U.S. Army Corps of Engineers' Response to Regulator and Community Stakeholder Concerns regarding 2001 Soil Sampling for Possible Contaminants remaining from World War I-Era Chemical Warfare Research Activities at American University Experiment Station

1 Purpose

In recent months, several regulator and community stakeholder concerns have been expressed regarding soil sampling conducted by the U.S. Army Corps of Engineers (USACE) in early 2001 as part of the Spring Valley Formerly Used Defense Site (FUDS) investigation. This specific effort, referred to as the American University Experiment Station (AUES) List sampling, involved the analysis of soil for a variety of chemicals suspected of being used at AUES as part of the US Army's chemical warfare research from 1917 to 1920. This document addresses the identified concerns by describing the circumstances surrounding the planning and execution of the AUES List sampling and how the results were shared with various stakeholders.

2 Stakeholder Concerns

On January 14, 2003 USACE representatives and the US Environmental Protection Agency (USEPA) Region 3 remedial project manager met with the property owner of 3819 48th Street to discuss his individual concerns regarding the Spring Valley investigation and characterization of his property. During this meeting, the AUES List soil sampling results for this property were shared with the owner, unbeknownst to the USACE representatives that the owner had not seen these results previously. Though surprised, the owner appeared relieved to receive the data and to learn from USACE that the results did not contain any significant findings or reason for additional investigation.

In the days following this meeting, the property owner forwarded the data results to Washington DC's Department of Health (DC DOH). Data results for 3819 48th Street and the other three properties included in this sampling, referred to as the Operable Unit 4 (OU4) AUES residential properties, were discussed at the January 2003 Spring Valley Partnership meeting between USACE, USEPA and DC Health. During this meeting, the DC DOH representative expressed several concerns regarding USACE actions, alleging that DC DOH was not aware of the sampling and that DC DOH had not been furnished with the final report of the sampling effort dated May 2002. The following month, DC DOH released its *Draft Comments on the Corps of Engineers' Final Report of Analytical Results dated May 8, 2002 for 3819 48th Street; 4710 Quebec Street; 4625 Rockwood Parkway, and 4633 Rockwood Parkway* **(Appendix 1)**. Subsequently, in the Spring of 2003, the 2001 AUES List sampling event and management of the data results became the focus of several Spring Valley Restoration Advisory Board (RAB) discussions and local press articles.

The DC DOH comments and related concerns expressed by the property owners/residents can be grouped into the following major issues:

- *USACE did not inform the regulators or the property owners about the sampling event*
- *USACE did not have permission to conduct the AUES sampling on at least two of the residential properties investigated*
- *The process for validating the data was unusually long and inadequate*

- *Sampling results were not shared with the regulatory agencies or property owners*
- *The compounds detected may present a significant risk to those living on the properties*
- *Uncertainties associated with compounds that could not be analyzed for may present a significant risk to those living on the properties.*
- *Additional investigations, including resampling, should be conducted on the four OU4 AUES residential properties.*

USACE believes that the AUES List sampling was an appropriate effort to determine if a broader AUES List investigation was necessary. Records indicate USACE had permission from the property owners to conduct this sampling. Additionally, USACE records indicate that both DC DOH and USEPA were involved in the planning of the AUES List sampling and were provided results in a timely manner. Most importantly, USACE, USEPA and DC DOH all agree that the AUES List sampling results currently do not indicate the presence of any chemicals posing significant risks to those living on the OU4 AUES residential properties, a conclusion shared publicly during a recent Spring Valley RAB meeting.

USACE does acknowledge that the data results and the absence of significant risk for these four properties should have been shared with the property owners in a more timely manner and apologized for this community outreach oversight during meetings with the OU4 AUES residential property owners and the RAB. Actions are underway to ensure that such oversights do not occur in the future. Additionally, USACE also recognizes the present of uncertainties within the data results from the AUES List sampling and is working with the regulator and community stakeholders to evaluate and address these uncertainties to the greatest extent practicable.

Support for these conclusions and the ongoing efforts to move the AUES List sampling issue forward collectively are provided in the remainder of this document and the attached appendices.

3 Investigation Background

USACE conducted the AUES List sampling at ten locations within the Spring Valley project, including: the Child Development Center and Lot 12 on the campus of American University (the AU properties); four residential properties associated with the Sedgwick Trench on the 5000 block of Sedgwick Street, NW (the Sedgwick AUES residential properties); and four residential properties located in OU4 to the south and east of the AU campus (the OU4 AUES residential properties). The purpose of the sampling was to determine whether contaminants other than arsenic were present at levels whereby additional investigation on more properties would be warranted.

To fully understand the AUES List sampling, it is important to view it in the larger context of the Spring Valley soil investigation. Specifically, the AUES List sampling was part of a tiered approach involving a focused, small scale evaluation of a large suite of potential contaminants, a medium scale investigation targeting a more refined list of potential AUES contaminants, and a large scale characterization of the identified contaminant of concern (arsenic). These three tiers of soil investigation conducted in Spring Valley to date are delineated as follows:

> *Tier 1* – The AUES List sampling and analysis was conducted for a **broad suite of compounds and analytes on approximately 10 properties/locations**.

Tier 2 – Within the Operable Unit 5 (OU5) investigation initiated in 2001, **approximately 301 properties received soil boring analysis for explosives and/or chemical warfare agents and their degradation products.** The purpose of this investigation was to determine if AUES-specific contaminants were present in areas classified as points of interest (POI), where historical records suggested past activity most likely took place. Since historical records are rarely complete, 15% of the Spring Valley project area properties not associated with a POI was also sampled for these specific AUES-related constituents.

Tier 3 – Also within the OU5 investigation, **all residential properties and business lots (approximately 1500) for which rights of entry (ROEs) were obtain were sampled and analyzed for soil arsenic contamination**. Arsenic was initially identified as a contaminant of concern during OU3 work at the Korean Ambassador's residence located at 4801 Glenbrook Road, NW. Approximately 10 % or 150 properties have since been identified as needing soil removal.

This approach was a logical and cost-effective effort to evaluate comprehensively the nature and extent of soil contamination resulting from AUES activities throughout Spring Valley. These sampling efforts were well-coordinated with DC Health and EPA Region 3, and identified arsenic as the only soil contaminant of concern to date.

With the investigative approach delineated, it is now possible to address the timeline by which these efforts unfolded, resulting in the most recent DC DOH draft comments.

4 Sequence of Events

DC DOH draft comments refer to significant time delays between sample collection, data validation and notification of regulators and affected residents/owners. However, DC DOH and EPA Region 3 were fully aware of AUES List sampling at AU, at the four Sedgwick AUES residential properties, and the four OU4 AUES residential properties. As outlined in **Appendix 2** of this response document, clear efforts were made by USACE to provide the regulatory agencies opportunities for input into the planning, and to incorporate regulator requests into the final work plans. Additionally, records indicate that USACE shared the data results with its regulatory partners in a timely manner.

Specific regulator and resident concerns revolve around the 2-year length of time that has transpired between sample collection and final data publication. Table 1 provides a timeline of the sequence of events, which is supported by USACE records.

