Table Pest/PCB-I-1:

QUALIFICATION OF PESTICIDE/PCB ANALYTES BASED ON PRESERVATION & TECHNICAL HOLDING TIMES

PRESERVATION		TECHNICAL HOLDING TIMES	
Matrix	Refrig.& Light Protected	Extracted and/or Analyzed Within H.T.	Extracted and/or Analyzed Outside H.T.
AQ and S/S	Yes	A - acceptable results	J - detects UJ - non-detects R* - non-detects if Extraction HT>28 days and/or Analytical HT>60 days
AQ and S/S	No	J - detects UJ - non-detects	J - detects UJ - non-detects R* - non-detects if Extraction HT>28 days and/or Analytical HT>60 days

Note: AQ = Aqueous, S/S = Soil/Sediment

* The validator may use professional judgment to qualify or reject non-detected pesticides and multicomponent analytes based on their environmental stability.

For other matrices, the validator should estimate (J) positive detects and use professional judgment to qualify (UJ) or reject (R) non-detects when Region I preservation and/or technical holding time criteria are not met. The results are acceptable (A) when the criteria are met.

APPENDIX H

Table Pest/PCB-II-1:

QUALIFICATION OF PESTICIDE/PCB ANALYTES BASED ON THE RESOLUTION CHECK MIXTURE (RCM) - Resolution Check

Sample Results	Resolution ≥ 60.0%	Resolution < 60.0%
Detects	A	Professional judgment
Non-Detects	A	Professional judgment

Table Pest/PCB-II-2:

QUALIFICATION OF PESTICIDE/PCB ANALYTES BASED ON THE PERFORMANCE EVALUATION MIXTURE (PEM) - Resolution Check

Sample Results	Resolution ≥ 90.0%	Resolution < 90.0%
Detects	A	J
Non-detects	A	Professional judgment

Table Pest/PCB-II-3:

QUALIFICATION OF PESTICIDE/PCB ANALYTES BASED ON THE PERFORMANCE EVALUATION MIXTURE (PEM) - CALIBRATION CHECK - Accuracy Check

Sample Results	%D ≤ ±25.0%	%D > ±25.0%	One column meets criteria but the other exceeds
Detects	A	J	Professional judgement
Non-Detects	A	UJ	Professional judgement

Table Pest/PCB-II-4:

QUALIFICATION OF PESTICIDE/PCB ANALYTES BASED ON 4,4'-DDT/ENDRIN BREAKDOWN - PESTICIDE DEGRADATION CHECK

Sample Results	4,4'-DDT Breakdown ≤ 20.0%	4,4'-DDT Breakdown > 20.0% and 4,4'-DDT detected	4,4'-DDT Breakdown > 20.0% and 4,4'-DDT not detected	Endrin Breakdown ≤ 20.0%	Endrin Breakdown > 20.0% and Endrin detected	Endrin Breakdown > 20.0% and Endrin not detected	Combined Breakdown ≤ 30.0%	Combined Breakdown > 30.0% and 4,4'-DDT and/or Endrin detected	Combined Breakdown > 30.0% and 4,4'-DDT and/or Endrin not detected
4,4'-DDT	A	J	R (NDs)	N/A	N/A	N/A	A	J	R (NDs)
DDD	A	J (detects) A (NDs)	J (detects) A (NDs)	N/A	N/A	N/A	A	J (detects) A (NDs)	J (detects) A (NDs)
DDE	A	J (detects) A (NDs)	J (detects) A (NDs)	N/A	N/A	N/A	A	J (detects) A (NDs)	J (detects) A (NDs)
Endrin	N/A	N/A	N/A	A	J	R (NDs)	A	J	R (NDs)
Endrin Aldehyde	N/A	N/A	N/A	A	J (detects) A (NDs)	J (detects) A (NDs)	A	J (detects) A (NDs)	J (detects) A (NDs)
Endrin Ketone	N/A	N/A	N/A	A	J (detects) A (NDs)	J (detects) A (NDs)	A	J (detects) A (NDs)	J (detects) A (NDs)

N/A = Not Applicable
J = Estimate result
R (NDs) = Reject non-detects
A (NDs) = Accept non-detects

Note: The validator must always discuss negative and positive bias in sample data in the Data Validation Memorandum.

