EPA-NE - Data Validation Worksheet

Case:_____ SDG:_____

VOA/SV/Pest/PCB

COMPLETE SDG FILE (CSF) AUDIT

Organic Fractions: _____

Missing Information	Date Lab Contacted	Date Received

Validator: _____ Date: _____

EPA-NE - Data Validation
VOA/SV/Pest/PCB-I

Case: _____ SDG: _____

Sampler: _____ Company: _____ Contacted: Yes No Date: _____

I. PRESERVATION AND HOLDING TIMES - Circle sample numbers with exceeded technical holding times or omitted preservation.
List all required preservation codes and circle omitted preservation codes.
Circle all exceeded technical holding times.
Identify extraction technique after "# of Days"/(*Extraction Code).

Sample No. (TR No.)	Matrix	Pres. Code	Date Sampled	VOA			BNA					PEST/PCB				
				Date Analyzed	# of Days from Sampling to Analysis	Action	Date Extracted	# of Days from Sampling to Extr./(*)	Date Analyzed	# of Days from Sampling to Anal.	Action	Date Extracted	# of Days from Sampling to Extr/.(*)	Date Analyzed	# of Days from Sampling to Anal.	Action

Preservation Code:
1. Cool @ 4°C (± 2°)
2. Preserve with HCl to at least pH 2
3. Protect from light
4. Freeze
5. Room Temperature (Avoid excessive heat)

(*Extraction Code:)
L/L - Liquid/Liquid
SON - Sonication
SEP - Separatory Funnel
SOX - Soxhlet
SPE - Solid Phase Extraction

Action Code:
J - Estimate (J) Detected Values
UJ - Estimate (UJ) Non-Detected Values
R - Reject (R) Non-Detected Values

Validator: _____ Date: _____

Case:_____ SDG:_____

VOA/SV-II-A

II A. GC/MS INSTRUMENT PERFORMANCE CHECK – (TUNING) **Note: NOT for Selected Ion Monitoring (SIM) Analysis**

List all Instrument Performance Checks that are outside method QC tuning acceptance criteria.

VOA Instrument Performance Check (Compound Name)	Analysis Date and Time	Instrument	Ions Affected	Percent Relative Abundance	QC Limits	Samples Affected	Action

Comments:

SV Instrument Performance Check (Compound Name)	Analysis Date and Time	Instrument	Ions Affected	Percent Relative Abundance	QC Limits	Samples Affected	Action

Comments:

If tuning compounds and criteria are different from those specified in CLP SOW SOM01.2, the validator should include a copy of the method-specific tuning criteria with this worksheet.

Validator:_____ Date:_____

EPA-NE - Data Validation Worksheet

Case:_____ SDG:_____

VOA/SV-II-B

II B. GC/MS INSTRUMENT PERFORMANCE CHECK – 12-hour clock

List all Instrument Performance Checks and/or calibration standards that were analyzed beyond the 12-hour requirement.

Fraction (VOA or SV)	Tune Standard or CCV ID	Injection Date and Time	Time Elapsed (hours)	Samples Affected	Action

Validator:_____ Date:_____

EPA-NE - Data Validation Worksheet

Case:_____ SDG:_____

Pest/PCB-II-A

II A. GC/ECD INSTRUMENT PERFORMANCE CHECK - Resolution - List all analytes that are outside resolution criteria.

RCM (Section II)	Date/Time	Instr.	Column	Compound	% Resolution	Samples Affected	Action
PEM (Section II and IV)							
INDA & B (Section III)							
INDA & B (Section IV)							

Validator:_____ Date:_____

Case:_____ SDG:_____

Pest/PCB-II-B

II B. GC/ECD INSTRUMENT PERFORMANCE CHECK - Retention Times - List all analytes that exceed retention time criteria.

PEM (Section II and IV)	Date/Time	Instr.	Column	Compound	RT Window	RT	Samples Affected	Action
INDA & B (Section IV)								

Validator:_____ Date:_____

EPA NE - Data Validation Worksheet

Case:_____ SDG:_____

Pest/PCB-II-C

II C. GC/ECD INSTRUMENT PERFORMANCE CHECK - Accuracy Check of Initial Calibration

List all analytes that are outside the %D criteria.