Table 1 reveals USACE efforts to conduct an open and responsive investigation. As discussed with the Spring Valley Restoration Advisory Board in March 2003 **(Appendix 2, Attachment A)**, there are several ongoing facets of the Spring Valley project that require attention during any given time frame, with priorities and project plans shifting as new discoveries are made and additional requests from regulators and community members are received. In the case of the AUES Sampling results, project efforts to resolve uncertainties and to release the data for public comment were given a lower priority and pushed back as USACE implemented area-wide arsenic sampling, executed the TCRA, and initiated the second round of TCRA based on regulator comments. Such delay was only acceptable to the USACE because no significant risks to community members were identified by USACE or its regulatory partners during initial review.

Throughout the project, USACE has made a committed effort to keep property owners informed of upcoming sampling and subsequent data results with regard to arsenic contamination, the only contaminant of concern identified to date in Spring Valley. For instance, as shown in **Appendix 2 (Attachments M and N)**, preliminary arsenic results were sent to the OU4 residents to keep them informed in a timely manner, noting that final results were then sent a few months later. As the project expanded significantly into OU5 in the summer of 2001, preliminary arsenic data could no longer be mailed to residents. However, validated results were provided over the phone if requested, in order to meet immediate resident needs or concerns until the formal letter with the final results could be produced. Additionally, validated data were placed in the Information Repository at the Palisade Library for broader public use.

Table 1: 2001 AUES List Sampling Timeline

Nov – Feb 2001	Partnership planning of AUES List sampling
Feb – Apr 2001	Soil samples collected
May – July 2001	Validated data shared with regulators
Aug 2001 – Jan 2002	Work on acceptable data reporting approach using AU results as a test case
Feb – April 2002	Finalize reports for OU4 AUES List sampling for all AUES List sampling
May – July 2002	Plan and initiate Time Critical Removal Action (TCRA); Simultaneously discuss reporting and uncertainty issues with DC DOH and USEPA in preparation for Fall 2002 Public Comment release of Engineering Evaluation and Cost Analysis (EE/CA) in support of Non-Time Critical Removal Action
Aug – Oct 2002	Address DC DOH request for second tier of TCRA removals; EE/CA and Non-Time Critical Removal Action delayed until TCRA is completed
Nov 2002 – June 2003	Conduct and complete second round of TCRA; Release of EE/CA and AUES List sampling results scheduled for July 2003

Unlike the arsenic results, data for the wide-array of compounds investigated through the AUES List sampling are quite complicated and could not be easily put in layman's terms and distributed by simple letter. Also, during the AUES List data evaluation process, soil arsenic delineation and removal was the highest priority, receiving a significant portion of the available funding and personnel. In turn, the project management team decided to develop an adequate reporting process for the AUES List data results as time allowed, instead of releasing the data for full public consumption without the necessary supporting materials and conclusions. While other ongoing work facilitated the private exchange of the AUES List sampling results with AU and the

Sedgwick AUES owners/residents until the official reports could be released, the four OU4 residents did not receive this same courtesy.

In early 2001, USACE did vastly expand its community outreach efforts to manage the many owner/residents concerns that would naturally arise during the broad, OU5 arsenic sampling investigation. However, the small-scale AUES list sampling unfortunately fell outside the focused community outreach efforts at that time. Realizing this oversight with regard to the four OU4 AUES residential properties, USACE has acknowledged openly to the OU4 property owners and Spring Valley RAB that it would have been appropriate to share the data sooner. Even if the reports would not be released for some time, USACE could have sent brief letters explaining that a) the sampling results had been reviewed and b) they did not indicate any other contaminants of concern. Efforts to remedy the resulting misunderstandings and questions are ongoing and discussed in more detail in Section 8 of this document.

5 Property Access

Some stakeholders have questioned whether ROEs for the AUES List sampling effort were obtained for two of the four OU4 properties. It is USACE's regular process to obtain the necessary ROE prior to accessing any property in support of the Spring Valley investigation, and the process for the AUES List sampling in 2001 was no different**. Attachments O, P, Q and R in Appendix 3** contain the ROEs for the four properties that received the AUES List sampling. Other included attachments reveal USACE's proactive efforts to communicate verbally and/or in writing with the property owners prior to executing the AUES List sampling.

Related to the issue of access, some question has been raised by one or two property owners regarding whether they provided permission to analyze for the AUES list of compounds. In response, it is important to note that the ROE is a legal mechanism to provide access to a property, and is not utilized to gain property owner permission for specific laboratory analysis. While efforts were made by USACE to inform residents of sampling plans, the specific type of laboratory analyses executed for a property is an investigative judgment decision to be made by USACE and the participating regulatory agencies. Both DC DOH and EPA participated fully in this decision process, as previously described.

6 Data Quality

In response to data quality concerns, USACE notes that the data were validated in accordance with EPA Region 3 modifications to the National Functional Guidelines for data validation. The validation covered all information contained in the data packages, including sample results, laboratory quality control results, chain-of-custody forms, and all supporting raw data. No major data quality control issues were noted during the review of the data by USACE's remedial contractor, Parsons Engineering Science, Inc.

In response to DC DOH's request for the laboratory reports and data packages for the OU4 AUES sampling, Parsons sent copies of the data packages to DC DOH and EPA on 26 February 2003. As part of the regulatory oversight process, EPA Region 3 conducted an independent validation of the data. Two validation reports were generated by the EPA's lab, identifying only two inorganics (antimony and phosphate) and two organics (acrolein and benzyl bromide) out of all the compounds analyzed for as major problems. At the present time, USACE holds a different perspective regarding the validation findings and does not believe the problems identified are major. The EPA's reports have been distributed to the participating agencies, community RAB

members and the affected property owners for review. Currently, a working meeting to discuss these reports and any necessary next steps is targeted for July.

7 AUES List Data Assessment

Several regulator and community concerns have been expressed regarding the number and variety of compounds detected during the AUES List sampling and the potential health effects associated with these compounds. Concerns expressed by DC DOH or the involved residents revolve around a) potential sources of the compounds detected, b) the toxicity of individual compounds and c) potential synergistic effects from exposure to multiple compounds.

Contaminant Sources - The DC DOH comments provide a detailed list of compounds detected through the AUES List sampling, but make no distinctions between chemicals that are likely present as a result of AUES activities, those chemicals that are natural constituents of soil (e.g., nitrate, phosphate, sulfate), and chemicals that are expected to be present in an urban residential neighborhood (e.g., hydrocarbons, polycyclic aromatic hydrocarbons). Upon closer review, it is clear that virtually all of the compounds detected through the AUES List sampling are either used extensively in industry, are commonly found in the urban environment or are potentially of natural origin. Furthermore, many of the compounds detected on the OU4 residential properties are only tentatively identified, and some of the identified compounds are likely analytical artifacts (false positives).

Additionally, draft DC DOH comments also suggest that some of the detected compounds are experimental chemical warfare agents or precursor compounds and that many of these compounds are unknown in modern industry. However, USACE's review indicates that none of the 23 compounds listed in Tab B of the DC DOH comments are experimental chemical warfare agents and only two are potential precursor compounds.

Toxicity - The draft DC DOH comments circulated to property owners list the compounds detected, but do not describe the concentrations of the chemicals found. By not considering the concentrations of the compounds detected, DC DOH comments, in turn, fail to note that most of the reported concentrations are less than EPA Region 3's Risk-Based Concentrations (RBCs) for screening residential property. Considering the available RBCs, it is clear that the detected concentrations found on the OU4 AUES residential properties correspond to a *de minimis* risk and do not pose any health risks of concern for those individuals residing on the four properties sampled. As discussed with the affected property owners, USACE, EPA Region 3 and DC Health are in agreement on this issue.

