0.05	mg/L		PDWS
1,1-Dichloroethane	11DCLE	75-34-3	0.0028	0.028	mg/L		RSL
1,1-Dichloroethylene	11DCE	75-35-4	0.007	0.07	mg/L	0.7	PDWS
1,2,4-Trichlorobenzene	124TCB	120-82-1	0.07	0.7	mg/L		PDWS
1,2-Dibromo-3-chloropropane	12DB3P	96-12-8	0.0002	0.002	mg/L		PDWS
1,2-Dibromoethane	12DBE	106-93-4	0.00005	0.0005	mg/L		PDWS
1,2-Dichlorobenzene	12DCLB	95-50-1	0.6	6.0	mg/L		PDWS
1,2-Dichloroethane (EDC)	12DCLE	107-06-2	0.005	0.05	mg/L	0.5	PDWS
trans-1,2-Dichloroethylene	T12DCE	156-60-5	0.1	1.0	mg/L		PDWS
1,2-Dichloroethylene	12DCE	540-59-0	0.07	0.7	mg/L		PDWS
cis-1,2-Dichloroethylene	C12DCE	156-59-2	0.07	0.7	mg/L		PDWS
1,2-Dichloropropane	12DCLP	78-87-5	0.005	0.05	mg/L		PDWS
1,4-Dichlorobenzene	14DCLB	106-46-7	0.075	0.75	mg/L	7.5	PDWS
1,4-Dioxane	14DXA	123-91-1	0.00046	0.0046	mg/L		RSL
1H, 1H, 2H, 2H-perfluorodecane sulfonic acid***	8:2 FTS	39108-34-4	0.000004	0.00004	mg/L		PDWS
1H, 1H, 2H, 2H-perfluorooctane sulfonic acid***	6:2 FTS	27619-97-2	0.000004	0.00004	mg/L		PDWS
2,3,7,8-TCDD (Dioxin)	23TCDD	1746-01-6	0.00000003	0.0000003	mg/L		PDWS
2,4,5-Trichlorophenol	245TCP	95-95-4	1.2	12	mg/L	400.0	RSL
2,4,6-Trichlorophenol	246TCP	88-06-2	0.0041	0.041	mg/L	2.0	RSL
2,4-Dichlorophenoxyacetic acid (2,4-D)	24D	94-75-7	0.07	0.7	mg/L	10.0	PDWS
2,4-Dinitrotoluene	24DNT	121-14-2	0.00024	0.0024	mg/L	0.13	RSL
2-Chlorophenol	2CLP	95-57-8	0.091	0.91	mg/L		RSL
3-Perfluoroheptyl Propanoic Acid***	7:3FTCA	812-70-4	0.000004	0.00004	mg/L		PDWS
Acenaphthene	ANAPNE	83-32-9	0.53	5.3	mg/L		RSL

PDWS = Primary Drinking Water Standard, Enforceable MCL (R.61-58.5)

PDWS TT = Treatment Technology Standard

RSL = Regional Screening Level (November 2024 Revision)

SCHWMR = South Carolina Hazardous Waste Management Regulations

Common Chemical Name	SRS Analyte Code	CAS Number	RCRA-Listed IDW MGT Level — Health-Based Level (HBL)	Non-RCRA-Listed IDW MGT Level (10X HBL)	Units	TCLP Regulatory Limit (mg/L)	Source of HBL
Acetone	ACET	67-64-1	18	180	mg/L		RSL
Aluminum	AL	7429-90-5	20	200	mg/L		RSL
Aluminum, dissolved	ALDIS	7429-90-5	20	200	mg/L		RSL
Aluminum, total	ALTOT	7429-90-5	20	200	mg/L		RSL
Antimony	SB	7440-36-0	0.006	0.06	mg/L		PDWS
Antimony, dissolved	SBDIS	7440-36-0	0.006	0.06	mg/L		PDWS
Antimony, total	SBTOT	7440-36-0	0.006	0.06	mg/L		PDWS
Arsenic	AS	7440-38-2	0.01	0.1	mg/L	5.0	PDWS
Arsenic, dissolved	ASDIS	7440-38-2	0.01	0.1	mg/L	5.0	PDWS
Arsenic, total	ASTOT	7440-38-2	0.01	0.1	mg/L	5.0	PDWS
Atrazine	ATRZ	1912-24-9	0.003	0.03	mg/L		PDWS
Barium	BA	7440-39-3	2.0	20	mg/L	100.0	PDWS
Barium, dissolved	BADIS	7440-39-3	2.0	20	mg/L	100.0	PDWS
Barium, total	BATOT	7440-39-3	2.0	20	mg/L	100.0	PDWS
Benzene	C6H6	71-43-2	0.005	0.05	mg/L	0.5	PDWS
Benzoic acid	BENZOA	65-85-0	75	750	mg/L		RSL
Benzo(a)pyrene	BAPYR	50-32-8	0.0002	0.002	mg/L		PDWS
Beryllium	BE	7440-41-7	0.004	0.04	mg/L		PDWS
Beryllium, dissolved	BEDIS	7440-41-7	0.004	0.04	mg/L		PDWS
Beryllium, total	BETOT	7440-41-7	0.004	0.04	mg/L		PDWS
Bis(2-ethylhexyl)phthalate (DEHP)	B2EHP	117-81-7	0.006	0.06	mg/L		PDWS
Boron	B	7440-42-8	4	40	mg/L		RSL
Boron, dissolved	BDIS	7440-42-8	4	40	mg/L		RSL
Boron, total	BTOT	7440-42-8	4	40	mg/L		RSL
Bromodichloromethane	BRDCLM	75-27-4	0.08	0.8	mg/L		PDWS TT
Bromoform	CHBR3	75-25-2	0.08	0.8	mg/L		PDWS TT
Butyl benzyl phthalate	BBZP	85-68-7	0.016	0.16	mg/L		RSL

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PDWS TT = Treatment Technology Standard

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SCHWMR = South Carolina Hazardous Waste Management Regulations

Common Chemical Name	SRS Analyte Code	CAS Number	RCRA-Listed IDW MGT Level — Health-Based Level (HBL)	Non-RCRA-Listed IDW MGT Level (10X HBL)	Units	TCLP Regulatory Limit (mg/L)	Source of HBL
Cadmium	CD	7440-43-9	0.005	0.05	mg/L	1.0	PDWS
Cadmium, dissolved	CDDIS	7440-43-9	0.005	0.05	mg/L	1.0	PDWS
Cadmium, total	CDTOT	7440-43-9	0.005	0.05	mg/L	1.0	PDWS
Carbon disulfide	CS2	75-15-0	0.81	8.1	mg/L		RSL
Carbon tetrachloride	CCL4	56-23-5	0.005	0.05	mg/L	0.5	PDWS
Chlordane*	CLDAN	57-74-9	0.002	0.02	mg/L	0.03	PDWS
Chlordane (alpha)	ACLDAN	5103-71-9	0.002	0.02	mg/L		PDWS
Chlordane (gamma)	GCLDAN	5103-74-2	0.002	0.02	mg/L		PDWS
Chlordane (technical mixture)	TKCLDAN	12789-03-6	0.00002	0.0002	mg/L		RSL
Chlorobenzene	CLC6H5	108-90-7	0.1	1.0	mg/L	100.0	PDWS
Chloroethane	C2H5CL	75-00-3	8.3	83	mg/L		RSL
Chloroethene (vinyl chloride)	C2H3CL	75-01-4	0.002	0.02	mg/L	0.2	PDWS
Chloroform	CHCL3	67-66-3	0.08	0.8	mg/L	6.0	PDWS TT
Chloromethane (methyl chloride)	CH3CL	74-87-3	0.19	1.9	mg/L		RSL
Chromium	CR	7440-47-3	0.1	1.0	mg/L	5.0	PDWS
Chromium - hexavalent	CRHEX	18540-29-9	0.00011	0.0011	mg/L	5.0	RSL
Chromium, dissolved	CRDIS	7440-47-3	0.1	1.0	mg/L	5.0	PDWS
Chromium, total	CRTOT	7440-47-3	0.1	1.0	mg/L	5.0	PDWS
Cobalt	CO	7440-48-4	0.006	0.06	mg/L		RSL
Cobalt, dissolved	CODIS	7440-48-4	0.006	0.06	mg/L		RSL
Cobalt, total	COTOT	7440-48-4	0.006	0.06	mg/L		RSL
Copper	CU	7440-50-8	1.3	13	mg/L		PDWS TT
Copper, dissolved	CUDIS	7440-50-8	1.3	13	mg/L		PDWS TT
Copper, total	CUTOT	7440-50-8	1.3	13	mg/L		PDWS TT
m/p-Cresol*	34MP	1319-77-3	1.5	15	mg/L	200.0	RSL
m-Cresol	3MP	108-39-4	0.93	9.3	mg/L	200.0	RSL
o-Cresol	2MP	95-48-7	0.93	9.3	mg/L	200.0	RSL

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RSL = Regional Screening Level (November 2024 Revision)

SCHWMR = South Carolina Hazardous Waste Management Regulations

Common Chemical Name	SRS Analyte Code	CAS Number	RCRA-Listed IDW MGT Level — Health-Based Level (HBL)	Non-RCRA-Listed IDW MGT Level (10X HBL)	Units	TCLP Regulatory Limit (mg/L)	Source of HBL
p-Cresol	4MP	106-44-5	0.37	3.7	mg/L	200.0	RSL
Cumene (isopropylbenzene)	ISPROPBZ	98-82-8	0.45	4.5	mg/L		RSL
Cyanide	CYN	57-12-5	0.2	2.0	mg/L		PDWS
Cyclohexanone	CYHEX	108-94-1	1.4	14	mg/L		RSL
DDD	PPDDD	72-54-8	0.000032	0.00032	mg/L		RSL
DDE	PPDDE	72-55-9	0.000046	0.00046	mg/L		RSL
DDT	PPDDT	50-29-3	0.00023	0.0023	mg/L		RSL
Dibenzofuran	DIBZFU	132-64-9	0.0079	0.079	mg/L		RSL
Dibromochloromethane	DBRCLM	124-48-1	0.08	0.8	mg/L		PDWS TT
Dichlorodifluoromethane	CCL2F2	75-71-8	0.20	2.0	mg/L		RSL
Dichloromethane (methylene chloride)	CH2CL2	75-09-2	0.005	0.05	mg/L		PDWS
Dieldrin	DLDRN	60-57-1	0.0000018	0.000018	mg/L		RSL
Diethyl phthalate	DEP	84-66-2	15	150	mg/L		RSL
Di-n-butyl phthalate	DNBP	84-74-2	0.9	9.0	mg/L		RSL
Di-n-octyl phthalate	DNOP	117-84-0	0.2	2.0	mg/L		RSL
Endrin	ENDRN	72-20-8	0.002	0.02	mg/L	0.02	PDWS
Ethylbenzene	ETC6H5	100-41-4	0.7	7	mg/L		PDWS
Fluorene	FLRENE	86-73-7	0.29	2.9	mg/L		RSL
Fluoride	F	16984-48-8	4.0	40	mg/L		PDWS
Fluorine (Soluble Fluoride)	F2	7782-41-4	4.0	40	mg/L		PDWS
Heptachlor	HPCL	76-44-8	0.0004	0.004	mg/L	0.008	PDWS
Heptachlor epoxide	HPCLE	1024-57-3	0.0002	0.002	mg/L	0.008	PDWS
Hexachlorobenzene	CL6BZ	118-74-1	0.001	0.01	mg/L	0.13	PDWS
Hexachlorobutadiene	HCBD	87-68-3	0.00014	0.0014	mg/L	0.5	RSL
Hexachlorocyclohexane (HCH) – alpha (alpha-BHC)	ABHC	319-84-6	0.0000072	0.000072	mg/L		RSL
Hexachlorocyclohexane (HCH) – beta (beta-BHC)	BBHC	319-85-7	0.000025	0.00025	mg/L		RSL

