Guidance for the Selection of Analytical Methods and for the Evaluation of Practical Quantitation Limits

Document Referenced in Chapters 62-770, 62-777, 62-780, 62-782, and 62-785, F.A.C.

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Intended Use of This Document

This document is intended to assist project managers with the selection of appropriate analytical methodology during the development of Data Quality Objectives (DQOs) for assessing contamination in cases where cleanup target levels are below the sensitivity of published methods and also as an aid in the data review process. The tables included in this document provide **target** Practical Quantitation Limits (PQLs) for selected[1], published analytical methods where laboratory PQLs have frequently been found to be higher than Cleanup Target Levels (CTLs). Data consumers and project managers can use the published PQLs as *guidelines* during project development and data review a) to ensure that adequately sensitive analytical techniques are utilized to address project DQOs, b) as an aid in assessing whether good faith efforts were made to achieve the best possible detection and quantification for the test conditions, and c) to help determine whether or not project goals for required remediation have been achieved.

Development of Data Quality Objectives

As a first step prior to project initiation, it is important to identify Data Quality Objectives (DQOs), identify Measurement Quality Objectives (MQOs), establish a reasonable framework for analytical work, and as a part of this framework, develop Data Quality Indicators (DQIs) including those for sensitivity (detection and quantification). During the development of project DQOs and prior to initiation of any project, the laboratory should be included in the method selection process. The laboratory is often best positioned to understand the effects that specific sample matrices may have on method performance, including method sensitivity. Furthermore, the laboratory may be able to suggest various approaches to minimizing the impact the sample matrix may have on data quality, including alternative methods that optimize the project objectives while still satisfying project DQOs, MQOs and DQIs. Additionally, project managers should independently assess the laboratory's capability and accreditation status for methods that may be required to fulfill project objectives.

For some contaminants, CTLs published in Chapter 62-777, F.A.C. may be below laboratory PQLs for certain methods. In those cases, special care must be taken in project planning and in establishing project DQOs and selection of methods, as well as in assessing project data.

Selection of the analytical method should not be solely based on the sensitivity of the instruments and/or methodology. It is equally important to understand the overall objectives of the project when selecting analytical methods and applicable reporting limits. The intent is that the project manager reviews and understands the analytical needs of the project, assesses the requirements and issues involved with the subject environmental samples, and determines

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[1] *This document is not intended to provide an exhaustive list of all appropriate analytical methodologies nor are the PQLs published in the document intended to represent levels that can be achieved on every environmental sample.*

whether the analytical program is suitable. For example, there may be cases where screening methods with higher PQLs may be more appropriate to evaluate the overall progress of a cleanup. Similarly, a cleanup may be focused on target compounds that can be measured using methods with higher PQLs. USEPA's "Guidance on Data Quality Indicators" (EPA QA/G-5i) and "Guidance on QA Project Plans" (EPA QA/G-5) are good sources for developing DQOs when initiating cleanup projects.

Development of Target PQLs

The target PQLs listed in this document were generated from the following sources:

1) *PQLs published in official methods*. The primary sources of data were the published methods found in EPA documents or PQLs listed in the Environmental Monitoring Methods Index (EMMI) and the National Environmental Monitoring Index (NEMI).
2) *PQLs published in Comprehensive Quality Assurance Plans (CompQAPs) submitted to the Florida Department of Environmental Protection (FDEP)*. Because programmatic objectives were generally not defined when CompQAPs were submitted for approval, a wide range of published PQLs has been found to exist among submitted plans (presumably, representing differing DQOs). A valid statistical treatment of data from all CompQAPs could not be performed without knowledge of the DQOs for each submittal. Therefore, data from CompQAPs deemed to represent the DQOs of Chapter 62-777, F.A.C. were chosen as references.
3) *PQLs published in the FDEP laboratory quality assurance plan*. Where no data were available from other laboratories or where published data were judged to be unreliable, values taken from the Department's laboratory were used as targets. Those data were typically for unusual analytes or methods.

For 1) and 2) above, it should be noted that these published values were not evaluated or verified independently and that there is no assessment of the measurement uncertainty associated with these values. Further, this is a working document and the tables will be updated routinely.

Reported Versus Target PQLs

The PQLs listed in this document are targets that should be achievable by most modern well-equipped environmental laboratories ***under optimal conditions***. The project laboratory cannot be expected to always meet the PQLs listed in the table. Often environmental samples will contain constituents that cause or contribute to analytical interferences. Those interferences can preclude achieving the target limits. Even physical characteristics of the sample such as moisture content or sample collection anomalies (e.g., the collection of less than ideal sample volumes) can affect reportable PQLs. Project managers and data consumers should take those effects into account when determining whether good faith efforts have been made at measuring contaminants at the lowest achievable levels for the applied method. Laboratories should to be able to provide backup documentation that demonstrates how the PQLs [and Method Detection Limits (MDLs), if appropriate] were derived. These materials can be used to further assess the applicability of the method and the good faith efforts that were undertaken to achieve the project PQLs. Laboratories providing data should alert project managers regarding sample- or matrix-specific effects that preclude the attainment of target PQLs. In some cases, laboratories can suggest alternative methods that may avoid significant interference problems. Additionally, the FDEP has a staff that can provide users assistance in selecting and evaluating PQLs on a project-specific basis.

Assessing Data Below Quantifiable Levels

Chapter 62-160, F.A.C., addresses reporting requirements for data submitted to the FDEP programs. Whenever an analyte is not detected above the MDL, the MDL for the measurement must be reported along with a qualifier code (U) indicating that the analyte was not detected at the reported detection limit. Alternately, laboratories have the option of reporting the analytical value followed by a qualifier code (T) indicating the analytical value reported was below the laboratory's detection limit.

If an analyte was detected but was below quantifiable limits (i.e., greater than the MDL but below the PQL), either a) the value from the measurement can be reported followed by a qualifier code (I) indicating the analyte was detected but could not be quantified with certainty or b) the PQL for the measurement can be reported followed by a qualifier code (M) indicating the analyte was detected but was below quantifiable levels. Refer to Chapter 62-160, F.A.C. for a complete list of appropriate data qualifier codes.

Regardless of the analytical values reported for a sample, Chapter 62-777, F.A.C. requires that laboratories also report sample-specific PQLs for each analyte. As stated above, some of the sample-specific PQLs reported by laboratories may be greater than the CTLs published in Chapter 62-777, F.A.C. for individual analytes. If the analyte is not detected at the MDL or is detected at a level below the PQL, the reviewer should compare the sample-specific PQL reported with the analytical data to determine if an appropriately sensitive method was utilized. As discussed above, these issues should be addressed and resolved prior to initiating an analytical program for a cleanup program. If the target PQL was not achieved, there may be valid reasons why and the reviewer should refer to justification provided by the laboratory or project manager. Guidance on Environmental Data Verification and Validation (EPA QA/G-8), being finalized by the USEPA, can be used to address and resolve issues where reporting limits may be above project objectives or risk-based criteria. For a more thorough discussion of analytical sensitivity and uncertainty, data consumers may also refer to other technical guidance such as Chapter 3 in "*Guidance on Data Quality Indicators*", EPA QA/G-5i (September 2001).

Table A
No Listed PQLs
(Aqueous)

CONTAMINANT	CAS #	Analytical Method
Allyl alcohol	107-18-6	8260
Butanol, n-	71-36-3	8260
Carbofuran	1563-66-2	8270
Chloral hydrate	302-17-0	8260
Chlorine Cyanide	506-77-4	SM 4500-CN
Chlorophenol, 3-	108-43-0	8041
Dichlorophenol, 2,3-	576-24-9	8041
Dichlorophenol, 2,5-	583-78-8	8041
Dichlorophenol, 3,4-	95-77-2	8041
Dimethylphenol, 2,6,-	576-26-1	8041
Dimethylphenol, 3,4-	95-65-8	8041
Epichlorohydrin	106-89-8	8260
Ethanol	64-17-5	8260
Ethylene glycol	107-21-1	8015
Hexachlorocyclohexane, technical [or BHC, technical]	608-73-1	8081
Hydrogen sulfide	7783-06-4	SM 4500-S2
Hydroquinone	123-31-9	8270
Methanol	67-56-1	8015

PQL - Practical Quantitation Limit

[1] This table is not an exhaustive list of appropriate analytical methods. Laboratories may achieve target PQLs with other published analytical methods.

[2] The project laboratory cannot be expected to always meet the target PQLs due to analytical interferences or the nature of the sample.

[3] Depending on the data quality objectives the target PQLs may not always have to be met depending on the progress of the cleanup or cleanup goals for target compounds.

