

The following edits reflect changes in field split requirements for routine water chemistry samples collected according to SWQM Procedures Manual RG-415, 08/2012 Revision, Chapter 10, pages 10-4 to 10-6.

Quality-Control Samples

Periodic testing of field-sample collection and handling skills is included in a field QC program through the use of QC samples including ~~field splits~~, field blanks, and equipment blanks. For more information on samples of metals and volatile organics in water—which require the collection of laboratory-equipment blanks and trip blanks, respectively—refer to Chapter 5. See Table 10.1 for a summary of QC sampling. Submit QC-sample results to the TCEQ for storage in SWQMIS using the appropriate *monitoring type code* (FS, FB, TB, EB)—for details, see Chapter 4 of the *DMRG*.

QC Sample Results

Submit QC sample results to the TCEQ for storage in SWQMIS.

Field Split (Required)

~~A field split is a single sample subdivided by field staff immediately following collection and submitted to the laboratory as two separate, identified samples. Split samples are preserved, handled, shipped, and analyzed identically and are used to assess variability in all of these processes. Field splits are required for **all routine conventional water quality parameters**. Split samples are sealed, handled, stored, shipped, and analyzed in the same manner. **Field splits do not apply to any other parameters** (unless needed for a special project).~~

~~A field split is collected by dividing an ambient water sample from a single container (for example, a 5-gallon bucket or 2.5-gallon cubitainer) between two sets of containers. A field split mimics preservation, handling, and shipping.~~

~~Submit field splits with every 10th sample. If fewer than 10 samples are collected in a month, submit one set of splits for that month.~~

Equipment Blank (Required for Metals in Water)

Equipment blanks are samples of reagent water poured into or over a sampling device or pumped through a sampling device. Blanks are collected in the same type of container as the environmental sample, preserved in the same manner, and analyzed for the same parameter. This procedure always applies to dissolved-metals-in-water samples and occasionally to total-metals-in-water samples (when a sampling device is needed).

Submit an equipment blank for metals in water with each batch of samples. If fewer than 10 samples are collected during a sample run, submit one blank. If more than 10 samples are collected during a sample run, submit one blank for each 10 samples. See Table 10.1.

Note: For those using the TCEQ metals-in-water kits, the standard frequency noted above does not apply. Collect and submit an equipment blank with each sample.

Table 10.1. Summary of Quality-Control Sampling

QA Sample Type	Parameter (Group)	Minimum Frequency	Purpose	Required	Submit to SWQMIS
Field splits (FS)	Routine water chemistry	1 per 10 samples or 1 per month (< 10 samples)	Check for consistency of preservation, handling, shipping	Yes	Yes
Equipment blank (EB)	Metals in water (dissolved)	1 per sample run or 1 per 10 samples if > 10 samples collected in one run; Houston metals kits—collect 1 per sample	Check for contamination from sampling equipment, supplies	Yes	Yes
Field blank (FB)	Total metals in water (collected directly from a water body)	1 per sample run or 1 per 10 samples if > 10 samples collected in one run; Houston metals kits—collect 1 per sample	Check for contamination from sample collection, preservation, handling, shipping	Yes	Yes
Trip blank (TB)	Volatile organics in water	One per ice chest containing VOA samples	Check for sample contamination	Yes	Yes
Field (environmental) duplicate	Water (organics, routine chemistry)	1 per 10 samples or 1 per month (< 10 samples)	Environmental variability	Optional	Optional
Field splits (FS)	<u>Routine chemistry, organics, metals</u>	1 per 10 samples or 1 per month (< 10 samples)	Check for consistency of preservation, handling, shipping	Optional	Optional
Equipment blank (EB)	Water (organics, routine water chemistry)	1 per sample run or 1 per 10 (> 10 samples collected in one run)	Check for contamination from sampling equipment, supplies	Optional	Optional
Field blank (FB)	Water (organics, metals, routine chemistry)	1 per 10 samples or 1 per month (< 10 samples)	Check for contamination from sample collection, preservation, handling, shipping	Optional	Optional
Replicate	Sediment	Determined by project needs	Environmental variability	Project specific	Optional

If collecting both dissolved and total metals, using tubing, an in-line filter, and a peristaltic pump, the same tubing and filter may be used for collecting equipment blanks and ambient water samples. Collect in the following sequence:

1. Collect the total-metals blank.
2. Add the filter; collect the dissolved-metal blank.
3. Flush tubing with ambient water and collect the dissolved-metals sample.

