**Water and Terrorism**

# Introduction

In this modern world water is the fundamental resource of human life. Any country’s social, welfare and economic conditions are highly depending on the modern water supply and it’s infrastructure to provide safe water to the people. Over 2500 years it is known that water is used as a political or military target tool. Terrorists and opponent countries are targeting water resources to trouble the people and countries as there is no substitute for water resource. Be it lack of water supply or contamination or poisoning the water will put the entire community into trouble and they will suffer greatly.

There are incidents such as diverted water from this region to boundary canals, drying up boundary ditches to deprive the neighboring cities, contaminating the water. In 1993 there is an outbreak of Cryptosporidium in Milwaukee killed over a hundred people, around 40,000 people health got affected also millions of people lost wages and productivity.

After understanding the importance of water it is very clear that there are high chances that terrorist will strike water system which can lead to death and great damage to the society. But unfortunately these threats poorly understood by water supply management and public. Water resources can be targeted in many ways such as hacking treatment plants, destroying the water supply mechanism infrastructure or releasing of poison or disease-causing agents, and destroying the purification infrastructure.

**Current Threat:-**

According to the given task, a terrorist made a threatening call to water system via phone and stated that they would be releasing **Tularemia** into the water system in the next 4-6 hours.Tularemia is a serious [infectious disease](https://en.wikipedia.org/wiki/Infectious_disease) caused by the [bacterium](https://en.wikipedia.org/wiki/Bacterium) [Francisella tularensis](https://en.wikipedia.org/wiki/Francisella_tularensis). This bacterium can penetrate in the body and can damage the skin, causes [fever](https://en.wikipedia.org/wiki/Fever), swelling and severe [pneumonia](https://en.wikipedia.org/wiki/Pneumonia). This is a serious problem as health department cannot diagnostic the route cause and to provide vaccination to the entire community.

**Protection:-**

These types of attacks are not straightforward but the number of casualties will be depending on various factors such as how quickly we have identified the attack, scope of discovery and response by local water supply authorities.According to the water and terrorism article, only few biological pathogens can survive in the water. It is required large volume of chemicals to contaminate a water system to the dangerous level.In this current situation as we are not aware the scope of attack we have to deal this carefully.

There are various technical ways to handle these types of attacks but it always safe to have preventive mechanism to handle the occurrence. Existing water treatment methods can handle these types of situations and can kill the most types of bacterium, virus, or other microorganism that can cause diseases. The existing municipal water systems are designed to destroy biological pathogens and reduce the concentration of harmful chemicals through **chlorination, filtration, ultraviolet radiation, ozonation** and many other common treatment approaches. Also sunlight and other natural process can be used to treat contaminated water. Majority of the municipal water systems built with automated water treatment and backup systems.

As there are chances that terrorists can gain access to computer infrastructure through that they can contaminate the water, Supervisory control and data acquisition (SCADA) networks can be used by water agencies to protect from these types of attacks. SCADA systems sensors and control equipment’s collects the data periodically and notify if there are any susceptible to attacks and misuse”. If it is noticed that contaminated water entered into the system, the water supply to the city should be stopped and follow the neutralization procedure and make a “boil water” alert for city residents. Stop the fresh water supply and then divert the contaminated water (after treatment) to the biological usage or for the irrigation if it’s not affecting the fertility of the land and the plants.

**Precautions:-**

During this water treatment process make sure that water management made emergency arrangements to provide drinking water to the people through emergency mechanism. Also underground water can also be supplied to the city if it is not contaminated with Tularemia.

**Conclusion:-**

I believe **CHLORINE** is the right answer for the given task. According to the various chemical analysis process and reports, chlorine (i.e. commonly used in municipal water systems) has ability to neutralize these toxins or pathogens. Advanced filtration, ultraviolet disinfection and ozonation are also known for advanced non-chlorine based water-treatments used to treat contaminated water. As per the analysis chorine has a capacity to Inactivate, 1 ppm Tularemia in 5 minutes. The traditional chlorination method can be used to purify the water.

# References

# Gleick, P.H.(2006).*Water and terrorism*. Retrieved March 27, 2017 from: http://www2.pacinst.org/reports/water\_and\_terrorism\_2006.pdf