# 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)<br>> 0.3% (narrow-bore)<br>> 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.