Table Pest/PCB-III-1:

QUALIFICATION OF PESTICIDE/MULTICOMPONENT* ANALYTES BASED ON THE INITIAL CALIBRATION

Sample Results	%RSD ≤ 20.0% (alpha-BHC & delta-BHC %RSD ≤ 25.0%)	%RSD > 20.0% (alpha-BHC & delta-BHC %RSD > 25.0%)	If applicable, multicomponent analyte %RSD ≤ 25.0%	If applicable, multicomponent analyte %RSD > 25.0%	One column meets criteria but the other exceeds
Detects	A	J	A	J	Professional judgement
Non-detects	A	UJ	A	UJ	Professional judgement

* OLM04.3 does not require analysis of more than one initial calibration standard concentration for multicomponent analytes.

Table Pest/PCB-IV-1:

QUALIFICATION OF PESTICIDE/PCB ANALYTES BASED ON CALIBRATION VERIFICATION

Sample Results	%D ≤ ±25.0%	%D > ±25.0%	One column meets criteria but the other exceeds
Detects	A	J	Professional judgement
Non-detects	A	UJ	Professional judgement

Table Pest/PCB-VI-1:

QUALIFICATION OF PESTICIDE/PCB ANALYTES BASED ON SURROGATE ANALYTE RECOVERIES

	Surrogate Analyte Recovery			
Sample Results	One or more surrogates %Rec < 10%	One or more surrogates 10% ≤ %Rec < LL	All surrogates LL ≤ %Rec ≤ UL	One or more surrogates %Rec > UL
Detects	J	Professional Judgment	A	Professional Judgment
Non-detects	R	UJ	A	A

LL - Lower Limit of method QC acceptance criteria
UL - Upper Limit of method QC acceptance criteria

Note: The surrogate recoveries in the method blank and the instrument blank must be within criteria for the analytical sequence to be valid.

Table Pest/PCB-VII-1:

QUALIFICATION OF PESTICIDE/PCB ANALYTES BASED ON GPC CALIBRATION QUALITY CONTROL

	Criteria	Action
Peak Resolution	As per method QC acceptance criteria.	Professional Judgment
Peak Shape	Peak shapes must be symmetrical.	Professional Judgment
Aroclor Pattern	After GPC is performed, Aroclor 1016 and 1260 standard patterns must be similar to Aroclor patterns in the Initial Calibration sequence.	Professional Judgment
Retention Time	Retention time shifts between GPC calibrations for bis(2-ethylhexyl)phthalate and perylene must not exceed ± 5%.	Professional Judgment
GPC Instrument Blank	Target analytes must be less than the quantitation limit.	Refer to Section V for Blank Actions

Table Pest/PCB-VII-2:

QUALIFICATION OF ORGANIC ANALYTES BASED ON GPC CALIBRATION VERIFICATION QUALITY CONTROL

Sample Results	% Recovery			
	%Rec < 10%	10% ≤ %Rec < Lower Limit	Lower Limit ≤ %Rec ≤ Upper Limit	%Rec > Upper Limit
Detects	J	J	A	J
Non-detects	R	UJ	A	A

Note: Professional judgment should be used in applying the guidance above to qualify or reject sample data.

Table Pest/PCB-VII-3:

QUALIFICATION OF PESTICIDE/PCB ANALYTES BASED ON FLORISIL CARTRIDGE CLEANUP QUALITY CONTROL

Sample Results	% Recovery			
	%Rec < 10%	10% ≤ %Rec < Lower Limit	Lower Limit ≤ %Rec ≤ Upper Limit	%Rec > Upper Limit
Detects	J	J	A	J
Non-detects	R	UJ	A	A
2,4,5-TCP Recovery Criterion	If 2,4,5-Trichlorophenol recovers at ≥ 5%, then the Florisil is not working properly and the data must be evaluated for potential interferences.			

Note: Professional judgment should be used to qualify the data when a combination of low recoveries and high recoveries are obtained.

Table Pest/PCB-VII-4:

QUALIFICATION OF PESTICIDE/PCB ANALYTES BASED ON SULFUR CLEANUP QUALITY CONTROL

Sample Results	Degree of Sulfur Interference		
	Minor	Limited to discrete part of the sample chromatogram	Major
Detects	Estimate (J) positive detects for the affected analytes.	Accept positive detects that are not impacted by sulfur interference. Reject (R) positive detects for those analytes coeluting with the sulfur peak.	Reject (R) all detects for the affected sample and request sample reanalysis that includes sulfur cleanup.
Non-detects	Use professional judgement to evaluate the non-detects.	Accept non-detects that are not impacted by sulfur interference. Reject (R) non-detects for those analytes coeluting with the sulfur peak.	Reject (R) all non-detects for the affected sample and request sample reanalysis that includes sulfur cleanup.

Note: Professional judgment should be used in applying the above guidance to qualify or reject sample data.

