

## **VAST 2011 Grand Challenge Answer Guide**

### **Grand Challenge - Cause and Effect**

A terrorist group called the Paramurderers of Chaos plans to contaminate the Vastopolis food supply with a spore-forming biological agent similar to anthrax. They extract a suitable microbe from infected livestock who were found dead at farms in the area. Authorities determine the microbial variant that caused the mass deaths is not dangerous to humans. Using sophisticated molecular biology lab equipment stolen from Vast University, members of the Paramurderers of Chaos genetically re-engineer the microbes to harm humans. The equipment is later confiscated by authorities, but most of the evidence is hidden or destroyed.

In the search for a distribution method to cause maximum damage, the Paramurderers of Chaos utilize malicious software to break into corporate security systems. One such system belongs to All Freight Corporation and contains information on customers, cargo, and scheduled delivery routes.

Using this information, the newly developed plot is to introduce the biological agent at a particular food preparation plant that distributes to the Vastopolis metropolitan area. Oversight at plants like this one has been lacking in recent months. The contaminated food would be delivered to grocery stores and ingested by customers. The intended result would be widespread illness and panic.

They succeed in getting into the plant via the loading dock, but one member is caught by security afterwards. The biological agent is delivered and a large batch of contaminated product is loaded in an 18-wheeler semi-trailer truck shortly afterwards.

The outbreak occurs when the truck is tipped over and destroyed in a highway accident while crossing the I-610 Vast River Bridge. The cause of the truck accident is determined to be driver negligence. The enclosed cargo area of the truck containing the contaminated product is severely damaged. As a result of the force of the accident, the spores are dispersed into the air and they also fall into the Vast River, making the mode of transmission both airborne and waterborne.

In this form, the biological agent is disseminated through inhalation of spores carried by wind, and ingestion of spores delivered through water distribution systems. Inhalation of spores has an incubation time (from infection to symptoms) of approximately 24 hours. Symptoms are flu-

like and include fever, chills, sweats, fatigue, cough, shortness of breath, and nausea. Ingestion of water containing the spores causes gastrointestinal illness with an incubation time of approximately 48 hours. Gastrointestinal symptoms include nausea, loss of appetite, vomiting, and fever. There is no person-to-person transmission.

The epidemic is related to activities planned by the Paramurderers of Chaos, but the particular mode of delivery and consequences were not intended.

Please refer to the answer guides to MC1, MC2 and MC3 for more detail.