PEM Sample ID	Date/Time	Instr.	Column	Compound	%D	Samples Affected	Action

Validator:_____ Date:_____

Case:_____ SDG:_____

Pest/PCB-II-D

II D. GC/ECD INSTRUMENT PERFORMANCE CHECK - Pesticide Degradation - List all analytes that exceed degradation criteria.

PEM (Section II)	Date/Time	Instr.	Column	DDT, Endrin, or Combined	% Breakdown	DDD, DDE, Endrin ketone, Endrin aldehyde Present	Samples Affected	Action
PEM (Section IV)								

Validator:_____ Date:_____

Case:_____ SDG:_____

Pest/PCB-III

III. INITIAL CALIBRATION - List all analytes that are outside calibration criteria.

INDA/INDB, INDC, or Multicomponent	Date	Instrument	Column	Analytes	Recalculated RT Window	%RSD	Samples Affected	Action
A. % RSD Linearity								
B. Retention Time Windows								

Did the laboratory follow the correct analytical sequence? **Y N**

Did the laboratory analyze the initial calibration at the appropriate concentration levels? **Y N**

Validator:_____ Date:_____

Case:_____ SDG:_____

VOA/SV-III

III. INITIAL CALIBRATION - List all analytes that are outside calibration criteria.

Date of ICAL	Instrument	Fraction	Matrix	Compound	%RSD	RRF*	Samples Affected	Action (Detect/ND)
Comments:								

* RRF and average RRF

Did the laboratory follow the correct 12-hour clock analytical sequence? If no, fill out Worksheet VOA/SV-II B. **Y N**

Did the laboratory analyze the initial calibration at the appropriate levels? **Y N**

Validator:_____ Date:_____

EPA-NE - Data Validation Worksheet

Case:_____ SDG:_____

Pest/PCB-IV-A

IV A. CALIBRATION VERIFICATION - Accuracy Check (%D) - List all analytes that are outside calibration criteria.

Standard ID	Date	Time	Instrument	Column	Analyte	%D	Samples Affected	Action (Detect/ND)

Validator:_____ Date:_____

EPA-NE - Data Validation Worksheet

Case:_____ SDG:_____

Pest/PCB-IV-B

IV B. CALIBRATION VERIFICATION – Time Elapsed - List all non-compliant standards.

Fraction (PEST or PCB)	Instrument and Column ID	Instrument Blank or Sample ID	Injection Date and Time	Time Elapsed (hours)	Samples Affected	Action (Detect/ND)

Validator:_____ Date:_____

Case:_____ SDG:_____

VOA/SV-IV

IV. CONTINUING CALIBRATION - List all analytes that are outside calibration criteria.

Fraction (VOA/SV)	Instrument	Date of ICAL	Date & Time of CCAL	Matrix	Compound	%D	RRF	Samples Affected	Action (Detect/ND)
Comments:									

Did the laboratory follow the correct 12-hour clock analytical sequence? If no, fill out Worksheet VOA/SV-II B. **Y N**

Validator:_____ Date:_____

EPA-NE - Data Validation Worksheet

Case:_____ SDG:_____

VOA/SV/Pest/PCB-V-A
V. A. BLANK ANALYSIS

List the blank contamination below. Concentration Level:____

Sampler: _____ Company: _____ Contacted: Yes No Date:_____

1. Laboratory: Method, Storage and Instrument Blanks

Fraction/ Matrix	Sample ID (Blank Type)	Date Extracted	Date Analyzed	Instrument/ Column	Compound	Conc. (units)

2. Field: Equipment (Rinsate), Trip and Bottle Blanks

Fraction/ Matrix	Sample ID (Blank Type)	Date Extracted	Date Analyzed	Instrument/ Column	Compound	Conc. (units)

Validator:_____ Date:_____

EPA-NE - Data Validation Worksheet

Case:_____ SDG:_____

VOA/SV/Pest/PCB-V-B
V. B. BLANK ACTIONS - List the maximum concentrations of blank compounds.

Compound	Type of Blank	Date Blank Sampled, Originated, or Analyzed	Max. Conc. (unit)	Blank CRQL (unit)	Blank 2xCRQL[1] (unit)	Blank 5xCRQL[2] (unit)	Samples Affected	Action

[1] For methylene chloride, 2-butanone, and acetone only.
[2] For bis(2-ethylhexyl)phthalate only.

