



## The investigative process: ordnance and chemical agent containers

*The purpose of this fact sheet, which was coordinated with the Restoration Advisory Board, is to provide community members with an overview of the process for conducting a cleanup of ordnance and chemical warfare materiel in Spring Valley, starting with site discovery through removal.*

### Introduction

On Jan. 5, 1993, while digging a utility trench in Spring Valley, a contractor unearthed buried military ordnance. The U.S. Army Technical Escort Unit initiated an emergency response for the 52<sup>nd</sup> Court area. This resulted in the removal of 141 ordnance items (43 suspect chemical items) from a burial pit before the completion of this action Feb. 2.

### Historical records search

On Feb. 3, 1993, the U.S. Army Corps of Engineers began a search of historic records documenting the activities of the American University Experimental Station, or AUES, which was active in the 1917 to 1920 timeframe. Adjacent to AUES was Camp Leach, an area that was used for troop training in trench and chemical warfare techniques.

The historical search indicated that approximately 661 acres in the northwest section of Washington, D.C., were used during World War I by the U.S. government for research and testing of chemical agents, equipment and munitions.

While historical records indicate that much of the materials used at AUES was sent to other military installations after operations ceased, some items were buried.

The archival search report documented the history of the area, including the evaluation of where munitions and other items were stored, expended or

disposed of onsite. This information was obtained through the review of written records and the analysis of maps and aerial photos, and helped the Corps focus on site characterization.

Recreating a site history from piece-meal records is difficult and involves the review of literally thousands of documents stored at several locations. Some documents had been classified and were declassified as part of the search effort.

Over 50 Points of Interests, or POIs, were identified based on the archival search report. The POIs represented areas where Department of Defense contamination would most likely exist, if present. Spring Valley POIs were prioritized and many were investigated using geophysical surveying equipment, along with some chemical sampling of soil.

It is unlikely that any historical records evaluation would identify 100 percent of the munitions burial locations. Certain records would not have been kept, and others were certainly lost or destroyed over the years. Nonetheless, a records evaluation does provide a logical first step in trying to prioritize areas for investigation and best use limited funds.

### Geophysical investigation process

Based on the available historical record leads, the Corps developed and executed a field investigation. This involved the use of geophysical detection equipment, which locates metal objects below the ground surface through a variety of scientific principles. At Spring Valley, the Corps used technology that pinpointed disturbances or changes in the electromagnetic field.

The process involved moving the instruments over the ground surface at a point of interest. The instruments transmitted both position and electromagnetic field data back to a receiver.

The data were then analyzed to determine if further investigation was necessary. In cases where the anomaly in the ground was considered a possible ordnance item, plans for excavation were developed.

### **New technologies**

Since the original geophysical investigation was conducted, detection technologies have improved. Therefore, the Corps recently conducted a prove-out of various technologies to determine which were the best to use in future Spring Valley geophysical investigations.

The different technologies were each tested to evaluate efficiency in detecting smaller items and items at greater depths. Two technologies were identified as being most promising and will be used in further geophysical investigations in Spring Valley.

While strides have been made, no cleanup of buried ordnance can provide a 100 percent guarantee that nothing has been missed. Non-metallic items (e.g., glassware), deeper and smaller items, and even their orientation in the ground, still present significant technological challenges that increase the cost and difficulties of ordnance cleanup. Additionally, both individual rounds and large burials can be “masked” by the electromagnetic signatures of adjacent manmade features.

Such inherent limitations of science and the cleanup process are balanced by the Department of Defense’s ongoing responsibility for remaining military materials. Consequently, when an item is discovered after a cleanup project is complete, the the Army will return and address the newly discovered contamination.

### **Accomplishments to date**

From 1993 through 2001 approximately \$47 million has been spent on munitions investigation and removal in Spring Valley.

Since the first munition was discovered in Spring Valley in 1993, approximately 800 ordnance items, including high-explosive, chemical and inert rounds, have been recovered.

Approximately 80 percent of the recovered items were free of chemicals or explosives and were basically scrap metal. Most importantly, no explosively configured piece of ordnance filled with potential chemical agent has been found to date.

Additional information on munitions-related cleanup efforts for the Spring Valley project can be found in the Corps’ *Spring Valley ordnance cleanup: past, present and future* fact sheet.

As site investigations progress at Spring Valley, the Corps remains open to new sources of information and the evaluation of collected data to determine if additional action in specific areas is needed.

The potential investigation of additional POIs continues to be a focus in meetings with the EPA, D.C. Health and community RAB members.

More specific information on what to look for when conducting soil intrusive activities and what risks are associated with munitions and chemical warfare agent can be found in the Corps’ *Spring Valley Area cleanup and safety suggestions* fact sheet.

For a more detailed history of the Spring Valley cleanup project, please visit the Spring Valley website at <http://www.nab.usace.army.mil>.