

# Tempest Environmental Systems, Inc.

A global leader in water purification  
equipment and services for

## Emergency Disaster Response

Virtually every week a disaster occurs somewhere in the world. Whether the disaster is natural or created by man, accidentally or willfully by utilizing NBC (Nuclear, Biological, and Chemical) weapons of mass destruction, the availability of safe, potable drinking water for the survivors and rescue teams is paramount. In most natural disasters, local municipal water treatment facilities are temporarily compromised and groundwater wells are inaccessible, contaminated and/or damaged. Survivors are restricted to limited geographical regions and must depend on water that is immediately accessible. The spread of water-borne diseases throughout the disaster area by people drinking contaminated water is an all too well documented problem. 80% of all infectious diseases are water-borne.

Increasingly, the company that has offered the most solutions to these problems is **Tempest Environmental Systems (TES)** of Durham, North Carolina, USA. **TES** manufactures a wide range of water purification systems designed especially for Emergency Disaster Response. These products have been field proven in a variety of relief situations and used in support of USAID, Department of Defense, and NGO operations. This response was made possible by **TES's** dedication to developing, and promoting the need technologies that meet the water purification requirements for people caught in the most adverse of conditions.

Whether the  
disaster is  
caused by  
Hurricanes,  
Typhoons or  
Floods ...



The solution to the drinking water needs  
of survivors and relief workers is the  
**TEMPEST ENVIRONMENTAL SYSTEMS**  
line of **AQUA<sup>pure</sup>**® Mobile Water  
Purification Systems.



Earthquakes,  
Landslides, or  
other natural  
events ...



Or through  
a direct  
result of  
war,  
aggression,  
or terrorist  
attacks ...



Products are manufactured in the USA  
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# AQUApura® Mobile Water Purification Systems

## The BEE™ and BEE-DESAL™ Mobile Water Purification Units



A BEE-DESAL™ version is also available, where high dissolved solids (TDS) are present in the source water, and is even capable of desalinating seawater into high quality drinking water in areas where the ocean may be the only source of water.

Both the BEE™ and BEE-DESAL™ are designed from the ground up to be rugged, low maintenance machines to meet even military specifications, enabling them to take the full punishment of use even in disaster relief situations. Incorporating state-of-the-art technology, the BEE™ and BEE-DESAL™ are the only units of their kind in the world, and meet or exceed all World Health Organization (W.H.O.) drinking water quality standards.

Often the solution to disaster relief water purification crisis requires a smaller, manually operated purification system that can be easily transported to extremely remote locations where road or rail access is unavailable. The modular SWPS™ Surface Water Purification approach allows for relief agencies to choose from a variety of system configurations designed to treat water from almost any fresh water source. The standard SWPS™ 100 will purify water at a rate of 100 GPM (380 LPM) to meet drinking water quality standards under emergency water purification guidelines. No other system can produce safe water at this rate; the SWPS™ will furnish up to ten gallons of water per person for 14,400 people in a 24-hour period. Complete with a raw water intake pump, pre-filtration and post-filtration modules, chlorine injection system, storage tanks and distribution network, the SWPS™ is the number one solution to disaster situations requiring high volumes of treated water at a low cost.

The modular approach to the SWPS™ allows for the transition of equipment from emergency to long-term use. The SWPS™ 100-BC module utilizes a state-of-the-art ozone generation system to treat water with high levels of Biological and Chemical contamination more effectively than chlorine alone. The SWPS™ 100-MMF module utilizes a five-stage multi-media filter and flocculation system to enhance the filtration capability of the SWPS™. Both of the modular add-ons reduce long-term operation and maintenance costs. In addition, there are multiple distribution options available to fit any need.

When source water quality is suspect, the BEE™ is the answer. The BEE™ is a Level III system capable of transforming most any ground or surface water source into high quality drinking water, at the rate of up to 380 liters per minute (545 cubic meters per day). Level III filtration is designed for the highest level of disinfection of waterborne virus, pathogenic bacteria, the removal of cysts, organic chemicals, and sediment. Employing advanced ozone disinfection technology and mechanical filtration, AQUApura® Level III water filtration units kill or remove:

- Up to 99.99999% Pathogenic Virus and Bacteria including Cholera, Typhoid, Salmonella, E. Coli and Fecal Coliform
- Cysts (Cryptosporidium and Giardia)
- Chlorine, Bad Tastes, and Odors
- Organic Chemicals, Pesticides & Herbicides
- Volatile Chemicals (VOC)
- All Level III Water Purification Systems are designated Bactericidal.

