

***** Technical Fact Sheet *****
Interpreting your QA/QC Report

Analytical data are always estimates of the value of the measure and involve some level of uncertainty. Since chemical measurement data are often the basis for critical decisions on vital matters, ranging from the health of individuals to the protection of the environment, it is imperative that credible data be supported with statements of the confidence that can be placed in it. The Quality Assurance/Quality Control results that you receive with your final report provide unequivocal evidence of the reliability and defensibility of the data reported.

Quality Assurance (QA) samples are processed with your environmental samples to demonstrate the laboratory's performance during the analysis of your samples. These QA samples allow us to monitor the performance of our analytical systems and methods and ensure that the data you receive meets regulatory requirements, is defensible, and is technically valid.

The following types of QA samples are analyzed with your samples:

- **Method Blank** - A Method Blank is laboratory pure water or contaminant free sand that has been extracted and prepared as if it were an analytical sample. A laboratory method blank is prepared and analyzed with a batch of samples. By analyzing a method blank, the laboratory can detect any contamination that may be caused by laboratory handling of samples. Likewise, this blank sample demonstrates that low level analyte concentrations in samples are not the result of laboratory contamination. Any laboratory contamination detected in samples is reported in the method blank and described in your report. Non-detect values for all method blank compounds indicate no laboratory contamination.
- **Matrix Spikes, MS Duplicates (MS, MSD)** - The term "matrix" refers to the type of sample, ie: soil, water, wastewater, etc. When a matrix spike is performed, three portions of the same sample are analyzed. One portion is analyzed as usual to determine what target analytes are present. The other two portions are "spiked" by the laboratory with the addition of a known concentration of target analyte. This "spiked sample" is prepared and analyzed along with the "un-spiked samples". The amount of analyte recovered from the "spiked sample" is measured and represented as "percent recovery" on your data report. A 100% recovery indicates that all of the spiked analyte was recovered. This procedure allows the laboratory to demonstrate method accuracy for particular sample types. A certain measure of variability with each procedure is expected and the laboratory has established "control limits" of acceptability for each matrix and method. These control limits comply with regulatory requirements.
- **Laboratory Control Samples, LCS Duplicates (LCS, LCSD)** - These samples are laboratory pure water or contaminant free sand that has been "spiked" with a known concentration of target analyte, prepared and analyzed along with samples. While, the "Matrix Spikes" provide accuracy information that includes sample preparation, analysis, and matrix effects; the LCS/LCSD allows the laboratory to demonstrate analyte recovery accuracy exclusive of sample matrix effects.
- **Relative Percent Difference (RPD)** - The relative percent difference between two identical sample measurements (LCS/LCSD or MS/MSD for example) provides an indication of precision. The value for RPD demonstrates reproducibility.
- **Acceptable Criteria** - These are the limits for accepting quality control data that are printed on your report. EMA QA/QC data meets or exceeds acceptance criteria as stated in the published methods.

**E
M
A**

EnviroMatrix Analytical, Inc.
4340 Viewridge Avenue, Suite
San Diego, California 92123
Phone: (858) 560-7717
Fax: (858) 560-7763