In presenting risk concerns, the DC DOH comments (Tab B) note that many of the chemicals on the AUES list are "toxic" and cites various published sources of toxicity information. However, the DC DOH comments mischaracterize and misinterpret the content of the cited references in many places. Furthermore, the comments fail to recognize the first tenet of toxicology—the dose makes the poison. For example, the DC DOH comments state that oleic acid is a "poison and skin irritant"; they fail to note that oleic acid is found in percentage amounts in olive oil. While pure oleic acid applied to the skin is likely to cause irritation, this fact is not relevant to the concentrations detected in soil at any of the OU4 properties. The DC DOH notation of "toxic" and "poison" in Tab B fails to capture the context in which these chemicals are detected. Specific comments on the chemicals listed as "toxic" in the DC DOH report are provided in **Appendix 4**.

USACE does recognize that certain compounds detected do not have RBCs. Such inherent limitations are part of any scientific investigation and must be dealt with to the greatest extent practicable. USACE is working with DC DOH, USEPA and concerned residents in trying to reduce these and other identified uncertainties, which is discussed in more detail in the last section of these responses.

Risk Assessment - DC DOH comments state that the number of compounds on any given property makes it difficult, if not impossible, to assess the risk. USACE acknowledges that potential synergistic, antagonistic, or additive effects of multiple chemicals can complicate risk assessment in locations where large numbers of chemical compounds are found, and continues to work with DC DOH and USEPA in trying to address such risk uncertainties. However, while scientific research is ongoing to develop methodologies for assessing risk from complex mixtures, it is equally important to acknowledge that the potential for future advances does not mean current risk assessment practices are invalid.

USACE does follow currently appropriate regulations and guidance when evaluating risks. For instance when screening the AUES List data, USACE followed EPA Region 3 guidance indicating that the effects of multiple chemicals are accounted for by adjusting the non-carcinogenic RBCs down by an order of magnitude. In other words, if the RBC for a non-carcinogen was 5.2 mg/kg, USACE compared the concentration detected in the soil at the OU4 properties to 0.52 mg/kg. It remains USACE's commitment that any risk assessment evaluating the AUES data will be performed using the best practices available at the time, and that both DC DOH and USEPA will have full opportunity to provide regulatory review and comment to any such risk assessment.

USACE notes that EPA has prepared two risk assessments for the Spring Valley area, one in 1999 and one in 2000. The DC DOH comments suggest that a new risk assessment should be done using newer data from site-wide arsenic sampling and limited sampling for other constituents, if EPA feels that the additional limited data should be included. However, it is important to note that the purpose of OU4 AUES residential properties study was to examine whether certain additional chemicals should be added to the assessment, and the results to date indicate that chemicals other than arsenic appear to pose little, if any, additional risk. While any decision to update or append the earlier two risk assessments is a decision for EPA Region 3, USACE does not see any value in revising these earlier risk assessments because of the low concentrations of the other constituents detected and because a response action to address the arsenic contamination is already underway.

8 Future Project Efforts

Several concerns have been expressed by DC DOH and the affected OU4 residents with regard to the need for additional investigations on the four OU4 properties sampled previously. Specifically, DC DOH recommends that the Partners discuss the need for more extensive sampling and whether soil-gas mapping would be useful to identify potential burial sites. DC DOH recommends examining the remaining two properties geophysically for potential burial sites, and suggests that the detection of volatile organic compounds in a location might indicate a containerized burial site.

USACE does not believe that the types and concentrations of volatile and semivolatile organic compounds found in the soil on the OU4 AUES residential properties are indicative of the presence of a containerized burial site. However, it should be noted that three of the OU4

residential properties are slated to be surveyed geophysically to determine the presence of subsurface anomalies that could possibly be buried munition items, pits, or trenches based on a property prioritization plan developed in collaboration with DC DOH and USEPA and reviewed with the Spring Valley RAB. Progress on these ongoing geophysical investigations will continue to be one of the priorities discussed at monthly partnering meetings between USACE, EPA Region 3 and DC DOH.

In conjunction with the OU4 AUES sampling, USACE has established a work group with regulatory agencies and the affected OU4 AUES property owners/residents to review the AUES sampling results, identify uncertainties and discuss potential next steps. Whether or not additional AUES sampling will be necessary in the future will be evaluated through this multi-stakeholder work group. Minutes from the first meeting of this group are available on the project's web site at http://www.nab.usace.army.mil/projects/WashingtonDC/springvalley.htm. Additionally, it should be noted that 85 questions have been submitted by community RAB members regarding this sampling event, and that responses to these questions have been completed in consultation with USEPA and DC DOH and also will be available through the Spring Valley web site. USACE will continue to post the status and progress of efforts to address AUES List sampling uncertainties, as it becomes available.

These continued efforts regarding the AUES List findings and uncertainties will be integrated with the several other ongoing project priorities. Included in these project priorities is a multi-year removal action for addressing the 150 properties requiring soil arsenic removal, as well as several ongoing or planned investigations into other potential contamination and environmental media (i.e., potential buried ordnance, indoor air and groundwater).

Appendix 1

DC Department of Health's *Draft Comments on the Corps of Engineers' Final Report of Analytical Results dated May 8, 2002 for 3819 48th Street; 4710 Quebec Street; 4625 Rockwood Parkway, and 4633 Rockwood Parkway*

June 10, 2003

GOVERNMENT OF THE DISTRICT OF COLUMBIA
DEPARTMENT OF HEALTH

DRAFT COMMENTS ON THE CORPS OF ENGINEERS' FINAL REPORT OF ANALYTICAL RESULTS DATED MAY 8, 2002
3819 48TH STREET; 4710 QUEBEC STREET; 4625 ROCKWOOD PARKWAY AND 4633 ROCKWOOD PARKWAY

FEBRUARY 2003

Prepared by
Environmental Health Administration
Bureau of Hazardous Material and Toxic Substances
Hazardous Waste Division

Sequence of Events

First, the Corps of Engineers' (Corps') Final Report of Analytical Results (Report) WAS DATED May 8, 2002. Relevant data from this report was transmitted to only one of the property owners, 3819 48th Street, on or about January 14th, 2003. The property owner transmitted his portion of the data to DC Department of Health on January 23rd, 2003. At the partnering meeting on January 29th, 2003, the District of Columbia's Remedial Project Manager expressed concern over the delay and means of obtaining even a portion of the report. Also, concern was expressed over the more important delay in notifying the property owners.

At the partnering meeting, the District of Columbia's Remedial Project Manager noticed that the EPA's Remedial Project Manager had a completed Report dated May 8, 2002, which he also was given on January 14th, 2003. DC requested a copy of this Report, which the Corps transmitted on January 31st, 2003.

The Report indicates that sampling was done on 2/8/01 and 2/13/01. The Report also states on page 2 under SUMMARY, "Except as indicated in this report, all samples were prepared and analyzed within the specified holding times using the EPA-approved analytical procedures." The District will reserve comment on this portion of the Report until it receives copies of all field notes, chain-of-custody forms, laboratory quality control results, and all other information included in the data packages including the original laboratory reports, hereby requested pursuant to the Department of Defense and District Memorandum of Agreement (DDMOA) dated 5-9-94, paragraph 1, page 2-3.