Table B
No Listed Methods
(Aqueous)

CONTAMINANT	CAS #
Acifluorfen, sodium [or Blazer]	62476-59-9
Acrylic Acid	79-10-7
Aluminum phosphide	20859-73-8
Ammonium sulfamate	7773-06-0
Ally [or Metsulfuron, methyl]	74223-64-6
Azobenzene	103-33-3
Bioallethrin	28057-48-9
Bisphenol A	80-05-7
Bromoxynil octanoate	1689-99-2
Butane	106-97-8
Butyl acetate, n-	123-86-4
Butylphthalyl butylglycolate	85-70-1
Cacodylic acid (as Arsenic)	75-60-5
Calcium cyanide	592-01-8
Copper cyanide	544-92-3
Chlorsulfuron	64902-72-3
Crotonaldehyde	123-73-9
Cyanogen	460-19-5
Cyclohexylamine	108-91-8
Cyhalothrin [or Karate]	68085-85-8
Decabromodiphenyl ether	1163-19-5
Dibromobenzene, 1,4-	106-37-6
Dichlorobenzophenone, 4,4'-	90-98-2
Diethylene glycol, monoethyl ether	111-90-0
Diisopropyl methylphosphonate	1445-75-6
Dimethylaniline, 2,4-	95-68-1
Dimethrin	70-38-2
Dimethylformamide, N,N-	68-12-2
Ethoxyethanol acetate, 2-	111-15-9
Ethoxyethanol, 2-	110-80-5
Ethyl acrylate	140-88-5
Ethylene diamine	107-15-3
Ethylphthalyl ethylglycolate [or EPEG]	84-72-0

Formic acid	64-18-6
Furan	110-00-9
Glycidaldehyde	765-34-3
Hydrogen Cyanide	74-90-8
Iprodione	3674-19-7
Limonene	138-86-3
Maleic Anhydride	108-31-6
Maleic hydrazide	123-33-1
Mercuric chloride (Mercury)	7487-94-7
Methyl acetate	79-20-9
Methyl acrylate	96-33-3
Nickel subsulfide	12035-72-2
Nonylphenol	25154-52-3
Oxadiazon	19666-30-9
Phenmedipham [or Betanal]	13684-64-4
Phenylenediamine,m-	108-45-2
Phenylphenol, 2-	90-43-7
Phosphine	7803-51-2
Polycyclic aromatic hydrocarbons	130498-29-2
Potassium cyanide	151-50-8
Propargite	2312-35-8
Propiconazole	60207-90-1
Propylene glycol	57-55-6
Propylene glycol monomethyl ether	107-98-2
Propylene oxide	75-56-9
Quinolinne	91-22-5
Selenious acid (as selenium)	7783-00-8
Chlorite (sodium salt) [or sodium chlorite]	7758-19-2
Sodium cyanide (as cyanide)	143-33-9
Temephos	3383-96-8
Thallium sulfate (as Thallium)	7446-18-6
Thiobencarb	28249-77-6
Titanium dioxide	13463-67-7
Toluidine,p-	106-49-0
Triallate	2303-17-5
Tributyltin oxide	56-35-9
Trichloropropane, 1,1,2-	598-77-6
Trichloropropene, 1,2,3-	96-19-5
Trimethylbenzene, 1,2,3-	526-73-8
Vanadium pentoxide (as Vanadium)	1314-62-1
Zinc Chloride	7646-85-7

PQL - Practical Quantitation Limit

[1] This table is not an exhaustive list of appropriate analytical methods. Laboratories may achieve target PQLs with other published analytical methods.

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[3] Depending on the data quality objectives the target PQLs may not always have to be met depending on the progress of the cleanup or cleanup goals for target compounds.

Table C
Groundwater

CONTAMINANT	CAS #	Method	Target PQL (ug/L)	Source
Acephate	30560-19-1	614	8	DEP
Acrolein	107-02-8	8260	20	Lab
Acrylamide	79-06-1	8032	0.2	NEMI
Acrylonitrile	107-13-1	8260	20	Lab
Alachlor	15972-60-8	8081	3	DEP
Aldrin	309-00-2	8081	0.05	Lab
Anilazine [or Dyrene]	101-05-3	8270	100	NEMI
Aramite	140-57-8	8270	20	NEMI
Benzenethiol	108-98-5	8270	100	Lab
Benzidine	92-87-5	8270	400	DEP
Benzo(a)anthracene	56-55-3	8310	0.2	Lab
Benzo(b)fluoranthene	205-99-2	8310	0.1	Lab
Benzotrichloride	98-08-7	8121	1	CompQAP
Benzyl chloride	100-44-7	8260	2	COMPQAP
Bidrin [or Dicrotophos]	141-66-2	8270	10	EMMI
Bis(2-chloroethyl)ether	111-44-4	8270	10	Lab
Bis(2-chloroisopropyl)ether [or Bis(2-chloro-1-metylethyl)ether]	108-60-1	8270	10	Lab
Bis(2-ethylhexyl)phthalate [orDEHP]	117-81-7	8270	10	Lab
Bromate	15541-45-4	300.0	0.1	Method
Carbazole	86-74-8	8270	10	Lab
Chlorobenzilate	510-15-6	8081	0.8	EMMI
Chloronitrobenzene, p-	100-00-5	8091	4	COMPQAP
Chlorophenol, 4-	106-48-9	1653	5	NEMI
Cumene [or Isopropyl benzene]	98-82-8	8260	2	Lab
Cyanazine	21725-46-2	629	24	EMMI
Demeton	8065-48-3	8141	1	Lab
Dibenz(a,h)anthracene	53-70-3	8310	0.2	Lab
Dibromochloromethane	124-48-1	8260	2	Lab
Dichlorobenzidine, 3,3'-	91-94-1	8270	50	Lab
Dichlorodiphenyltrichloroethane, p,p'- [or DDT, 4, 4'-]	50-29-3	8081	0.2	DEP
Dichlorophenol, 2,4-	120-83-2	8270	10	Lab
Dichlorophenol, 2,6-	87-65-0	8270	10	Lab
Dichloropropene, 1,3-	542-75-6	8260	2	Lab

Dichlorvos	62-73-7	8141	0.5	Lab
Dicofol [or Kelthane]	115-32-2	8081	1	Lab
Dieldrin	60-57-1	8081	0.1	DEP
Diethylstilbestrol	56-53-1	8270	20	NEMI
Dimethoxybenzidine,3,3-	119-90-4	8270	100	EMMI
Dimethylbenzidine, 3,3'-	119-93-7	8270	10	EMMI
Dinitrobenzene, 1,2- (o)	528-29-0	8270	10	Lab
Dinitrobenzene, 1,3- (m)	99-65-0	8270	10	Lab
Dinitrobenzene, 1,4- (p)	100-25-4	8270	10	Lab
Dinitro-o-cyclohexylphenol	131-89-5	8270	100	EMMI
Dinitrophenol, 2,4-	51-28-5	8270	60	DEP
Dinitrotoluene, 2,4-	121-14-2	8330	0.2	Lab
Dinitrotoluene,2,6-	606-20-2	8270	10	EMMI
Dioxane, 1,4-	123-91-1	8270	10	Lab
Diphenylhydrazine, 1,2-	122-66-7	8270	10	EMMI
Disulfoton	298-04-4	8141	0.4	DEP
Ethyl p-nitrophenyl phenylphosphorothioate [or EPN]	2104-64-5	8141	0.5	Lab
Ethylene oxide	75-21-8	8260	600	Lab
Ethylene thiourea [or ETU]	96-45-7	509	11	EMMI
Furfural	98-01-1	1667	50	EMMI
Hexachloro-1,3-butadiene	87-68-3	8260	3	Lab
Hexachlorocyclohexane, alpha- [or BHC, alpha-]	319-84-6	8081	0.05	Lab
Hexachlorocyclohexane, beta- [BHC, beta-]	319-85-7	8081	0.05	Lab
Hexachloroethane	67-72-1	8270	10	EMMI
Hexachlorophene	70-30-4	8321	30	Lab
Hexahydro-1,3,5-trinitro-1,3,5-triazine [orRDX]	121-82-4	8330	14	EMMI
Hexane, n-	110-54-3	1666	10	Emmi
Indeno(1,2,3-cd)pyrene	193-39-5	8310	0.2	Lab
Kepone	143-50-0	8270	6	Lab
Maneb	12427-38-2	630	60	EMMI
Merphos	150-50-5	8141	2	EMMI
Merphos oxide	78-48-8	1657	2	EMMI
Methacrylonitrile	126-98-7	8260	10	Lab
Methamidophos	10265-92-6	1657	0.5	DEP
Methidathion	950-37-8	614	2	DEP
Methoxy-5-nitroaniline, 2-	99-59-2	8270	10	EMMI
Methoxyethanol, 2-	109-86-4	1671	20	EMMI
Methyl-5-nitroaniline, 2-	99-55-8	8270	10	EMMI
Methylaniline, 2-	95-53-4	8270	10	EMMI
Methylene bis(2-chloroaniline), 4,4-	101-14-4	8270	100	Lab