Comments: _____

Validator: _____ Date: _____

Case:_____ SDG:_____

SV-VI-A

VI A. DEUTERATED MONITORING COMPOUNDs (DMCs) – List all DMC recoveries that are outside the control limits.

Method		Semi-Volatile Method QC Acceptance Criteria															
SOM01.2		Phenol-d_5		BCE		2CP		4MP		NBZ		2NP		DCP		4CA	
		Water	Soil	Water	Soil	Water	Soil	Water	Soil	Water	Soil	Water	Soil	Water	Soil	Water	Soil
		39-106	17-103	40-105	12-98	41-106	13-101	25-111	8-100	43-108	16-103	40-108	16-104	37-105	23-104	1-145	1-145
Other:																	
Sample ID	Matrix	% Recovery		% Recovery		% Recovery		% Recovery		% Recovery		% Recovery		% Recovery		% Recovery	

BCE= Bis(2-chloroethyl)ether-d_8
NBZ= Nitrobenzene-d_5
4CA= 4-Chloroaniline-d_4
2CP= 2-Chlorophenol-d_4
2NP= 2-Nitrophenol-d_4
4MP= 4-Methyhlphenol-d_8
DCP= 2,4-Dichlorophenol-d_3

Validator: _____ Date: _____

EPA-NE - Data Validation Worksheet

Case:_____ SDG:_____

SV-VI-A (Cont'd)

VI A. DEUTERATED MONITORING COMPOUNDs (DMCs) – List all DMC recoveries that are outside the control limits.

Method		Semi-Volatile Method QC Acceptance Criteria													
		DMP		ACY		4NP		FLR		NMP		ANC		PYR		BAP	
SOM01.2		Water	Soil	Water	Soil	Water	Soil	Water	Soil	Water	Soil	Water	Soil	Water	Soil	Water	Soil
		47-114	43-111	41-107	20-97	33-116	16-166	42-111	40-108	22-104	1-121	44-110	22-98	52-119	51-120	32-121	43-111
Other:																	
Sample ID	Matrix	% Recovery		% Recovery		% Recovery		% Recovery		% Recovery		% Recovery		% Recovery		% Recovery	

DMP=Dimethylphthalate-d_6 ACY=Acenaphthylene-d_8 4NP=4-Nitrophenol-d_4

FLR=Fluorene-d_{10} NMP=4,6-Dinitro-2-methylphenol-d_2 ANC=Anthracene-d_{10}

PYR=Pyrene-d_{10} BAP=Benzo(a)pyene-d_{12}

Note: Refer to NFG for guidance on actions required for failures in DMC recoveries.

Validator: _____ Date: _____

Case:_____ SDG:_____

SV-VI-B

VI B. DEUTERATED MONITORING COMPOUNDs (DMCs) for SIM – List all DMC recoveries that are outside the control limits.

Method: SOM01.2		Semi-Volatile Organics by Selected Ion Monitoring Analysis Acceptable QC Criteria						
		Fluoranthene-d_{10} Water 50-150 Soil 50-150	Affected Analytes	Action (Detection/ND)	2-Methylnaphthalene-d_{10} Water 50-150 Soil 50-150	Affected Analytes	Action (Detection/ND)
Sample ID	Matrix	% Recovery			% Recovery		
			Fluoranthene			Naphthalene	
			Pyrene			2-Methylnaphthalene	
			Benzo(a)anthracene			Acenaphthylene	
			Chrysene			Acenaphthene	
			Benzo(b)fluoranthene			Fluorene	
			Benzo(k)fluoranthene			Pentachlorophenol	
			Benzo(a)pyrene			Phenanthrene	
			Indeno(1.2.2-cd)pyrene			Anthracene	
			Dibenzo(a.h)anthracene				
			Benzo(g.h.i)perylene				

Note: Refer to NFG for guidance on actions required for failures in DMC recoveries.

Validator: _____ Date: _____

Case:_____ SDG:_____

VOA-VI

VI. DEUTERATED MONITORING COMPOUNDs (DMCs) – List all DMC recoveries that are outside the control limits.

NOTE: The same control limits are applied to the selected ion monitoring (SIM) analysis.