This request is necessary due to the unusual nature of the timeline. A delay of a year and three months from sample collection to validated results is unusual, even for Spring Valley. Another delay of eight more months until the regulators and at least one property owner was notified is another inexplicable circumstance. Finally, the Report states in the first sentence, "In accordance with the revised Final Work Management Plan for Follow-on Sampling for OU-4 Residential Lots, Amendment 2 (Parsons, April 2001), Parsons collected soil samples from four OU-4 residences to assess for the presence of the American University Experiment Station (AUES) list of chemicals." The District needs to know how samples collected in February 2001 could be in accordance with a Plan Amended in April 2001.

Because many of the constituents of concern were volatile substances, this lengthy timeline and the missing date as to when the samples were actually analyzed is even more important. Also, several Trip Blank samples were apparently contaminated with volatile compounds, raising a further question on how well the sample blanks were sealed and whether any loss of volatile constituents occurred before analysis.

Generic Comments

During January and February of 2002, the District had several discussions with the Corps of Engineers "new" members of the partnering team, over the need to include the District in the deliberative process. While the District was and is pleased with the high level of expertise these "new" members possess, the District was under the impression that these "new" members were not used to working with state or local governments that assumed such a prominent role on a military weapons site. The District was under the impression that long before May 2002, these "new" members understood the need to include the District in the deliberations and to supply the District with all information regarding items or contamination found at the site. Therefore after this new member orientation, the District is at a loss to explain why it was not told of the sampling results, at least at a point in time where the results were validated.

The District requests that the Corps of Engineers search its files to ensure that no other relevant data or information is being withheld. The District reminds the Corps that the vast majority of the AUES site is private property and military customs regarding "need to know" are simply inapplicable.

The District has been informed that rights of entry for this expanded sampling were not obtained from two of the residents. The District is not in a position to assess the accuracy of this anecdotal information.

The District is also concerned about the timeline because the Corps has repeatedly stressed that its expertise is in the ordnance and engineering aspects, and has deferred the health related issues to the regulators. In the Work Management Plan for OU-5, August 10, 2001, the Corps states, "CENAB responsibilities include...obtaining rights-of-entry to properties in the investigation areas...and coordinating with regulatory agencies on issues pertaining to protection of human health and the environment." Par. 1.4.2 page 1-5. (See also page 1-5 of the Work Management Plan for OU-4 dated August 14, 2000). Again the Corps states, "Communication with the residents of Spring Valley is considered paramount to the successful completion of this project. The flow chart (Figure 1-4) below indicates the general sequence of events necessary to accomplish the sampling of the residential properties...Submit Right of Entry Letter to Homeowner-Receive signed Right of Entry-...Submit Sample Results Letter to Homeowner." Par. 1.5.9.4 Page 1-11. **(TAB A).** The District suggests that the Corps insure that its new personnel familiarize themselves with these generic work plans.

Since the Corps defers health issues to the regulators, not advising the regulators of the presence of these compounds left the residents without any competent opinion on the impact of the compounds for a period broaching two years. The fact that the residents were not even informed about the existence of the compounds, further exacerbates the problem. This "ostrichesque" approach to environmental remediation is not appropriate.

Specific Constituents

The following constituents are listed in the Report as being detected:
acenaphthalene
acetone
acrolein
acetaldehyde
alpha-lindane
anthracene
benzaldehyde
benzo[A]anthracene
benzo[B]fluoranthene
benzo[G,H,I]perylene
benzo[K]fluoranthene
benzoic acid
benzyl alcohol
benzyl bromide
benzene
benzeneetanol, 4-hydroxy
benzene, (1-methylethenyl)
benzene, 1-methyl-3-(1-methyl)
bicyclo2,2,1 heptane,7,7-d
bicyclo3.1.1 hept-2-ene.2.6.5-trimethyl
bicyclo3.1.1 hept-2-ene.2.6.6-trimethyl
bis(2-ethylhexyl)phthalate
butanal
butane
2-butanone
2-butanone, 3-methyl
2-butene, (z)
butylbenzylphthalate
carbon disulfide
carbonyl sulfide
carboxylic acid ester
chloride
chloroform
chloromethane
chrysene
cyanide
cyclohexene, 1-methyl-4-(1-methylethenyl)
cyclorpropane, 1,2-dimethyl-,trans
cyclotetrasiloxane, octamethyl
dibenz[A,H]anthracene
dibenzofuran
dichlorofluoromethane

diethylphthalate
di-n-butylphthalate
docosane
dodecanal
1-eicosanol
ethanethiol
ethanol,2-(2-ethoxyethoxy)
ethanone, 1-(3-ethyloxiranyl)
fluoranthene
fluorene
fluoride
gama-sitosterol
heptadecane
heptadecane, 9-octyl
heptane.3-methylene
hexadecanoic acid
9- hexadecanoic acid
2,4-hexanedione
2-hexanone
hexanal
hexanal, 2-ethyl
hexanal.5-methyl
hexane
1-hexene,4-methyl
2-hexene, (z)
indeno[1,2,3-CD]pyrene
methyl acetate
methylene chloride
2-methylnaphthalene
naphthalene
nitrate-n
nonacosane
nonadecane
nonanal
octacosane
13-octadecenal
14-octadecenal
9,12-octadecadenoic acid
octanal
octane
1-octanol,2,7-dimethyl
2-octene
2-octene, (e)
oleic acid
pentadecane,8-hexyl
pentanal isomer 1

pentanal isomer 2
pentanal isomer 114-octadecenal
phenanthrene
phenanthrene, 9-methyl
phosphate-P
propanal, 2-methyl
propane, 1,1-oxybis
1-propene,1.2.3-trichloro
pyrene
sulfate
thiodiglycol
toluene
trichlorofluoromethane
tricosane

Comments on Risk

Since many of these are volatile compounds, and many of these were found in surface soils, a presumptive pathway to human exposure exists. However, since many of these compounds are unknown in modern industry and do not have Risk Based Concentrations established, it would be difficult, if not impossible, to do an accurate Risk Assessment.

The District agrees with the Corps that most of these compounds are found in very low levels (i.e. a few parts per billion). However, the District notes that a few of these compounds are experimental chemical warfare agents or precursor compounds listed in the archival documents. Some are listed in standard hazardous materials references. **(TAB B).**

In addition, there are 102 compounds detected on one or more properties. The lowest number on any single property is 24. The two properties with the largest number of compounds lie in close proximity to each other. Because of the number of compounds on any given property, the synergistic and combinative effects would make it difficult, if not impossible, to do a Risk Assessment.

Finally, since EPA has already done a risk assessment on the Spring Valley site, it would be repetitive to do another. While EPA's Risk Assessment was done in 1999, it was primarily based on the limited sampling data from 1993 and 1994. Newer data from the site-wide arsenic sampling and limited sampling for other constituents should be added. If EPA feels that a Risk Assessment could be done on this new data, it should also be included.

Comments on Implications for the Spring Valley Project

Since two of these properties are known to have burial sites adjacent to them and are suspected of having burial sites on them based on geophysical surveys, the remaining two properties should also be examined geophysically for potential burial sites. Indeed one of those properties is already on the list for the first 50 properties to be geophysically surveyed, for other reasons.

