How to Avoid the Most Common Mapping Project Mistakes

1. The Most Common Mistake

In spite of the headline, it is difficult to pin point the *one single* most common mistake. Most of the Mapping Matters enewsletters discuss the mapping process and are not focusing on what not to do. Let's discuss what not to do, or what to avoid, during the mapping process.

If forced to pick the one biggest mistake, it would be omitting the creation of a methodical layout, or pattern, for the mapping. Random placement, or placement without any thought to other variables in the environment (i.e. an air duct, or fan), can cause a significant amount of rework. With regard to the sensor pattern, not thinking three dimensionally, or not placing sensors where product will be present are both problematic. For example, placing a sensor or logger at the midpoint of a space based on the assumption the measurement will be some type of "average" reading between the points is not correct placement. This type of assumption is contradictory to the fundamental reason for a mapping which is to actually *know* what those temperatures are at those specific points.

2. The Mistake of Not Using Enough Sensors or Loggers

Not using enough sensors or loggers is another common mistake that can lead to failure of a mapping project. This mistake is sometimes tied to the mistake of poor layout methodology, or sensor pattern. In some cases, not using enough sensors is directly related to a driving need to reduce costs. For some large mapping projects that require local data logging, the costs of equipment can rise quickly. It is always prudent to remember that, although the mapping equipment and process may be costly, it is usually minimal compared to the cost of product failure, or a product recall caused by inadequate mapping or monitoring?

3. The Mistake of Poor or Inadequate Planning

The biggest mistake when it comes to planning is, without a doubt, setting impossible or unnecessarily difficult pass/fail criteria. One example of this mistake is in setting an out of tolerance limit for your

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3. The Mistake of Poor or Inadequate Planning

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study that is beyond the normal operating temperature of the space in a warehouse. If the space normally operates at temperature X, you should not simply decide to make the out of tolerance limit equal to *X + 1.* The criteria should be chosen based on the product limit and not the storage environment itself. If the product storage temperature requirement is *Y,* consider halving the difference between *X and Y* and adding that value to the upper control limit for the space to derive your pass/fail limit.

Although, showing that the equipment or system is under control or repeatable is important, another common mistake is in defining protocols that call for expectations to be beyond manufacturer claims. Setting reasonable limits based upon the system capabilities and the product quality limits is a very important part of any mapping plan. This mistake leads to a lot of wasted time and effort trying to meet improper mapping pass/fail limits. The bottom line is; do not "paint yourself into a corner" and do think about *why* you are setting pass/fail limits. Make sure the equipment or system is capable of meeting your protocol criteria.

4. The Mistake of Overly Complex or Imprecise Mapping Protocols

Protocols should be clear and concise. If a drawing or picture can be added for clarity, do it. If a compound sentence can be reduced to two or three sentences, consider doing it. Remember that although you may be executing the mapping protocol you are writing, others may need to use your protocol document in the future and they will not have the benefit of the additional information in your own head. The protocol document will also be read and reviewed by others who may have little to no knowledge of the system. The clearer your document, the less scrutiny it will receive. It is usually a good idea to include a small paragraph providing background on the space you are mapping. Simply referencing a user manual without a quick explanation of the system is annoying to most reviewers, as they will have to dig deeper into the "what and why" of the mapping project.

5. Mistakes Made in Data Collection and Reporting

Once all of the data is collected, a report should be generated. It is not enough to just collect the data and reference it in the report. This practice will almost certainly invite additional data review. The data should also be checked to ensure that the data collected matches what was originally stated in your documents.

If the reporting system is capable of flagging out of limit data, or graphing the data, strongly consider including those in your data report. The final report should state clearly what your findings are in written English. Including data graphs and out of limit data in reports in addition to a well written summary of the mapping project can speed the review process dramatically.

6. Other Common Mistakes

Another big mistake, or subject, is not thinking about the calibration. One common mistake is in using calibration equipment employed for the sensors that are actually less accurate than those used during the mapping. A calibration check against an inferior piece of equipment (less accurate) does not allow for properly calibrated or checked sensors used in the mapping project. If calibration is not proper, any person reviewing the mapping data might call into question the entire mapping execution, especially if some of your data is close to a pass/fail limit.