Method		Volatile Method QC Acceptance Criteria													
SOM01.2		Vinyl chloride-d_3		Chloroethane-d_5		DCE		2-Butanone-d_5		Chloroform-d		DCA		Benzene-d_6	
		Water	Soil	Water	Soil	Water	Soil	Water	Soil	Water	Soil	Water	Soil	Water	Soil
		65-131	68-122	71-131	61-130	55-104	45-132	49-155	20-182	78-121	72-123	78-129	79-122	77-124	80-121
Other:															
Sample ID	Matrix	% Recovery		% Recovery		% Recovery		% Recovery		% Recovery		% Recovery		% Recovery	

DCE= 1,1-Dichloroethene –d_2 DCA= 1.2-Dichloroethane-d_4

Validator: _____ Date: _____

EPA-NE - Data Validation Worksheet

Case:_____ SDG:_____

VOA-VI (Cont'd)

VI. DEUTERATED MONITORING COMPOUNDs (DMCs) – List all DMC recoveries that are outside the control limits.

NOTE: The same control limits are applied to the selected ion monitoring (SIM) analysis.

Method		Volatile Method QC Acceptance Criteria													
SOM01.2		DPA		Toluene-d_8		TDP		2-Hexanone-d_5		1,4-Dioxane-d_8		TCA		DCZ	
		Water	Soil	Water	Soil	Water	Soil	Water	Soil	Water	Soil	Water	Soil	Water	Soil
		79-124	74-124	77-121	78-121	73-121	72-130	28-135	17-184	50-150	50-150	73-125	56-161	80-131	70-131
Other:															
Sample ID	Matrix	% Recovery		% Recovery		% Recovery		% Recovery		% Recovery		% Recovery		% Recovery	

DPA= 1,2-Dichloropropane –d_6 TDP= trans-1,3-Dichloropropene-d_4

TCA= 1,1,2,2-Tetracholoroethane-d_2 DCZ= 1,2-Dichlorobenzene-d_4

Note: Refer to NFG for guidance on actions required for failures in DMC recoveries.

Validator: _____ Date: _____

Case:_____ SDG:_____

Pest/PCB-VI

VI. SURROGATE COMPOUNDS: Spike Recoveries and Retention Time Shift

List all surrogate analytes that are outside the percent recovery and retention time criteria.

Method		% Recovery QC Limits				Retention Time Windows				
		Column 1		Column 2		Column 1		Column 2		
		TCX	DCB	TCX	DCB	TCX	DCB	TCX	DCB	
SOM01.2		30-150	30-150	30-150	30-150					
Other:										
Sample Number/Matrix	**Date/Time**	**% Recovery**				**Retention Time Shift**				**Action**

Note: Refer to NFG for guidance on actions required for failures in surrogate recoveries.

Validator:_____ Date:_____

Case:_____ SDG:_____

Pest/PCB-VII-C

VII C. PESTICIDE/PCB CLEANUP - Sulfur Cleanup

Sample chromatograms were reviewed and found to be free from interfering sulfur peaks. **Y N**

If no, list the compounds and samples affected by the unacceptable sulfur cleanup.

Samples Affected	Sulfur Interference (Major/Minor/Limited)	Action

Were all target compounds less than QL for the Sulfur blank? **Y N**

Action: Refer to EPA New England Data Review Program Supplement guidance (Section 2.11) for actions to be taken for deficient sulfur cleanup. Comment on any action taken below.

_____

_____

_____

Validator:_____ Date:_____

Case:_____ SDG:_____

Pest/PCB-VII-A

VII A. PESTICIDE/PCB CLEANUP - GPC Calibration and Verification

The GPC Calibration data and GPC Calibration Verification Solution recovery data were reviewed and found to meet criteria. **Y N NA**

If no, list the compounds and samples affected by the unacceptable GPC performance.

Date/Time of GPC Calibration or Calib. Verification	GC Analysis Date	Analyte	GPC % Resolution or RT Shift	% Rec	QC Limits	Samples Affected	Action

Were all target compounds less than QL for the GPC blank? **Y N**

Were acceptable GPC Calibration Verifications performed at the correct frequency? **Y N**

Were Aroclor patterns similar to those corresponding Aroclor standards of the Initial Calibration sequence? **Y N**

Action: Refer to National Functional Guidelines for the appropriate action to be taken. Comment on any action taken below:

_____

_____

Validator:_____ Date:_____

EPA-NE - Data Validation Worksheet

Case:_____ SDG:_____

VOA/SV-VII

VII. SEMIVOLATILE CLEANUP - GPC Calibration and Verification– List all analytes that are outside method cleanup QC criteria.