The District noted in letter sent to the Corps in 1998 that the general absence of volatile and semi-volatile compounds found in the 1993 and 1994 sampling suggested that where such compounds were found a containerized burial site might exist. The reasoning seems especially apropos in light of the Report.

Other adjacent properties, as well as those in Points of Interest, should have a similar battery of tests done.

The District suggests that the partners discuss, as a priority, the need for more extensive sampling (some of these properties had only 3 samples) and whether a mapping of the soil gas would be useful in pointing to potential burial sites. The Corps should discuss interim measures with the property owners.

TAB A

WORK MANAGEMENT PLAN

- Field Sampling Plan
- Quality Assurance Project Plan
- OE/CWM Risk Evaluation
- OE/CWM Contingency Plan
- Site Specific Safety & Health Plan
- Work Management Structure

TASK ORDER TO NATIONAL GUARD BUREAU
CONTRACT NO. DAHA90-94-D-0010, TASK ORDER DA01
DERP-FUDS HTRW PROJECT NUMBER C03DC091804

REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) SPRING VALLEY OPERABLE UNIT 5, WASHINGTON, D.C.

Prepared For:

U.S. ARMY CORPS OF ENGINEERS
BALTIMORE DISTRICT

Prepared By:

PARSONS ENGINEERING SCIENCE, INC.
10521 ROSEHAVEN STREET
FAIRFAX, VA 22030

AUGUST 10, 2001

1.3.3 Environmental Setting

1.3.3.1 Four geological formations, three Piedmont and one Coastal Plain formation, are apparent in the vicinity of the site. These formations (from west to east) are the Sykesville Formation, the Dalecarlia Intrusive Suite, the Actinolite Schist, and the Coastal Plain Terrace Formation (USGS 1994). The Sykesville Formation is a sedimentary melange consisting of fragments of metagraywacke, migmatites, amphibolite, and actinolite schist in a quartzofeldspathic matrix. The Dalecarlia Intrusive Suite consists of massive to well-foliated biotite monzogranite and lesser granodiorites. The Actinolite Schist Unit consists of actinolite schist, actinofels, actinolite-chlorite schist and lesser talc bearing rocks. The Coastal Plain Terrace Gravel consists of highly weathered, crudely bedded gravel, sand, silt, and clay (Fleming, A. H., Drake, A. A., Jr., McCartan, Lucy, 1994). The Piedmont Formations are igneous or metamorphic in origin. The Coastal Plain Terrace Formation is fluvial in origin (Fleming, A. H., Drake, A. A., Jr., McCartan, Lucy, 1994). Schistosity is the major structural feature of the Piedmont rocks and saprolite in the OU-4 vicinity.

1.3.3.2 Two soil associations are present at the site, the Urban Land-Sassafras Chillum (ULSC) and the Urban Land-Manor Glenelg (ULMG). The ULMG soil association appears to comprise the majority of the soil at the site. It is a well to moderately well drained soil resulting from the weathering of the basement rocks (schist). The site ULSC soil in the vicinity of the residence results from the weathering of Coastal deposits. However, these soils have been greatly disturbed by construction and landscaping activities. The bedrock at this location consists of a variety of metasedimentary rocks of the Sykesville Formation. Depth to bedrock in the vicinity of the site ranges between 6 and 20 feet.

1.4 PROJECT ORGANIZATION

1.4.1 Project Team

1.4.1.1 Several organizations are directly involved in the Spring Valley OU-5 project. The technical team comprises the USACE, Parsons, and various subcontractors (Figure 1-2). The roles of these team members are described below.

1.4.2 U.S. Army Corps of Engineers, Baltimore District (CENAB)

1.4.2.1 CENAB is the Project Manager for this project. CENAB responsibilities include review of project plans and documents, obtaining rights-of-entry to properties in the investigation areas, working with the news media and the public (in conjunction with the Parsons ES Public Affairs Officer), and coordinating with regulatory agencies on issues pertaining to protection of human health and the environment.

1.4.3 Parsons Engineering Science (Parsons)

1.4.3.1 Parsons will function as the A/E contractor, and provide overall site management and coordination during field operations, including sampling, coordination of analytical samples, coordination of subcontractors, documentation of site activities, and preparation of the final report. Parsons will appoint a Public Affairs Officer (PAO) to assist CENAB in communicating progress and results to the public.

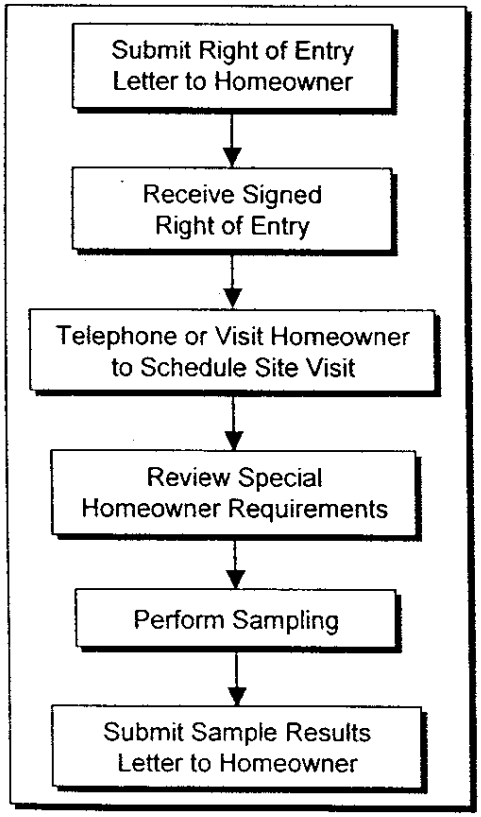
1.5.9.2 During sampling, it is anticipated that Ms. McQuilkin will be on site at the CENAB trailer located at the Federal Property.

1.5.9.3 Ms. McQuilkin, in close coordination with the CENAB Project Manager, will assist with the following:

- Answering phone calls from residents, providing answers to questions or taking messages for more difficult questions. Researching questions and returning phone calls within a reasonable time. Maintaining a log of contact with residents;
- Scheduling of sampling activities on each property with the homeowner and the sampling team;
- Tracking of requirements to conduct sampling at a resident's property. This will include pre and post sampling activities such as notifying the residents, tracking the status of signed rights of entry and preparing post sampling letters to be sent by CENAB to residents. The final list of items to be tracked will be coordinated with the CENAB Project Manager;
- Participating in meetings with residents as appropriate.

1.5.9.4 Communication with the residents of Spring Valley is considered paramount to the successful completion of this project. The flow chart (Figure 1-4) below indicates the general sequence of events necessary to accomplish the sampling of the residential properties.

Figure 1-4
Home Owner Communication Flow Chart



TAB B

Final Report

A Brief History of the *American University Experiment Station* and *U.S. Navy Bomb Disposal School, American University*

Prepared under the
Defense Environmental Restoration Program
for
U.S. Army Engineer District, Baltimore

by
Martin K. Gordon, Ph.D.
Barry R. Sude, Ph.D.
Ruth Ann Overbeck, M.A.
Charles Hendricks, Ph.D.