Methylphenol, 4- [or p-Cresol]	106-44-5	8270	10	EMMI
Mevinphos	7786-34-7	8141	7	Lab
Naphthylamine, 2-	91-59-8	8270	10	EMMI
Nitroaniline, m-	99-09-2	8270	50	Lab
Nitroaniline, o-	88-74-4	8270	50	Lab
Nitroaniline, p-	100-01-6	8270	50	Lab
Nitrobenzene	98-95-3	8270	10	EMMI
Nitroso-di-ethylamine, N-	55-18-5	8270	10	Lab
Nitroso-dimethylamine, N-	62-75-9	8270	10	Lab
Nitroso-di-n-butylamine, N-	924-16-3	8270	10	Lab
Nitroso-di-n-propylamine, N-	621-64-7	8270	10	Lab
Nitrso-diphenylamine, N-	86-30-6	8270	10	Lab
Nitroso-N-methylethylamine, N-	10595-95-6	8270	10	Lab
Nitrosopyrrolidine, N-	930-55-2	8270	10	Lab
Octamethylpyrophosphoramide	152-16-9	8270	200	EMMI
PCBs [or Aroclor mixture]	1336-36-3	8082	1	COMPQAP
Pentachlorobenzene	608-93-5	8270	10	EMMI
Pentachloronitrobenzene	82-68-8	8081	0.3	EMMI
Pyridine	110-86-1	8270	20	Lab
Strychnine	57-24-9	8270	40	EMMI
Terbufos	13071-79-9	614	0.3	DEP
Tetrachlorobenzene, 1,2,4,5	95-94-3	8270	10	Lab
Tetrachloroethane, 1,1,2,2-	79-34-5	8260	2	Lab
Thiocyanomethylthio-benzothiazole,2- [or TCMTB]	21564-17-0	637	4	EMMI
Toluene-2,4-diamine	95-80-7	8270	1000	Lab
Trichlorophenol, 2,4,5-	95-95-4	8270	10	Lab
Trichlorophenol, 2,4,6-	88-06-2	8270	10	Lab
Trichloropropane, 1,2,3-	96-18-4	8260	2	Lab
Trimethyl phosphate	512-56-1	8270	10	EMMI
Trinitrotoluene, 2,4,6,-	118-96-7	8330	7	EMMI
White Phosphorous	7723-14-0	365.1	10	EMMI

DEP-Florida Department of Environmental Protection

PQL - Practical Quantitation Limit

Lab - values provided by comment from laboratories

EMMI - Environmental Methods Monitoring Index

NEMI - National Environmental Methods Index

CompQAP - Comprehensive Quality Assurance Plan

Method - Value obtained from the analytical method

[1] This table is not an exhaustive list of appropriate analytical methods. Laboratories may achieve target PQLs with other published analytical methods.

[2] The project laboratory cannot be expected to always meet the target PQLs due to analytical interferences or the nature of the sample.

[3] Depending on the data quality objectives the target PQLs may not always have to be met depending on the progress of the cleanup or cleanup goals for target compounds.

Table D
Freshwater Surface Water

CONTAMINANT	CAS #	Method	Target PQL (ug/L)	Source
Acenapthene	83-32-9	8270	10	EMMI
Acenaphthylene	208-96-8	8310	1	Lab
Acrolein	107-02-8	8260	20	Lab
Acrylonitrile	107-13-1	8260	20	Lab
Alachlor	15972-60-8	8081	3	DEP
Aldicarb [or Temik]	116-06-3	8318	6	DEP
Aldicarb sulfoxide	1646-87-3	8318	6	DEP
Aldrin	309-00-2	8081	0.05	Lab
Aluminum	7429-90-5	6010	200	DEP
Aniline	62-52-3	8270	6	Lab
Anthracene	120-12-7	8310	3	EMMI
Aramite	140-57-8	8270	20	NEMI
Baygon [or Propoxur]	114-26-1	8318	8	DEP
Benomyl	17804-35-2	631	2	DEP
Benzidine	92-87-5	8270	400	DEP
Benzo(a)anthracene	56-55-3	8310	0.2	Lab
Benzo(a)pyrene	50-32-8	8310	0.1	Lab
Benzo(b)fluoranthene	205-99-2	8310	0.1	Lab
Benzo(g,h,i)perylene	191-24-2	8310	0.2	Lab
Benzo(k)fluoranthene	207-08-9	8310	0.1	Lab
Benzotrichloride	98-08-7	8121	1	CompQAP
Beryllium	7440-41-7	6010	2	DEP
Bis(2-chloroethyl)ether	111-44-4	8270	10	Lab
Bis(2-ethylhexyl)phthalate [or DEHP]	117-81-7	8270	10	Lab
Carbaryl [or Sevin]	63-25-2	8318	6	DEP
Carbofuran	1563-66-2	8318	6	DEP
Carbophenothion [or Trithion]	786-19-6	8141	0.2	DEP
Chlordane (alpha+beta)	57-74-9	8081	0.8	Lab
Chlorine	7782-50-5	330.1	40	EMMI
Chloroaniline, p-	106-47-8	8270	10	Lab
Chlorobenzilate	510-15-6	8081	0.8	EMMI
Chlorpyrifos	2921-88-2	8141	0.5	Lab
Chlorpyrifos, methyl	5598-13-0	622	2	EMMI
Chrysene	218-01-9	8310	0.2	Lab
Coumaphos	56-72-4	8141	0.5	Lab
Cyanazine	21725-46-2	629	24	EMMI

Cyanide, free	57-12-5	9014	20	Method
Cypermethrin	52315-07-8	608	0.2	DEP
Demeton	8065-48-3	8141	1	Lab
Diazinon	333-41-5	8141	0.5	Lab
Dibenz(a,h)anthracene	53-70-3	8310	0.2	Lab
Dichlorobenzidine, 3,3'-	91-94-1	8270	50	Lab
Dichlorodiphenyldichloroethane, p,p' [or DDD, 4,4'-]	72-54-8	8081	0.08	DEP
Dichlorodiphenyldichloroethylene, p,p'- [or DDE, 4, 4']	72-55-9	8081	0.08	DEP
Dichlorodiphenyltrichloroethane, p,p'- [or DDT, 4, 4'-]	50-29-3	8081	0.2	DEP
Dichlorvos	62-73-7	8141	0.5	Lab
Dicofol [or Kelthane]	115-32-2	8081	1	Lab
Dieldrin	60-57-1	8081	0.1	DEP
Dimethoate	60-51-5	8141	1.1	Lab
Dinitrophenol, 2,4-	51-28-5	8270	60	DEP-PQL
Dinitrotoluene,2,6-	606-20-2	8270	10	EMMI
Dioxins, as total 2,3,7,8-TCDD equivalents	1746-01-6	8290	0.00001	Method
Diphenylhydrazine, 1,2-	122-66-7	8270	10	EMMI
Diquat	85-00-7	549.1	5	DEP
Disulfoton	298-04-4	8141	0.4	DEP
Endosulfan (alpha+beta)	115-29-7	8081	0.1	Lab
Endrin	72-20-8	8081	0.2	DEP
Ethion	563-12-2	614	0.4	EMMI
Ethoprop	13194-48-4	8141	0.8	NEMI
Ethyl p-nitrophenyl phenylphosphorothioate [or EPN]	2104-64-5	8141	0.5	Lab
Fenamiphos	22224-92-6	614	0.8	DEP
Fluoranthene	206-44-0	8310	1	EMMI
Fonofos	944-22-9	8141	0.4	DEP
Guthion [or Methyl azinphos]	86-50-0	8141	0.4	EMMI
Heptachlor	76-44-8	8081	0.05	Lab
Heptachlor epoxide	1024-57-3	8081	0.08	DEP
Hexachlorobenzene	118-74-1	8081	0.1	CompQAP
Hexachlorocyclohexane, alpha- [or BHC, alpha-]	319-84-6	8081	0.05	Lab
Hexachlorocyclohexane, beta- [BHC, beta-]	319-85-7	8081	0.05	Lab
Hexachlorocyclohexane, gamma- [or Lindane or BHC,gamma-]	58-89-9	8081	0.1	EMMI
Hexachloroethane	67-72-1	8270	10	EMMI
Hexachlorophene	70-30-4	8321	30	Lab
Hydrogen sulfide	7783-06-4	SM4500-S^2-D/	200	Method