## AQUApura® SWPS™ Surface Water Purification Systems



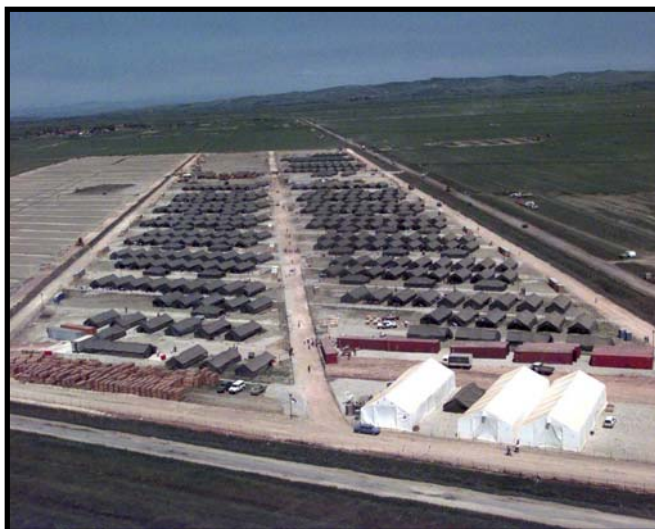
# Global Vision and Real World Experience

**Tempest Environmental Systems' dedication and ongoing commitment to providing technologies and services targeted at meeting global water purification needs, even under disaster relief scenarios.**



On January 16, 1995 a 6.9 Magnitude earthquake rocked Kobe, Japan, causing extensive damage and loss of life. In addition, municipal water supplies were destroyed and isolated groups were left without access to clean drinking water. Tempest Environmental Systems teamed with Isuzu's emergency vehicle division to produce the MOBAC, a truck mounted Mobile Bactericidal Desalination System. Utilizing the same technologies seen in the BEE-DESAL™ system, TES has shown the versatility of its products to meet client requirements.

Some disasters happen instantly, others are the result of years of political turmoil and military aggression. This was the case when the United States Department of Defense contracted with Tempest Environmental Systems to supply water for Camp Hope in Albania, a temporary home for refugees fleeing the Kosovar Crisis. Located outside Fier, this camp was designed to house up to twenty thousand people and TES provided them quality water far better than available to them elsewhere.



Lessons learned after the Kobe earthquake assisted in the response of Tempest Environmental Systems to the devastating earthquakes that destroyed much of central Turkey. Recognizing the availability of fresh water sources, and the need to provide high volumes of safe, potable water to a large population, TES deployed AQUApura® SWPS™ in a cell-site fashion to assist relief workers scattered throughout the region. This micro-filtration approach allows for purification of water on-site, rather than delivery from a remote source. This approach greatly reduces the risk of cross-contamination.

In third world and developing countries, the quality of water provided by the AQUApura® line of Mobile Water Purification Systems is often better than that of the water available prior to the disaster. With this in mind, Tempest Environmental Systems has designed these systems to be transferable from emergency relief to long-term use. After the torrential flooding in Venezuela, TES responded with the SWPS™ cell-site approach to insure safe drinking water was available for the Venezuelan people. As infrastructural rebuilding began, Tempest Environmental Systems assisted the government of Venezuela in the transition of the SWPS™ micro-purification plants to long-term usage.



To stay current on the work of Tempest Environmental Systems around the world visit <http://www.aquapura.com/latest.html>

# The Tempest Environmental Systems Water Engineering Team (WET)

The Tempest Environmental Systems Water Engineering Team (WET), led by Dr. Roddy Tempest, Chairman and CEO, offers decades of experience in water purification and engineering field support. Available for both equipment commissioning and field support consulting, the Tempest WET is kept on high alert, ready to mobilize and travel to any point on 24-hour notice. This level of experience and readiness can often translate into the saving of human life and increased effectiveness of relief resources.

The WET is equipped with a complete range of portable water testing equipment to assist relief organizations in determining the risk of local water sources and the placement of purification equipment. Testing of local sources is necessary to insure that both survivors of disaster, and the workers sent to aid their recovery, are not exposed to water-borne disease caused by cross contamination of wastewater and drinking water supplies. The Tempest WET can test for over eighty water quality parameters, including the presence of bacteria and toxic chemicals.

Completely self-sufficient and highly mobile, The Tempest Environmental Systems Water Engineering Team is equipped with satellite and local telecommunication equipment to stay in constant contact with the home office. This communication increases the effectiveness of the WET, saving valuable time and resources in the field. The WET can also provide photo and video documentation of field conditions to assist decision makers in the best allocation of resources.

Contact a Tempest Environmental Systems Disaster Relief Specialist to discuss how the WET can assist you in responding to the next disaster.



**AQUA***pura*®

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