Office of History
Headquarters, U.S. Army Corps of Engineers
May 1994

Specific Activities and Operations

Operations at the Experiment Station, first under the Bureau of Mines and then under the Chemical Warfare Service, fell into several comprehensive, if sometimes overlapping, categories: gas mask research, offensive and defensive toxic chemical investigations, medical research, pyrotechnic investigations, and mechanical investigations. The Experiment Station's Chemical Research Division (Offense) studied the properties and efficiency of toxic substances—mustard gas, phosgene, superpalite (trichloromethyl chloroformate)—already in use in Europe. It suggested, developed, and submitted for testing literally hundreds of new chemical and solid toxic substances—including new types of mustard gas, cyanogen chloride, and bromobenzyl cyanide—for possible use in gas warfare. The division also investigated and developed smoke mixtures for Navy smoke screens and colored smokes for Army signaling on the battlefield, as well as incendiary materials for use in bombs, shells, projectiles, darts, and hand grenades. In addition, it investigated the problem of obtaining resistant linings suitable for gas shells; devised methods for manufacturing inorganic compounds for use in new explosives and as new toxic and corrosive shell fillers; and invented new methods for analyzing the effectiveness of new materials developed for use in gas warfare. It conducted extensive tests related to the toxicity and symptomology of various classes of mustard gas and similar compounds; developed a method for determining the tear-producing effects of toxic substances on humans; and contributed to various aspects of gas mask research.

The Chemical Research Division (Offense) also devised methods for the preparation, manufacture, and use of such toxic materials as acrolein, martonite, nitrosomethylurethane, chloroacetic anhydride, diphenylchloroarsine, adamsite, phenylbromoacetonitrile, methyldichloroarsine, thionyl fluoride, methyldichloroarsine, lewisite, bromobenzyl cyanide, phenylimidophosgene, thiophosgene, sulfur monochloride, sulfur dichloride, superpalite, cyanogen chloride, cyanogen bromide, diethyl sulfide, diphenyl sulfide, chloropicrin, acetylene-arsenic trichloride, acetyl fluoride, acetyl chloride, chloroacetyl chloride, acetophenone, chloroacetophenone, zinc arsenide, calcium arsenide, magnesium arsenide, arsenic trifluoride, bromine trifluoride, boron trifluoride, sulfur hexafluoride, iodine pentafluoride, aluminum chloride, titanium tetrachloride, and mustard gas.[47]

CHEMICAL	COMMENT
2-butonone	toxic by ingestion and dermal, affects peripheral nervous system[1]
acetone	
carbon disulfide	sulfide exception[2]
chloromethane	organic halogen (aliphatic halide)[3]
dichlorofluoromethane	organic halogen (aliphatic halide)[4]
2-butanone, 3-methyl	
2-octene	octylene [5](acrid smoke)
acetaldehyde	causes respiratory paralysis[6]
bicyclo2,2,1 heptane,7,7-d	
bicyclo3.1.1 hept-2-ene.2.6.5trimethyl	Similar to pinene, causes skin eruption, ataxia, kidney damage[7]
carbonyl sulfide (carbon oxide sulfide	sulfide[8]
cyclotetrasiloxane, octamethyl	siloxanes can spontaneously combust in air[9]
heptane.3-methylene	
hexanal	toxic, ingestion & inhalation, (acrid
smoke)[10]	
hexanal.5-methyl	
octanal	
octane	asphyxiant and blister agent[11]
pentanal isomer 114-octadecenal	Irritating to eyes & respiratory tract[12]
1-eicosanol	
1-propene,1.2.3-trichloro	organic halogen[13]
hexadecanoic acid	decanoic acid is a poison (acrid smoke)[14]
oleic acid	poison and skin irritant[15]

---

[1] Hazardous Chemical Desk Reference by N. Irving Sax and Richard J. Lewis, Sr., Van Nostrand Reinhold NY 1987.

[2] Military Chemistry and Chemical Agents TM 3-215 1942 at page 59 "Chemical agents are, almost without exception, organic compounds of the halogens." The exceptions are the sulfur derivatives (sulfides, mercaptans), nitrogen derivatives (cyanides), and some arsines.

[3] Supra, TM 3-215

[4] Supra, TM 3-215

[5] Chemical and Technical Dictionary H. Bennett editor, Chemical Publishing Co. NY 1962.

[6] The Merck Index Martha Windholz editor, Merck and Company 1976

[7] Supra, Merck

[8] Supra, TM 3-215

[9] Supra, Hazardous Chemicals

[10] Supra, Hazardous Chemicals

[11] Supra, Hazardous Chemicals

[12] Supra, Merck

[13] Supra, TM 3-215

[14] Supra, Hazardous Chemicals

[15] Supra, Hazardous Chemicals

Appendix 8.

192 COMPOUNDS PREPARED FOR TOXICOLOGICAL TESTS.

70 w arsenic

COMPOUND	REPORT NO.
Allyl Dichlorarsine	EACD 179
Allyl Formate	" 129
Allyl Isothiocyanate	*MR 7- '25
p-Amino Chloracetophenone	EACD 158
Ortho Arsanilic Acid	" 323
Para Arsanilic Acid	" 279
Atoxyl	" 279
Benzyl Arsonic Acid	*MR 4- '25
Benzyl Bromacetamide	EACD 307
Benzyl Bromide	*MR 9- '25
Benzyl Dichlorarsine	EACD 171
Bromacetoacetic Ester, Alpha	" 190
Bromacetoacetic Ester, Gamma	" 190
Bromnitromethane	" 275
Brompicrin	" 151
Butyl Arsenious Oxide	" 345
Butyl Arsonic Acid	" 345
Butyl Dichlorarsine	" 345
Butyl Difluorarsine	" 345
Calcium Butyl Arsonate	" 345
Calcium Ethyl Arsonate	" 338
Calcium Methyl Arsonate	" 319
Calcium Meta Nitrophenyl Arsonate	* MR 9- '24
Capsaicin	EACD-186
Chloracetic Acid	" 82
Chloracetoxylone	*MR 9- '25
Chloracetyl Chloride	EACD 87
Beta Chlorethyl Dichlorarsine	" 331
Bis Alpha Chlorethyl Sulfide	" 354
Bis Beta Chlorethylthio Ethane	*MR 3- '25
Bis Beta Chlorethylthiol Carbonate	EACD 280
Beta Chlorethylthiol Chlorformate	" 280
Beta Chlorethylthio Cyanate	" 285
Bis Chlorethylthio Methane	" 311
Bis Chlormethyl Ether	" 126
Chlormethyl Phenyl Sulfone	" 199
Bis Chlormethyl Sulfide	" 267
Chlorpicrin	" 75
Beta Chlorvinyl Arsenious Oxide	" 321
Bis Beta Chlorvinyl Arsenious Oxide	*MR 12 -22
Bis Beta Chlorvinyl Chlorarsine	EACD 239
Beta Chlorvinyl Dichlorarsine	" 239
Beta Chlorvinyl Difluorarsine	" 346
Beta Chlorvinyl Dimethoxyarsine	" 321

