Testimony by

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Introduction

This is the written testimony of Colonel Charles J. Fiala, Jr., commander of the Baltimore District of the Army Corps of Engineers. It addresses the Baltimore District's actions in the identification and removal of contamination at the Spring Valley Formerly Used Defense Site in Washington, D.C. Since February 1993, the Baltimore District has been the Army agency responsible for operations at the site. Throughout all of these operations, the top priority of the Baltimore District has been the safety of the community and the workers.

On January 5, 1993, a utility contractor encountered buried ordnance at the site. Based on this find, the Army promptly responded. For the next four weeks, an emergency response force under the command of the U.S. Army Chemical and Biological Defense Command removed buried ordnance from the pit that was uncovered. This emergency response was called Phase I. This response was completed on February 2, 1993, and resulted in the removal of 141 ordnance-related items. Forty-three of these were suspect chemical items. In close coordination with the Environmental Protection Agency (EPA), the city of Washington, D.C., and other DoD agencies, the Baltimore District immediately began a comprehensive investigation of the entire site. On January 6, 1993, Baltimore District initiated real estate and archive search activities to establish site eligibility under the Formerly Used Defense Sites program. On January 12, 1993, a preliminary site visit was conducted to identify potential areas of concern. On January 19, 1993, Baltimore District issued a report that recommended site eligibility, defined site boundaries, and requested approval to initiate response activities. The comprehensive rewiew was approved on February 2, 1993.

General information about the Spring Valley Formerly Used Defense Site

The Spring Valley site consists of approximately 661 acres in the Northwest section of Washington, D.C. During the World War I era, the Chemical Warfare Service, originally under the Bureau of Mines and later under the War Department, used the major portion of the area as a research and development facility for chemical agents, equipment, and munitions. The Army used the remaining part of the area for a camp to house and train engineer troops. These two areas were known as American University Experiment Station (AUES) and Camp Leach, respectively.

Historical and archival information indicates that onsite testing, usage, and disposal of ordnance and chemical warfare materials occurred on the AUES portion of the site between 1918 and 1920. The majority of the real property was returned to private ownership by October 1920.

The current owners of the Spring Valley site include American University (70 acres) and numerous residential homeowners (591 acres), including at least 14 embassy residences.

Corps of Engineers activities in Spring Valley

Investigation from 1993 to 1995

On February 3, 1993, the Baltimore District began to conduct a remedial investigation of the site, called Phase II. All of this work was closely coordinated with the EPA and the city of Washington, D.C. Based on direction by the mayor, our focal point for coordination with the city was the D.C. Office of Emergency Preparedness. The Baltimore District's investigation focused on specific sites that were determined to have the potential for contamination.

The process used to conduct the investigation was as follows. Because of the large size of the site (over 660 acres), we needed a logical strategy to identify where we should focus our efforts. We employed standard methodology used nationwide to investigate contaminated sites. This methodology calls for reviewing all historical information to identify areas with the greatest potential for contamination, and then to investigate those areas. We called these areas "points of interest." On maps and in documents, these are often labeled as POIs. Enclosed is a map delineating these points of interest. The rationale we used, and the one we continue to follow, was that if we found contamination at one of these points of interest, we would then expand our investigation.

In order to identify the points of interest, we undertook a major historical research effort. We reviewed large volumes of historical documents from numerous sources. The documents included a large quantity of test reports and archival sources concerning AUES. This review was collected into a report called *A Brief History of the American University Experiment Station and the U.S. Navy Bomb Disposal School, American University* (June 1994). A summary of the findings in this report is presented in Appendix 2.

Another major source of information used to identify points of interest was historical photographs and plans. The aerial photographs from 1918, 1927, 1991 and 1993 were merged and interpreted using photogrammetric equipment and techniques. The bulk of this work was accomplished by the EPA's Environmental Photographic Interpretation Center (EPIC). These features were then plotted on current maps by the U.S. Army Corps of Engineers Topographic Engineering Center. We also used a 1918 plan of the AUES campus and a number of ground photographs of the area.