Table Pest/PCB-VIII-1:

QUALIFICATION OF ORGANIC ANALYTES IN THE UNSPIKED FIELD SAMPLE BASED ON MATRIX SPIKE RECOVERIES AND RPDS **

Sample Results	Recovery < 10%	10% ≤ Recovery < Lower QC Limit	Lower QC Limit ≤ Recovery ≤ Upper QC Limit	Recovery > Upper QC Limit	RPD > QC Limit
Detects	J	J	A	J	J
Non-detects	R	UJ	A	A	UJ

** Note that qualification and rejection generally are limited to the spiking analytes, however, the validator may use professional judgment to qualify or reject all positive detects or non-detects in the unspiked sample, or even all results of a particular matrix, if the majority of spike analyte recoveries and/or RPDs are outside the method QC acceptance criteria.

Table Pest/PCB-VIII-2:

QUALIFICATION OF ORGANIC ANALYTES IN THE UNSPIKED FIELD SAMPLE BASED ON MS, MSD, AND UNSPIKED SAMPLE %RSD

Sample Results	%RSD ≤ 50%*	%RSD > 50%*	Two out of three sample results reported as non-detects
Detects	A	J	Professional Judgment
Non-detects	A	Professional Judgment	Professional Judgment

* If a non-detect is reported for an analyte in only one of the samples in the MS, MSD, or unspiked sample set, then the validator should use the sample quantitation limit value for that analyte to calculate the %RSD.

Table Pest/PCB-IX-1:

QUALIFICATION OF ORGANIC ANALYTES IN FIELD DUPLICATES
SITUATION 1: POSITIVE DETECTS IN BOTH FIELD DUPLICATES

Relative Percent Difference	Aqueous > 30% Non-Aqueous > 50%	Aqueous > 30% Non-Aqueous > 50%	Aqueous > 30 Non-Aqueous > 50%
Sample Results	**Both duplicate sample concs. ≥ 2 X QL**	**QL ≤ both duplicate samples concs. < 2 X QL**	**One sample conc. ≥ 2 X QL QL ≤ One sample conc. < 2 X QL**
Detects	J	Professional Judgment	Professional Judgment
Non-detects	N/A	N/A	Professional Judgment

* QL = Sample Quantitation Limit
N/A = Not Applicable

Note: Qualification refers to field duplicate sample results only. Professional judgment may be used to apply field duplicate actions to all samples of the same matrix.

Table Pest/PCB-IX-2:

QUALIFICATION OF ORGANIC ANALYTES IN FIELD DUPLICATES
SITUATION 2: POSITIVE DETECT IN ONLY ONE FIELD DUPLICATE**

Aqueous and Non-Aqueous		
Sample Results	**One Sample Conc. = ND (or values reported as less than the QL) QL ≤ One Sample Conc. < 2 X QL**	**One sample conc. = ND (or values reported as less than the QL) One sample conc. ≥ 2 X QL**
Detects	Professional Judgment	J
Non-detects	Professional Judgment	UJ

* QL = Sample Quantitation Limit

** RPD should not be evaluated for these duplicate pairs

Note: Qualification refers to field duplicate sample results only. Professional judgment may be used to apply field duplicate actions to all samples of the same matrix.

Table Pest/PCB-X-1:

QUALIFICATION OF ORGANIC ANALYTES BASED ON MDL STUDY RESULTS

Sample Results	Mean % Recovery			
	%Rec < 10%	10% ≤ %Rec < 80%	80% ≤ %Rec ≤ 120%	%Rec > 120%
Detects	J	Professional Judgment*	A	Professional Judgment*
Non-Detects	R	Professional Judgment*	A	A
Sample Results	**% RSD**			
	> 25%		**≤ 25%**	
Detects	Professional Judgment**		A	
Non-detects	Professional Judgment**		A	

* Taking into consideration LFB results.
** Taking into consideration initial calibration %RSDs.

Table Pest/PCB-X-2:

QUALIFICATION OF ORGANIC ANALYTES BASED ON LFB* RECOVERIES WHERE:
≤ ONE-HALF OF LFB ANALYTES OUTSIDE UPPER OR LOWER ACCEPTANCE LIMITS

Sample Results	% Recovery			
	%Rec < 10%	10% ≤ %Rec < 60%	60% ≤ %Rec ≤ 140%	%Rec > 140%
Detects	J	J	A	J
Non-detects	R	UJ	A	A

* LFB = Laboratory fortified blank spiked with several or all of the method target analytes and/or Aroclors at or below the quantitation limit.

