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## TECHNICAL NOTE

### FIELD BLANKS & TRIP BLANKS – QUALITY CONTROL FOR METHAMPHETAMINE SAMPLERS

December, 2016

Quality Control (QC) samples collected by methamphetamine sampling organisations provide evidence that the samples they collect give results that can be used with confidence. The 2 most common types of QC samples collected are Field Blanks and Trip Blanks. This Technical Note provides information on how to collect these QC samples, and how to interpret the results from them.

#### **Why Are QC Samples Important?**

QC samples provide confidence that test results have not been affected by contamination during the sampling process. By regularly collecting and testing QC samples, samplers have evidence that their sampling procedures are reliable. The results also identify any possible contamination, so that this can be taken into account when test results are used for decision making. NIOSH 9111 make specific reference to submitting Field Blanks along with samples.

All QC sample results should be entered into a database or spreadsheet, to build up a picture of QC results collected over time.

Each sampling organisation should define how it intends to use QC samples as part of its operating procedures. The suggestions included in this technical note are to assist with this, but the decision about how to use QC samples ultimately rests with each organisation.

In addition to QC samples collected by samplers, laboratories routinely run their own QC samples to confirm the performance and reliability of the testing process at the lab.

#### **Field Blanks – a check on contamination in the sampling process**

Field Blanks provide information about any cross-contamination which has occurred during the process of collecting a set of samples. Most commonly this occurs because of the technique used by a sampler, but this can also come from background contamination in the area being sampled.

The number of Field Blank samples to be collected is not clearly defined in NZ guidelines at this point. Regulations in Colorado (USA) specify 1 Field Blank for every 10 samples collected, and this is also indicated in NIOSH 9111. It is possible that future NZ Standards will recommend specific requirements for NZ, but this information is not currently available.

The Field Blank sample is submitted in the same way as other samples in the job. It may be identified as a Field Blank on the sample submission form, or may be given a unique ID known only to the sampler for confidentiality purposes. The sample is tested in the same way as other samples.

### Collecting A Field Blank Sample

Ideally a Field Blank sample should be collected from a property where there are known to be methamphetamine residues, so that it is collected in a situation where cross contamination is possible. There are 2 options for collecting a Field Blank.

#### *Option 1 – Field Blank Collected Via Swabbing*

To assist with this option, Analytica Laboratories provides a Field Blank kit, consisting of the normal sampling supplies (sample tube, swab, gloves, template) along with a one-use Field Blank card.

Collection of the Field Blank sample should take place inside the property being sampled, either after the 10<sup>th</sup> sample collected from the property, or immediately after the final sample has been collected (but before leaving the property) if there have been less than 10 samples collected.

The Field Blank card is a clean, non-absorbent card which contains no methamphetamine residue on its surface. The sampler should use their normal technique to collect a swab sample from the surface of the Field Blank card, using the sampling supplies provided in the Field Blank kit.

#### *Option 2 – Field Blank Collected Via Exposure To Air*

To use this option, a normal individual sample kit can be used containing a sample tube and methanol infused swab.

Collection of the Field Blank sample should take place inside the property being sampled, either after the 10<sup>th</sup> sample collected from the property, or immediately after the final sample has been collected (but before leaving the property) if there have been less than 10 samples collected.

To collect the sample, remove the unused swab from its sample tube and shake it open. Then re-fold it as you would do when collecting a sample, and return to the sample tube.

### Interpreting Field Blank Results

A Field Blank sample should produce a result which is below detection limit (0.02 µg) for methamphetamine and its precursors - if there are any residues detected in the sample it indicates that there has been some contamination of the sample. This may have been caused by the sampling technique used, or the environment of the property being sampled.

Results from the Field Blank should be considered in light of the results of other samples collected from the property. If there are high residue levels in samples collected from the property, the presence of low amounts of residue in Field Blank samples may not invalidate the sample results.

Once again, there are no clear guidelines available for this in NZ at present. Indicatively, if residue levels in Field Blank samples are more than 5% of the maximum residue level that is

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acceptable for the property being sampled, then this may prompt a review of the validity of the other samples collected from the property.

If residues in Field Blank samples are too high, the sampler may need to consider re-sampling the property to be confident that results have not been affected by cross contamination. They should also review sampling technique with the person who collected the samples.

### When Should Field Blank Samples Be Collected

Consider collecting a Field Blank as part of any group of individual/discrete samples being collected from a contaminated property, since the results of this testing may be used for expensive remediation work, or other important decision making.

Each sampler in an organisation should be required to collect Field Blank samples regularly, to provide ongoing evidence that their sampling technique is not a source of cross contamination. This may be on a weekly, fortnightly, or monthly basis – more frequently for samplers who do more sampling work.

We expect that future NZ Standards will provide guidelines for collecting and interpreting Field Blanks.

### **Trip Blanks – a check for contamination in sample kits, and in the storage and shipping process**

Trip Blanks give evidence that there is no contamination of samples arising from sample kit preparation, shipping, or storage prior to use.

#### Collecting A Trip Blank Sample

A Trip Blank sample can be collected at any point, although to maximise the chance of detecting any problems it can be collected when sampling a property where there are known to be methamphetamine residues.

There is no specific kit for a Trip Blank – any Individual sample kit supplied by Analytica Laboratories is suitable. To collect the sample, the sampler simply removes the sample tube from an unused Individual sample kit while collecting samples in a property. They label it with its sample ID without opening the tube.

The Trip Blank sample is submitted in the same way as other samples in the job. It may be identified as a Trip Blank on the sample submission form, or may be given a unique ID known only to the sampler for confidentiality purposes. The sample is tested in the same way as other samples.

#### Interpreting Trip Blank Results

A Trip Blank sample should produce a result which is below detection limit (0.02 µg) for methamphetamine and its precursors. If there are any residues detected in the sample it indicates that there has been contamination of the sample kit either when it was manufactured, during storage prior to use, or during shipping from or to the lab.

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If residues are detected in the Field Blank sample, the sampler should contact the laboratory to discuss this. They may need to consider re-sampling the property to be confident that results have not been affected by cross contamination.

When Should Trip Blank Samples Be Collected

Laboratories should be regularly collecting their own data on possible contamination of batches of sample kits they have manufactured. There should be a very low risk of contamination of sealed tubes during storage or shipping, so Trip Blank samples should not need to be collected regularly. A sampling organisation may choose to submit a Trip Blank sample on a monthly, bi-monthly, or quarterly basis depending on the level of risk they perceive.

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