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PDWS TT = Treatment Technology Standard

RSL = Regional Screening Level (November 2024 Revision)

SCHWMR = South Carolina Hazardous Waste Management Regulations

Common Chemical Name	SRS Analyte Code	CAS Number	RCRA-Listed IDW MGT Level — Health-Based Level (HBL)	Non-RCRA-Listed IDW MGT Level (10X HBL)	Units	TCLP Regulatory Limit (mg/L)	Source of HBL
Hexachlorocyclohexane (HCH) – technical (BHC-technical)	HCHTECH	608-73-1	0.000025	0.00025	mg/L		RSL
Hexachlorocyclopentadiene	CL6CP	77-47-4	0.05	0.5	mg/L		PDWS
Hexachloroethane	CL6ET	67-72-1	0.00033	0.0033	mg/L	3.0	RSL
Hexafluoropropylene oxide dimer acid (HFPO-DA)**	GENX	13252-13-6	0.00001	0.0001	mg/L		PDWS
Isobutyl alcohol	ISBAL	78-83-1	0.73	7.3	mg/L		RSL
Isophorone	ISOPHR	78-59-1	0.078	0.78	mg/L		RSL
Lead	PB	7439-92-1	0.015	0.15	mg/L	5.0	PDWS TT
Lead, dissolved	PBDIS	7439-92-1	0.015	0.15	mg/L	5.0	PDWS TT
Lead, total	PBTOT	7439-92-1	0.015	0.15	mg/L	5.0	PDWS TT
Lindane (Hexachlorocyclohexane (HCH)-gamma)	LIN	58-89-9	0.0002	0.002	mg/L	0.4	PDWS
Mercury	HG	7439-97-6	0.002	0.02	mg/L	0.2	PDWS
Mercury, dissolved	HGDIS	7439-97-6	0.002	0.02	mg/L	0.2	PDWS
Mercury, total	HGTOT	7439-97-6	0.002	0.02	mg/L	0.2	PDWS
Methoxychlor	MEXCLR	72-43-5	0.04	0.4	mg/L	10.0	PDWS
Methyl acetate	METHAC	79-20-9	20	200	mg/L		RSL
Methyl ethyl ketone (MEK)	MEK	78-93-3	5.6	56	mg/L	200.0	RSL
Methyl isobutyl ketone	MIBK	108-10-1	6.3	63	mg/L		RSL
Methyl tertiary butyl ether (MTBE)	MTBE	1634-04-4	0.014	0.14	mg/L		RSL
Naphthalene	NAP	91-20-3	0.00012	0.0012	mg/L		RSL
N-ethyl perfluorooctane sulfonamide****	NEtFOSA	4151-50-2	0.000004	0.00004	mg/L		PDWS
N-ethyl perfluorooctane sulfonamidoethanol****	NEtFOSE	1691-99-2	0.000004	0.00004	mg/L		PDWS
N-ethylperfluoro-1-octanesulfonamidoacetic acid****	NEtFOSAA	2991-50-6	0.000004	0.00004	mg/L		PDWS
Nickel	NI	7440-02-0	0.39	3.9	mg/L		RSL
Nickel, dissolved	NIDIS	7440-02-0	0.39	3.9	mg/L		RSL

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PDWS TT = Treatment Technology Standard

RSL = Regional Screening Level (November 2024 Revision)

SCHWMR = South Carolina Hazardous Waste Management Regulations

Common Chemical Name	SRS Analyte Code	CAS Number	RCRA-Listed IDW MGT Level — Health-Based Level (HBL)	Non-RCRA-Listed IDW MGT Level (10X HBL)	Units	TCLP Regulatory Limit (mg/L)	Source of HBL
Nickel, total	NITOT	7440-02-0	0.39	3.9	mg/L		RSL
Nitrate as nitrogen	NO3	14797-55-8	10	100	mg/L		PDWS
Nitrite as nitrogen	NO2	14797-65-0	1.0	10	mg/L		PDWS
Nitrobenzene	NB	98-95-3	0.00014	0.0014	mg/L	2.0	RSL
N-methyl perfluorooctane sulfonamidoethanol****	NMeFOSE	24448-09-7	0.000004	0.00004	mg/L		PDWS
N-methylperfluoro-1-octanesulfonamide****	MeFOSA	31506-32-8	0.000004	0.00004	mg/L		PDWS
N-methylperfluoro-1-octanesulfonamidoacetic acid****	NMeFOSAA	2355-31-9	0.000004	0.00004	mg/L		PDWS
N-Nitroso di-n-propylamine	NDNPA	621-64-7	0.000011	0.00011	mg/L		RSL
N-Nitrosodiethylamine	NETA	55-18-5	0.00000017	0.0000017	mg/L		RSL
N-Nitrosodimethylamine	NDMA	62-75-9	0.00000011	0.0000011	mg/L		RSL
N-Nitroso-diphenylamine	NNDPA	86-30-6	0.012	0.12	mg/L		RSL
N-Nitrosodi-N-butylamine	NDNBA	924-16-3	0.0000027	0.000027	mg/L		RSL
N-Nitroso-N-methylethylamine	NETMEA	10595-95-6	0.00000071	0.0000071	mg/L		RSL
PCB-AROCLOR 1016	PCB016	12674-11-2	0.0005	0.005	mg/L		PDWS
PCB-AROCLOR 1221	PCB221	11104-28-2	0.0005	0.005	mg/L		PDWS
PCB-AROCLOR 1232	PCB232	11141-16-5	0.0005	0.005	mg/L		PDWS
PCB-AROCLOR 1242	PCB242	53469-21-9	0.0005	0.005	mg/L		PDWS
PCB-AROCLOR 1248	PCB248	12672-29-6	0.0005	0.005	mg/L		PDWS
PCB-AROCLOR 1254	PCB254	11097-69-1	0.0005	0.005	mg/L		PDWS
PCB-AROCLOR 1260	PCB260	11096-82-5	0.0005	0.005	mg/L		PDWS
PCB-AROCLOR 1262	PCB262	37324-23-5	0.0005	0.005	mg/L		PDWS
PCB-Miscellaneous*	PCB	1336-36-3	0.0005	0.005	mg/L		PDWS
Pentachlorophenol	PCP	87-86-5	0.001	0.01	mg/L	100.0	PDWS
Perfluoro-1-octanesulfonamide****	PFOSA	754-91-6	0.000004	0.00004	mg/L		PDWS
Perfluorobutanesulfonic acid (PFBS)**	PFBS	375-73-5	0.002	0.02	mg/L		PDWS

PDWS = Primary Drinking Water Standard, Enforceable MCL (R.61-58.5)

PDWS TT = Treatment Technology Standard

RSL = Regional Screening Level (November 2024 Revision)

SCHWMR = South Carolina Hazardous Waste Management Regulations

Common Chemical Name	SRS Analyte Code	CAS Number	RCRA-Listed IDW MGT Level — Health-Based Level (HBL)	Non-RCRA-Listed IDW MGT Level (10X HBL)	Units	TCLP Regulatory Limit (mg/L)	Source of HBL
Perfluorodecanoic acid	PFDA	335-76-2	0.00000004	0.0000004	mg/L		RSL
Perfluorododecanoic acid	PFDoA	307-55-1	0.001	0.01	mg/L		RSL
Perfluorohexanesulfonic acid (PFHxS)**	PFHxS	355-46-4	0.00001	0.0001	mg/L		PDWS
Perfluorohexanoic acid	PFHxA	307-24-4	0.0099	0.099	mg/L		RSL
Perfluoro-N-butanoic acid	PFBA	375-22-4	0.018	0.18	mg/L		RSL
Perfluorononanoic acid (PFNA)**	PFNA	375-95-1	0.00001	0.0001	mg/L		PDWS
Perfluorooctanesulfonic acid (PFOS)****	PFOS	1763-23-1	0.000004	0.00004	mg/L		PDWS
Perfluorooctanoic acid (PFOA)***	PFOA	335-67-1	0.000004	0.00004	mg/L		PDWS
Perfluorotetradecanoic acid	PFTA	376-06-7	0.02	0.2	mg/L		RSL
Perfluoroundecanoic acid	PFUnA	2058-94-8	0.006	0.06	mg/L		RSL
PFHxS, PFNA, HFPO-DA, PFBS			Hazard Quotient 1	Hazard Quotient 1	Unitless		PDWS
pH (field)	fldPH	NO CAS RN	>12.5	>12.5	pH		SCHWMR
pH (field)	fldPH	NO CAS RN	<2.0	<2.0	pH		SCHWMR
Phenol	PHENOL	108-95-2	5.8	58	mg/L		RSL
Pyrene	PYR	129-00-0	0.12	1.2	mg/L		RSL
Pyridine	PYRID	110-86-1	0.02	0.2	mg/L	5.0	RSL
Selenium	SE	7782-49-2	0.05	0.5	mg/L	1.0	PDWS
Selenium, dissolved	SEDIS	7782-49-2	0.05	0.5	mg/L	1.0	PDWS
Selenium, total	SETOT	7782-49-2	0.05	0.5	mg/L	1.0	PDWS
Silver	AG	7440-22-4	0.094	0.94	mg/L	5.0	RSL
Silver, dissolved	AGDIS	7440-22-4	0.094	0.94	mg/L	5.0	RSL
Silver, total	AGTOT	7440-22-4	0.094	0.94	mg/L	5.0	RSL
Silvex (2,4,5-TP)	SILVEX	93-72-1	0.05	0.5	mg/L	1.0	PDWS
Styrene	STYR	100-42-5	0.1	1.0	mg/L		PDWS
Tetrachloroethylene (PCE)	TCLEE	127-18-4	0.005	0.05	mg/L	0.7	PDWS
Thallium	TL	7440-28-0	0.002	0.02	mg/L		PDWS
Thallium, dissolved	TLDIS	7440-28-0	0.002	0.02	mg/L		PDWS

