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Memo

To: Jerry Raymond, Sal Dassaro, Paul Jenssen
From: Dag Gonzalez
Date: November 14, 2001
Subject: Update of my biological threats research and survey

Here is an update on our survey of issues and solutions concerning biological threats and mail centers:

1. **Limitations on the capabilities of ultra-violet treatments** -- As I reported earlier, UV treatments will sanitize the outside of envelopes, but we have been seeing problems with how UV is actually being used. In order to be effective, a certain range of frequency of UV light (270 nm) and wattage (expressed as micro-watts per cm²) has to be exposed at a certain distance from the material being treated and the material has to be exposed for a minimum period of time (five seconds per side at 12"). If mail is exposed on a work surface and is turned over manually, there are still significant possibilities for re-contamination (either from the work-surface, the handling or from other mail). We have watched people trying this process and we do not feel comfortable with the level of human error to give real comfort that material has been "sanitized." In addition, the potential of cornea damage and skin irritation must be addressed by using protective eye-wear and gloves.

Because there is a risk that contamination can remain in the seams or openings of envelopes that are not exposed to the required amount of UV light, I would suggest that the process be handled in a controlled environment, eliminating human error, unnecessary handling and dangers of UV exposure.

A controlled and mechanized process (such as a conveyor) with fixed, enclosed UV lamps of the proper intensity and wave length should be considered. Obviously, the operators loading the mail should not be the same people removing the sanitized material.

Another option is the use of enclosed UV lamps with a system to draw ambient air from the room. I submitted to Sal and Paul different products that could be incorporated into the HVAC ducts or mounted from the ceiling above mail handling equipment. Again, I just don't like the idea of exposing our clients to open lamps.

Ozone treatment -- We have been working with an expert who has extensive experience designing and building conditioning systems that use ozone and various other processes to decontaminate facilities and material. Research published by the Los Alamos National Laboratories last August indicates that ozone, under the right ecological circumstances, is effective in decontaminating biological spores such as anthrax.

One of the things that is promising about ozone is that it can be used safely without running into the environmental or regulatory problems

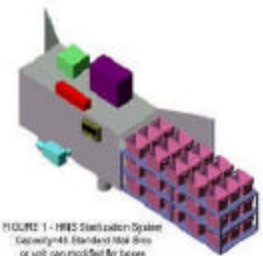
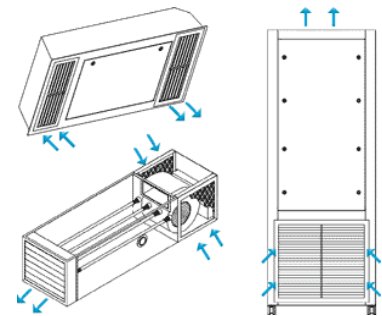


FIGURE 1 - HHS Sterilization System
Capacities: Standard Mail Boxes
or will be modified for boxes.

that might be posed by alternative gases (such as chlorine or ethylene oxide) or other methods of treatment. In other words, ozone is safe and relatively simple to use. It would also be effective in treating both the surface and contents of most common corporate mail.

It would be possible to create and deploy a system for treating some quantity of mail in postal mail buckets in a couple of months, rather than the much longer lead time alternatives. It would not require an off-site or dedicated facility and would not seem to have an impact on the contents of the mail (including media). Virtually the only thing it could not do is sanitize the contents of a sealed plastic or glass container inside a package.



This would be the best option we have found if someone (a) wanted to sanitize general corporate mail (inside and out), (b) did not mind delaying the handling of mail to perform this process (4-45 mail bins at a time treated for 20-30 minutes, depending on the size of the unit.) and (c) was willing to purchase a system of this type.

If anyone is interested in exploring this, please have them speak to me.

- 2. HEPA-filtered vacuums** -- HEPA filters are designed to capture biological contaminants (such as spores) from the air and dust. A number of our customers have started using HEPA-filtered vacuum cleaners to clean dust their mail centers and machines. As I mentioned earlier, some have even expressed an interest in placing HEPA filters (and even UV lights) at the vents for their HVAC systems. Systems are available for treating different size rooms. This seems like a reasonable precaution and is not very expensive.
- 3. Scanning off-site** -- We looked further at the suggestion that the ultimate protection could be provided by receiving mail off-site, screening it, opening it, scanning it and storing the images on CDs or DVDs. Mail that is never actually received on-site does not pose any risk to a facility or its employees.

This is not completely impractical and might be considered by anyone who does not want to run any risk of having to evacuate its facility because of contaminated or cross-contaminated material. High speed, high resolution color scanners can process 2,000 - 3,000 prepared two-sided documents per hour and write them to clean media. A DVD can hold approximately 5,000 - 7,000 documents. Scanners with these specifications can be rented for a reasonable price and deployed within a few weeks.

Anyone interested in exploring this option should speak to Jerry Raymond.

- 4. Centralized opening** -- We are still hearing about people opening mail with stilettos and slicers, which poses unnecessary risks. We have been getting inquiries about purchases and rentals of milling cutters that reduce the risk of cutting contents and exposing mail center employees to paper cuts. As before, we can retrofit HEPA filters near the openers to pick up any debris from the milling process and capture a percentage of airborne particles that could be released.

I will keep you posted on any more information we have.