Based on this review, we identified over 50 points of interest where we started our investigation. We used the best information available to pinpoint the areas on which to focus our efforts, but as you might understand, this is an inexact science. The most important aerial photograph in terms of locating specific points of interest was probably the one from 1918, since it was taken while AUES was in operation. But the quality of this photograph made it very difficult to locate a particular point in the photo on the ground today. This is not to make excuses, but to try to convey the difficulty of the task we faced, and indeed still face.

In conducting the investigation, we used two primary techniques. We conducted geophysical surveys to identify possible locations for the burial of ordnance material and we conducted environmental sampling to identify possible chemical contamination.

The geophysical surveys were done at all points of interest considered to be potential ordnance burial locations, plus a selection of approximately 10 percent of all properties outside of the points of interest. These additional properties served as a check on the historical information that had been gathered. A total of 492 properties were surveyed. Most were surveyed with a state-of-the-art electromagnetic device called an EM-31. This device is useful in identifying large metallic objects under the ground, such as ordnance burial pits. Some properties had a magnetometer survey due to the difficult terrain or other limiting conditions. A total of over 1,900 anomalies were identified. (Anomalies are disturbances in the electromagnetic field that may be indicative of metal objects below the ground surface.)

A team of technical specialists collected and analyzed the geophysical data and made recommendations as to whether individual geophysical anomalies warranted excavation. These recommendations were passed to an "Anomaly Review Board" made up of senior staff members from the Corps of Engineers' center for ordnance expertise located in Huntsville, Alabama. This board evaluated the recommendations for clarity and consistency and then made a final recommendation regarding the need for excavation. The Anomaly Review Board recommended a total of 840 anomalies for further study or removal. The Baltimore District then pursued an extensive investigation of these 840 anomalies, which found a great deal of metallic debris from property development, but only one round – a spent Livens smoke round. During this time, two other rounds were anonymously left for investigators to find: one by the Corps' on-site trailer and one on the side of Nebraska Avenue adjacent to the Metropolitan Methodist Church. This round was brought to an American University safety officer. An additional 3-inch Stokes mortar

round was discovered during the digging of a basement. This round was unfilled, unfired, and unarmed. Approximately 20 other pieces of ordnance scrap items were also found. All of these items were safely removed from the site. And, no additional burial pits were identified.

Environmental sampling was accomplished at 13 areas that included 17 points of interest where historical documents indicated field testing, development, or accidental releases of chemical agents were known or believed to have occurred. Samples were also collected from several locations away from the known AUES activities for the establishment of background metals concentrations. The general process for sampling was to take samples from randomly selected locations within each point of interest. This sampling plan was developed in accordance with EPA guidance. The samples were analyzed by an independent laboratory for the contaminants most likely to be found at that point of interest based on the historical documentation. EPA Region III took samples from these same locations and analyzed them for a full suite of volatile organic compounds, semi-volatile organic compounds, and metals. A total of 260 samples were taken. Samples were taken as close as possible to the 1918 surface level. Identification of this level was based on a comparison between a 1918 topographic map of the area and a 1981 topographic map of this same area with further identification through field observations. No chemical agents, chemical warfare agent-unique breakdown products, explosives, or explosive breakdown products were found in any of the soil samples collected. However, several metals were identified that exceeded the EPA's risk based screening criteria. Metals that exceeded both background concentrations and the risk based screening criteria became chemicals of potential concern. These metals were included in a quantitative baseline risk assessment. This assessment found no elevated health risk requiring remedial action. Arsenic was not identified as a chemical of potential concern for the risk assessment since the sampling results were not significantly different from the background. Thus the *Remedial Investigation Report* concluded that no further action was required with respect to chemical warfare materiel and munitions.

After a public comment period on the remedial investigation, Baltimore District issued a *No Further Action Record of Decision* for most of the Spring Valley site in June 1995. However, this finding specifically excluded an area of the site called the Spalding/Captain Rankin area. The Baltimore District, EPA, and D.C. government agreed that further limited investigation was required before being able to fully close-out work at the site. This work concentrated on the investigation of ordnance and chemical warfare materiel associated with several AUES era bunkers at this site used for the testing of chemical agents. In our published 1995 record of decision, the Army took responsibility for any future actions required if additional munitions or contamination were discovered:

> "Consistent with its obligations under CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act) and DERP (Defense Environmental Restoration Program), the Army remains responsible for any additional response actions necessary in relation to buried munitions and environmental contamination associated with prior DoD (Department of Defense) activities at the OSR FUDS (Operation Safe Removal Formerly Used Defense Sites).