PDWS = Primary Drinking Water Standard, Enforceable MCL (R.61-58.5)

PDWS TT = Treatment Technology Standard

RSL = Regional Screening Level (November 2024 Revision)

SCHWMR = South Carolina Hazardous Waste Management Regulations

Common Chemical Name	SRS Analyte Code	CAS Number	RCRA-Listed IDW MGT Level — Health-Based Level (HBL)	Non-RCRA-Listed IDW MGT Level (10X HBL)	Units	TCLP Regulatory Limit (mg/L)	Source of HBL
Thallium, total	TLTOT	7440-28-0	0.002	0.02	mg/L		PDWS
Tin	SN	7440-31-5	12	120	mg/L		RSL
Tin, dissolved	SNDIS	7440-31-5	12	120	mg/L		RSL
Tin, total	SNTOT	7440-31-5	12	120	mg/L		RSL
Toluene	MEC6H5	108-88-3	1.0	10	mg/L		PDWS
Toxaphene	TXPHEN	8001-35-2	0.003	0.03	mg/L	0.5	PDWS
Tributyl phosphate	TBP	126-73-8	0.0052	0.052	mg/L		RSL
Trichloroethylene (TCE)	TRCLE	79-01-6	0.005	0.05	mg/L	0.5	PDWS
Trichlorofluoromethane	CCL3F	75-69-4	5.2	52	mg/L		RSL
Uranium	U	7440-61-1	0.03	0.3	mg/L		PDWS
Uranium, dissolved	UDIS	7440-61-1	0.03	0.3	mg/L		PDWS
Uranium, total	UTOT	7440-61-1	0.03	0.3	mg/L		PDWS
Vanadium	V	7440-62-2	0.086	0.86	mg/L		RSL
Vanadium, dissolved	VDIS	7440-62-2	0.086	0.86	mg/L		RSL
Vanadium, total	VTOT	7440-62-2	0.086	0.86	mg/L		RSL
Vinyl Acetate	VINYLA	108-05-4	0.41	4.1	mg/L		RSL
Xylenes, total	XYLEN	1330-20-7	10	100	mg/L		PDWS
Zinc	ZN	7440-66-6	6.0	60	mg/L		RSL
Zinc, dissolved	ZNDIS	7440-66-6	6.0	60	mg/L		RSL
Zinc, total	ZNTOT	7440-66-6	6.0	60	mg/L		RSL

PDWS = Primary Drinking Water Standard, Enforceable MCL (R.61-58.5)

PDWS TT = Treatment Technology Standard

RSL = Regional Screening Level (November 2024 Revision)

SCHWMR = South Carolina Hazardous Waste Management Regulations

Appendix A — Health-Based Levels for Radioactive Aqueous IDW

For quantifying radionuclides in aqueous IDW, the screening levels of 15 pCi/L gross alpha (excluding radon and uranium activities) and 50 pCi/L non-volatile beta (excluding potassium 40 activity) are used with aqueous IDW. The DAF is not applied to these screening levels. When IDW is equal to or exceeds the screening levels, IDW may be speciated for individual radionuclide contributors to determine if the radioactivity is from a natural radioactive source (i.e., represents normal background radioactivity), or to determine if the radioactivity is equal to or exceeds the IDW Management Levels.

Radioactive Elements	CAS Number	Element Isotope	Alpha Emitters MCL(1) (pCi/L)	Beta/ Gamma Emitters MCL(2) (pCi/L)	HBL (pCi/L)	IDW MGT LEVEL (10X HBL, except tritium) (pCi/L)
Americium	14596-10-2	Am-241	1.5E+01	N/A	1.5E+01	1.5E+02
Carbon	14762-75-5	C-14	N/A	2.0E+03	2.0E+03	2.0E+04
Cesium	10045-97-3	Cs-137	N/A	2.0E+02	2.0E+02	2.0E+03
Cobalt	10198-40-0	Co-60	N/A	1.0E+02	1.0E+02	1.0E+03
Curium	15757-87-6 13981-15-2	Cm-243 Cm-244	1.5E+01	N/A N/A	1.5E+01	1.5E+02 1.5E+02
Iodine	15046-84-1	I-129	N/A	1.0E00	1.0E00	1.0E+01
Neptunium	13994-20-2	Np-237	1.5E+01	N/A	1.5E+01	1.5E+02
Nickel	13981-37-8	Ni-63	N/A	5.0E+01	5.0E+01	5.0E+02
Plutonium	13981-16-3	Pu-238	1.5E+01	N/A	1.5E+01	1.5E+02
Plutonium	15117-48-3	Pu-239	1.5E+01	N/A	1.5E+01	1.5E+02
Radium (5)	13982-63-3 15262-20-1	Ra-226 Ra-228	5.0E00 NA	N/A 5.0E00	5.0E00 5.0E00	5.0E+01 5.0E+01
Strontium	10098-97-2	Sr-90	N/A	8.0E00	8.0E00	8.0E+01
Technetium	14133-76-7	Tc-99	N/A	9.0E+02	9.0E+02	9.0E+03
Thorium (3)	7440-29-1	Th-232	1.5E+01	N/A	1.5E+01	1.5E+02
Tritium (4)	10028-17-8	H-3	N/A	2.0E+04	8.0E+08	8.0E+08 (4)
Uranium (3)	13966-29-5	U-234	See note 3	N/A	See note 3	See note 3
Uranium (3)	15117-96-1	U-235	See note 3	N/A	See note 3	See note 3
Uranium (3)	7440-61-1	U-238	See note 3	N/A	See note 3	See note 3

NOTES:

1) HBLs for individual alpha emitting radionuclides are the MCLs from the Preliminary Remediation Goals (PRG) for Radionuclides website (USEPA December 2016).
2) HBLs for individual beta/ gamma emitters are MCLs from the PRG for Radionuclides website (USEPA December 2016).
3) Thorium and Uranium (and daughters) are naturally occurring radionuclides that also have process uses at SRS (targets or fuel for reactors) and are, therefore, included in this list. Uranium has an MCL of 30 ug/L as identified in Appendix A- Health Based Levels for Aqueous IDW table. If the alpha screening value of 15 pCi/L is exceeded, then a total uranium analysis should be run to directly compare to the IDW Management Level identified in Appendix A- Health Based Levels for Aqueous IDW table. In addition, individual isotopes of uranium, thorium and radium should be determined.
4) Because the 800,000 pCi/mL tritium action level is based on the SRS worker exposure to tritium-contaminated groundwater samples, a multiplier (10 x HBL) will not be applied for tritium management. For consistency with the table format in Liter volume units, the value for tritium is converted to Liters and shown in exponential form, or 8.0E+08 pCi/L. See Section 3 and Addendum 3 for technical discussion on tritium management level for SRS environmental workers.
5) Combined Radium 226 and 228 activities (SCDES/ USEPA SWDA MCL).

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APPENDIX B — NON-AQUEOUS IDW

EXPLANATION OF APPENDIX B

The Appendix B tables apply to non-aqueous IDW and lists the chemical and radioactive constituents with an IDW Management Level that must be used for determining whether non-aqueous IDW requires containerization and subsequent management. Non-aqueous IDW with constituent concentrations that exceed the IDW Management Levels will be managed per the IDW Management Plan. Non-aqueous IDW with constituents below the IDW Management Level will be returned to the ground.

Note that the radioactive non-aqueous IDW Management Levels for radionuclides are in a radioactive IDW table that follows the chemical listings.

The screening levels of 20 pCi/g gross alpha and 50 pCi/g non-volatile beta are used for quantifying radionuclides in non-aqueous IDW. When IDW is equal to or exceeds these screening levels, IDW may be speciated for individual radionuclide contributors to determine if the radioactivity is from a natural radioactive source (i.e., represents normal background radioactivity), or to determine if the radioactivity is equal to or exceeds the IDW Management Levels. IDW with radioactivity exceeding the IDW Management Levels will be managed per the IDW Management Plan.

The following paragraphs provide information referring to the regulatory sources cited as the basis of the selection hierarchy for HBLs, the determination of non-aqueous IDW that may exceed TCLP levels, and an explanation of notes and figures.

REGULATORY SOURCES AND ORDER OF PRIOR FOR HEALTH-BASED LEVELS

The HBLs were calculated using RSLs developed by the Oak Ridge National Laboratory under an Interagency Agreement with the USEPA for residential exposure to contaminated soil. Both cancer risk and non-cancer levels are listed for chemical RSLs. Radionuclide HBLs are site-specific values set at a 1E-06 risk level that are derived using the Preliminary Remediation Goals for Radionuclides website (USEPA April 2024) and eliminating the fruit and vegetable consumption pathway. All other inputs are default values.

Both cancer risk and non-cancer levels are listed for chemical RSL.

Where SRS-wide soil background levels equal or exceed the HBLs, the soil background level will be the HBL. SRS soil background levels for metals are derived from the *Background Soils Statistical Summary Report for the Savannah River Site* (ERD-EN-2005-0223, Rev. 1). The soil background level is set by the value at the 95th percentile to conservatively estimate an upper-bound background value within the range of observed background values measured.

The *Background Soils Statistical Summary Report for the Savannah River Site* (ERD-EN-2005-0223, Rev. 1) is a comprehensive soils data set based on information compiled from SRS Site-wide inorganic and radionuclide data. In 2005, both the USEPA and South Carolina Department of Environmental Services (SCDES) (formerly known as South Carolina Department of Health

and Environmental Control, prior to July 1, 2024) agreed that it would be beneficial to develop an SRS Site-wide background data report consisting of data from approved environmental restoration projects. The sample location, sample collection, and laboratory analysis for the background data was previously approved under the Environmental Restoration Program. Consequently, there is a high level of confidence that the data are representative of SRS background soils and would be appropriate for initial screening of constituents of potential concern (COPCs), aid in the establishment of unit-related remedial goal options (RGOs), and in eliminating or reducing the need to collect waste unit-specific background data. The study presents summary statistics for the 0- to 1-ft and 0- to all-depth intervals of the vadose zone. Protocols have been developed to preform COPC screening and identify RGOs utilizing the approved soil background datasets as appropriate.