		SM4500-S^2-H		
Indeno(1,2,3-cd)pyrene	193-39-5	8310	0.2	Lab
Malathion	121-75-5	8141	2	Lab
Mancozeb	8018-01-7	630	20	COMPQAP
Maneb	12427-38-2	630	60	EMMI
Merphos oxide	78-48-8	1657	2	EMMI
Methamidophos	10265-92-6	1657	0.5	DEP
Methidathion	950-37-8	614	2	DEP
Methomyl	16752-77-5	8318	7	EMMI
Methoxychlor	72-43-5	8081	0.2	DEP
Methyl parathion [or Parathion, methyl]	298-00-0	8141	0.5	EMMI
Metolachlor	51218-45-2	507	3	EMMI
Mevinphos	7786-34-7	8141	7	Lab
Mirex	2385-85-5	8081	0.08	DEP
Naled	300-76-5	8141	10	Lab
Nitroso-di-ethylamine, N-	55-18-5	8270	10	Lab
Nitroso-dimethylamine, N-	62-75-9	8270	10	Lab
Nitroso-di-n-butylamine, N-	924-16-3	8270	10	Lab
Nitroso-di-n-propylamine, N-	621-64-7	8270	10	Lab
Nitrso-diphenylamine, N-	86-30-6	8270	10	Lab
Nitroso-N-methylethylamine, N-	10595-95-6	8270	10	Lab
Parathion	56-38-2	8141	0.6	DEP
PCBs [or Aroclor mixture]	1336-36-3	8081	1	COMPQAP
Pentachlorobenzene	608-93-5	8270	7	Lab
Pentachloronitrobenzene	82-68-8	8081	0.3	EMMI
Permethrin	52645-53-1	8081	1	COMPQAP
Phenanthrene	85-01-8	8310	0.2	Lab
Phorate	298-02-2	8141	0.5	Lab
Phosmet	732-11-6	8141	4	EMMI
Pydrin [or Fenvalerate]	51630-58-1	8270	25	Lab
Pyrene	129-00-0	8310	2	EMMI
Resmethrin	10453-86-8	616	144	EMMI
Ronnel	299-84-3	8141	10	Lab
Rotenone	83-79-4	8321	5	Lab
Silver	7440-22-4	6020	1	Lab
Strychnine	57-24-9	8270	40	EMMI
Terbufos	13071-79-9	8141	0.3	DEP
Tetrachlorobenzene, 1,2,4,5	95-94-3	8270	10	Lab
Tetrachlorophenol, 2,3,4,6-	58-90-2	8270	50	Lab
Tetraethyl dithiopyrophosphate	3689-24-5	8141	0.3	EMMI
Thiocyanomethylthio-benzothiazole,2-	21564-17-0	637	4	EMMI

Thiram	137-26-8	630.1	10	EMMI
Toxaphene	8001-35-2	8081	3	DEP
Trichlorophenol, 2,4,6-	88-06-2	8270	10	Lab
Trichloropropane, 1,2,3-	96-18-4	8260	2	Lab
Zineb	12122-67-7	630.1	17	EMMI

DEP-Florida Department of Environmental Protection

PQL - Practical Quantitation Limit

Lab - values provided by comment from laboratories

EMMI - Environmental Methods Monitoring Index

NEMI - National Environmental Methods Index

CompQAP - Comprehensive Quality Assurance Plan

Method - Value obtained from the analytical method

[1] This table is not an exhaustive list of appropriate analytical methods. Laboratories may achieve target PQLs with other published analytical methods.

[2] The project laboratory cannot be expected to always meet the target PQLs due to analytical interferences or the nature of the sample.

[3] Depending on the data quality objectives the target PQLs may not always have to be met depending on the progress of the cleanup or cleanup goals for target compounds.

Table E
Marine Surface Water

CONTAMINANT	CAS #	Method	Target PQL (ug/L)	Source
Acenapthene	83-32-9	8270	10	EMMI
Acenaphthylene	208-96-8	8310	1	Lab
Acrolein	107-02-8	8260	20	Lab
Acrylonitrile	107-13-1	8260	20	Lab
Alachlor	15972-60-8	8081	3	DEP
Aldicarb [or Temik]	116-06-3	8318	6	DEP
Aldicarb sulfoxide	1646-87-3	8318	6	DEP
Aldrin	309-00-2	8081	0.05	Lab
Aniline	62-52-3	8270	6	Lab
Anthracene	120-12-7	8310	3	EMMI
Aramite	140-57-8	8270	20	NEMI
Baygon [or Propoxur]	114-26-1	8318	8	DEP
Benomyl	17804-35-2	631	2	DEP
Benzidine	92-87-5	8270	400	DEP
Benzo(a)anthracene	56-55-3	8310	0.2	Lab
Benzo(a)pyrene	50-32-8	8310	0.1	Lab
Benzo(b)fluoranthene	205-99-2	8310	0.1	Lab
Benzo(g,h,i)perylene	191-24-2	8310	0.2	Lab
Benzo(k)fluoranthene	207-08-9	8310	0.1	Lab
Benzotrichloride	98-08-7	8121	1	CompQAP
Beryllium	7440-41-7	6010	2	DEP
Bis(2-chloroethyl)ether	111-44-4	8270	10	Lab
Bis(2-ethylhexyl)phthalate [or DEHP]	117-81-7	8270	10	Lab
Carbaryl [or Sevin]	63-25-2	8318	6	DEP
Carbofuran	1563-66-2	8318	6	DEP
Carbophenothion [or Trithion]	786-19-6	8141	0.2	DEP
Chlordane (alpha+beta)	57-74-9	8081	0.8	Lab
Chlorine	7782-50-5	330.1	40	EMMI
Chloroaniline, p-	106-47-8	8270	10	Lab
Chlorobenzilate	510-15-6	8081	0.8	EMMI
Chlorpyrifos	2921-88-2	8141	0.5	Lab
Chlorpyrifos, methyl	5598-13-0	622	2	EMMI
Chrysene	218-01-9	8310	0.2	Lab
Coumaphos	56-72-4	8141	0.5	Lab

Cyanazine	21725-46-2	629	24	EMMI
Cyanide, free	57-12-5	335.4	20	DEP
Cypermethrin	52315-07-8	608	0.2	DEP
Demeton	8065-48-3	8141	1	Lab
Diazinon	333-41-5	8141	0.5	Lab
Dibenz(a,h)anthracene	53-70-3	8310	0.2	Lab
Dichlorobenzidine, 3,3'-	91-94-1	8270	50	Lab
Dichlorodiphenyldichloroethane, p,p' [or DDD, 4,4'-]	72-54-8	8081	0.08	DEP
Dichlorodiphenyldichloroethylene, p,p'- [or DDE, 4, 4']	72-55-9	8081	0.08	DEP
Dichlorodiphenyltrichloroethane, p,p'- [or DDT, 4, 4'-]	50-29-3	8081	0.2	DEP
Dichlorvos	62-73-7	8141	0.5	Lab
Dicofol [or Kelthane]	115-32-2	8081	1	Lab
Dieldrin	60-57-1	8081	0.1	DEP
Dimethoate	60-51-5	8141	1.1	Lab
Dinitrophenol, 2,4-	51-28-5	8270	60	DEP
Dinitrotoluene,2,6-	606-20-2	8270	10	EMMI
Dioxins, as total 2,3,7,8-TCDD equivalents	1746-01-6	8290	0.00001	EMMI
Diphenylhydrazine, 1,2-	122-66-7	8270	10	EMMI
Diquat	85-00-7	549.1	5	DEP
Disulfoton	298-04-4	8141	0.4	DEP
Endosulfan (alpha+beta+sulfate)	115-29-7	8081	0.1	Lab
Endrin	72-20-8	8081	0.2	DEP
Ethion	563-12-2	614	0.4	EMMI
Ethoprop	13194-48-4	8141	0.8	NEMI
Ethyl p-nitrophenyl phenylphosphorothioate [or EPN]	2104-64-5	8141	0.5	Lab
Fenamiphos	22224-92-6	614	0.8	DEP
Fluoranthene	206-44-0	8310	1	EMMI
Fonofos	944-22-9	8141	0.4	DEP
Guthion [or Methyl azinphos]	86-50-0	8141	0.4	EMMI
Heptachlor	76-44-8	8081	0.05	Lab
Heptachlor epoxide	1024-57-3	8081	0.08	DEP
Hexachlorobenzene	118-74-1	8081	0.1	CompQAP
Hexachlorocyclohexane, alpha- [or BHC, alpha-]	319-84-6	8081	0.05	Lab
Hexachlorocyclohexane, beta- [BHC, beta-]	319-85-7	8081	0.05	Lab
Hexachlorocyclohexane, gamma- [or Lindane or BHC,gamma-]	58-89-9	8081	0.1	EMMI
Hexachloroethane	67-72-1	8270	10	EMMI
Hexachlorophene	70-30-4	8321	30	Lab
Hydrogen sulfide	7783-06-4	SM4500-S^2-D/	200	Method

