# Quality Control Reference Guide

**Quick Definitions:**

Duplicate – The analyses performed identically on two subsamples of the same sample. Shows reproducibility and precision.

Laboratory Control Sample (LCS) – An aliquot of clean matrix similar to that of the sample matrix of the same weight or volume is spiked with the same analyte(s) at the same concentrations as the matrix spike. If the results of the matrix spike indicate a potential problem due to the matrix of the sample, the LCS results are used to verify that the laboratory can perform the analysis in a clean matrix.

Matrix Spike (MS/MSD) – An aliquot of sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. They are used to document the precision and bias of a method in a given sample matrix.

Method Blank (MB) – An analyte-free matrix to which all reagents are added in the same volumes or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. The method blank is used to document contamination resulting from the analytical process. For a method blank to be acceptable for use with the accompanying samples, the concentration in the blank of any analyte of concern should not be higher than the highest of either:

(1) The method detection limit, or
(2) Less than the reporting limit, or
(3) One-fifth of the measured concentration in the sample.

Surrogate – An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. Surrogates are used to measure matrix effects.

| QUALITY CONTROL CHECKS | | |
|---|---|---|
| **QC Sample Type** | **System or Method** | **Matrix** |
| Duplicate | | X |
| Matrix Spike | | X |
| Matrix Spike Duplicate | | X |
| Surrogate | | X |
| Method Blanks | X | |
| LCS / Blank Spike | X | |