Unit-specific soil background levels are also determined for waste units at SRS. These unit-specific background values may vary greatly from (exceed) the SRS-wide background values due to unit-specific mineralogy in the sediments. This variance in unit-specific mineralogy is due to different mineralogy of parent materials for the sedimentary deposits surrounding and underlying any specific waste unit. Where the unit-specific background equals or exceeds the SRS-wide background and the RSL value, the unit-specific background value will be used as the HBL for that specific waste unit.

Note that limits for some screening levels shown in the "Appendix B – Health-Based Levels for Non-Aqueous IDW Radionuclides" are practical quantitation limits (PQLs) rather than health-based levels where the quantitation limit is greater than the calculated regulatory level. These limits cannot be reduced without falling below the PQL; therefore, the quantitation limit becomes the screening levels. These IDW screening levels are annotated as "PQL".

DETERMINING IF NON-AQUEOUS IDW MAY EXCEED TCLP LEVELS

In developing the Appendix B tables, it has been necessary to address the potential for some IDW to exceed RCRA characteristic hazardous levels according to the definitions of SCHWMR R.61-79. A correlation between the RCRA regulatory level for toxicity defined by the TCLP levels and the expected total constituent concentration has been developed and is shown as a TCLP Equivalent Level in the Appendix B tables (where applicable). Further explanation of the TCLP-Equivalent is discussed in Section 4.4 of the IDW Management Plan.

THE HBLS ARE SET ACCORDING TO THE FOLLOWING PRIORITY

USEPA RSLs, and the SRS background levels are based on a residential exposure scenario, using a lifetime cancer risk of 1.0E-06 and a HQ of 1.0. The lowest of the cancer or non-cancer RSL is selected as the HBL. If SRS-wide background levels exceed the RSL values, then the SRS-wide background levels are used as the HBLs. Radionuclides also consider the PQL for the isotopes in soil in determining the IDW screening level.

NOTES:

1) Units represent mass (milligrams, mg) per kilogram (kg) or activity (picocuries, pCi) per gram (g) of soil.

2) Not all constituents included in this list are hazardous according to the definition of the SCHWMR R.61-79.

3) The CAS number is from the Chemical Abstracts Service Registry and is unique to each identified radionuclide, chemical, or mixture of chemicals. Some analytes lack CAS numbers due to non-uniqueness (e.g., an analyte that groups all compounds containing a particular ion or element, such as metals).

4) Voids in the table indicate the lack of both cancer potency slope factor (SF) and non-cancer reference dose (RfD) data in the Integrated Risk Information System (IRIS) databases. The IRIS database is continuously updated. The order of preference for developing risk factors is the IRIS integrated database, then USEPA Provisional Peer Reviewed Toxicity Values and then other toxicity values such as historic health effects assessment summary tables (HEAST) values. The "Regional Screening Levels (RSL) for Chemical Contaminants at Superfund Sites" tables last updated in November 2024 and the "Preliminary Remediation Goals (PRGs) for Radionuclides" website (April 2024) were used for this revision of the IDW Management Plan.

5) A summary of the columns in the chemical table is as follows, from left to right:

    a. Chemical name in common use.

    b. CAS number, for cross-verification between chemical names that may differ between source documents.

    c. IDW Management Level applicable to non-aqueous IDW.

    d. Unit of measurement applicable to the numerical limit in the previous column.

    e. TCLP-equivalent values. The result of a correlation between the TCLP maximum concentration of contaminants and the calculated TCLP-equivalent. The TCLP-equivalent will be used to estimate the contaminant concentration when no specific TCLP result is immediately available. IDW with a calculated TCLP-equivalent that equals or exceeds the TCLP value for any constituent will be managed conservatively as hazardous, or TCLP testing will be conducted to determine if the IDW is hazardous.

    f. TCLP regulatory values. Identification of the analyte as being a toxicity-characteristic analyte as defined in SCHWMR R61-79 §261.24(b) Table 1.

    g. Source of the HBLs:

        C = cancer risk HBL set at 1 x 10-6 risk level

        N = non-cancer HQ HBL set at 1.0

        B = SRS Background basis for HBL (ERD-EN-2005-0223, Rev. 1.0)

Appendix B — Health-Based Levels for Non-Aqueous IDW

Common Chemical Name	CAS Number	IDW MGT LEVEL HBL Risk 1E-06, HQ = 1.0	Units	TCLP Equivalent Level (mg/kg)	TCLP Regulatory Level (mg/L)	Source of HBL
1,1,1,2-Tetrachloroethane	630-20-6	2.0	mg/kg	–	–	C
1,1,1-Trichloroethane	71-55-6	8100	mg/kg	–	–	N
1,1,2,2-Tetrachloroethane	79-34-5	0.6	mg/kg	–	–	C
1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113)	76-13-1	6700	mg/kg	–	–	N
1,1,2-Trichloroethane	79-00-5	1.1	mg/kg	–	–	C
1,1,2-Trichloropropane	598-77-6	390	mg/kg	–	–	N
1,1-Dichloroethane	75-34-3	3.6	mg/kg	–	–	C
1,1-Dichloroethylene	75-35-4	4.8	mg/kg	14.0	0.7	N
1,1-Dimethylhydrazine	57-14-7	0.057	mg/kg	–	–	N
1,2,3-Trichloropropane	96-18-4	0.0051	mg/kg	–	–	C
1,2,3-Trichloropropene	96-19-5	0.73	mg/kg	–	–	N
1,2,4,5-Tetrachlorobenzene	95-94-3	2.3	mg/kg	–	–	N
1,2,4-Tribromobenzene	615-54-3	390	mg/kg	–	–	N
1,2,4-Trichlorobenzene	120-82-1	24	mg/kg	–	–	C
1,2,4-Trimethylbenzene	95-63-6	300	mg/kg	–	–	N
1,2-Dibromo-3-Chloropropane (DBCP)	96-12-8	0.0053	mg/kg	–	–	C
1,2-Dibromoethane	106-93-4	0.036	mg/kg	–	–	C
1,2-Dichlorobenzene	95-50-1	1800	mg/kg	–	–	N
1,2-Dichloroethane (EDC)	107-06-2	0.46	mg/kg	10.0	0.5	C
1,2-Dichloropropane	78-87-5	2.5	mg/kg	–	–	C
1,2-Dinitrobenzene	528-29-0	6.3	mg/kg	–	–	N

C = Cancer Risk HBL set at 1×10^{-6} risk level

N = Non-Cancer HQ HBL set at 1.0

B = SRS background basis for HBL (ERD-EN-2005-0223, Rev. 1.0)

Common Chemical Name	CAS Number	IDW MGT LEVEL HBL Risk 1E-06, HQ = 1.0	Units	TCLP Equivalent Level (mg/kg)	TCLP Regulatory Level (mg/L)	Source of HBL
1,2-Diphenylhydrazine	122-66-7	0.68	mg/kg	–	–	C
1,3,5-Trimethylbenzene	108-67-8	270	mg/kg	–	–	N
1,3,5-Trinitrobenzene	99-35-4	2200	mg/kg	–	–	N
1,3-Butadiene	106-99-0	0.076	mg/kg	–	–	C
1,3-Dichloropropene	542-75-6	1.8	mg/kg	–	–	C
1,3-Dinitrobenzene	99-65-0	6.3	mg/kg	–	–	N
1,4-Dibromobenzene	106-37-6	780	mg/kg	–	–	N
1,4-Dichloro-2-Butene	764-41-0	0.0021	mg/kg	–	–	C
1,4-Dichlorobenzene	106-46-7	2.6	mg/kg	150.0	7.5	C
1,4-Dinitrobenzene	100-25-4	6.3	mg/kg	–	–	N
1,4-Dioxane	123-91-1	5.3	mg/kg	–	–	C
1,4-Dithiane	505-29-3	780	mg/kg	–	–	N
1,6-Hexamethylene Diisocyanate	822-06-0	3.1	mg/kg	–	–	N
Butyl Alcohol (1-Butanol)	71-36-3	7800	mg/kg	–	–	N
1-Chloro-1,1-Difluoroethane (HCFC-142B)	75-68-3	54000	mg/kg	–	–	N
1-Chlorobutane	109-69-3	3100	mg/kg	–	–	N
2,3,4,6-Tetrachlorophenol	58-90-2	1900	mg/kg	–	–	N
2,3,7,8-Tetrachlorodibenzodioxin (2,3,7,8-TCDD or Dioxin)	1746-01-6	0.0000048	mg/kg	–	–	C
2,3-Dichloropropanol	616-23-9	190	mg/kg	–	–	N
Trichlorophenoxyacetic Acid 2,4,5-	93-76-5	630	mg/kg	–	–	N
2,4,5-Trichlorophenol	95-95-4	6300	mg/kg	8000.0	400	N
2,4,6-Trichloroaniline	634-93-5	1.9	mg/kg	–	–	N

C = Cancer Risk HBL set at 1×10^{-6} risk level

N = Non-Cancer HQ HBL set at 1.0

B = SRS background basis for HBL (ERD-EN-2005-0223, Rev. 1.0)

Common Chemical Name	CAS Number	IDW MGT LEVEL HBL Risk 1E-06, HQ = 1.0	Units	TCLP Equivalent Level (mg/kg)	TCLP Regulatory Level (mg/L)	Source of HBL
2,4,6-Trichlorophenol	88-06-2	49	mg/kg	40.0	2	C
2,4,6-Trinitrotoluene	118-96-7	21	mg/kg	–	–	C
2,4-Dichlorophenoxyacetic Acid (2,4-D)	94-75-7	700	mg/kg	200.0	10	N
2,4-Dichlorophenol	120-83-2	190	mg/kg	–	–	N
2,4-Dimethylaniline	95-68-1	2.7	mg/kg	–	–	C
2,4-Dimethylaniline Hydrochloride	21436-96-4	0.94	mg/kg	–	–	C
2,4-Dimethylphenol	105-67-9	1300	mg/kg	–	–	N
2,4-Dinitrophenol	51-28-5	130	mg/kg	–	–	N
2,4-Dinitrotoluene	121-14-2	1.7	mg/kg	2.6	0.13	C
2,6-Dimethylphenol	576-26-1	38	mg/kg	–	–	N
2,6-Dinitrotoluene	606-20-2	0.36	mg/kg	–	–	C
2-(2,4,5-Trichlorophenoxy) Propionic Acid (Silvex or 2,4,5-TP)	93-72-1	510	mg/kg	20.0	1	N
2-(2-Methyl-4-Chlorophenoxy) Propionic Acid	93-65-2	63	mg/kg	–	–	N
Chloroprene (2-Chloro-1,3-butadiene)	126-99-8	0.0036	mg/kg	–	–	C
2-Chlorophenol	95-57-8	390	mg/kg	–	–	N
Ethylene Glycol Monoethylether (2-Ethoxyethanol)	110-80-5	2600	mg/kg	–	–	N
2-Methyl-4-Chlorophenoxyacetic Acid (MCPA)	94-74-6	32	mg/kg	–	–	N
2-Methyl-5-Nitroaniline	99-55-8	60	mg/kg	–	–	C
2-Methylnaphthalene	91-57-6	240	mg/kg	–	–	N
O-Cresol (2-Methylphenol)	95-48-7	3200	mg/kg	4000	200	N
2-Nitroaniline	88-74-4	630	mg/kg	–	–	N