		SM4500-S^2-H		
Indeno(1,2,3-cd)pyrene	193-39-5	8310	0.2	Lab
Malathion	121-75-5	8141	2	Lab
Mancozeb	8018-01-7	630	20	COMPQAP
Maneb	12427-38-2	630	60	EMMI
Merphos oxide	78-48-8	1657	2	EMMI
Methamidophos	10265-92-6	1657	0.5	DEP
Methidathion	950-37-8	614	2	DEP
Methomyl	16752-77-5	8318	7	EMMI
Methoxychlor	72-43-5	8081	0.2	DEP
Methyl parathion [or Parathion, methyl]	298-00-0	8141	0.5	EMMI
Metolachlor	51218-45-2	507	3	EMMI
Mevinphos	7786-34-7	8141	7	Lab
Mirex	2385-85-5	8081	0.08	DEP
Naled	300-76-5	8141	10	Lab
Nitroso-di-ethylamine, N-	55-18-5	8270	10	Lab
Nitroso-dimethylamine, N-	62-75-9	8270	10	Lab
Nitroso-di-n-butylamine, N-	924-16-3	8270	10	Lab
Nitroso-di-n-propylamine, N-	621-64-7	8270	10	Lab
Nitrso-diphenylamine, N-	86-30-6	8270	10	Lab
Nitroso-N-methylethylamine, N-	10595-95-6	8270	10	Lab
Parathion	56-38-2	8141	0.6	DEP
PCBs [or Aroclor mixture]	1336-36-3	8081	1	COMPQAP
Pentachlorobenzene	608-93-5	8270	7	Lab
Pentachloronitrobenzene	82-68-8	8081	0.3	EMMI
Permethrin	52645-53-1	608	1	COMPQAP
Phenanthrene	85-01-8	8310	0.2	Lab
Phorate	298-02-2	8141	0.5	Lab
Phosmet	732-11-6	8141	4	EMMI
Pydrin [or Fenvalerate]	51630-58-1	8270	25	Lab
Pyrene	129-00-0	8310	2	EMMI
Resmethrin	10453-86-8	616	144	EMMI
Ronnel	299-84-3	8141	10	Lab
Rotenone	83-79-4	8321	5	Lab
Silver	7440-22-4	6020	1	Lab
Strychnine	57-24-9	8270	40	EMMI
Terbufos	13071-79-9	8141	0.3	DEP
Tetrachlorobenzene, 1,2,4,5	95-94-3	8270	10	Lab
Tetrachlorophenol, 2,3,4,6-	58-90-2	8270	50	Lab
Tetraethyl dithiopyrophosphate	3689-24-5	8141	0.3	EMMI
Thiocyanomethylthio-benzothiazole, 2-	21564-17-0	637	4	EMMI

Thiram	137-26-8	630.1	10	EMMI
Toxaphene	8001-35-2	8081	3	DEP
Trichlorophenol, 2,4,6-	88-06-2	8270	10	Lab
Trichloropropane, 1,2,3-	96-18-4	8260	2	Lab
Zineb	12122-67-7	630.1	17	EMMI

DEP-Florida Department of Environmental Protection

PQL - Practical Quantitation Limit

Lab - values provided by comment from laboratories

EMMI - Environmental Methods Monitoring Index

NEMI - National Environmental Methods Index

CompQAP - Comprehensive Quality Assurance Plan

Method - Value obtained from the analytical method

[1] This table is not an exhaustive list of appropriate analytical methods. Laboratories may achieve target PQLs with other published analytical methods.

[2] The project laboratory cannot be expected to always meet the target PQLs due to analytical interferences or the nature of the sample.

[3] Depending on the data quality objectives the target PQLs may not always have to be met depending on the progress of the cleanup or cleanup goals for target compounds.

Table F
Groundwater Low Yield and Poor Quality (GwLYPQ)

CONTAMINANT	CAS #	Method	Target PQL (ug/L)	Source
Acrylamide	79-06-1	8032	0.2	NEMI
Acrylonitrile	107-13-1	8260	20	Lab
Aldrin	309-00-2	8081	0.05	Lab
Anilazine [or Dyrene]	101-05-3	8270	100	NEMI
Benzenethiol	108-98-5	8270	100	Lab
Benzidine	92-87-5	8270	400	DEP
Benzotrichloride	98-08-7	8121	1	CompQAP
Bidrin [or Dicrotophos]	141-66-2	8270	10	EMMI
Bis(2-chloroethyl)ether	111-44-4	8270	10	Lab
Bis(2-chloroisopropyl)ether [or Bis(2-chloro-1-metylethyl)ether]	108-60-1	8270	10	Lab
Chlorophenol, 4-	106-48-9	1653	5	NEMI
Cyanazine	21725-46-2	629	24	EMMI
Dibenz(a,h)anthracene	53-70-3	8310	0.2	Lab
Dichlorobenzidine,3,3'-	91-94-1	8270	50	Lab
Dichlorophenol, 2,4-	120-83-2	8270	10	Lab
Dichlorophenol, 2,6-	87-65-0	8270	10	Lab
Dicofol [or Kelthane]	115-32-2	8081	1	Lab
Dieldrin	60-57-1	8081	0.1	DEP
Diethylstilbestrol	56-53-1	8270	20	NEMI
Dimethoxybenzidine, 3,3'-	119-90-4	8270	100	NEMI
Dimethylbenzidine, 3,3'-	119-93-7	8270	30	Lab
Dinitrobenzene, 1,3- (m)	99-65-0	8270	10	Lab
Dinitrotoluene,2,6-	606-20-2	8270	10	EMMI
Diphenylhydrazine, 1,2-	122-66-7	8270	10	EMMI
Ethylene oxide	75-21-8	8260	600	Lab
Ethylene thiourea [or ETU]	96-45-7	509	11	EMMI
Hexachlorophene	70-30-4	8321	30	Lab
Hexahydro-1,3,5-trinitro-1,3,5-triazine [orRDX]	121-82-4	8330	14	EMMI
Kepone	143-50-0	8270	0.06	Lab
Methacrylonitrile	126-98-7	8260	10	Lab
Methoxy-5-nitroaniline, 2-	99-59-2	8270	10	EMMI
Methoxyethanol, 2-	109-86-4	1671	20	EMMI

Methylaniline, 2-	95-53-4	8270	10	EMMI
Methylene bis(2-chloroaniline), 4,4-	101-14-4	8270	100	Lab
Naphthylamine, 2-	91-59-8	8270	10	EMMI
Nitroaniline, m-	99-09-2	8270	50	Lab
Nitroaniline, p-	100-01-6	8270	50	Lab
Nitroso-di-ethylamine, N-	55-18-5	8270	10	Lab
Nitroso-dimethylamine, N-	62-75-9	8270	10	Lab
Nitroso-di-n-butylamine, N-	924-16-3	8270	10	Lab
Nitroso-di-n-propylamine, N-	621-64-7	8270	10	Lab
Nitroso-N-methylethylamine, N-	10595-95-6	8270	10	Lab
Nitrosopyrrolidine, N-	930-55-2	8270	10	Lab
Octamethylpyrophosphoramide	152-16-9	8270	200	EMMI
Strychnine	57-24-9	8270	40	Method
Toluene-2,4-diamine	95-80-7	8270	1000	Lab
Trichloropropane, 1,2,3-	96-18-4	8260	2	Lab
White Phosphorous	7723-14-0	365.1	10	DEP

DEP-Florida Department of Environmental Protection

PQL - Practical Quantitation Limit

Lab - values provided by comment from laboratories

EMMI - Environmental Methods Monitoring Index

NEMI - National Environmental Methods Index

CompQAP - Comprehensive Quality Assurance Plan

Method - Value obtained from the analytical method

[1] This table is not an exhaustive list of appropriate analytical methods. Laboratories may achieve target PQLs with other published analytical methods.

[2] The project laboratory cannot be expected to always meet the target PQLs due to analytical interferences or the nature of the sample.

[3] Depending on the data quality objectives the target PQLs may not always have to be met depending on the progress of the cleanup or cleanup goals for target compounds.

Table G
No Listed PQLs
(Soil)

Contaminant	CAS#	Analytical Method
Allyl alcohol	107-818-6	8260
Benzaldehyde	100-52-7	8315
Benzenethiol	108-98-5	8270
Bidrin [or Dicrotophos]	141-66-2	8141
Bromacil	314-40-9	1656
Bromoxynil	1689-84-5	8270
Chloramben	133-90-4	8151
Chloronitrobenzene, p-	100-00-5	8091
Chlorophenol, 3-	108-43-0	8041
Chlorophenol, 4-	106-48-9	8041
Crotonaldehyde	123-73-9	8260
Cymene, p	99-87-6	8260
Dichlorophenol, 2,3-	576-24-9	8041
Dichlorophenol, 2,5-	583-78-8	8041
Dichlorophenol, 3,4-	95-77-2	8041
Dimethoxybenzidine, 3,3'-	119-90-4	8270
Dimethylformamide, N,N-	68-12-2	1625
Dimethylphenol, 3,4,-	95-65-8	8041
Dinitrobenzene, 1,2- (o)	528-29-0	8270
Epichlorohydrin	106-89-8	8260
Furfural	98-01-1	1667
Hexachlorophene	70-30-4	8270
Hydroquinone	123-31-9	8270
Methanol	67-56-1	8260
Methoxy-5-nitroaniline, 2-	99-59-2	8270
Octamethylpyrophosphoramide	152-16-9	8270
Phosmet	732-11-6	8270
Phthalic anhydride	85-44-9	8270
Propanil	709-98-8	1656
Propazine	139-40-2	1656
Terbacil	5902-51-2	1656
Trichlorobenzene, 1,3,5-	108-70-3	8121
Trimethyl phosphate	512-56-1	8270

PQL - Practical Quantitation Limit

[1] This table is not an exhaustive list of appropriate analytical methods. Laboratories may achieve target PQLs with other published analytical methods.