4. Remove the filter and collect the total-metals sample.

If there is a delay between collecting the blanks and the ambient samples, place a bag over the filter, without removing it from the tubing, to avoid contamination.

Note: If contamination is detected in equipment blanks, blanks are required for **every** metals-in-water sample until the problem is resolved.

Field Blank (Required for Total Metals in Water)

Field blanks are required for total metals-in-water samples when collected without sample equipment (for example, as grab samples). A field blank consists of deionized water that is taken to the field and poured into the sample container. Field blanks are used to assess the contamination from field sources, such as airborne materials, containers, and preservatives. The frequency for total-metals field blanks is one per day or per sample run. If more than 10 samples are collected, submit one blank for every 10 samples.

Note: For those using the TCEQ metals-in-water kits, the standard frequency noted above does not apply. Collect and submit a field blank with each sample.

VOA Trip Blank (Required)

Trip blanks are required for volatile-organics analysis only. VOA trip blanks are samples prepared in the laboratory with purged laboratory water and preserved, as required. They are transported to the sampling site, handled in the same way as an environmental sample, and returned to the laboratory for analysis. Trip blanks are not opened in the field. They are used to check contamination of the sample through leaching of the septum. Submit a trip blank for VOA samples with each ice chest full of VOA samples shipped to the lab.

Laboratory Equipment Blank for Metals-in-Water Supplies

Laboratory-equipment blanks are run by the laboratory where collection materials are cleaned and distributed. An equipment blank documents that materials supplied by the laboratory are free of contamination. When each batch of tubes, filters, bottles, acid, and deionized water is prepared, about 10 percent of the materials are chosen for QC checks—analyses of metals-free water that has been pumped through the filter and tube, collected in a sample container, and preserved.

Optional QC Samples

Field Split

A field split is a single sample subdivided by field staff immediately following collection and submitted to the laboratory as two separate, identified samples. Split samples are preserved, handled, shipped, and analyzed identically and are used to assess variability in all of these processes. Split samples are sealed, handled, stored, shipped, and analyzed in the same manner.

A field split is collected by dividing an ambient water sample from a single container (for example, a 5-gallon bucket or 2.5-gallon cubitainer) between two sets of containers. A field split mimics preservation, handling, and shipping.

[Submit field splits with every 10th sample. If fewer than 10 samples are collected in a month, submit one set of splits for that month.](#)

Equipment Blank—Other than Metals

All other types of equipment blanks are not required as part of the routine SWQM Program, but may be inserted into the sample regime, if needed for a specific reason.

For samples, other than metals in water, the recommended minimum frequency is one with every 10th sample. If fewer than 10 samples are collected in a month, submit one set of field blanks for that month.

Field Blanks—Other than Total Metals

Field blanks are optional for all sample types, with the exception of total metals in water. Field blanks, not required as part of the routine SWQM Program, may be inserted into the sample regime, if needed for a specific reason. The frequency is determined by the needs of the project or special study.

If the needs of a sampling project are met with field blanks, the recommended minimum frequency is one in 10. If fewer than 10 samples are collected in a month, submit one field blank for that month.

Field (Environmental) Duplicates

A field or environmental duplicate a second sample from the same location, collected in immediate succession, using identical techniques. Duplicate samples are sealed, handled, stored, shipped, and analyzed in the same manner as the primary sample.

Field duplicates are not required as part of the routine SWQM Program, but may be inserted into the sample regime, if needed for a specific reason.

If the needs of a sampling project are met with field blanks, the recommended minimum frequency is one with every 10th sample. If fewer than 10 samples are collected in a month, submit one set of field blanks for that month.

Sediment and Tissue Samples

QC samples are not required for sediment or tissue. Replicate sediment samples are not required as part of the routine SWQM Program, but may be inserted into the sample regime, if needed for a specific reason. The frequency is determined by the needs of the project or special study.

Tracking QC Data

Submit blank, field split, and duplicate results to the SWQMIS. Specific uses of QC data are defined by the TCEQ SWQM Program, the CRP, and other water program QAPPs. QC data are used in the review of ambient data as specified by each program area.