C = Cancer Risk HBL set at 1×10^{-6} risk level

N = Non-Cancer HQ HBL set at 1.0

B = SRS background basis for HBL (ERD-EN-2005-0223, Rev. 1.0)

Common Chemical Name	CAS Number	IDW MGT LEVEL HBL Risk 1E-06, HQ = 1.0	Units	TCLP Equivalent Level (mg/kg)	TCLP Regulatory Level (mg/L)	Source of HBL
2-Phenylphenol	90-43-7	280	mg/kg	–	–	C
3,3'-Dichlorobenzidine	91-94-1	1.2	mg/kg	–	–	C
3,3'-Dimethoxybenzidine	119-90-4	0.076	mg/kg	–	–	C
3,3'-Dimethylbenzidine	119-93-7	0.011	mg/kg	–	–	C
3,4-Dimethylphenol	95-65-8	63	mg/kg	–	–	N
M-Cresol (3-Methylphenol)	108-39-4	3200	mg/kg	4000	200	N
4,4'-Methylene Bis(2-Chloroaniline)	101-14-4	1.2	mg/kg	–	–	C
4,4'-Methylene Bis(N,N'-Dimethyl)Aniline	101-61-1	12	mg/kg	–	–	C
4,4'-Methylenediphenyl Isocyanate	101-68-8	850000	mg/kg	–	–	N
4,6-Dinitro-o-cresol (2-Methylphenol)	534-52-1	5.1	mg/kg	–	–	N
4,6-Dinitro-O-Cyclohexyl Phenol	131-89-5	130	mg/kg	–	–	N
4-(2,4-Dichlorophenoxy)Butyric Acid	94-82-6	1900	mg/kg	–	–	N
4-(2-Methyl-4-Chlorophenoxy) Butyric Acid	94-81-5	2800	mg/kg	–	–	N
4-Chloro-2-Methylaniline	95-69-2	5.4	mg/kg	–	–	C
4-Chloroaniline	106-47-8	2.7	mg/kg	–	–	C
P-Cresol (4-Methylphenol)	106-44-5	1300	mg/kg	4000	200	N
Acenaphthene	83-32-9	3600	mg/kg	–	–	N
Acetaldehyde	75-07-0	11	mg/kg	–	–	C
Acetochlor	34256-82-1	1300	mg/kg	–	–	N
Acetone	67-64-1	70000	mg/kg	–	–	N
Acetonitrile (Methyl Cyanide)	75-05-8	810	mg/kg	–	–	N
Acetophenone	98-86-2	7800	mg/kg	–	–	N
Acrolein	107-02-8	0.14	mg/kg	–	–	N

C = Cancer Risk HBL set at 1×10^{-6} risk level

N = Non-Cancer HQ HBL set at 1.0

B = SRS background basis for HBL (ERD-EN-2005-0223, Rev. 1.0)

Common Chemical Name	CAS Number	IDW MGT LEVEL HBL Risk 1E-06, HQ = 1.0	Units	TCLP Equivalent Level (mg/kg)	TCLP Regulatory Level (mg/L)	Source of HBL
Acrylamide	79-06-1	0.24	mg/kg	–	–	C
Acrylonitrile	107-13-1	0.25	mg/kg	–	–	C
Alachlor	15972-60-8	9.7	mg/kg	–	–	C
Alar	1596-84-5	30	mg/kg	–	–	C
Aldicarb	116-06-3	63	mg/kg	–	–	N
Aldicarb Sulfone	1646-88-4	63	mg/kg	–	–	N
Aldrin	309-00-2	0.039	mg/kg	–	–	C
Alpha-Methylstyrene	98-83-9	5500	mg/kg	–	–	N
Aluminum	7429-90-5	77000	mg/kg	–	–	N
Aniline	62-53-3	95	mg/kg	–	–	C
Anthracene	120-12-7	18000	mg/kg	–	–	N
Antimony	7440-36-0	31	mg/kg	–	–	N
Antimony Trioxide	1309-64-4	280000	mg/kg	–	–	N
Aroclor 1016	12674-11-2	4.1	mg/kg	–	–	N
Aroclor 1221	11104-28-2	0.2	mg/kg	–	–	C
Aroclor 1232	11141-16-5	0.17	mg/kg	–	–	C
Aroclor 1242	53469-21-9	0.23	mg/kg	–	–	C
Aroclor 1248	12672-29-6	0.23	mg/kg	–	–	C
Aroclor 1254	11097-69-1	0.24	mg/kg	–	–	C
Aroclor 1260	11096-82-5	0.24	mg/kg	–	–	C
Arsenic	7440-38-2	8.2	mg/kg	100.0	5	B
Arsine	7784-42-1	0.27	mg/kg	–	–	N
Assure	76578-14-8	570	mg/kg	–	–	N

C = Cancer Risk HBL set at 1×10^{-6} risk level

N = Non-Cancer HQ HBL set at 1.0

B = SRS background basis for HBL (ERD-EN-2005-0223, Rev. 1.0)

Common Chemical Name	CAS Number	IDW MGT LEVEL HBL Risk 1E-06, HQ = 1.0	Units	TCLP Equivalent Level (mg/kg)	TCLP Regulatory Level (mg/L)	Source of HBL
Atrazine	1912-24-9	2.4	mg/kg	–	–	C
Azobenzene	103-33-3	5.6	mg/kg	–	–	C
Barium	7440-39-3	15000	mg/kg	2000.0	100	N
Baygon	114-26-1	250	mg/kg	–	–	N
Baythroid	68359-37-5	1600	mg/kg	–	–	N
Bentazon	25057-89-0	1900	mg/kg	–	–	N
Benzo[A]Anthracene	56-55-3	1.1	mg/kg	–	–	C
Benzaldehyde	100-52-7	170	mg/kg	–	–	C
Benzene	71-43-2	1.2	mg/kg	10.0	0.5	C
Benzenethiol	108-98-5	78	mg/kg	–	–	N
Benzidine	92-87-5	0.00053	mg/kg	–	–	C
Benzo[A]Pyrene	50-32-8	0.11	mg/kg	–	–	C
Benzo[B]Fluoranthene	205-99-2	1.1	mg/kg	–	–	C
Benzo[K]Fluoranthene	207-08-9	11	mg/kg	–	–	C
Benzoic Acid	65-85-0	250000	mg/kg	–	–	N
Benzyl Alcohol	100-51-6	6300	mg/kg	–	–	N
Benzyl Chloride	100-44-7	1.1	mg/kg	–	–	C
Beryllium	7440-41-7	160	mg/kg	–	–	N
Beta-Chloronaphthalene	91-58-7	4800	mg/kg	–	–	N
Biphenyl	92-52-4	47	mg/kg	–	–	N
Bis(2-Chloroethyl)Ether	111-44-4	0.23	mg/kg	–	–	C
Bis(2-Chloroisopropyl)Ether	108-60-1	3100	mg/kg	–	–	N
Bis(2-Ethylhexyl)Phthalate	117-81-7	39	mg/kg	–	–	C

C = Cancer Risk HBL set at 1×10^{-6} risk level

N = Non-Cancer HQ HBL set at 1.0

B = SRS background basis for HBL (ERD-EN-2005-0223, Rev. 1.0)

Common Chemical Name	CAS Number	IDW MGT LEVEL HBL Risk 1E-06, HQ = 1.0	Units	TCLP Equivalent Level (mg/kg)	TCLP Regulatory Level (mg/L)	Source of HBL
Bis(Chloromethyl)Ether	542-88-1	0.000083	mg/kg	–	–	C
Boron	7440-42-8	16000	mg/kg	–	–	N
Bromodichloromethane	75-27-4	0.29	mg/kg	–	–	C
Bromoform (Tribromomethane)	75-25-2	19	mg/kg	–	–	C
Bromomethane (Methyl Bromide)	74-83-9	6.8	mg/kg	–	–	N
Bromophos	2104-96-3	390	mg/kg	–	–	N
Butylate	2008-41-5	3900	mg/kg	–	–	N
Butylbenzylphthalate	85-68-7	290	mg/kg	–	–	C
Cadmium	7440-43-9	7.1	mg/kg	20.0	1	N
Calcium Cyanide	592-01-8	78	mg/kg	–	–	N
Caprolactam	105-60-2	31000	mg/kg	–	–	N
Carbaryl	63-25-2	6300	mg/kg	–	–	N
Carbon Disulfide	75-15-0	770	mg/kg	–	–	N
Carbon Tetrachloride	56-23-5	0.65	mg/kg	10.0	0.5	C
Carbosulfan	55285-14-8	630	mg/kg	–	–	N
Chloral Hydrate	302-17-0	7800	mg/kg	–	–	N
Chloranil	118-75-2	1.3	mg/kg	–	–	C
Chlordane	57-74-9	1.7	mg/kg	0.60	0.03	C
Chlordane (alpha)	5103-71-9	36	mg/kg	–	–	N
Chlordane (gamma)	5103-74-2	36	mg/kg	–	–	N
Chlordane (technical mixture)	12789-03-6	1.7	mg/kg	–	–	C
Chloroacetic Acid	79-11-8	220	mg/kg	–	–	N
Chlorobenzene	108-90-7	280	mg/kg	2000.0	100	N

C = Cancer Risk HBL set at 1×10^{-6} risk level

N = Non-Cancer HQ HBL set at 1.0

B = SRS background basis for HBL (ERD-EN-2005-0223, Rev. 1.0)

