

**CLARIFICATION NUMBER CAO-00-002, REV. 1
TENTATIVELY IDENTIFIED COMPOUNDS (TICs)**

ISSUE

1. What are the time requirements for reporting TICs? B-3a(1) and B-3d
2. Do previously analyzed containers require re-analysis? B3-1, TICs
3. What is the impact of adding TICs on a waste stream lot basis? B-3d and B3-1, TICs
4. Can SW-846 be used for identifying and reporting TICs? B3-1, TICs
5. What is the guidance regarding TICs for methods that are not part of SW-846? B3-1, TICs

CONCLUSION

1. There are no time requirements for adding TICs to waste stream target analyte lists for instances where they are detected in 25% of the samples from given waste streams. When TICs are identified, they should be added to the target analyte list at the earliest practical time.
2. Re-sampling and/or re-analysis of the waste stream is not required.
3. Characterization of a waste stream is based on sampling a representative portion of the waste stream in accordance with Attachment B2. If TICs occur in 25% of these samples then the TIC must be added as an analyte for subsequent analysis for the containers in the waste stream. If TICs meet the criteria in the permit for hazardous waste, their codes must be added to the waste stream. Subdividing the waste streams into lots may or may not result in additional target analytes. This depends primarily on the homogeneity of the waste stream. Generator sites may use their own knowledge of the waste to segregate waste streams into lots for characterization and sampling. Each lot must be representatively sampled. If the results of this sampling are the same from lot to lot, then new TICs will not necessarily be identified. Addition of TICs to the target list requires a revision to the original waste stream profile form. If characterization results are the same from lot to lot, a new Waste Stream Profile Form is not needed. TICs identified in one lot shall be added to all future lots from that waste stream. If the TICs result in the addition of a different hazardous waste code this would be a change in characterization results and would require that the waste be redefined to a different waste stream and a new WSPF submitted.

4. Generator sites are required to implement TIC reporting in accordance with SW-846.
5. SW-846 and the permit provide the appropriate methodology. Non-permit or non SW-846 methods should not be used to demonstrate compliance to the permit.

DISCUSSION

1. Section B-3d, refers to “a statistically selected portion of the waste stream” as follows:

All waste containers (retrievably stored and newly generated) or randomly selected containers from waste streams that meet the conditions for reduced headspace gas sampling listed in Section B-3a(1) are sampled and analyzed for VOCs in the headspace gas. A statistically selected portion of each homogeneous solids and soil/gravel waste stream is sampled and analyzed for RCRA-regulated total VOCs, SVOCs, and metals (see Permit Attachment B2).

This sampled portion of the waste stream or waste steam lot represents the basis for identifying TICs for the waste stream (or waste stream lot). This basis is not time dependent. If TICs are identified in 25% of these samples, they must be added as target analytes for the waste stream.

2. Section B3-1 states:

If a target analyte list for a waste stream is expanded due to the presence of TICs, all samples collected from that waste stream will be analyzed for constituents on the expanded list.

This requirement applies to any future sampling applied to the waste stream. Typically sampling performed after completion of the representative sampling will consist of container-specific sampling required to prepare the waste for shipment to WIPP (e.g., headspace gas sampling). If a TIC is identified in a waste stream lot, CBFO requires adding that TIC to future lots of the waste stream in order to assure waste is properly characterized.

3. Section B-1a states: (emphasis added)

All of the waste within a waste stream may not be available for sampling and analysis at one time. In these instances, generator/storage sites may divide waste streams into waste stream lots based on staging, transportation, or handling issues.

Characterization activities shall then be undertaken on a waste stream lot basis. A Waste Stream Profile Form need not be submitted for subsequent waste stream lots **unless warranted by the characterization information.**

Section B-1d states:

If continued waste characterization reveal discrepancies that identify different hazardous waste codes or indicates that the waste belongs to a different waste stream, the waste will be redefined to a separate waste stream and a new WSPF submitted.

4-5. Section II.C.1.b states the following:

Waste characterization sampling and analytical methods - the Permittees shall require that generator/storage sites comply with the method requirements, quality control, equipment testing, inspection, maintenance, and equipment calibration and frequency standards for the procedures specified in Permit Attachment B1 (Waste Characterization Sampling Methods). For all analytical methods for waste analysis not otherwise specified in Permit Attachment B1, the Permittees shall require the generator/storage sites to use "*Test Methods for Evaluating Solid Waste, Physical/Chemical Method*", EPA Publications SW-846. Updates to EPA Publication SW-846 shall be incorporated into this permit by reference. Sites may use these new or revised methods once they have demonstrated that the results from the new methods will be at least equivalent to the results from the currently used methods

Based on this, generator sites should not be using non-permit, non-SW-846 methods to analyze VOCs for waste to be shipped to WIPP.

In their written technical testimony, the NMED stated that TIC reporting is to be performed in accordance with SW-846 methods and in, particular, NMED stated the following:

The TIC permit condition criteria are consistent with SW-846 Methods criteria, as they require the Applicants to report clearly identifiable TICs for addition to the target analyte list for specific methods. The SW-846 Methods, which were specifically written for the analysis of RCRA-regulated hazardous waste, do not limit the number of TICs that must be reported and identified.

In addition, the NMED clarified, with regard to TIC reporting, the following:

NMED agrees that TIC identification and reporting should be limited to clearly identifiable TICs, and that the generator/storage sites should not

report sample carryover or other laboratory artifacts as TICs. However, the SW-846 criteria address these concerns. First, the generator/storage sites are not required to report TICs that cannot be clearly identified to match the ions and ion intensities of a reference spectrum. Simply, the generator/storage sites have no obligation to report unknown compounds or classes of compounds that do not have a clear reference match spectrum. As a result, the Applicants' concern that generator/storage sites would be required to report the equivalent of instrument noise lacks merit. Second, the generator/storage site are not required to report TICs found at extremely low concentrations, because ions near the ten (10) percent relative abundance threshold are below the ion resolution capability of the GC/MS instrument and the spectra or relative intensities of spectra cannot be distinguished. Third, the generator/storage sites are required to report TICs attributable to GC/MS instrument background or peak coelution. Rather, the generator/storage sites are not required to report TICs which are clearly different than GC/MS instrument background and cannot be attributed to laboratory conditions. Conversely, under the CLP criteria, the generator/storage sites would be required to report unknown compounds or classes of compounds. In fact, the CLP criteria impose an arbitrary TIC limit as a direct result of this broad reporting requirement. Such a broad reporting requirement would not be consistent with the intent of the TIC condition: while the TIC permit condition is intended to identify hazardous constituents for potential addition to target analyte lists and assessment of hazardous waste codes, the CLP criteria would identify unknown compounds or classes of compounds which cannot be added to target analyte lists, and therefore are not relevant to waste characterization.

In summary, the SW-846 criteria ensures that potentially problematic TICs are reported, while the CLP criteria both overreport and underreport TICs on an arbitrary basis. TIC detection does not automatically result in revision of the target analyte lists. To be added to the target analyte lists, the TIC must be found in twenty-five (25) percent of samples from the waste stream, and must be on the Appendix VIII list.