COMPOUND	REPORT NO.
Bis Beta Chlorvinyl Fluorarsine	*MR 8- '25
Bis Alpha Chlorvinyl Sulfide	EACD 354
Bis Beta Chlorvinyl Sulfide	" 354
Copper Xanthate	*MR 5- '25
Cyanogen Bromide	EACD 196
Cyanogen Sulfide	" 221
Dibromacetamide	" 307
Dichloracetone	" 312
Dichlorarsanthrene	" 323
Dichlor Nitroso Ethane	" 191
Diethoxy Chlorarsine	" 352
Diethyl Diselenide	" 277
Diethylene Disulfide	" 311
Diethylene Oxide Sulfone	" 337
Diethyl Selenide	" 277
Dimethyl Aniline Arsenious Oxide	" 229
Dimethyl Sulfate	*MR 8- '25
Dimetnyl Sulfide	EACD 252
2,4 Dinitrophenol	" 238
2,4 Dinitrophenyl Beta Chlorethyl Sulfide	" 251
2,4 Dinitrophenyl Beta Chlorethyl Sulfone	" 251
2,4 Dinitrophenyl Beta Chlorethyl Sulfoxide	" 251
Dinitrotetrachlorethane	" 157
Di-isothiocyan Dimethyl Ether	*MR 3- '26
Diphenylamine Arsenious Oxide	EACD 324
Diphenylamine Bromarsine	*MR 3- '25
Diphenylamine Cyanarsine	EACD 257
Diphenylamine Fluorarsine	" 318
Diphenyl Arsenious Oxide	" 324
Diphenyl Arsenious Sulfide	*MR 4- '25
Diphenyl Arsinic Acid Ortho Arsonic Acid	EACD 323
Diphenyl Chlorarsine Ortho Chlorarsine	" 323
Diphenyl Cyanarsine	" 220
Diphenyl Fluorarsine	" 183
Diphenyl Trichlorarsine	*MR 3- '25
Diphenyl Antimonous Oxide	*MR 2- '25
Diphenyl Chlorstibine	*MR 2- '25
Diphenyl Phenoxyarsine	EACD 156
Divinyl Sulfide	" 354
Bis Beta Ethoxy Ethyl Sulfone	" 354
Ethyl Arsenious Oxide	" 324
Ethyl Arsenious Sulfide	*MR 6- '25
Ethyl Beta Chlorethyl Sulfide	EACD 254
Ethyl Beta Chlorethyl Sulfone	" 254
Ethyl Beta Chlorethyl Sulfoxide	" 254
Ethyl Beta Hydroxyethyl Sulfide	" 254
Ethyl Dichlorarsine	" 313
Ethyl Dichlor Phosphine	" 283
Ethyl Difluorarsine	" 338

COMPOUND	REPORT NO.
Ethylene Dithiocyanate	EACD 285
Ethyl Iodoacetate	*MR 12- '23
Ferric Xanthate	*MR 5- '25
Fluorbenzene	EACD 262
Guaiacyl Dichlorarsine	" 189
Heptoyl Amide	" 307
Hexachlorbenzene	" 253
Hexachlorethane	" 253
Ortho Hydroxy Chloracetophenone	" 158
Beta Hydroxy Ethyl Arsenious Oxide	" 331
Beta Hydroxy Ethyl Arsonic Acid	" 331
Para Hydroxy Ethyl Phenyl Arsenious Oxide	" 189
Bis Beta Hydroxy Ethylthiol Carbonate	" 280
Beta Hydroxy Ethylthiol Chlorformate	" 280
Iodoacetophenone	*MR 1- '24
Lead Xanthate	*MR 5- '25
Magnesium Methyl Arsonate	*MR 9- '24
Magnesium Phenyl Arsonate	EACD 259
Magnesium p Phenylene Diarsinate	" 279
Mercaptol	" 217
Mercury Diethyl	" 283
Mercury Dimethyl	" 192
Mercury Dinaphthyl	" 274
Mercury Diphenyl	*MR 10- '24
Methyl Arsenious Oxide	EACD 324
Methyl Arsenious Sulfide	*MR 5- '25
Methyl Arsonic Acid	*MR 10- '24
Methyl Beta Chlorethyl Sulfide	EACD 231
Methyl Beta Chlorethyl Sulfone	" 231
Methyl Beta Chlorethyl Sulfoxide	" 231
Methyl Chlormethyl Sulfate	" 198
Methyl Cyanformate	" 102
Methyl Dibromarsine	*MR 8- '25
Methyl Dichlorarsine	EACD 211
Methyl Difluorarsine	" 344
Methylene Methylol Undecenoylamide	" 307
Methyl Heptoyl Amide	" 307
Methyl Beta Hydroxyethyl Sulfide	" 231
Methylol Benzamide	" 307
Methylol Heptoate	" 307
Methylol Nonoyl Amide	" 307
Methylol Phthalimide	" 307
Methylol Undecenoylamide	" 307
Methyl Oxamic Ester	" 102
Methyl Phenyl Sulfone	" 199
Methylthiol Chlorformate	" 180
Methyl Vinyl Sulfide	" 354
Monothioethylene Glycol	" 311
Mustard Sulfone	" 177
Alpha Naphthoyl Amide	" 258

COMPOUND	REPORT NO.
Beta Naphthoyl Amide	EACD 258
Naphthyl Dichlorarsine	" 274
Alpha Naphtho Nitrile	" 258
Beta Naphtho Nitrile	" 258
Ortho Nitraniline	" 323
Nitro Chloracetophenone	" 158
Nitromethane	" 275
Meta Nitrophenyl Arsenious Oxide	*MR 5- '24
Meta Nitrophenyl Arsonic Acid	*MR 10- '24
Ortho Nitrophenyl Arsonic Acid	EACD 323
Meta Nitro Phenyl Dichlorarsine	*MR 10- '24
Meta Nitro Phenyl Difluorarsine	*MR 1- '25
Meta Nitro p Oxy Benzoyl Benzamide	EACD 307
Phenoxarsine Chloride	*MR 5- '25
Phenoxarsine Fluoride	**WR6-22-25
Phenoxarsine Oxide	*MR 6- '25
Phenyl Antimonous Oxide	*MR 11- '24
Phenyl Arsenious Oxide	EACD 324
Phenyl Beta Chlorethyl Sulfide	" 263
Phenyl Beta Chlorethyl Sulfone	" 263
Phenyl Dichlorarsine	*MR 7- '25
Phenyl Dichlorphosphine	EACD 283
Phenyl Difluorarsine	" 273
Para phenylene Diarsonic Acid	" 279
Para Phenylene bis Dichlorarsine	" 279
Phenyl Beta Hydroxyethyl Sulfide	" 263
Phenyl Vinyl Sulfide	" 354
Phosphorus Pentaselenide	" 277
Picric Acid	" 238
Potassium Xanthate	*MR 5- '25
Pyromucic Acid	EACD 159
Pyromucyl Chloride	" 159
Resorcyl Aldehyde	" 307
Sodium Methyl Arsonate	" 211
Tetrachlordiethyl Sulfide	" 254
Tetrachlordiethyl Sulfoxide	" 232
Thiobenzamide	*MR 5- '23
Toluyl Acetamide	EACD 307
Toluyl Bromacetamide	" 307
Toluyl Chloracetamide	" 307
Toluyl Dibromacetamide	" 307
Para Toluyl Heptoyl Amide	" 307
Trimethoxyarsine	" 310
Triphenylarsine	*MR 5- '25
Triphenyl Dichlorarsine	*MR 5- '25
Tris Chlorvinyl Arsine	EACD 239
Trithioacetaldehyde	" 354
Trithioformaldehyde	" 267
Vanillyl Alpha Benzoyl Amide	" 307