Type of Cleanup	Instrument # or Lot #	Date/Time GPC Calibrated or Check Solution Analyzed	Compound	% Rec	QC Limits	Samples Affected	Action

Did the GPC column meet: resolution requirements? **Y N**

Peak shape requirements? **Y N**

Retention time shift requirements? **Y N**

Was the GPC calibration, Silica Gel cleanup checked at the method required frequency with correct compounds and concentrations? **Y N**

Were all compounds less than QL for the GPC/Silica Gel/Acid-Partition blank? **Y N**

Did the blank surrogate recoveries and IS area counts and RTs (if added) meet method QC acceptance criteria? **Y N**

Comments:

_____

_____

Validator:_____ Date:_____

EPA-NE - Data Validation Worksheet

Case:_____ SDG:_____

Pest/PCB-VII-B

VII B. PESTICIDE/PCB CLEANUP - Florisil Cartridge Performance Check

The Florisil Cartridge Performance Check recovery data were reviewed and found to meet criteria. **Y N**

If no, list the analytes and samples affected by the unacceptable Florisil Cartridge Check.

Florisil Cartridge Lot #	Date of Florisil Cartridge Check	GC Analysis Date	Analyte	% Rec.	QC Limits	Samples Affected	Action

Were acceptable Florisil Cartridge Performance Checks performed at the correct frequency? **Y N**

Action: Refer to Functional Guidelines for the appropriate action to be taken. Comment on any action taken below:

_____

_____

Validator: _____ Date: _____

EPA-NE - Data Validation Worksheet

Case:_____ SDG:_____

VOA/SV/Pest/PCB-VIII

VIII. MATRIX SPIKE/MATRIX SPIKE DUPLICATE - List all MS/MSD analytes that are outside method QC acceptance criteria. Use a separate worksheet for each MS/MSD pair.

Sample # _____ Matrix_____ Concentration Level _____

Fraction	Compound	Column 1			Column 2*			Method QC Limits		Action
		MS % Rec.	MSD % Rec.	RPD	MS % Rec.	MSD % Rec.	RPD	% Recovery	RPD	

* For Pest/PCB only.

Validator: _____ Date: _____

EPA-NE - Data Validation Worksheet

Case:_____ SDG:_____

VOA/SV/Pest/PCB-IX

IX. FIELD DUPLICATE PRECISION - List all field duplicate analytes that are outside criteria.
Use a separate worksheet for each field duplicate pair.

Sample Number _____ Duplicate Sample Number _____ Matrix _____

Fraction	Compound	Sample Conc.	Sample QL		Duplicate Conc.	Duplicate QL		RPD	QC Acceptance Criteria RPD or NA*	Action
			SQL	2xSQL		SQL	2xSQL			

*For instances where one duplicate result is ND (or reported less than the sample QL).

Does the MS/MSD data indicate acceptable laboratory precision? Y N

Refer to EPA New England Data Review Program Supplemental guidance for field duplicate actions (Section 2.8).
Comments: _____

_____

Sampler Name: _____ Contractor Name: _____ Date Contacted: _____

Reason for Contact and resolution obtained: _____

Validator: _____ Date: _____

EPA-NE - Data Validation Worksheet

Case:_____ SDG:_____

VOA/SV/Pest/PCB-X-A

X A. ACCURACY CHECK (Performance Evaluation Results) - List all analytes that are outside criteria.

Are more than one-half of the PES analytes within criteria for each parameter? **Y N**

PE Sample Number	Ampule Number	Fraction	Type of PES	Matrix	Analyte	Conc.	Region I EPA PES Scores*	Non-EPA PES Scores**	Samples Affected	Action

* For Region I PESs indicate the Region I PES Score Report Result: Action High; Action Low; TCL MISS; TCL CONTAMINANT; TIC HIT; TIC MISS; TIC CONTAMINANT

** For Non-EPA PESs indicate the non-EPA PES Score: PES COMPOUND MISS; PES COMPOUND CONTAMINANT; PES COMPOUND HIT (% Recovery Limits)

Refer to EPA New England Data Review Program Supplemental guidance for EPA PES and actions (Section 2.7).

