

Abstract

In the unfortunate event of a natural disaster affecting San Luis Obispo, response from national entities cannot be relied upon for a timely or efficient response. Local disaster recovery is superior because it minimizes response time, the need for costly stockpiling and creates a solution that is uniquely suited to the community that empowers local people in their most troubled times. Extensive planning is required for local disaster recovery and this project aims to provide the research and recovery system design required to implement an effective recovery plan.

Potable water is the primary need for people in the disaster situations described in this paper. San Luis Obispo has the local manufacturing capability to meet all of the cities potable water needs. Clearwater Technology is a leading manufacturer of Ozone generating equipment. Using a modified version of their skid mounted ozone filtration unit, filters can be deployed at Red Cross disaster shelters. To accomplish effective deployment filtration units will have to be assembled faster than Clearwater can typically build products and under very unfavorable circumstances. To reach this ambitious goal Industrial Engineering techniques including lead time reduction, set up time reduction, human factors and design for assembly must be employed. The main focus of this project is improving the parts kitting process with respect to lead time minimization and human factors considerations.

Research in these topics provides an additional benefit to Clearwater Technologies who can implement these strategies to take advantage of numerous cost benefits. The results of this project yielded significant monetary savings from reduced parts kitting time as well as from reduced repetitive strain as a result of human factors recommendations. A disaster contingency guide was delivered to Clearwater detailing how all necessary activities should be accomplished in a minimum amount of time.

The mutually beneficial nature of preparing the city for disaster, giving students valuable design experience and improving Clearwater's day to day operations provides a proof of concept for the envisioned Cal Poly Responding to Emergencies using Local Industry (RELI) center. It is a hope of this project that this vision will be brought to reality through the continued efforts and collaboration of Cal Poly students and local industry.