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[3] Depending on the data quality objectives the target PQLs may not always have to be met depending on the progress of the cleanup or cleanup goals for target compounds.

Table H
No Listed Method
(Soil)

Contaminate	CAS#
Acifluorfen, sodium [or Blazer]	6247-65-99
Acrylamide	79-06-1
Aluminum phosphide	20859-73-8
Ally [or Metsulfuron, methyl]	74223-64-6
Bayleton	43121-43-3
Benomyl	17804-35-2
Bis(2-ethylhexyl)adipate	103-21-1
Bisphenol A	80-05-7
Calcium cyanide	592-01-8
Carboxin	5234-68-4
Chlorine cyanide [or Cyanogen chloride]	506-77-4
Chloroacetic acid	79-11-8
Chloropropane, 2-	75-29-6
Chromium(trivalent)	16065-83-1
Cyanide, free	57-12-5
Cyanogen	460-19-5
Cycloate	1134-23-2
Cyclohexylamine	108-91-8
Cyhalothrin [0r Karate]	68085-85-8
Decabromodiphenyl ether	1163-19-5
Dibromobenzene, 1,4-	106-37-6
Dichloroacetic acid	79-43-6
Dichloroacetonitrile	3018-12-0
Diethylene glycol, monoethyl ether	111-90-0
diisopropyl methylphosphonate	1445-75-6
Dimethoxybenzidine, 3,3-	119-90-4
Dimethylaniline, 2,4-	95-68-1
Dimethylaniline, N,N-	121-69-7
Dimethrin	70-38-2
Diphenamid	957-51-7
Diquat	85-00-7
Endothall	145-73-3

Ethanol	64-17-5
Ethoxyethanol, 2-	110-80-5
Ethyl acrylate	140-88-5
Ethyl dipropylthiocarbamate, S- [or EPTC]	759-94-4
Ethylene diamine	107-15-3
Ethylene glycol	107-21-1
ETU [Ethylene thiourea]	96-45-7
Ethylphthalyl ethylglycolate [or EPEG]	84-72-0
Fluoridone	59756-60-4
Furfural	98-01-1
Glycidaldehyde	765-34-4
Glyphosate [or Roundup]	1071-83-6
Hexane, n-	110-54-3
Hexazinone	51235-04-2
Maneb	12427-38-2
Methyl acetate	79-20-9
Methyl acrylate	96-33-3
Molinate	2212-67-1
Nitroglycerin	55-63-0
Oxamyl	23135-22-0
Paraquat	1910-42-5
Pebulate	1114-71-2
Phenylphenol, 2-	90-43-7
Propylene glycol	57-55-6
Propylene oxide	75-56-9
Pydrin [or Fenvalerate]	51630-58-1
Resmethrin	10453-86-8
Terbacil	5902-51-2
Terbutryn	886-50-0
Thiobencarb	28249-77-6
Thiram	137-26-8
Toluidine, p	106-49-0
Triallate	2303-17-5
Tributyltin oxide	56-35-9
Trichloroacetic acid	76-03-9
Trichloropropene, 1,2,3-	96-19-5
Uranium, soluble salts	7440-61-1
Zinc phosphide	1314-84-7

Zineb	12122-67-7

PQL - Practical Quantitation Limit

[1] This table is not an exhaustive list of appropriate analytical methods. Laboratories may achieve target PQLs with other published analytical methods.

[2] The project laboratory cannot be expected to always meet the target PQLs due to analytical interferences or the nature of the sample.

[3] Depending on the data quality objectives the target PQLs may not always have to be met depending on the progress of the cleanup or cleanup goals for target compounds.

Table I
Residential
(Soil)

Contaminant	CAS#	Analytical Method	Target PQL mg/kg	Source
Acrolein	107-02-8	8260	0.10	CompQAP
Benzidine	92-87-5	8270	5.2	DEP
Dimethylbenzidine, 3,3'-	119-99-37	8270	0.40	CompQAP
Dinitrobenzene, 1,4- (p)	100-25-4	8270	1.6	COMPQAP
Ethylene oxide	75-21-8	8260	3.5	COMPQAP
Methylene bis(2-chloroaniline), 4,4-	101-14-4	8270	0.17	COMPQAP
Nitroso-di-ethylamine, N-	55-18-5	8270	0.24	DEP
Nitroso-dimethylamine, N-	62-75-9	8270	0.24	DEP
Nitroso-di-n-butylamine, N-	924-16-3	8270	0.24	DEP
Nitroso-di-n-propylamine, N-	621-64-7	8270	0.24	DEP
Nitroso-N-methylethylamine, N-	10595-95-6	8270	0.24	DEP

DEP - Department of Environmental Protection Laboratory

COMPQAP - Comprehensive Quality Assurance Plan

[1] This table is not an exhaustive list of appropriate analytical methods. Laboratories may achieve target PQLs with other published analytical methods.

[2] The project laboratory cannot be expected to always meet the target PQLs due to analytical interferences or the nature of the sample.

[3] Depending on the data quality objectives the target PQLs may not always have to be met depending on the progress of the cleanup or cleanup goals for target compounds.

Table J
Commercial / Industrial
(Soil)

Contaminant	CAS#	Analytical Method	Target PQL mg/kg	Source
Benzidine	92-87-5	8270	5.2	DEP
Dinitrobenzene, 1,4- (p)	100-25-4	8270	1.6	COMPQAP
Ethylene oxide	75-21-8	8260	3.5	COMPQAP
Nitroso-di-ethylamine, N-	55-18-5	8270	0.24	DEP
Nitroso-dimethylamine, N-	62-75-9	8270	0.24	DEP
Nitroso-di-n-butylamine, N-	924-16-3	8270	0.24	DEP
Nitroso-di-n-propylamine, N-	621-64-7	8270	0.24	DEP
Nitroso-N-methylethylamine, N-	10595-95-6	8270	0.24	DEP

DEP - Department of Environmental Protection Laboratory

COMPQAP - Comprehensive Quality Assurance Plan

[1] This table is not an exhaustive list of appropriate analytical methods. Laboratories may achieve target PQLs with other published analytical methods.

[2] The project laboratory cannot be expected to always meet the target PQLs due to analytical interferences or the nature of the sample.

[3] Depending on the data quality objectives the target PQLs may not always have to be met depending on the progress of the cleanup or cleanup goals for target compounds.

Table K
Groundwater-Leachability
(Soil)

Contaminates	CAS#	Analytical Method	Target PQL mg/kg	Source
Acephate	30560-19-1	8141	0.13	DEP
Acetonitrile	75-05-8	8260	0.40	EMMI
Acrolein	107-02-8	8260	0.10	CompQAP
Acrylonitrile	107-13-1	8260	0.03	Lab
Alachlor	15972-60-8	8141	0.08	DEP
Aniline	62-53-3	8270	0.70	DEP
Benzidine	92-87-5	8270	5.2	DEP
Benzyl chloride	100-44-7	8260	0.10	EMMI
Biphenyl, 1,1- [or Diphenyl]	92-52-4	8270	0.70	CompQAP
Bis(2-chloroethyl)ether	111-44-4	8270	0.24	DEP
Bis(2-chloroisopropyl)ether [or Bis(2-chloro-1-metylethyl)ether]	108-60-1	8270	0.24	DEP
Bromodichloromethane	75-27-4	8260	0.005	EMMI
Chloroaniline, p-	106-47-8	8270	0.66	METHOD
Dibromo-3-chloropropane, 1,2- [or DBCP, 1,2-]	132-64-9	8260	0.01	COMPQAP
Dibromochloromethane	124-48-1	8260	0.005	EMMI
Dibromoethane, 1,2- [or EDB]	106-93-4	8260	0.005	EMMI
Dichlorobenzidine, 3,3'-	91-94-1	8270	0.66	METHOD
Dichlorophenol, 2,4-	120-83-2	8270	0.28	Lab
Dichlorophenol, 2,6-	87-65-0	8270	0.31	Lab
Dichloropropene, 1,3-	542-75-6	8260	O.OO5	EMMI
Dichlorvos	62-73-7	8141	0.05	Lab
Dicofol [or Kelthane]	115-32-2	8081	0.02	DEP
Dieldrin	60-57-1	8081	0.003	DEP