Based on the results of the testing and investigations performed to date, the Army concludes that all appropriate and necessary steps have been taken, at this time, to protect public health and safety and the environment in relation to OSR FUDS. If such additional munitions or environmental contamination are discovered at the OSR FUDS, the Army is committed by CERCLA and DERP to take such remedial actions as may be necessary to address such buried munitions and /or environmental contamination resulting from DoD activities."

New information

In 1996, as the Baltimore District continued work in the Spalding/Captain Rankin area of the site, the D.C. Health Department reported to EPA that they had uncovered new information regarding the Spring Valley site. In 1997, the D.C. Health Department provided the Baltimore District with the results of their independent archival research regarding the site, highlighting a number of concerns with investigations completed to date. Throughout 1997, the Baltimore District evaluated these concerns and, in January 1998, published a *Remedial Investigation Evaluation Report*. In this review, we responded to each of the concerns raised by the D.C. Health Department. We also identified that we had made an error in the location of one point of interest, known as Point of Interest 24. It had been mislocated by approximately 150 feet. That may not sound like much on a 660 acre site, but if the contamination is highly localized, then that's enough to make a difference. Also during this review, we verified that all the other points of interest were properly located.

The Baltimore District's review also found the potential for residual hazards to remain in the form of single rounds and polymerized mustard agent. The Baltimore District concluded that the risk to the public of encountering these potential items was remote and further investigation of these potential items was not feasible. Therefore, with the exception of the mislocated Point of Interest 24, additional investigation to locate potential residual hazards was considered unwarranted. Again, the Baltimore District clearly acknowledged in its review that the Army continues to have a responsibility for any additional response actions necessary in relation to buried munitions and environmental contamination associated with prior DoD activities at the Spring Valley site.

Investigation of burial pits at 4801 Glenbrook Road property

As a result of our finding regarding Point of Interest 24, we felt we needed to conduct additional investigation at the corrected location of this point of interest. In February 1998, we conducted a geophysical survey of this new location on Glenbrook Road and found two large metallic areas below the ground surface, which were indicative of possible burial pits.

Throughout the remainder of 1998, we developed plans for investigating these two areas, which required extensive coordination with the many organizations involved, including the D.C. government, EPA, and a variety of supporting DoD organizations. We mobilized to the site on February 15, 1999, and began the intrusive investigation on March 29, 1999. One year later, on March 29, 2000, we had completed the investigation of two large burial pits. Over 600 items were recovered, including 288 ordnance items. Fourteen

of the items were determined to contain chemical warfare agent, predominantly mustard agent. All of these activities were completed in a safe manner ensuring the safety and health of the community.

Discovery of arsenic contamination

Arsenic is a naturally occurring element that is widely distributed in the environment. Because of this, some arsenic is expected to be found in virtually all soil. This level is sometimes referred to as "background," and that level varies from area to area. To ascertain the background level in this area, EPA Region III, in August 1999, took 30 samples from locations near Spring Valley, but outside the FUDS boundary. The results from these samples ranged from 3.3 to 18 parts per million.

We know from our historical research about past activities at the site that arsenic was used at AUES. It was used in the production of Lewisite, a blister agent developed at AUES, as well as in the manufacturing of other chemicals used for testing. Because arsenic is so pervasive in the natural environment, however, finding arsenic would not necessarily mean that it came from AUES activities. Therefore, the 1993-1995 remedial investigation conducted by the Baltimore District focused environmental sampling on the chemical agents themselves and their specific breakdown product. For instance, we sampled for chemicals known as CVAA and CVOAO, which are breakdown products of Lewisite that we would not expect to find in the natural environment. Nevertheless, as mentioned earlier, EPA Region III split samples with the Baltimore District, analyzing them for a full suite of organic compounds and metals, including arsenic. Neither the Baltimore District's sampling results nor the EPA's identified a need for further evaluation at the time.

