Cleaning Memo for April 2017
Dirty and Clean Hold Time Protocols

I sometimes get asked about doing a dirty hold time (DHT) protocol *after* the cleaning validation protocol is complete. Implicit in the question is the assumption that a protocol to determine the effectiveness of the cleaning process is *different* from a protocol to determine the dirty hold time. That is, I first complete my cleaning protocol, and then after completion of that protocol, I now conduct my DHT protocol.

I can understand why I get that question; however, it *misses the point* about what is being done. Any protocol to evaluate the effectiveness of a cleaning processes always (I repeat, always) has a dirty hold time, even if we choose not to call it a "dirty hold time". In other words, there is always a *finite time* between the end of manufacture (however I define that) and the beginning of the cleaning process (however I define that). It may be only a few hours, or a few minutes. But whatever that time is, that is the "validated" maximum DHT for that protocol (just for clarification, that maximum DHT is the validated DHT if the protocol is successful). If I am to use the validated cleaning process in the future, I must initiate cleaning *within* that maximum DHT, or else I face a deviation (or non-conformance if you prefer that term). There is no way to get away from this situation; there is *always* an implied DHT in a validation protocol for a cleaning process.

Now, after performing a cleaning validation protocol with a specified DHT, it may be possible to *increase* that maximum DHT by performing another protocol. However, unless other things are also changing, that new protocol should have the same conditions and acceptance criteria as the previous protocol (except, of course, for the longer dirty hold time). The terminology I would use to refer to this new protocol is not "I am validating a longer dirty hold time", but rather "I am validating a cleaning process with a longer dirty hold time" (although I think understand what is being said by the former phrase). The reason for this is that a DHT is a parameter (a variable one) in the cleaning process. It is not unlike the washing time, the washing temperature, and the cleaning agent concentration. It is a variable or parameter to be controlled for the cleaning process. If I extend the DHT, I am therefore validating a cleaning process with that (new) parameter.

In contrast, when I talk about the clean hold time (CHT), I generally refer to a clean hold time protocol. Perhaps I am being somewhat inconsistent, but the objective for the CHT is to establish that the equipment does not become recontaminated between the end of cleaning and the beginning of manufacture of the next product (or the beginning of a SIP process). I guess I could say I am validating the process for storing the equipment in between uses, but I don't do anything other than test it at the end of the storage time under defined storage conditions (and perhaps compare that data to the "beginning of storage" data). That is, any actions I take to protect the equipment during "storage" or "idle time" ideally should be part of the cleaning SOP (although if you pushed me, I would say it is okay to have one SOP for the cleaning process and a second for preparation for storage under the CHT).

Furthermore, the CHT protocol can be a *separate* protocol from the cleaning process protocol. That is, it is possible (and is my preference, because I am "hard-wired" to like modularity) to have one protocol that determines the effectiveness of my cleaning process under defined conditions, including a maximum DHT. Then I can perform a second protocol for the CHT, to evaluate maintenance of a clean state during the clean hold time. This second (separate) protocol can be done "back-to-back" with the cleaning process protocol. In that case the microbial data from the end of the cleaning protocol may serve as the "time zero" or baseline microbial data for my CHT protocol. Or, I could separate these two protocols and perform the CHT following a cleaning event that was *not* part of the cleaning process protocol. The reason I like this "separation" is that I only execute the CHT protocol if the cleaning process protocol is successful. If the cleaning process is not validated, what value is it to conduct the CHT protocol (although there may be unusual circumstances where performing the CHT part of the protocol could appropriately follow an *unsuccessful* cleaning process protocol)?

Needless to say, it is still acceptable (and probably more common) to write one protocol with instructions and acceptance criteria for *both* the acceptability of the cleaning process *and* the acceptability of the CHT storage parameters. However, in such situations, I should be prepared to deal with situations where the cleaning process part of the protocol is successful, but the CHT part of the protocol fails.

For clarification, when I refer to the storage conditions as part of the CHT protocol, I am not referring to storage in an uncontrolled area or storage for an extended time. I am assuming the equipment is used regularly, and the storage conditions are the "normal" conditions between manufacturing uses of that equipment.

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