Dimethoate	60-51-5	8141	0.07	DEP
Dimethylbenzidine, 3,3'-	119-99-37	8270	0.40	CompQAP
Dinitrobenzene, 1-3- (m)	99-65-0	8270	0.25	Lab
Dinitrobenzene, 1,4- (p)	100-25-4	8270	1.6	COMPQAP
Dinitrophenol, 2,4-	51-28-5	8270	1.5	DEP
Dinitrotoluene, 2,4-	121-14-2	8270	0.24	DEP
Dinitrotoluene, 2,6-	606-20-2	8270	0.24	DEP
Dinoseb	88-85-7	8151	0.10	Lab
Dioxane, 1,4-	123-91-1	8270	0.06	DEP
Diphenylhydrazine, 1,2-	122-66-7	8270	0.24	DEP
Ethoprop	13194-48-4	8141	0.02	DEP
Ethyl p-nitrophenyl phenylphosphorothioate [or EPN]	2104-64-5	8141	0.04	COMPQAP
Ethylene oxide	75-21-8	8260	3.5	COMPQAP
Fenamiphos	22224-92-6	8141	0.06	DEP
Fensulfothion	115-90-2	8141	0.05	Lab
Hexachlorocyclohexane, alpha- [or BHC, alpha]	319-84-6	8081	0.002	DEP
Hexachlorocyclohexane, beta- [or BHC, beta]]	319-85-7	8081	0.002	DEP
Hexahydro-1,3,5-trinitro-1,3,5-triazine [or RDX]	121-82-4	8330	0.50	COMPQAP
Isophorone	78-59-1	8270	0.24	DEP
Mercury	7439-97-6	7471	0.02	DEP
Mercury, methyl [or Methyl mercury]	22967-92-6	FDEP-HG-003-2+	0.003	DEP
Methacrylonitrile	126-98-7	8260	0.10	EMMI
Methamidophos	10265-92-6	8141	0.07	DEP
Methidathion	950-37-8	8141	0.04	DEP
Methyl-4-chlorophenoxy acetic acid, 2- [or MCPA]	94-74-6	8151	0.33	CompQAP
Methylaniline, 2-	95-53-4	8270	0.68	DEP
Methylene bis(2-chloroaniline), 4,4-	101-14-4	8270	0.17	COMPQAP

Mevinphos	7786-34-7	8141	0.03	DEP
Naled	300-76-5	8141	0.30	Lab
Nitroaniline, m-	99-09-2	8270	3.3	EMMI
Nitroaniline, o-	88-74-4	8270	0.24	DEP
Nitroaniline, p-	100-01-6	8270	0.24	DEP
Nitrobenzene	98-95-3	8270	0.24	DEP
Nitroso-di-ethylamine, N-	55-18-5	8270	0.24	DEP
Nitroso-dimethylamine, N-	62-75-9	8270	0.24	DEP
Nitroso-di-n-butylamine, N-	924-16-3	8270	0.24	DEP
Nitroso-di-n-propylamine, N-	621-64-7	8270	0.24	DEP
Nitroso-N-methylethylamine, N-	10595-95-6	8270	0.24	DEP
Pentachloronitrobenzene	82-68-8	8270	0.30	Lab
Phenol	108-95-2	8270	0.26	Lab
Phorate	298-02-2	8141	0.007	DEP
Pyridine	110-86-1	8270	0.24	DEP
Strychnine	57-24-9	8270	3.3	COMPQAP
Tetrachloroethane, 1,1,2,2-	79-34-5	8260	0.005	EMMI
Trichlorophenol, 2,4,5-	95-95-4	8270	0.24	DEP
Trichlorophenol, 2,4,6-	88-06-2	8270	0.24	DEP
Trichloropropane, 1,2,3-	96-18-4	8260	0.005	EMMI
Trinitrotoluene, 2,4,6-	118-96-7	8330	0.25	METHOD

DEP-Florida Department of Environmental Protection
PQL - Practical Quantitation Limit
Lab - values provided by comment from laboratories
EMMI - Environmental Methods Monitoring Index
NEMI - National Environmental Methods Index
CompQAP - Comprehensive Quality Assurance Plan
Method - Value obtained from the analytical method

[1] This table is not an exhaustive list of appropriate analytical methods. Laboratories may achieve target PQLs with other published analytical methods.

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[3] Depending on the data quality objectives the target PQLs may not always have to be met depending on the progress of the cleanup or cleanup goals for target compounds.

Table L
Freshwater Surface Water-Leachability (Soil)

Contaminant	CAS#	Analytical Method	Target PQL mg/kg	Source
Acrolein	107-02-8	8260	0.10	CompQAP
Acrylonitrile	107-13-1	8260	0.03	Lab
Alachlor	15972-60-8	8141	0.08	DEP
Aldicarb [or Temik]	116-06-3	8318	0.02	DEP
Aniline	62-53-3	8270	0.70	DEP
Baygon [or Propoxur]	114-26-1	8318	0.02	DEP
Benzidine	92-87-5	8270	5.2	DEP
Benzyl chloride	100-44-7	8260	0.10	EMMI
Bis(2-chloroethyl)ether	111-44-4	8270	0.24	DEP
Carbaryl [or Sevin]	63-25-2	8318	0.02	DEP
Carbofuran	1563-66-2	8318	0.02	DEP
Chloroaniline, p-	106-47-8	8270	0.66	METHOD
Chlorobenzilate	510-15-6	8081	0.02	DEP
Chlorpyrifos	2921-88-2	8141	0.02	EMMI
Coumaphos	56-72-4	8141	0.04	EMMI
Cypermethrin	52315-07-8	8081	0.007	DEP
Diazinon	333-41-5	8141	0.05	Lab
Dibutyl phthalate	84-72-4	8270	1.6	DEP
Dichlorobenzidine, 3,3'-	91-94-1	8270	0.66	METHOD
Dichlorvos	62-73-7	8141	0.05	Lab
Dicofol [or Kelthane]	115-32-2	8081	0.02	DEP
Dieldrin	60-57-1	8081	0.003	DEP
Dimethoate	60-51-5	8141	0.07	DEP

Dinitrophenol, 2,4-	51-28-5	8270	1.5	DEP
Dinitrotoluene, 2,4-	121-14-2	8270	0.24	DEP
Dinitrotoluene, 2,6-	606-20-2	8270	0.24	DEP
Dinoseb	88-85-7	8151	0.10	Lab
Dioxins, as total 2,3,7,8,-TCDD equivalents	1746-01-6	8290	0.000001	Method
Diphenylhydrazine, 1,2-	122-66-7	8270	0.24	DEP
Endrin	72-20-8	8081	0.005	DEP
Ethion	563-12-2	8141	0.007	DEP
Ethoprop	13194-48-4	8141	0.02	DEP
Ethyl p-nitrophenyl phenylphosphorothioate [or EPN]	2104-64-5	8141	0.04	COMPQAP
Fenamiphos	22224-92-6	8141	0.06	DEP
Fensulfothion	115-90-2	8141	0.05	Lab
Fonofos	944-22-9	8141	0.02	DEP
Guthion [or Methyl azinphos]	86-50-0	8141	0.007	DEP
Heptachlor epoxide	1024-57-3	8081	0.002	DEP
Hexachlorobenzene	118-74-1	8270	0.24	DEP
Hexachlorocyclohexane, alpha- [or BHC, alpha]	319-84-6	8081	0.002	DEP
Hexachlorocyclohexane, beta- [or BHC, beta]]	319-85-7	8081	0.002	DEP
Hexachloroethane	67-72-1	8270	0.33	METHOD
Mercury	7439-97-6	7471	0.02	DEP
Methidathion	950-37-8	8141	0.04	DEP
Methomyl	16752-77-5	8318	0.01	COMPQAP
Methyl parathion [or Parathion, methyl]	298-00-0	8270	0.02	DEP
Methylaniline, 2-	95-53-4	8270	0.68	DEP
Metolachlor	51218-45-2	8141	0.07	DEP
Mevinphos	7786-34-7	8141	0.03	DEP
Naled	300-76-5	8141	0.30	Lab
Nitroso-di-ethylamine, N-	55-18-5	8270	0.24	DEP

Nitroso-dimethylamine, N-	62-75-9	8270	0.24	DEP
Nitroso-di-n-butylamine, N-	924-16-3	8270	0.24	DEP
Nitroso-di-n-propylamine, N-	621-64-7	8270	0.24	DEP
Nitroso-N-methylethylamine, N-	10595-95-6	8270	0.24	DEP
Parathion	56-38-2	8141	0.05	Lab
PCBs [or Aroclor mixture]	1336-36-3	8082	0.04	DEP
Pentachloronitrobenzene	82-68-8	8270	0.30	Lab
Permethrin	52645-53-1	8081	0.008	DEP
Phenol	108-95-2	8270	0.26	Lab
Phorate	298-02-2	8141	0.007	DEP
Selenium	7782-49-2	7741	2.0	DEP
Silver	7440-22-4	6010	0.40	DEP
Strychnine	57-24-9	8270	3.3	COMPQAP
Terbufos	13071-79-9	8141	0.007	DEP
Tetrachlorophenol, 2,3,4,6-	58-90-2	8270	0.25	Lab
Tetraethyl dithiopyrophosphate	3689-24-5	8141	0.02	EMMI
Toxaphene	8001-35-2	8081	0.10	DEP
Trichlorophenol, 2,4,6-	88-06-2	8270	0.24	DEP
Trichloropropane, 1,2,3-	96-18-4	8260	0.005	EMMI
Trinitrobenzene, 1,3,5-	99-35-4	8270	0.24	DEP

DEP - Department of Environmental Protection Laboratory
EMMI - Environmental Method monitoring Index
COMPQAP - Comprehensive Quality Assurance Plan
Method - Analytical Method
Lab - Provided by comments from laboratory

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[3] Depending on the data quality objectives the target PQLs may not always have to be met depending on the progress of the cleanup or cleanup goals for target compounds.