In 1999, as part of the investigation at the Glenbrook Road property, Baltimore District, EPA, and D.C. Health Department officials met and decided as a team that additional sampling was needed. It was also determined that EPA, with its acknowledged expertise in testing for chemicals in soil, would conduct the testing. EPA Region III took samples there and on four adjacent properties and analyzed them for a full suite of contaminants. One sample on the Glenbrook Road property contained an elevated level of arsenic.

Following the original standard methodology, the elevated arsenic finding at the Glenbrook Road property prompted Baltimore District to take additional samples. This additional testing found elevated levels throughout the garden area surrounding the pit excavation. Consistent with our overall approach, grid sampling was then done over the entire property, and sampling was expanded to other properties. This was followed by an Engineering Evaluation/Cost Analysis to determine whether there was an elevated risk to health and, if needed, development of the appropriate remedial action plan. An elevated risk was found. The Engineering Evaluation/Cost Analysis was subsequently expanded to include two adjacent properties based on additional sampling and evaluation of results. After a public comment period, we determined the appropriate remedy to be a two-foot soil removal in those areas with arsenic values that were elevated in comparison to the background distribution of arsenic. After the two-foot removal, confirmation samples were

taken and additional soil was removed where necessary. The removal is complete at two of the properties and restoration is underway. The third property is still awaiting completion of the risk assessment before any decision on removals can be made.

In January 2000, in light of the contamination we had found on the Glenbrook Road properties, the rationale we had followed all along for investigating this site dictated that we needed to expand the area of investigation. We developed a plan to conduct arsenic sampling on 61 private residences and the southern portion of the American University campus. The area to be sampled was defined to ensure that we included all the area that may have possibly been referred to as "arsenic valley" by the soldiers at the facility as well as the research area of the AUES. We coordinated this plan with our partners at D.C. Health and EPA Region III and then briefed it to the community. This plan was based on the EPA's 1996 *Soil Screening Guidance* and included a six-part composite surface sample for each of four quadrants on every property. There was also one subsurface sample location chosen on each property with samples taken at 2-foot increments to a depth of 6 to 10 feet depending on the cut or fill since 1918 in that area. The American University property was divided into 28 lots, each approximately one-half acre in size, with each lot receiving the same sampling process. For properties larger than two acres, we conducted 12-part composite samples and two subsurface borings. In addition to arsenic testing, the surface soil samples on the American University campus were also analyzed for mustard agent breakdown products.

We began the initial field work for this investigation in late August 2000. Sampling at the American University Child Development Center was completed on November 27, 2000. Due to its sensitive nature, we expedited the results for the Child Development Center. Those composite results came back elevated at 31.3 parts per million arsenic on December 6, 2000, as compared to the background range of 3.3 to 18 parts per million. We promptly notified the university. We then conducted grid sampling at the Child Development Center on January 4-5 and received those results back on January 17, 2001. Arsenic concentrations at the Child Development Center ranged from 3.43 to 498 parts per million. We immediately notified the university, the D.C. Health Department, and EPA of those results. On January 25, we met with D.C. Health, EPA Region III, and American University and agreed on a sampling process to determine whether there were any other possible contaminants of concern. A sampling plan to test for a selected list of AUES chemicals was prepared, and the sampling was conducted on February 21-22. The evaluation of these results is currently underway; however, no health and safety issues have been identified to date.

The sample results also showed six lots at American University with surface sample results above 13 parts per million. At our January 25, 2001, partnering meeting, we agreed to conduct 20-foot grid sampling over these areas. We also agreed to include in this sampling a portion of the area that EPA Region III had sampled in 1999 that had some elevated results. Finally, we will conduct subsurface sampling at several locations on American University near Nebraska Avenue that had slightly elevated subsurface sample results, as well as one near the Glenbrook Road properties.

