APPENDIX VI
"R" DATA QUALIFIER SOURCE AND MEANING[1]

Appendix VI lists the parameters and criteria that produce an "R" flag in accordance with the *National Functional Guidelines for Organic Data Review* (EPA 1991e) and *Laboratory Data Validation Functional Guidelines for Inorganics Analyses* (EPA 1988e) as applied to data from the Contract Laboratory Program. The appendix also indicates the likely implication of this flag on the associated result(s).

The criteria listed in this guidance should be used to flag CLP data as "R," or "unuseable." If the flagged analytes are of interest, then resampling or reanalysis is necessary.

PARAMETER	CRITERIA	ACTION	LIKELY IMPLICATIONS[2]
ANALYSIS: Organic (3/90) VOA & BNA			
Holding times	Grossly exceeded	Professional judgment (non-detects)	Low
Mass Calibration	In error	Associated samples	Unuseable
Ion Abundance	Outside expanded windows	Associated samples	Unuseable
Calibrations	Mean RRF or RRF < 0.05	Compound specific (non-detects)	Low
Blanks	Gross contamination (saturated peaks)	Compound specific (associated samples)	High
Surrogates	< 10% Recovery	Entire fraction (negative results)	Low
Internal Standards	Extremely low area counts; Major abrupt drop off	Associated compounds (non-detects)	Low
TICs	Suspected artifacts	Professional judgment	Unuseable

PARAMETER	CRITERIA	ACTION	LIKELY IMPLICATION[2]
ANALYSIS: Pesticides (2/88)			
Holding Times	Grossly exceeded	Professional judgment (non-detects)	Low
Instrument Performance			
-- DDT Retention Time	Inadequate separation	Affected compounds	Unuseable
-- RT	Peaks of concern outside windows	Professional judgment (positive results and quantitation limits)	Unuseable
-- DDT/Endrin Degradation	Not detected and breakdown concentrations positive	Samples following last in-control standard (quantitation limit - DDT and Endrin)	Low
-- Retention Time Check	DBC > 2.0% (packed) > 0.3% (narrow-bore) > 1.5% (wide-bore)	Professional judgment	Unuseable
Surrogates	Not present	Suggested (negative results)	Low
Compound Quantitation and Detection Limits	Large off-scale peaks	Quantitation limits	Unuseable

PARAMETER	CRITERIA	ACTION	LIKELY IMPLICATION[2]
ANALYSIS: Inorganic (3/90)			
Holding Times	Grossly exceeded	Professional judgment (Results < IDL)	Low
Calibrations	Minimum number of standards not used; Not calibrated daily or each time instrument set up	Professional judgment (associated samples)	Precision
-- ICV or CCV	%R outside of 75-125% (CN, 70-130; Hg, 65- 135%)	Associated samples	Low/High
ICS (for ICP)	Al, Ca, Fe or Mg in samples ≤ ICS and ICS <50%	Affected analytes	High
	Results -- 2xIDL for elements which are not present in the EPA-provided solution and levels of Al, Ca, Fe or Mg > 50% of levels found in ICS, and estimated interferences due to Al, Ca, Fe or Mg > 90%	Affected analytes	High
LCS (Aqueous)	Recovery < 50%	Affected analytes	Low
Matrix Spike Sample	Recovery < 30%	Affected samples (results < IDL)	Low
AA Post Digestion Spike	Recovery < 10%	Affected samples (results < IDL)	Low

[1] **Selected Acronym Key**

AA -- Atomic absorption

BNA -- Base/neutral/acid or semivolatile

CCV -- Continuing calibration verification

DBC -- Dibutyl chlorendate

ICP -- Inductively coupled plasma

ICS -- Interference check sample

ICV -- Initial calibration verification

IDL -- Instrument detection limit

LCS -- Laboratory control sample

RRF -- Relative response factor

RT -- Retention time

TIC -- Tentatively identified compound

VOA -- Volatile

[2] **Implication Key**

Low: The associated result may underestimate the true value.

High: The associated result may overestimate the true value.

Precision: The associated result may be of poor precision (high variability).

No generalization: No generalization can be made as to the likely implication.

Unuseable: Data are probably unuseable without resampling and reanalysis.