



## *TECHNICALLY SPEAKING*

### **Reclaiming Electronic and Electrical Equipment from Flood Damage**

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The recent catastrophe in the Gulf Coast has led to immediate interest in the possibilities for reclaiming electronic and electrical equipment submerged by storm surge waters and inundated by flood water for a prolonged period of time. The good news is that such equipment, if not under power when the flooding incident occurred, can be salvaged and returned to life. The process for doing so is relatively straight forward and should facilitate reactivation of the damaged equipment in most cases.

First one should consider if reclamation of the flood-damaged equipment is cost effective and makes good financial sense. If the electronic or electrical equipment is relatively inexpensive and replacement units are readily available or "off-the-shelf" then it makes more sense to simply scrap the damaged unit and obtain a replacement.

On the other hand, if the equipment in question is expensive to replace or if the item is a custom-made, one-of-a kind unit, and replacement would take an inordinate amount of time or is cost prohibitive, then reclamation may be the only route for quickly returning to operation. Such devices as instrument controllers, electronic process controllers and specialized electronic equipment can be salvaged with a little time and effort. Equipment could easily be returned to use within 24 to 48 hours, provided all the internal parts can be accessed for cleaning, and such items as power supplies, monitors, disk drives and the like can be easily replaced.

In brief, the basic cleaning procedure for electronic and electrical equipment can be summed-up as "wash-dry-degrease-dry". The only exception to this recovery regimen is in the special case where equipment is flooded by salt water. Corrosion of the circuit boards begins almost immediately and cannot be reversed once the water has receded. In this case the boards will have to be replaced.

First examine the exterior and interior cabinet for deposited sludge, oil, grease, and other residues left by receding flood waters. Silt, sand, and mud can be flushed from the equipment cabinet using clean water. Allow the flushing to continue until the rinse water is clear. Using clean water will not further damage equipment that has already been submerged in flood waters. Next all internal circuit boards and parts are removed from the equipment to provide free access to all surfaces. Be sure to label the parts in some manner to facilitate proper re-assembly of the unit once cleaning has been completed.

Spray each circuit board or component liberally with Flux-Off<sup>®</sup> Water Soluble. Flux-Off<sup>®</sup> Water Soluble will dissolve trapped water and flush it away from the circuit board or component surface. Its low surface tension allows it to penetrate under components and into tight spaces to remove any water and debris trapped there. Flux-Off<sup>®</sup> Water Soluble will dry rapidly on its own or with a little help provided by the use



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of Ultrajet<sup>®</sup> Duster to speed the drying process. Ultrajet<sup>®</sup> Duster can also be used to blow out any liquid that becomes trapped in tight spaces. Be sure to also rinse the inside of the equipment cabinet with Flux-Off<sup>®</sup> Water Soluble to dry it thoroughly.

After all the parts have been dried using Flux-Off<sup>®</sup> Water Soluble, any deposits of oil and grease and their associated soils can be dissolved by spraying the parts with Electro-Wash<sup>®</sup> PX degreaser. Both Electro-Wash<sup>®</sup> PX and Flux-Off<sup>®</sup> Water Soluble are plastic safe, so there's no worry that sensitive plastic parts will be harmed by either solvent cleaner. Once all the oil and grease has been washed away and the parts allowed to dry completely, the unit can be re-assembled. Connector sockets, switches and other electrical contact surfaces can be lubricated with New and Improved Contact Restorer<sup>®</sup> to protect them from future moisture exposure.

In some cases such components as power supplies, insulated cables, disk drives, and monitors can also be reclaimed using this method. If this procedure does not work contact the original manufacturer of these items to see if they have their own reclamation procedures to be used. For example, if the computer hard disk drive cannot be reclaimed the drive can be flushed with clean water, to remove any deposited solid debris, and stored in a plastic bag in a refrigerator until it can be taken to a reclamation service for recovery of any stored data. Ultimately, many of these items may have to be replaced.

Fiber optic equipment can also be cleaned using a similar procedure. In this special case, the main idea is to clean the fiber optic connector end-face to remove water and dirt that will interfere with transmission of the laser signal. Rinse fiber optic and backplane connectors with Flux-Off<sup>®</sup> Water Soluble then clean the fiber end face using Electro-Wash<sup>®</sup> PX, the QbE<sup>®</sup> Cleaning System, and the appropriate 2.5 mm or 1.25 mm Fiber Optic Cleaning Swab.

For more detail information regarding these equipment reclamation procedures and the products to be used, view the Application Sheets "Recovery of Electronic and Electrical Equipment from Catastrophic Water Damage" and "Recovery of Telecom Equipment and Fiber Optic Connections from Catastrophic Water Damage" on the Chemtronics website at [www.chemtronics.com](http://www.chemtronics.com) or contact Chemtronics at 800-645-5244 x166.

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