On the residential properties, we were able to sample 42 of the 61 properties we had initially identified. Eleven property owners would not give permission to do the sampling, and we were unable to make contact with eight other property owners. After obtaining the composite results for these 42 properties, we identified eight private residences where the sample results exceeded 13 parts per million. This value represents the upper range of the background distribution of samples.

Following this initial sampling effort of the residential properties, we expanded the sampling to conduct a six-part composite sampling of 16 other properties as part of our effort to ensure that we have fully characterized the sampling area. Five of the properties were added because they were adjacent to properties that had elevated surface sample results. Of the remaining 11 properties, two were properties for which we had been unable to make contact earlier, two were properties where the owners had only allowed subsurface sampling previously, and seven were nearby properties that had special circumstances warranting investigation.

As a result of this sampling of residential properties, EPA Region III, D.C. Health, and Baltimore District agreed on a sampling plan to conduct 20-foot grid sampling on 10 properties. Six are on Rockwood Parkway, and the other four were single properties on Indian Lane, Glenbrook Road, Quebec Street, and Woodway Lane. On four properties we also took samples to determine if there are other possible contaminants of concern. This sampling was completed on February 14, 2001. The validated results from the grid sampling were received in April 2001, and the results were shared with the property owners. A draft risk assessment is currently being prepared for all the properties that were grid sampled.

At a public meeting on February 13, 2001, the community turned out in large numbers to urge testing of the entire Spring Valley neighborhood. Baltimore District, in consultation with EPA Region III and the D.C. Health Department, responded with a comprehensive sampling plan that proposes to sample for arsenic on every property in Spring Valley, with more intensive sampling in selected areas. Sampling under this expanded plan began on May 31 and will continue until the sampling is completed, which is estimated to be in January 2002.

Baltimore District is also conducting an investigation of a possible additional burial location on a Glenbrook Road property. This operation began in May and is approximately 90 percent complete. Ten 75-mm rounds and about 40 small bottles have been found in one location on this property. Seven of the bottles have been found to contain dilute concentrations of either mustard or Lewisite chemical agents.

Concurrently with these efforts, EPA's Environmental Photographic Interpretation Center (EPIC) has reviewed archives and found several additional aerial photographs of the area, including one from 1922 and one from 1928. Baltimore District asked EPIC to review these areas in the following priority order: the "arsenic valley" area, the Sedgwick trench area, the 52nd Court trench area, the Static Test Fire area, and finally, the entire area shown in the new photographs. EPIC has completed their review for the entire area. The review

guided our sampling effort and also contributed to our decision to conduct test pits at one of the Glenbrook Road properties, where we have now located an additional burial pit. The review of the Sedgwick trench area led the team to agree on a sampling process for the five properties directly over the trenches and two other properties nearby where ground scars appear on several photographs. Quadrant sampling was conducted, and we identified three properties where the sample results exceeded 13 parts per million. These properties were grid sampled in late June 2001, and the preliminary results indicate that the elevated levels warrant the preparation of risk assessments. Finally, based on a review of the geophysical surveys from 1993, we conducted additional geophysical surveys on six properties located on or near the Sedgwick Trench in May 2000. The findings from these surveys are that no further action is warranted on four of the six properties. We are currently developing a site safety plan for the intrusive investigation of unresolved anomalies on the remaining two properties. This intrusive investigation is currently scheduled to begin in October 2001.

One final area to mention is the "small disposal area" located on American University. This was a surface disposal area containing laboratory glassware and metal items. The area was investigated from January 8-11, 2001, under evacuation conditions. No chemical warfare material was identified there, though elevated levels of lead and arsenic were detected. All contamination in this area has been removed.

Public involvement from 1993 to 1995

From the initial phone call notifying Baltimore District of the 1993 discovery of buried ordnance in Spring Valley, we maintained an active public involvement program. That program was recognized by the Public Relations Society of America with its prestigious Silver Anvil Award of Excellence for Crisis Communication in 1995. We went to great lengths to keep the community informed, to be accessible to community members, and include them in the process. Full-time public affairs staff support was provided to the project to facilitate the following:

- *Meetings*. Baltimore District hosted more than 40 town meetings to provide the community with information at every important stage of the project.