Common Chemical Name	CAS Number	IDW MGT LEVEL HBL Risk 1E-06, HQ = 1.0	Units	TCLP Equivalent Level (mg/kg)	TCLP Regulatory Level (mg/L)	Source of HBL
Chlorobenzilate	510-15-6	4.9	mg/kg	–	–	C
Chlorodifluoromethane	75-45-6	49000	mg/kg	–	–	N
Chloroethane (Ethyl Chloride)	75-00-3	5400	mg/kg	–	–	N
Chloroform	67-66-3	0.32	mg/kg	120.0	6	C
Chloromethane (Methyl Chloride)	74-87-3	110	mg/kg	–	–	N
Chlorpyrifos	2921-88-2	63	mg/kg	–	–	N
Chlorpyrifos-Methyl	5598-13-0	630	mg/kg	–	–	N
Chromium III	16065-83-1	85000	mg/kg	100.0	5	N
Chromium VI	18540-29-9	0.95	mg/kg	100.0	5	C
Chrysene	218-01-9	110	mg/kg	–	–	C
Cis-1,2-Dichloroethylene	156-59-2	63	mg/kg	–	–	N
Cobalt	7440-48-4	23	mg/kg	–	–	N
Copper	7440-50-8	3100	mg/kg	–	–	N
Copper Cyanide	544-92-3	390	mg/kg	–	–	N
Crotonaldehyde	123-73-9	0.37	mg/kg	–	–	C
Cumene (Isopropylbenzene)	98-82-8	1900	mg/kg	–	–	N
Cyanazine	21725-46-2	0.65	mg/kg	–	–	C
Cyanide (Free)	57-12-5	24	mg/kg	–	–	N
Cyanogen	460-19-5	78	mg/kg	–	–	N
Cyanogen Bromide	506-68-3	7000	mg/kg	–	–	N
Cyanogen Chloride	506-77-4	3900	mg/kg	–	–	N
Cyclohexanone	108-94-1	28000	mg/kg	–	–	N
Cyhalothrin (Karate)	68085-85-8	63	mg/kg	–	–	N

C = Cancer Risk HBL set at 1×10^{-6} risk level

N = Non-Cancer HQ HBL set at 1.0

B = SRS background basis for HBL (ERD-EN-2005-0223, Rev. 1.0)

Common Chemical Name	CAS Number	IDW MGT LEVEL HBL Risk 1E-06, HQ = 1.0	Units	TCLP Equivalent Level (mg/kg)	TCLP Regulatory Level (mg/L)	Source of HBL
Dacthal	1861-32-1	630	mg/kg	–	–	N
Dalapon	75-99-0	1900	mg/kg	–	–	N
DDD	72-54-8	2.3	mg/kg	–	–	C
DDE	72-55-9	2.0	mg/kg	–	–	C
DDT	50-29-3	1.9	mg/kg	–	–	C
Di(2-Ethylhexyl) Adipate	103-23-1	450	mg/kg	–	–	C
Diazinon	333-41-5	44	mg/kg	–	–	N
Dibenz[A,H]Anthracene	53-70-3	0.11	mg/kg	–	–	C
Dibenzofuran	132-64-9	78	mg/kg	–	–	N
Dibromochloromethane	124-48-1	8.3	mg/kg	–	–	C
Di-N-butyl phthalate	84-74-2	6300	mg/kg	–	–	N
Dicamba	1918-00-9	1900	mg/kg	–	–	N
Dichlorodifluoromethane	75-71-8	87	mg/kg	–	–	N
Dichlorvos	62-73-7	1.9	mg/kg	–	–	C
Dicyclopentadiene	77-73-6	1.3	mg/kg	–	–	N
Dieldrin	60-57-1	0.034	mg/kg	–	–	C
Diethylene Glycol, Monobutyl Ether	112-34-5	1900	mg/kg	–	–	N
Diethylene Glycol, Monoethyl Ether	111-90-0	3800	mg/kg	–	–	N
Diethyl phthalate	84-66-2	51000	mg/kg	–	–	N
Diethylstilbestrol	56-53-1	0.0016	mg/kg	–	–	C
Difenzoquat (Avenge)	43222-48-6	5200	mg/kg	–	–	N
Diisopropyl Methylphosphonate (Dimp)	1445-75-6	6300	mg/kg	–	–	N
Dinitrotoluene Mix	25321-14-6	1.2	mg/kg	–	–	C

C = Cancer Risk HBL set at 1×10^{-6} risk level

N = Non-Cancer HQ HBL set at 1.0

B = SRS background basis for HBL (ERD-EN-2005-0223, Rev. 1.0)

Common Chemical Name	CAS Number	IDW MGT LEVEL HBL Risk 1E-06, HQ = 1.0	Units	TCLP Equivalent Level (mg/kg)	TCLP Regulatory Level (mg/L)	Source of HBL
Dinoseb	88-85-7	63	mg/kg	–	–	N
Di-n-octyl phthalate	117-84-0	630	mg/kg	–	–	N
Diphenylamine	122-39-4	6300	mg/kg	–	–	N
Diquat	85-00-7	140	mg/kg	–	–	N
Disulfoton	298-04-4	2.5	mg/kg	–	–	N
Diuron	330-54-1	130	mg/kg	–	–	N
Endosulfan	115-29-7	470	mg/kg	–	–	N
Endrin	72-20-8	19	mg/kg	0.4	0.02	N
Epichlorohydrin	106-89-8	19	mg/kg	–	–	N
Ethion	563-12-2	32	mg/kg	–	–	N
Ethyl Acetate	141-78-6	620	mg/kg	–	–	N
Diethyl Ether (Ethyl Ether)	60-29-7	16000	mg/kg	–	–	N
Ethyl Methacrylate	97-63-2	1800	mg/kg	–	–	N
Ethylbenzene	100-41-4	5.8	mg/kg	–	–	C
Ethylenediamine	107-15-3	7000	mg/kg	–	–	N
Ethylene Glycol	107-21-1	51000	mg/kg	–	–	N
Ethylene Glycol, Monobutyl Ether	111-76-2	6300	mg/kg	–	–	N
Ethylene Oxide	75-21-8	0.002	mg/kg	–	–	C
Ethylene Thiourea (ETU)	96-45-7	5.1	mg/kg	–	–	N
Fenamiphos	22224-92-6	16	mg/kg	–	–	N
Fluometuron	2164-17-2	820	mg/kg	–	–	N
Fluoranthene	206-44-0	2400	mg/kg	–	–	N
Fluorene	86-73-7	2400	mg/kg	–	–	N

C = Cancer Risk HBL set at 1×10^{-6} risk level

N = Non-Cancer HQ HBL set at 1.0

B = SRS background basis for HBL (ERD-EN-2005-0223, Rev. 1.0)

Common Chemical Name	CAS Number	IDW MGT LEVEL HBL Risk 1E-06, HQ = 1.0	Units	TCLP Equivalent Level (mg/kg)	TCLP Regulatory Level (mg/L)	Source of HBL
Fluorine	7782-41-4	4700	mg/kg	–	–	N
Fomesafen	72178-02-0	630	mg/kg	–	–	N
Fonofos	944-22-9	130	mg/kg	–	–	N
Formaldehyde	50-00-0	4.3	mg/kg	–	–	C
Formic Acid	64-18-6	29	mg/kg	–	–	N
Furan	110-00-9	78	mg/kg	–	–	N
Furazolidone	67-45-8	0.14	mg/kg	–	–	C
Furfural	98-01-1	210	mg/kg	–	–	N
Glycidaldehyde	765-34-4	23	mg/kg	–	–	N
Glyphosate	1071-83-6	6300	mg/kg	–	–	N
Heptachlor	76-44-8	0.13	mg/kg	0.16	0.008	C
Heptachlor Epoxide	1024-57-3	0.07	mg/kg	0.16	0.008	C
Hexabromobenzene	87-82-1	160	mg/kg	–	–	N
Hexachlorobenzene	118-74-1	0.21	mg/kg	2.6	0.13	C
Hexachlorobutadiene	87-68-3	1.2	mg/kg	10	0.5	C
Hexachlorocyclohexane (HCH) – alpha (Alpha BHC)	319-84-6	0.086	mg/kg	–	–	C
Hexachlorocyclohexane (HCH) – beta (Beta BHC)	319-85-7	0.30	mg/kg	–	–	C
Hexachlorocyclohexane -- All Isomers (HCH Technical)	608-73-1	0.30	mg/kg	–	–	C
Hexachlorocyclopentadiene	77-47-4	1.8	mg/kg	–	–	N
Hexachloroethane	67-72-1	1.8	mg/kg	60	3	C
Hexachlorophene	70-30-4	19	mg/kg	–	–	N

C = Cancer Risk HBL set at 1×10^{-6} risk level

N = Non-Cancer HQ HBL set at 1.0

B = SRS background basis for HBL (ERD-EN-2005-0223, Rev. 1.0)

Common Chemical Name	CAS Number	IDW MGT LEVEL HBL Risk 1E-06, HQ = 1.0	Units	TCLP Equivalent Level (mg/kg)	TCLP Regulatory Level (mg/L)	Source of HBL
Hexafluoropropylene oxide dimer acid (HFPO-DA)	13252-13-6	0.23	mg/kg	–	–	N
Hexane	110-54-3	610	mg/kg	–	–	N
Hexazinone	51235-04-2	2100	mg/kg	–	–	N
Cyclotetramethylenetetranitramine (HMX)	2691-41-0	3900	mg/kg	–	–	N
Hydrazine	302-01-2	0.032	mg/kg	–	–	C
Hydrogen Cyanide	74-90-8	23	mg/kg	–	–	N
Hydrogen Sulfide	7783-06-4	2800000	mg/kg	–	–	N
Hydroquinone	123-31-9	9.0	mg/kg	–	–	C
Indeno[1,2,3-C,D]Pyrene	193-39-5	1.1	mg/kg	–	–	C
Iron	7439-89-6	55000	mg/kg	–	–	N
Isobutanol	78-83-1	7800	mg/kg	–	–	N
Isophorone	78-59-1	570	mg/kg	–	–	C
Isopropalin	33820-53-0	1200	mg/kg	–	–	N
Isopropyl Methyl Phosphonic Acid	1832-54-8	6300	mg/kg	–	–	N
Lead	7439-92-1	200	mg/kg	100	5	N
Lindane (Hexachlorocyclohexane (HCH)-gamma)	58-89-9	0.057	mg/kg	8	0.4	N
Lithium	7439-93-2	160	mg/kg	–	–	N
M-Nitrotoluene	99-08-1	6.3	mg/kg	–	–	N
M-Phenylenediamine	108-45-2	380	mg/kg	–	–	N
Malathion	121-75-5	1300	mg/kg	–	–	N
Maleic Anhydride	108-31-6	6300	mg/kg	–	–	N
Manganese	7439-96-5	1800	mg/kg	–	–	N

