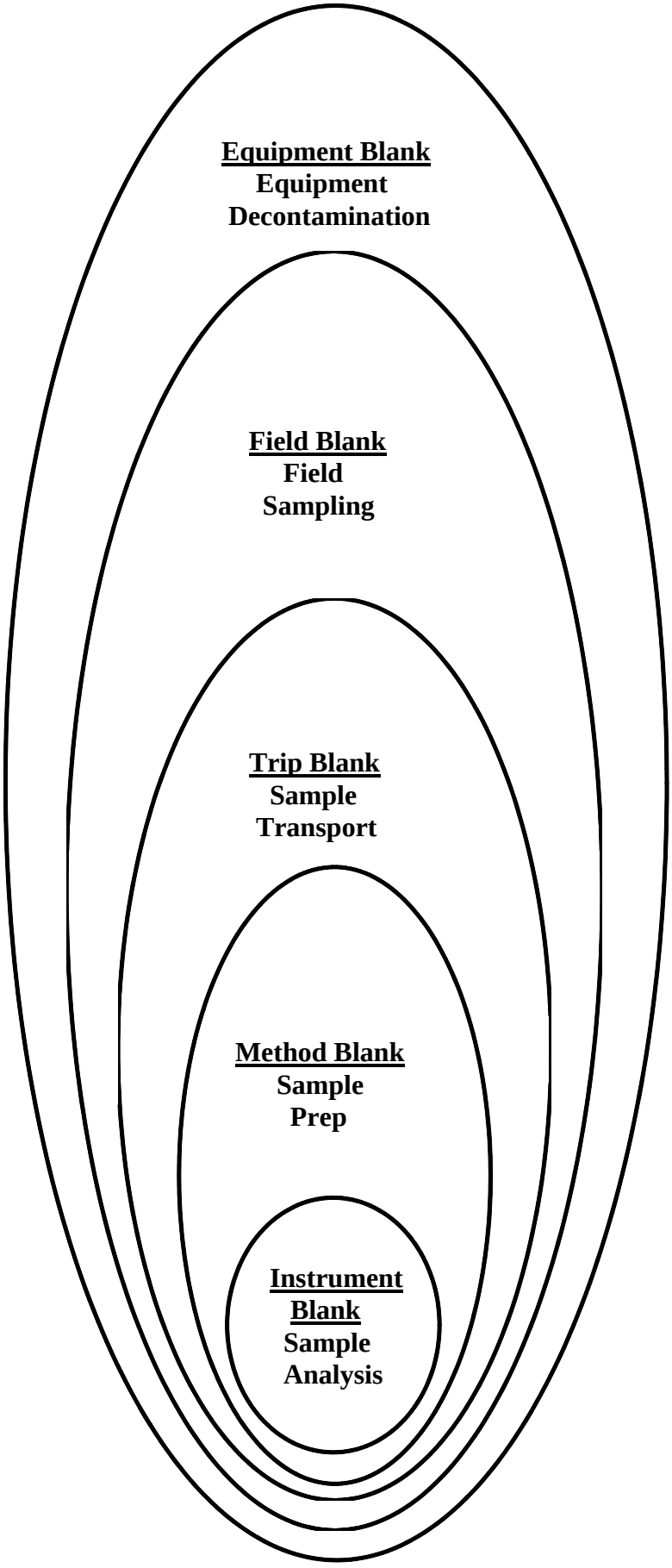
Region III Fact Sheet
Quality Control Tools: Blanks

The primary purpose of blanks is to trace sources of artificially introduced contamination. The diagram below shows how comparison of different blank sample results can be used to identify and isolate the source of contamination introduced in the field or the laboratory. See page 2 for a definition of each blank, its purpose and collection frequency.



Equipment Blank results include total field and laboratory sources of contamination.

Field Blank results include total ambient conditions during sampling and laboratory sources of contamination.

Trip Blank results include shipping and laboratory sources of contamination. Volatiles only.

Method Blank results show only laboratory sources of contamination.

Instrument Blank results show only laboratory sources of contamination.

FIELD BLANKS

Rinsate/Equipment Blank: A sample of analyte free water poured over or through decontaminated field sampling equipment prior to the collection of environmental samples.

Purpose: Assess the adequacy of the decontamination process. Assess contamination from the total sampling, sample preparation and measurement process, when decontaminated sampling equipment is used to collect samples.

Frequency: 1 blank/day/matrix or 1 blank/20 samples/matrix, whichever is more frequent.

Field Blank: A sample of analyte free water poured into the container in the field, preserved and shipped to the laboratory with field samples.

Purpose: Assess contamination from field conditions during sampling.

Frequency: 1 blank/day/matrix or 1 blank/20 samples/matrix, whichever is more frequent.

Trip Blank: A clean sample of a matrix that is taken from the laboratory to the sampling site and transported back to the laboratory without having been exposed to sampling procedures. Typically, analyzed only for volatile compounds.

Purpose: Assess contamination introduced during shipping and field handling procedures.

Frequency: 1 blank/cooler containing volatiles.

LABORATORY BLANKS

Method Blank: A blank prepared to represent the matrix as closely as possible. The method blank is prepared/extracted/digested and analyzed exactly like the field samples.

Purpose: Assess contamination introduced during sample preparation activities

Frequency: 1 blank/batch (samples prepared at one time.)

Instrument Blank: A blank analyzed with field samples.

Purpose: Assess the presence or absence of instrument contamination.

Frequency: Defined by the analytical method or at the analyst's discretion (e.g., after high concentration samples).

***COMPARING BLANKS*:** The source of contamination introduced in the field or laboratory can be deduced by comparing blank results. An equipment blank could potentially be contaminated in the field, during transport to the lab or in the lab. The method blank, on the other hand, could only be contaminated in the lab. Using all blanks (appropriate for the project) described in this fact sheet will facilitate the identification of contamination sources.

Temperature Indicator (often called a Temperature Blank, but is not a blank): A VOA vial or other small sample bottle filled with distilled water that is placed in each cooler. Upon arrival at the laboratory, the temperature of this vial is measured. The temperature indicator or blank is not analyzed and does not measure introduced contamination, therefore, is not a blank.

Purpose: To evaluate if samples were adequately cooled during sample shipment

Frequency: 1 blank/cooler

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