- *Community board*. We established a Zone Captains' Board, made up of local residents, which served as the liaison between the community and the Corps. The board met weekly, 85 meetings in all.

- *Media coverage*. News releases and advisories were regularly sent to media outlets with an ongoing interest in the project. Baltimore District officials routinely made themselves available for interviews. The result was numerous articles and considerable broadcast coverage of the project, which helped to keep the community well informed.

- *Partnering*. Baltimore District worked closely with city agencies to minimize local inconveniences associated with excavations.

- *Information line*. We set up a toll-free information line to provide the community with around-the-clock access to information or emergency notifications.

- *Community newsletter*. We published 12 bimonthly newsletters with current information on the project, which were mailed directly to all community residents and local businesses impacted by the project.

- *Information repositories*. Baltimore District established repositories in two community libraries for all types of project material.

Public involvement from 1998 to present

Since returning to Spring Valley in 1998, Baltimore District has continued to actively seek public participation in the investigation and cleanup process. To help accomplish this, a number of community involvement initiatives have been used. These include:

- *Community meetings*. Monthly meetings are open to community members as well as the general public and provide a forum for the Corps and community to exchange information about the site and activities associated with the investigation.

- *Public availability sessions*. In addition to the community meetings, these sessions provide residents with the opportunity to meet one-on-one with the various government officials involved in the project. Since January 2000, two of these sessions have been held.

- *Meetings with community groups*. Early in the project, a community group of key persons and leaders was established in March 1999. Meetings were held on a weekly basis and provided updates on the Corps investigation of the Glenbrook Road site. These meetings were disbanded when the Restoration Advisory Board was formed in May 2001.

- *Restoration Advisory Board*. This board comprises 14 community members, a community co-chair, a government co-chair and several officials representing the agencies involved in the project. The community members were selected by fellow community members to serve on the board. The board meets once a month and the meetings are open to the public.

- *One-on-one meetings*. Throughout this project, the Baltimore District has maintained an open-door policy. We regularly meet with officials and community members to discuss questions or issues related to the investigation.

- *Monthly community newsletters*. *The Corps'pondent*, prepared by the Baltimore District, is specifically geared toward keeping the community apprised on activities related to this project. It is mailed to every resident within the Spring Valley study area and is posted on the project Internet web page.

- *Letters*. Letters are sent to residents and property owners to inform them of developments specifically concerning them or their property, and to solicit their input or obtain permission for additional investigation on their property.

- *Telephone information line*. This telephone message board is updated regularly and checked twice a day for messages. The appropriate project person promptly follows up on messages left on this 1-800 line. You can reach this number by calling 1-800-434-0988. That phone number is included in briefing, letters, newsletters, and other correspondence sent to the community.

- *Internet web page*. Our Internet web page provides current project information. The information available includes maps, photos, news releases, minutes of meetings and community newsletters. As with the information line number, the web page address is included in all correspondence sent to the community. The web page address is **(http://www.nab.usace.army.mil/projects/WashingtonDC/springvalley.htm)**.

- *Public document repository*. An information repository has been established at the District of Columbia Palisades Public Library, 49th and V Streets, N.W., Washington, D.C. Information on past project activities at Spring Valley, as well as current information on the project, is available at the repository.

- *Partnering with other government agencies*. The Corps has been participating in regular partnering meetings with officials from both EPA Region III and the D.C. Health Department to ensure resolution of all concerns about the site. The most recent partnering meeting was held on July 18, 2001.

Remaining scope of work

As reported in a preceding section, the comprehensive sampling began May 31, 2001. Assuming we sample all 1,200 developed properties and 400 half-acre lots, we anticipate completing the sampling by the end of 2001. We are conducting follow-up grid sampling concurrently at properties where quadrant-sampling results indicate it is necessary. Assuming that approximately 15 percent of the area will require follow-on grid sampling, this would require grid sampling on approximately 240 lots. Assuming that 25 percent of the grid sampling will occur after the finish of the initial sampling, this will require another month of sampling plus six weeks to get the sample results from the laboratory and then validated.