C = Cancer Risk HBL set at 1×10^{-6} risk level

N = Non-Cancer HQ HBL set at 1.0

B = SRS background basis for HBL (ERD-EN-2005-0223, Rev. 1.0)

Common Chemical Name	CAS Number	IDW MGT LEVEL HBL Risk 1E-06, HQ = 1.0	Units	TCLP Equivalent Level (mg/kg)	TCLP Regulatory Level (mg/L)	Source of HBL
Mephosfolan	950-10-7	5.7	mg/kg	–	–	N
Mepiquat Chloride	24307-26-4	1900	mg/kg	–	–	N
Mercuric Chloride	7487-94-7	23	mg/kg	–	–	N
Mercury	7439-97-6	7.1	mg/kg	4	0.2	N
Methacrylonitrile	126-98-7	7.5	mg/kg	–	–	N
Methanol	67-56-1	120000	mg/kg	–	–	N
Methidathion	950-37-8	95	mg/kg	–	–	N
Methoxychlor	72-43-5	320	mg/kg	200	10	N
Methyl Acetate	79-20-9	78000	mg/kg	–	–	N
Methyl Acrylate	96-33-3	150	mg/kg	–	–	N
Methyl Ethyl Ketone (2-Butanone)	78-93-3	27000	mg/kg	4000	200	N
Methyl Hydrazine	60-34-4	0.14	mg/kg	–	–	C
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	108-10-1	33000	mg/kg	–	–	N
Methyl Methacrylate	80-62-6	4400	mg/kg	–	–	N
Methyl Parathion	298-00-0	16	mg/kg	–	–	N
Methyl Tertiary Butyl Ether (MTBE)	1634-04-4	47	mg/kg	–	–	C
Dibromomethane (Methylene Bromide)	74-95-3	24	mg/kg	–	–	N
Dichloromethane (Methylene Chloride)	75-09-2	57	mg/kg	–	–	C
Methylmercury	22967-92-6	7.8	mg/kg	–	–	N
Methylstyrene Mix	25013-15-4	320	mg/kg	–	–	N
Metolachlor (Dual)	51218-45-2	9500	mg/kg	–	–	N
Mirex	2385-85-5	0.036	mg/kg	–	–	C
Molybdenum	7439-98-7	390	mg/kg	–	–	N

C = Cancer Risk HBL set at 1×10^{-6} risk level

N = Non-Cancer HQ HBL set at 1.0

B = SRS background basis for HBL (ERD-EN-2005-0223, Rev. 1.0)

Common Chemical Name	CAS Number	IDW MGT LEVEL HBL Risk 1E-06, HQ = 1.0	Units	TCLP Equivalent Level (mg/kg)	TCLP Regulatory Level (mg/L)	Source of HBL
Monochloramine	10599-90-3	7800	mg/kg	–	–	N
N,N-Dimethylaniline	121-69-7	26	mg/kg	–	–	C
N-Butylbenzene	104-51-8	3900	mg/kg	–	–	N
N-Nitroso-Di-N-Butylamine	924-16-3	0.099	mg/kg	–	–	C
N-Nitroso-N-Methylethylamine	10595-95-6	0.02	mg/kg	–	–	C
N-Nitrosodiethanolamine	1116-54-7	0.19	mg/kg	–	–	C
N-Nitrosodiethylamine	55-18-5	0.00081	mg/kg	–	–	C
N-Nitrosodimethylamine	62-75-9	0.002	mg/kg	–	–	C
N-Nitrosodiphenylamine	86-30-6	110	mg/kg	–	–	C
N-Nitrosodipropylamine	621-64-7	0.078	mg/kg	–	–	C
N-Nitrosopyrrolidine	930-55-2	0.26	mg/kg	–	–	C
N-Propylbenzene	103-65-1	3800	mg/kg	–	–	N
Naled	300-76-5	160	mg/kg	–	–	N
Naphthalene	91-20-3	2.0	mg/kg	–	–	C
Nickel	7440-02-0	1400	mg/kg	–	–	N
Nitrate	14797-55-8	130000	mg/kg	–	–	N
Nitrite	14797-65-0	7800	mg/kg	–	–	N
Nitrobenzene	98-95-3	5.1	mg/kg	40	2	C
Nitrofurantoin	67-20-9	4400	mg/kg	–	–	N
Nitrofurazone	59-87-0	0.42	mg/kg	–	–	C
Nitroglycerin	55-63-0	6.3	mg/kg	–	–	N
NUSTAR	85509-19-9	130	mg/kg	–	–	N
O-Chloronitrobenzene	88-73-3	1.8	mg/kg	–	–	C

C = Cancer Risk HBL set at 1×10^{-6} risk level

N = Non-Cancer HQ HBL set at 1.0

B = SRS background basis for HBL (ERD-EN-2005-0223, Rev. 1.0)

Common Chemical Name	CAS Number	IDW MGT LEVEL HBL Risk 1E-06, HQ = 1.0	Units	TCLP Equivalent Level (mg/kg)	TCLP Regulatory Level (mg/L)	Source of HBL
O-Chlorotoluene	95-49-8	1600	mg/kg	–	–	N
O-Nitrotoluene	88-72-2	3.2	mg/kg	–	–	C
Oryzalin	19044-88-3	70	mg/kg	–	–	C
Oxadiazon	19666-30-9	320	mg/kg	–	–	N
Oxamyl	23135-22-0	1600	mg/kg	–	–	N
Oxyfluorfen	42874-03-3	7.4	mg/kg	–	–	C
P,A,A,A-Tetrachlorotoluene	5216-25-1	0.043	mg/kg	–	–	C
P-Chlorobenzoic Acid	74-11-3	1900	mg/kg	–	–	N
P-Chloronitrobenzene	100-00-5	9.0	mg/kg	–	–	C
P-Nitrotoluene	99-99-0	34	mg/kg	–	–	C
P-Phenylenediamine	106-50-3	63	mg/kg	–	–	N
P-Phthalic Acid	100-21-0	32000	mg/kg	–	–	N
P-Toluidine	106-49-0	18	mg/kg	–	–	C
Paraquat Dichloride	1910-42-5	280	mg/kg	–	–	N
Parathion	56-38-2	380	mg/kg	–	–	N
Perfluorobutanesulfonic acid (PFBS)	375-73-5	19	mg/kg	–	–	N
Perfluorodecanoic acid	335-76-2	0.00013	mg/kg	–	–	N
Perfluorododecanoic acid	307-55-1	3.2	mg/kg	–	–	N
Perfluorohexanesulfonic acid (PFHxS)	355-46-4	1.3	mg/kg	–	–	N
Perfluorohexanoic acid	307-24-4	32	mg/kg	–	–	N
Perfluoro-N-butanoic acid	375-22-4	78	mg/kg	–	–	N
Perfluorononanoic acid (PFNA)	375-95-1	0.19	mg/kg	–	–	N
Perfluorooctanesulfonic acid (PFOS)	1763-23-1	0.0063	mg/kg	–	–	N

C = Cancer Risk HBL set at 1×10^{-6} risk level

N = Non-Cancer HQ HBL set at 1.0

B = SRS background basis for HBL (ERD-EN-2005-0223, Rev. 1.0)

Common Chemical Name	CAS Number	IDW MGT LEVEL HBL Risk 1E-06, HQ = 1.0	Units	TCLP Equivalent Level (mg/kg)	TCLP Regulatory Level (mg/L)	Source of HBL
Perfluorooctanoic acid (PFOA)	335-67-1	0.000019	mg/kg	–	–	C
Perfluorotetradecanoic acid	376-06-7	63	mg/kg	–	–	N
Perfluoroundecanoic acid	2058-94-8	19	mg/kg	–	–	N
Pentachlorobenzene	608-93-5	63	mg/kg	–	–	N
Pentachloronitrobenzene	82-68-8	2.7	mg/kg	–	–	C
Pentachlorophenol	87-86-5	1.0	mg/kg	2000	100	C
Permethrin	52645-53-1	3200	mg/kg	–	–	N
Phenol	108-95-2	19000	mg/kg	–	–	N
Phosphine	7803-51-2	23	mg/kg	–	–	N
Phosphorus (White)	7723-14-0	1.6	mg/kg	–	–	N
Phthalic Anhydride	85-44-9	130000	mg/kg	–	–	N
Polybrominated Biphenyls	59536-65-1	0.018	mg/kg	–	–	C
Polychlorinated Biphenyls	1336-36-3	0.23	mg/kg	–	–	C
Potassium Cyanide	151-50-8	160	mg/kg	–	–	N
Potassium Silver Cyanide	506-61-6	390	mg/kg	–	–	N
Prometon	1610-18-0	950	mg/kg	–	–	N
Prometryn	7287-19-6	2500	mg/kg	–	–	N
Propachlor	1918-16-7	820	mg/kg	–	–	N
Propanil	709-98-8	320	mg/kg	–	–	N
Propargite	2312-35-8	2.8	mg/kg	–	–	C
Propylene Glycol	57-55-6	1300000	mg/kg	–	–	N
Propylene Glycol, Monoethyl Ether	1569-02-4	N/A	mg/kg	–	–	N
Propylene Glycol, Monomethyl Ether	107-98-2	41000	mg/kg	–	–	N

C = Cancer Risk HBL set at 1×10^{-6} risk level

N = Non-Cancer HQ HBL set at 1.0

B = SRS background basis for HBL (ERD-EN-2005-0223, Rev. 1.0)

Common Chemical Name	CAS Number	IDW MGT LEVEL HBL Risk 1E-06, HQ = 1.0	Units	TCLP Equivalent Level (mg/kg)	TCLP Regulatory Level (mg/L)	Source of HBL
Pursuit	81335-77-5	160000	mg/kg	–	–	N
Pyrene	129-00-0	1800	mg/kg	–	–	N
Pyridine	110-86-1	78	mg/kg	100	5	N
Quinoline	91-22-5	0.18	mg/kg	–	–	C
Cyclonite (RDX)	121-82-4	8.3	mg/kg	–	–	C
Resmethrin	10453-86-8	1900	mg/kg	–	–	N
Ronnel	299-84-3	3900	mg/kg	–	–	N
Rotenone	83-79-4	250	mg/kg	–	–	N
Sec-Butylbenzene	135-98-8	7800	mg/kg	–	–	N
Selenious Acid	7783-00-8	390	mg/kg	–	–	N
Selenium	7782-49-2	390	mg/kg	20	1	N
Silver	7440-22-4	390	mg/kg	100	5	N
Silver Cyanide	506-64-9	7800	mg/kg	–	–	N
Simazine	122-34-9	4.5	mg/kg	–	–	C
Sodium Cyanide	143-33-9	78	mg/kg	–	–	N
Sodium Diethyldithiocarbamate	148-18-5	2	mg/kg	–	–	C
Strontium, Stable	7440-24-6	47000	mg/kg	–	–	N
Strychnine	57-24-9	19	mg/kg	–	–	N
Styrene	100-42-5	6000	mg/kg	–	–	N
Tert-Butylbenzene	98-06-6	7800	mg/kg	–	–	N
Tetrachloroethylene (PCE)	127-18-4	24	mg/kg	14	0.7	C
Tetraethyllead	78-00-2	0.0078	mg/kg	–	–	N
Tetrahydrofuran	109-99-9	18000	mg/kg	–	–	N

