

FLOOD RECOVERY ACTION STEPS

The Risk Does Not Recede With The Water

If your equipment, machinery or electrical systems have been exposed to flood waters, you risk their loss even when the water level has dropped. Equipment and machinery may have water, silt or other contaminants within them. Your equipment could be damaged or destroyed if you attempt to start or test it without adequate cleaning and preparation for operation. **DO NOT ATTEMPT TO OPERATE OR TEST YOUR EQUIPMENT WITHOUT PROPERLY RESTORING IT.** Even when your equipment's exterior appears normal, residual moisture and contaminants can lead to permanent damage.

Dry and Clean Before Using

The following summarizes the steps to prepare your equipment for operation. Most actions involve careful draining, drying, cleaning or lubricating of equipment before attempting to start or energize it. Taking these precautions now can help you to avoid a major equipment failure and enable you to restore vital operations sooner.

Electrical Equipment

DO NOT ENERGIZE equipment that has been flooded until properly cleaned, dried out, and until insulation has been tested. This includes enclosures, bus ducts, conduit, and cables. Application of power to wet circuits will usually result in serious damage that will require repair or replacement. This is especially to be observed if the equipment is vitally needed and obtaining a replacement could be difficult. It is usually better to spend the necessary drying time than to risk destruction of the equipment.

- Windings in electric machinery should not be dried at temperatures exceeding the rating of its insulation system. In general, a maximum temperature of 194 degrees or 90 degrees C may be used. Check with the manufacturer for equipment specific information and recommendations.
- Dry type transformers should be cleaned and thoroughly dried as described for windings.
- Oil filled transformers should be thoroughly inspected for damage including the insulation bushing and oil samples should be drawn from the tank's top and bottom for analysis. Examine the sample for free moisture in the form of moisture droplets or a cloudy appearance. The laboratory should be instructed to include a Karl Fischer test for dissolved water content. Maximum water content for equipment rated $\geq 69\text{kv}$ is 25 ppm and equipment rated at $< 69\text{kv}$ is 35 ppm. If water is found in the oil, the oil charge must be dehydrated by a competent service firm.
- Circuit boards that have been immersed can sometimes be salvaged, provided that they were not energized at the time of immersion, and further provided that water sensitive components are not mounted to them. This can be done by carefully washing the individual boards in pure water and thoroughly drying before energizing.