Sampling to identify areas of contamination will be followed by a remedial investigation report to analyze and present the sampling results and a risk assessment to determine if there is any elevated health risk. This report would require four months to write and review. We would then conduct a feasibility study to determine the best course of action to remediate the health risk. This study requires four months to write and review followed by the issuance of a proposed plan and a 30-day public comment period. Once the comment period closes, the Army will take two months to respond to comments, prepare the decision document, and gain concurrence from the stakeholders. At the close of this

activity, contract actions would be implemented to conduct the remediation. How long the remediation will take will depend on whether removal or phyto-remediation is chosen. Soil removal could take two to four weeks per property, while phyto-remediation requires a 20-week growing period for the plants.

The resulting schedule is as follows:

Sampling	May 2001 to December 2001
Follow-on Sampling and results	June 2001 to February 2002
Remedial Investigation/ Risk Assessment	September 2001 to May 2002
Feasibility Study	June to September 2002
Public Comment Period	October 2002
Decision Document & Contract Actions	November to December 2002
Start Remediation	January 2003

This timeline is based on the process for conducting remedial investigations and subsequent remedial actions as required by law. We are currently investigating ways to streamline this process.

The second hazard is from buried ordnance or chemical warfare materiel. Currently, ordnance items have been identified only in certain areas near American University; the static test fire area and Zone 9; and the 52nd Court trench area. Chemical warfare materiel has been identified only at the 52nd Court trench and on two Glenbrook Road properties.

The Spring Valley team is reviewing the geophysical data for these areas and the Sedgwick trench area. Currently, a test pit investigation is underway on a Glenbrook Road property adjacent to American University. In addition, new geophysical data has been collected in the vicinity of the Sedgwick trenches, and new geophysical data will be collected from six areas on or near American University. Finally, additional geophysical data may be collected in the Zone 9 area.

The preparatory activities for conducting an investigation for ordnance items or chemical warfare materiel are significant. The site safety plan must be reviewed and coordinated within the Department of Defense as well as with other federal agencies and the local governments involved. This process usually takes a minimum of six months and can often take as much as a year due to the complex nature of these investigations and the need to protect the safety of workers and the community. To streamline the process, the Corps is now preparing a Spring Valley-wide safety plan that will have an appendix added for each specific intrusive investigation that we undertake. By gaining approval for the generic plan in advance, we hope to reduce the approval time for the site-specific appendices to one or two months.

The schedule for the activities associated with the investigation of buried ordnance or chemical warfare materiel is as follows:

Test pit investigation	May to September 2001

Prepare for Sedgwick investigation	May to October 2001
Conduct Sedgwick investigation	October to November 2001
Identify remaining areas for surveying	July to September 2001
Conduct geophysical surveys	November to December 2001
Prepare and review data	January to March 2002
Prepare for any investigations required	April to July 2002
Conduct intrusive investigations	June to November 2002

Conclusion

The Spring Valley Formerly Used Defense Site is extremely complex and presents many challenges. We are searching for burials of material that would have occurred 80 years ago and for which there are no documented locations. In addition, the environment has significantly changed due to the extensive development of what was in 1920 primarily open space. The enclosed partial site cut-and-fill map that was produced as part of our investigation provides an example of the extent of this change. Our most current work has demonstrated that there were, in fact, burials at the site. Based on this evidence, we have intensified our efforts, and we have been able to pinpoint the location of other contamination and accomplished significant remediation.

In conclusion, we are committed to aggressively pursuing identification and remediation of all hazards associated with past DoD actions in the Spring Valley neighborhood. This commitment is evidenced by the extensive ongoing activities and the application of resources from numerous Army agencies, including personal involvement at the Secretariat level and on-site support from the world's foremost experts on ordnance, chemical warfare material, and aerial photo interpretation. This commitment is further demonstrated by the more than $49 million that has been spent on investigation and remediation of the site. Our current working estimate to complete the remainder of the project is $34 million.

Our work at the site has been and will continue to be coordinated openly and in full consultation with the community, the D.C government, and the Environmental Protection Agency. I am confident that with the Army's commitment to fully address issues at the site and with the expert resources being utilized at the site, we will successfully eliminate risks associated with DoD's former activities.