C = Cancer Risk HBL set at 1×10^{-6} risk level

N = Non-Cancer HQ HBL set at 1.0

B = SRS background basis for HBL (ERD-EN-2005-0223, Rev. 1.0)

Common Chemical Name	CAS Number	IDW MGT LEVEL HBL Risk 1E-06, HQ = 1.0	Units	TCLP Equivalent Level (mg/kg)	TCLP Regulatory Level (mg/L)	Source of HBL
Tetryl	479-45-8	160	mg/kg	–	–	N
Thallium Acetate	563-68-8	0.78	mg/kg	–	–	N
Thallium	7440-28-0	6.33	mg/kg	–	–	B
Thallium Carbonate	6533-73-9	1.3	mg/kg	–	–	N
Thallium Chloride	7791-12-0	0.78	mg/kg	–	–	N
Thallium Nitrate	10102-45-1	0.78	mg/kg	–	–	N
Thallium Sulfate (2:1)	7446-18-6	1.6	mg/kg	–	–	N
Thiobencarb	28249-77-6	630	mg/kg	–	–	N
Thiocyanate	E1790665	16	mg/kg	–	–	N
Tin	7440-31-5	47000	mg/kg	–	–	N
Toluene	108-88-3	4900	mg/kg	–	–	N
Toluene-2,5-Diamine	95-70-5	3.0	mg/kg	–	–	C
Toxaphene	8001-35-2	0.49	mg/kg	10	0.5	C
Trans-1,2-Dichloroethylene	156-60-5	70	mg/kg	–	–	N
Tributyltin Oxide	56-35-9	19	mg/kg	–	–	N
Trichloroethylene (TCE)	79-01-6	0.94	mg/kg	10.0	0.5	C
Trichlorofluoromethane	75-69-4	23000	mg/kg	–	–	N
Trimethyl Phosphate	512-56-1	27	mg/kg	–	–	C
Uranium	7440-61-1	16	mg/kg	–	–	N
Vanadium	7440-62-2	390	mg/kg	–	–	N
Vinclozolin	50471-44-8	76	mg/kg	–	–	N
Vinyl Acetate	108-05-4	910	mg/kg	–	–	N
Vinyl Chloride	75-01-4	0.059	mg/kg	4	0.2	C

C = Cancer Risk HBL set at 1×10^{-6} risk level

N = Non-Cancer HQ HBL set at 1.0

B = SRS background basis for HBL (ERD-EN-2005-0223, Rev. 1.0)

Common Chemical Name	CAS Number	IDW MGT LEVEL HBL Risk 1E-06, HQ = 1.0	Units	TCLP Equivalent Level (mg/kg)	TCLP Regulatory Level (mg/L)	Source of HBL
Warfarin	81-81-2	19	mg/kg	–	–	N
Xylenes	1330-20-7	580	mg/kg	–	–	N
Zinc	7440-66-6	23000	mg/kg	–	–	N
Zinc Cyanide	557-21-1	3900	mg/kg	–	–	N
Zinc Phosphide	1314-84-7	23	mg/kg	–	–	N
Zineb	12122-67-7	3200	mg/kg	–	–	N

C = Cancer Risk HBL set at 1×10^{-6} risk level

N = Non-Cancer HQ HBL set at 1.0

B = SRS background basis for HBL (ERD-EN-2005-0223, Rev. 1.0)

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Appendix B — Health-Based Levels for Radioactive Non-Aqueous IDW

The screening levels of 20 pCi/g gross alpha and 50 pCi/g non-volatile beta are used for quantifying radionuclides in non-aqueous IDW. When IDW equals or exceeds these screening levels, IDW may be speciated for individual radionuclide contributors to determine if the radioactivity is from a natural radioactive source (i.e., represents normal background radioactivity), or to determine if the radioactivity is equal to or exceeds the IDW Management Levels. IDW with radioactivity exceeding the IDW Management Levels will be managed per the IDW Management Plan.

Radioactive Elements [6]	CAS Number	Isotope	PRG 1.0E-06 (pCi/g) [7]	PQL (pCi/g) [3]	SRS Background (pCi/g) [4]	IDW MGT LEVEL (pCi/g)
Americium	14596-10-2	Am-241	2.27E00	6.00E-02	See note 4	2.27E00
Carbon [5]	14762-75-5	C-14	3.17E+02	2.06E+01		3.17E+02
Curium	13981-15-2	Cm-244	8.74E00	6.00E-02	See note 4	8.74E00
Cobalt	10198-40-0	Co-60	3.30E-02	3.00E-02		3.30E-02
Cesium	10045-97-3	Cs-137	6.05E-02	1.00E-01	1.60E-01	1.60E-01
Hydrogen [1]	10028-17-8	H-3	2.37E-01	1.00E+01		3.00E+03
Iodine [5]	15046-84-1	I-129	2.75E00	1.00E00		2.75E00
Neptunium	13994-20-2	Np-237	6.50E-02	2.00E-02		6.50E-02
Plutonium	13981-16-3	Pu-238	4.28E00	8.00E-02	See note 4	4.28E00
Plutonium	15117-48-3	Pu-239	3.79E00	3.00E-02	See note 4	3.79E00
Strontium	10098-97-2	Sr-90	4.21E00	1.00E00	1.78E00	4.21E00
Technetium [5]	14133-76-7	Tc-99	1.13E+02	6.60E-01		1.13E+02
Thorium [2]	7440-29-1	Th-232	9.85E-03	3.00E-02	1.94E00	1.94E00
Uranium [2]	13966-29-5	U-234	2.13E-02	4.00E-02	1.38E00	1.38E00
Uranium [2]	15117-96-1	U-235	4.58E-02	1.00E00	1.10E-01	1.00E00
Uranium [2]	7440-61-1	U-238	1.25E-02	1.00E00	1.22E00	1.22E00

NOTES:

1) Tritium (H-3) is not routinely analyzed in solid-matrix waste streams because the tritium result represents the concentration in the water present in the soil at the time of analysis and not necessarily the concentration present at the time of collection. If well development or redevelopment non-aqueous waste does not exceed Appendix B management levels for any constituent except tritium and the tritium originates from groundwater portion of the waste, it may be land applied if the tritium concentration is less than the aqueous tritium management level of 800,000 pCi/mL.
2) Thorium & Uranium (and daughters) are naturally occurring radionuclides that also have process use at SRS (Targets or fuel for reactors) and are, therefore, included in this list.
3) The actual laboratory PQLs may be greater than the calculated PRG due to analytical limitations or soil matrix effect; therefore, in those cases the PQL becomes the screening level in this table.
4) Updated applicable elements with values at the 95th percentile of the SRS background soils summary report (ERD-EN-2005-0223, Rev. 1.0, October 2006), Appendix B-2, entitled "Upland Soils (All Depth Intervals)". SRS background values apply to natural and anthropogenic sources; therefore, Americium, Curium, and Plutonium isotopes (Am-241, Cm-244, Pu-238, and Pu-239) are excluded.
5) Carbon, Iodine, and Technetium had SRS Background values in the previous SRS background soils report (1996), but not in the current one (2006).
6) Europium isotopes (Eu-152, Eu-154, Eu-155) are not present in this revision of the IDW Management Plan because laboratory quality control indicates that these isotopes are false positive results due to spectral interference in environmental samples. Additionally, all the europium isotopes have short half-lives (less than 15 years) and should not be present at most SRS waste units.
7) Revised using the USEPA Radionuclide Toxicity and Preliminary Goals for Superfund (April 2024). Residential soil PRGs are site-specific values derived using website calculator and elimination of the fruit and vegetable consumption pathways. All other inputs are default values.

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APPENDIX C — SUMMARY OF CHANGES

Changes were made only to Appendices A and B of Revision 9:

- Changed "Region 9 PRGs, October 2004" to "RSLs, November 2013" revision to correct the source of HBL.
- Deleted USEPA Region 3 Risk Based Concentrations (RBCs), April 2007 revision: using the residential tap water value as the HBL for chemicals set at 1.0E-06 risk or 1.0 HQ if no Region 9 PRG is published.
- Updated Appendix A Aqueous chemical HBLs and Appendix B Non-Aqueous chemical HBLs based on the USEPA RSLs (November 2013 revision).
- Updated Appendix A Aqueous alpha emitting radionuclides based on residential tap water values set at the 1.0E-06 risk level from the Preliminary Remediation Goals for Radionuclides website (USEPA August 2010).
- Updated Appendix B Non-Aqueous radionuclides based on using the USEPA Radionuclide Toxicity and Preliminary Goals for Superfund (August 2010). Residential soil PRGs are site-specific values derived using website calculator and elimination of the fruit and vegetable consumption pathway. All other inputs are default values.
- Updated the NOTES section below the Health-Based Levels for both Appendix A and Appendix B Chemical & Radioactive tables.

Changes were made to Appendices A & B of Revision 9L:

- Changed references from May 2024 RSLs to November 2024 RSLs.
- Updated Appendix A chemical HBLs and Appendix B chemical HBLs based on USEPA RSLs (November 2024 revision).
- Page A3: added verbiage to set IDW limit of all salts, isomers, and derivatives of the regulated PFAS compounds at their respective regulated PFAS compound MCL.
- Page A4: added additional verbiage to combine all salts, isomers, and derivatives of PFOA and PFOS and evaluated against their respective IDW Limit.
- Added additional entries for various PFAS compounds that are analyzed/reported by USEPA methods 533 and 1633 to Appendix A.
- Updated Appendix A chemical HBLs and Sources for PFAS (i.e., all salts, isomers, and derivatives of the regulated PFAS compounds) to National Drinking Water Standards.
- Deleted PFAS compounds that are not analyzed/reported by USEPA methods 533 and 1633 from Appendices A & B.
- Minor Editorial Changes