



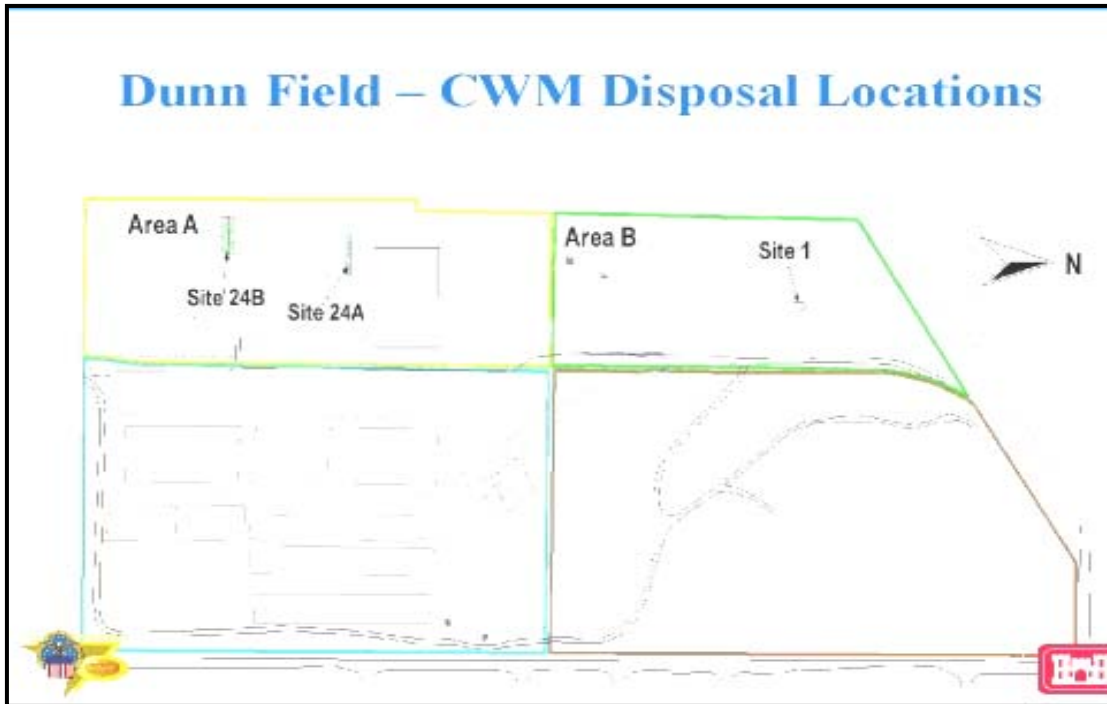
## **Memphis Defense Depot – Environmental Cleanup**

For many years the Memphis Defense Depot used an area known as Dunn Field to dispose of the chemical and solid wastes that resulted from depot operations. Mustard gas was never intended to be stored there. However, an incident, which occurred in Memphis in 1946, proved to be an exception.

Memphis has long been known as the logistics center of the Mid-South, with roadways and rail lines connecting it to the four corners of the United States. In 1946, one particular train traveling through Memphis contained a cache of German mustard bombs. The bombs were discovered to be leaking, and the train was rushed to the Memphis Defense Depot to be unloaded and decontaminated.

Dunn Field was the ultimate destination for the leaking bombs. There, officials attempted to detoxify the bombs by shooting holes in them and draining the toxic substances into vats of bleach. Both the bombs and the bleach were then buried in Dunn Field. Unfortunately, during this time period chemicals were not routinely buried in impermeable containers, as is the requirement today. The result was contaminated groundwater that would eventually threaten Memphis' secondary source of drinking water.

In 1998, the government completed a study on Dunn Field, determining that an environmental cleanup was necessary. By May of 2000 work was ready to begin, and Mahaffey was contracted to provide a VCS (Vapor Containment Structure) at the site. All excavation work would be done inside the VCS, where air monitoring could be conducted while preventing any further contamination outside.



The portability of the structure was essential, as it would be moved to another area on site as soon as work was completed at the first location. A structure provided by one of our competitors was initially used for containment purposes at the Defense Depot. However, to be moved from location to location it had to be lifted by heavy cranes as a complete unit, then slowly moved to the next site over rough terrain. Because Mahaffey's structure could be quickly and easily taken down, then moved to the next location and easily reconstructed, the cost of moving it proved to be a more economical solution. Our structure replaced the competitor's bulky, hard-to-move structure, and this enabled work to flow almost continually - keeping the cleanup process on schedule.

Mahaffey installed a VCS that measured 80' x 100' with 13' walls. Custom fabricated gutters were provided, as well as a 16' wide cargo door. Four 400watt exhibit lights allowed work to continue regardless of the hour, while two manually adjusted louvers allowed air circulation to be controlled and monitored. A proprietary ballast system was used to secure the structure, as there were concerns regarding driving steel stakes into the ground with the possibility of contamination.

Among the items removed from the Dunn Field Sites were:

- 24 empty K941 bottles (used in Chemical Agent Identifications sets)
- Approximately 100,000 vials of sodium hydroxide tablets
- 29 empty bomb casings (from the buried German mustard bombs)
  - \*25 of these were 500 kg bomb casings
  - \*4 of these were 250 kg bomb casings
- 27 burster tubes
- 2 intact burster tubes
- 24 cubic yards of soil found to be contaminated with low levels of mustard byproducts at a depth of approximately 8 ½ feet.



**K941 Bottles**

From September of 2000 to January of 2001, Mahaffey's structure played an integral role in the cleanup process. Because our structure was able to contain any uncovered materials while allowing the air to be filtered, both the workers on site and the community surrounding the site were secure knowing that appropriate measures had been taken for their safety.