Table Pest/PCB-X-3:

QUALIFICATION OF ORGANIC ANALYTES BASED ON LFB* RECOVERIES WHERE:
> ONE-HALF OF LFB ANALYTES OUTSIDE UPPER OR LOWER ACCEPTANCE LIMITS**

Sample Results	% Recovery			
	%Rec < 10%	10% ≤ %Rec < 60%	60% ≤ %Rec ≤ 140%	%Rec > 140%
All Detects	J	J	A	J
All Non-detects	R	UJ	A	A

* LFB = Laboratory fortified blank spiked with several or all of the method target analytes and/or Aroclors at or below the quantitation limit.

** Professional judgment should be used when a combination of low recoveries and high recoveries are obtained.

Table Pest/PCB-XI-1:

QUALIFICATION OF ORGANIC ANALYTES BASED ON LCS* RECOVERIES WHERE:
≤ ONE-HALF OF LCS ANALYTES OUTSIDE UPPER OR LOWER ACCEPTANCE LIMITS

Sample Results	% Recovery			
	%Rec < 10%	10% ≤ %Rec < LL	LL ≤ %Rec ≤ UL	%Rec > UL
Detects	J	J	A	J
Non-detects	R	UJ	A	A

* LCS = Laboratory Control Sample (LCS) is an internal laboratory quality control sample designed to assess analytical accuracy and method bias. The LCS is spiked with several or all of the method target analytes and /or Aroclors.

LL - Lower limit of method QC acceptance criteria
UL - Upper limit of method QC acceptance criteria

Table Pest/PCB-XI-2:

QUALIFICATION OF ORGANIC ANALYTES BASED ON LCS* RECOVERIES WHERE:
> ONE-HALF OF LCS ANALYTES OUTSIDE UPPER OR LOWER ACCEPTANCE LIMITS**

Sample Results	% Recovery			
	%Rec < 10%	10% ≤ %Rec < LL	LL ≤ %Rec ≤ UL	%Rec > UL
All Detects	J	J	A	J
All Non-detects	R	UJ	A	A

* LCS = Laboratory Control Sample (LCS) is an internal laboratory quality control sample designed to assess analytical accuracy and method bias. The LCS is spiked with several or all of the method target analytes and /or Aroclors.

** Professional judgment should be used when a combination of low recoveries and high recoveries are obtained.

LL - Lower limit of method QC acceptance criteria
UL - Upper limit of method QC acceptance criteria

Table Pest/PCB-XI-3:

QUALIFICATION OF INDIVIDUAL ORGANIC ANALYTES BASED ON PES RESULTS WHERE:
≤ ONE-HALF OF PES ANALYTES OUTSIDE UPPER OR LOWER ACCEPTANCE LIMITS

Sample Results	●Single Blind ●Double Blind PES < Lower Limit "Action Low"	●Single Blind ●Double Blind PES "Within Warning Limits" "Warning High/Warning Low"	●Single Blind ●Double Blind PES > Upper Limit "Action High"
Detects	J	A	J
Non-Detects	R	A	A

Table Pest/PCB-XI-4:

QUALIFICATION OF ORGANIC ANALYTES BASED ON PES RESULTS WHERE:
> ONE-HALF OF PES ANALYTES OUTSIDE UPPER OR LOWER ACCEPTANCE LIMITS *

Sample Results	●Single Blind ●Double Blind PES < Lower Limit "Action Low"	●Single Blind ●Double Blind PES "Within Warning Limits" "Warning High/Warning Low"	●Single Blind ●Double Blind PES > Upper Limit "Action High"
All Detects	J	A	J
All Non-Detects	R	A	A

* Professional judgment should be used when a combination of low recoveries and high recoveries are obtained.

Table Pest/PCB-XIII-1:

QUALIFICATION OF PESTICIDE/PCB ORGANIC ANALYTES BASED ON SAMPLE PERCENT SOLIDS

Sample Result	% Solids > 30%	10% ≤ % Solids ≤ 30%	% Solids < 10%
Detects	A	J	R
Non-detects	A	R	R

Table Pest/PCB-XIII-2:

QUALIFICATION OF PESTICIDE/PCB ANALYTES BASED ON %D OF ANALYTES BETWEEN TWO QUANTITATION COLUMNS

%D Between the Two Quantitation Columns	Sample Results	
	Detects	Non-Detects
25.0% < %D < 100% (single component pesticides)	J	N/A*
%D > 100% (single component pesticides)	R	N/A
25.0% < %D < 500% (Multicomponents)	J	N/A
%D > 500% (Multicomponents)	R	N/A
One Value < QL & One Value ≥ QL	J	UJ

* N/A - Not Applicable