



UNIVERSITY-NATIONAL OCEANOGRAPHIC LABORATORY SYSTEM

Graduate School of Oceanography – University of Rhode Island

220 South Ferry Road, Narragansett, Rhode Island 02882

(401)-874-6825 Fax (401) 874-6167 www.unols.org office@unols.org

To: UNOLS Sea-Going Community

From: UNOLS Safety Committee

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Deployment of Electrically Energized Equipment

Electrical current is the deadly part of electricity. Voltage, despite the misconception, does not kill, although higher voltage is often associated with higher current. Milliamperes (mA or amps) is the measure of electrical current that is forced through the body during electric shock.

When the level of milliamperes reaches above 15mA, it can be a potentially dangerous situation. However, a current above 50mA is very dangerous and currents above 100mA are often fatal because the electricity can cause ventricular fibrillation. Currents of more than 200mA can cause severe burns and heart stoppage.

For shipboard operations electrical safety is always a concern and operators all address this in their shipboard processes and risk assessment. An area that can be overlooked though is the handling of powered science equipment while being deployed, recovered or serviced on deck. One of the most common of these evolutions performed from a research vessel is the deployment of a CTD package which is fused at 0.5 amps, well above the amperage needed to be fatal.

There has been a recent email discussion string within RVTEC about the merits and risks associated with the CTD being deployed and recovered while energized. It appears this practice is a result of scientists wanting to have the pressure transducer offset value in the same file as the cast data. This practice constitutes a safety issue because of the potential for an electrical shock hazard and the Safety Committee advises that CTD launch/recovery operations should always be done with the CTD powered down which is consistent with manufacturer recommendations. If there are extraordinary circumstances where this is not possible because of science needs, then a thorough risk assessment with resulting use of electrical safety Personal Protection Equipment (PPE) to mitigate the risk should be done.

On a broader scale there are other instrument packages that must be deployed and recovered with the instrument powered up. Vessel operators need to carefully review operations of this type for the potential risks of electrical shock and be sure all personnel associated with those evolutions are aware of the potential hazard. Where appropriate because of the risk, consider feasibility of using electrical safety PPE.

The Safety Committee will be addressing this issue in the next update to the RVSS.