Validator: _____ Date: _____

EPA-NE - Data Validation Worksheet

Case:_____ SDG:_____

VOA/SV/Pest/PCB-X-B

X B. ACCURACY CHECK (Laboratory Control Sample [LCS] Results) - List all analytes that are outside criteria.

LCS ID	Matrix	Method	Fraction	Compound	Acceptable %R Range	Column 1 LCS %R	Column 2 LCS %R	Samples Affected	Action

Validator: _____ Date: _____

Case:_____ SDG:_____

VOA/SV-XI

XI. INTERNAL STANDARD PERFORMANCE

List the internal standards that are outside the area count and retention time method QC acceptance criteria.

IS Area Count Method QC acceptance criteria: _____

IS Retention Time Method QC acceptance criteria: _____

Sample Number (TRs)	Date and Time Analyzed	Instrument	Fraction	Non-Compliant Internal Standard	Internal Standard Area	RT Shift	Acceptable Range (IS area or RT shift)	Action

Validator: _____ Date:_____

Case:_____ SDG:_____

Pest/PCB-XII

XII. ANALYTE IDENTIFICATION

List samples below that contained false positive and/or negative reported results, and samples that contained detected compounds which have a percent difference greater than ±25% between the two columns.

Sample ID	Analyte	Column 1 ID:			Column 2 ID:			%D	Action
		RT	RT Window	Conc.	RT	RT Window	Conc.		

Was GC/MS Confirmation performed for the appropriate samples? **Y N**

Were corresponding Aroclor standards analyzed within 72 hours of the sample(s) with Aroclors detected? **Y N**

Validator:_____ Date:_____

Case:_____ SDG:_____

VOA/SV-XII

XII. TARGET COMPOUND IDENTIFICATION – List the analytes that are outside the acceptance criteria.

Sample Number	Compound	MS Ions	RRT	Action

Validator:_____ Date:_____

EPA-NE - Data Validation Worksheet

Case:_____ SDG:_____

VOA/SV-XIII

XIII. SAMPLE QUANTITATION AND % SOLIDS

Recalculate, from the raw data, the concentrations for one positive detect and one reported sample quantitation limit for a non-detect in a diluted sample or soil sample per fraction. (Note: Although NFG requires that one calculation for each fraction in each sample be performed, the validator is only required to reproduce an example, for each fraction, of one positive detect and one sample quantitation limit calculation on this worksheet.)

Do all soil/sediment samples have % solids greater than 30%? **Y N**

If no, list sample numbers_____

Refer to EPA New England Data Review Supplemental Program guidance for actions related to %solids (Section 2.10).

Fraction		Calculation
VOA		
Sample No.:		
Reported Compound:		
Reported Value:		
Not Detected Compound:		
Reported Quantitation Limit:		
BNA		
Sample No.:		
Reported Compound:		
Reported Value:		
Not Detected Compound:		
Reported Quantitation Limit:		

Validator:_____ Date:_____

EPA-NE - Data Validation Worksheet

Case:_____ SDG:_____

Pest/PCB-XIII

XIII. SAMPLE QUANTITATION AND %SOLIDS

Recalculate, from the raw data, the concentrations for one positive detect and one reported sample quantitation limit for a non-detect in a diluted sample or soil sample per fraction. (Note: Although NFG requires that one calculation for each fraction in each sample be performed, the validator is only required to reproduce an example, for each fraction, of one positive detect and one sample quantitation limit calculation on this worksheet.)

Do all soil/sediment samples have % solids greater than 30%? **Y N**

If no, list sample numbers_____

Refer to EPA New England Data Review Supplemental Program guidance for actions related to %solids (Section 2.10).

Fraction		Calculation
Pesticides		
Sample No.:		
Reported Compound:		
Reported Value:		
Not Detected Compound:		
Reported Quantitation Limit:		
PCB		
Sample No.:		
Reported Compound:		
Reported Value:		
Not Detected Compound:		
Reported Quantitation Limit:		

Validator:_____ Date:_____

Case:_____ SDG:_____

VOA/SV-XIV

XIV. TENTATIVELY IDENTIFIED COMPOUNDS (TICs)

List the 5 TICs having the highest concentration for each sample parameter.

Sample Number	Fraction	Compound	RRT	Est. Conc.	Action

Validator:_____ Date:_____