Table M
Marine Surface Water-Leachability (Soil)

Contaminant	CAS#	Analytical Method	Target PQL mg/kg	Source
Acrolein	107-02-8	8260	0.10	CompQAP
Acrylonitrile	107-13-1	8260	0.03	Lab
Alachlor	15972-60-8	8141	0.08	DEP
Aldicarb [or Temik]	116-06-3	8318	0.02	DEP
Aniline	62-53-3	8270	0.70	DEP
Baygon [or Propoxur]	114-26-1	8318	0.02	DEP
Benzidine	92-87-5	8270	5.2	DEP
Benzyl chloride	100-44-7	8260	0.10	EMMI
Bis(2-chloroethyl)ether	111-44-4	8270	0.24	DEP
Carbaryl [or Sevin]	63-25-2	8318	0.02	DEP
Carbofuran	1563-66-2	83.18	0.02	DEP
Chloroaniline, p-	106-47-8	8270	0.66	METHOD
Chlorobenzilate	510-15-6	8081	0.02	DEP
Chlorpyrifos	2921-88-2	8141	0.02	EMMI
Coumaphos	56-72-4	8141	0.04	EMMI
Cypermethrin	52315-07-8	8081	0.007	DEP
Dibutyl phthalate	84-72-4	8270	1.6	DEP
Diazinon	333-41-5	8141	0.05	Lab
Dichlorobenzidine, 3,3'-	91-94-1	8270	0.66	METHOD
Dichlorvos	62-73-7	8141	0.05	Lab
Dicofol [or Kelthane]	115-32-2	8081	0.02	DEP
Dieldrin	60-57-1	8081	0.003	DEP
Dimethoate	60-51-5	8141	0.07	DEP
Dinitrophenol, 2,4-	51-28-5	8270	1.5	DEP

Dinitrotoluene, 2,4-	121-14-2	8270	0.24	DEP
Dinitrotoluene, 2,6-	606-20-2	8270	0.24	DEP
Dinoseb	88-85-7	8151	0.10	Lab
Dioxins, as total 2,3,7,8,-TCDD equivalents	1746-01-6	8290	0.000001	Method
Diphenylhydrazine, 1,2-	122-66-7	8270	0.24	DEP
Endosulfan (alpha+beta+sulfate)	115-29-7	8081	0.004	EMMI
Endrin	72-20-8	8081	0.005	DEP
Ethion	563-12-2	8141	0.007	DEP
Ethoprop	13194-48-4	8141	0.02	DEP
Ethyl p-nitrophenyl phenylphosphorothioate [or EPN]	2104-64-5	8141	0.04	COMPQAP
Fenamiphos	22224-92-6	8141	0.06	DEP
Fensulfothion	115-90-2	8141	0.05	Lab
Fonofos	944-22-9	8141	0.02	DEP
Guthion [or Methyl azinphos]	86-50-0	8141	0.007	DEP
Heptachlor epoxide	1024-57-3	8081	0.002	DEP
Hexachlorobenzene	118-74-1	8270	0.24	DEP
Hexachlorocyclohexane, alpha- [or BHC, alpha]	319-84-6	8081	0.002	DEP
Hexachlorocyclohexane, beta- [or BHC, beta]]	319-85-7	8081	0.002	DEP
Hexachloroethane	67-72-1	8270	0.33	METHOD
Mercury	7439-97-6	7471	0.02	DEP
Methidathion	950-37-8	8141	0.04	DEP
Methomyl	16752-77-5	8318	0.01	COMPQAP
Methyl parathion [or Parathion, methyl]	298-00-0	8270	0.02	DEP
Methylaniline, 2-	95-53-4	8270	0.68	DEP
Metolachlor	51218-45-2	8141	0.07	DEP
Mevinphos	7786-34-7	8141	0.03	DEP
Naled	300-76-5	8141	0.30	Lab

Nitroso-di-ethylamine, N-	55-18-5	8270	0.24	DEP
Nitroso-dimethylamine, N-	62-75-9	8270	0.24	DEP
Nitroso-di-n-butylamine, N-	924-16-3	8270	0.24	DEP
Nitroso-di-n-propylamine, N-	621-64-7	8270	0.24	DEP
Nitroso-N-methylethylamine, N-	10595-95-6	8270	0.24	DEP
Parathion	56-38-2	8141	0.05	Lab
PCBs [or Aroclor mixture]	1336-36-3	8082	0.04	DEP
Pentachloronitrobenzene	82-68-8	8270	0.30	Lab
Permethrin	52645-53-1	8081	0.008	DEP
Phenol	108-95-2	8270	0.26	Lab
Phorate	298-02-2	8141	0.007	DEP
Strychnine	57-24-9	8270	3.3	COMPQAP
Terbufos	13071-79-9	8141	0.007	DEP
Tetrachlorophenol, 2,3,4,6-	58-90-2	8270	0.25	Lab
Tetraethyl dithiopyrophosphate	3689-24-5	8141	0.02	EMMI
Toxaphene	8001-35-2	8081	0.10	DEP
Trichlorophenol, 2,4,6-	88-06-2	8270	0.24	DEP
Trichloropropane, 1,2,3-	96-18-4	8260	0.005	EMMI
Trinitrobenzene, 1,3,5-	99-35-4	8270	0.24	DEP

DEP-Florida Department of Environmental Protection

PQL - Practical Quantitation Limit

Lab - values provided by comment from laboratories

EMMI - Environmental Methods Monitoring Index

NEMI - National Environmental Methods Index

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Table N
GwLYPQ-Leachability
(Soil)

Contaminant	CAS#	Analytical Method	Target PQL mg/kg	Source
Acrylonitrile	107-13-1	8260	0.03	Lab
Aniline	62-53-3	8270	0.70	DEP
Benzidine	92-87-5	8270	5.2	DEP
Benzyl chloride	100-44-7	8260	0.10	EMMI
Bis(2-chloroethyl)ether	111-44-4	8270	0.24	DEP
Bis(2-chloroisopropyl)ether [or Bis(2-chloro-1-metylethyl)ether]	108-60-1	8270	0.24	DEP
Dibromoethane, 1,2- [or EDB]	106-93-4	8260	0.005	EMMI
Dichlorobenzidine, 3,3'-	91-94-1	8270	0.66	METHOD
Dichlorophenol, 2,4-	120-83-2	8270	0.28	Lab
Dichlorophenol, 2,6-	87-65-0	8270	0.31	Lab
Dichlorvos	62-73-7	8141	0.05	Lab
Dimethoate	60-51-5	8141	0.07	DEP
Dimethylbenzidine, 3,3'-	119-99-37	82.7	0.40	CompQAP
Dinitrobenzene, 1-3- (m)	99-65-0	8270	0.25	Lab
Dinitrobenzene, 1,4- (p)		82.7	1.6	COMPQAP
Dinitrophenol, 2,4-	51-28-5	8270	1.5	DEP
Dinitrotoluene, 2,4-	121-14-2	8270	0.24	DEP
Dinitrotoluene, 2,6-	606-20-2	8270	0.24	DEP
Diphenylhydrazine, 1,2-	122-66-7	8270	0.24	DEP
Ethylene oxide	75-21-8	8260	3.5	COMPQAP
Hexahydro-1,3,5-trinitro-1,3,5-triazine [or RDX]	121-82-4	8330	0.50	COMPQAP
Methamidophos	10265-92-6	8141	0.07	DEP
Methyl-4-chlorophenoxy acetic acid, 2-	94-74-6	8151	0.33	CompQAP

Methylaniline, 2-	95-53-4	8270	0.68	DEP
Methylene bis(2-chloroaniline), 4,4-	101-14-4	8270	0.17	COMPQAP
Nitroaniline, m-	99-09-2	8270	3.3	METHOD
Nitroaniline, p-	100-01-6	8270	0.24	DEP
Nitroso-di-ethylamine, N-	55-18-5	8270	0.24	DEP
Nitroso-dimethylamine, N-	62-75-9	8270	0.24	DEP
Nitroso-di-n-butylamine, N-	924-16-3	8270	0.24	DEP
Nitroso-di-n-propylamine, N-	621-64-7	8270	0.24	DEP
Nitroso-N-methylethylamine, N-	10595-95-6	8270	0.24	DEP
Strychnine	57-24-9	8270	3.3	COMPQAP
Trichloropropane, 1,2,3-	96-18-4	8260	0.005	EMMI
Trinitrotoluene, 2,4,6-	118-96-7	8330	0.25	METHOD

DEP-Florida Department of Environmental Protection
PQL - Practical Quantitation Limit
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