Appendix 2

Project records support the USACE position that the AUES sampling was conducted with the full knowledge of others. To demonstrate the level of coordination and communication between USACE and its regulatory partners throughout the AUES list sampling event, the following attachments are provided[1]:

- **Attachment A:** Supplemental handout distributed at the March 11, 2003 Spring Valley Restoration Advisory Board meeting, which outlines USACE efforts and project management considerations associated with the 2001 AUES List sampling.
- **Attachment B:** Partnering Meeting minutes dated January 3, 2001, at which Richard Albright, DC DOH, was present. The expanded sampling on three of the four OU4 properties that were the focus of the DC DOH comments was discussed at this meeting. These minutes also demonstrate that the partners participated in other decisions being made at that time.
- **Attachment C:** E-mail dated January 24, 2001 that demonstrates that USACE provided the AUES list to the Partners, including Richard Albright, DC DOH.
- **Attachment D:** E-mail dated January 31, 2001 distributing to the Partners, including Richard Albright, DC DOH, the AUES List sampling plan (amendment 1) for the CDC and Lot 12 on the AU campus. The message also notes upcoming sampling at the OU4 residential properties.
- **Attachment E:** E-mail dated February 22, 2001 providing the agenda for the next Partnering meeting to the regulatory agencies, including Richard Albright, DC DOH. It notes that DC DOH will be represented by Greg Hope at the next meeting because Mr. Albright will be unable to attend. One of the agenda items is the OU4 residential properties sampling.
- **Attachment F:** Excerpt from partnering meeting minutes dated February 27, 2001, at which Gregory Hope, DC DOH, was present. These minutes include discussion of expanding the AUES List sampling to the Sedgwick residential properties.
- **Attachment G:** E-mail dated May 8, 2001 from MAJ Michael Peloquin, USACE, asking the sampling contractor to prepare presentations for the upcoming partnering meeting (May 14) on any "qualified" sampling results received since the March meeting, what the preliminary results are showing and challenges associated with interpretation of the AUES data results (using AUES data as examples).
- **Attachment H:** Partnering Meeting minutes from May 14, 2001 during which USACE believes OU4 AUES List data results were shared with DC DOH and USEPA, as suggested in attachments G and I. USACE notes that these minutes do not specifically document distribution of these data and realize future minutes should be more detailed to ensure adequate capture of discussions and decisions between USACE, USEPA and DC DOH.
- **Attachment I:** E-mail dated June 1, 2001 from the sampling contractor to USACE, transmitting the draft AUES List sampling data tables that had been handed out at the meeting. One table is for the OU4 residential properties and the other for the AU properties

[1] Attachments contain only relevant pages – full copies of these documents are available on the project's web site at http://www.nab.usace.army.mil/projects/WashingtonDC/springvalley.htm.

(Lot 12 and the CDC). It also notes some problems were encountered in getting analyses back from the lab in a timely manner.

- **Attachment J:** E-mail dated July 25 and 27, 2001 among the partners, including Richard Albright, DC DOH, referencing a Sedgwick AUES List data discussion at the previous week's partnering meeting and a follow-up discussion between MAJ Michael Peloquin, USACE, and Mr. Richard Albright. The e-mails indicate that the partners discussed the format of the results to be furnished to the Sedgwick AUES residential property owners, and notes that DC DOH "did not see any results posing any serious health risks" in its preliminary review of the results.
- **Attachment K:** E-mail dated May 8, 2002 from the sampling contractor to USACE, suggesting that the AUES List sampling results for all ten properties be presented and discussed at the May 22 partnering meeting. The message notes that the final reports on the OU4 residential properties were expected to be completed May 8 or 9.
- **Attachment L:** Excerpts from Partnering Meeting minutes dated May 22, 2002, at which Richard Albright, DC DOH, was present. The minutes describes the partners' discussion of how to report the results of the AUES List sampling results to the property owners, as well as USACE's ongoing efforts to share data with DC DOH and work with Mr. Albright on prioritizing next steps based on the data available. The minutes also note USACE efforts to track and address sampling concerns expressed by the owner of 3819 48th Street.
- **Attachment M:** Letter dated March 15, 2001 sent to the property owners of 4710 Quebec Street, providing the preliminary grid sampling arsenic results from sampling conducted on February 2, 2001.
- **Attachment N:** Letter dated May 15, 2001 sent to the property owner of 3819 48th Street, conveying the preliminary results of the arsenic sampling on their property from sampling conducted on February 7 and 8, 2001.

Spring Valley Restoration Advisory Board
Supplemental Handout regarding 2001 AUES List Sampling
March 11, 2003

Corps Efforts to Meet Stakeholder Needs through Sampling

Between February and April 2001, soil samples were collected in three separate focus areas, including A) American University's Child Development Center and Lot 12, B) four properties on the 5000 block of Sedgwick Street, and C) four residential properties associated with, or in the vicinity of, Operable Unit 4. Soil samples collected from these properties were analyzed for the full list of chemicals used at American University Experiment Station (AUES), noting the AUES list had been agreed upon by the Corps, EPA and DC Health (subsequently referred to as the "partnership").

These properties with elevated arsenic, except for 3819 48th, were selected for additional sampling in an effort to determine if arsenic is the only chemical of concern for the Spring Valley project, and whether or not sampling for other contaminants on a broader scale was necessary. The Corps efforts to work with DC Health and specific property owners are outlined in the following examples.

Work Management Plan - Addendum 1 - AU Lot 12/Child Development Center
Section 1.1 indicates, *"This follow-on sampling scope of work reflects the discussions of the USEPA and DC Health regulators, the Baltimore District Corps of Engineers, and AU personnel at the January 25, 2001, Spring Valley Partnering Meeting."*

Table 4.1, Sampling Objectives, from this same addendum indicates that 48 inch subsurface boring sampling for the AUES list was conducted *"to accommodate the DC Health regulator's request to further define extent of metals and compounds from former AUES activities in subsurface soils inside the CDC in areas near former AUES buildings or disturbed earth features."*

Work Management Plan - Addendum 2 - Follow-on Sampling for OU-4 Residential Lots
With regard to quadrant surface sampling for arsenic, Table 4.1 indicates this sampling was conducted to *"further define extent of arsenic in surface soils at properties adjacent to properties containing notable concentrations of arsenic as determined by the Aug-Nov (2000) residential sampling. 4900 Quebec (arsenic only) and 3819 48th Streets were included to accommodate individual property owner requests based on special circumstances."*

In this same table, while it does not specifically confirm the property owner's knowledge that additional chemical analyses would be conducted, it does indicate the Corps' efforts to meet the needs of DC Health and the property owner. Specifically, it states that *"non-grid, non-quadrant surface samples for the TCL VOCs, TCL SVOCs, ABPs, TICs and the AUES List were conducted to accommodate the DC Health regulator's request to sample for compounds that may have been used at the AUES, four locations were selected for full scan sampling. The properties were geographically spread with the objective of investigating different potential depositional environments. In general, the locations were in areas of high surface arsenic concentrations, or for 3819 48th Street, which had not been previously sampled, random locations in each quadrant (these were collected at the 12" - 18" depth based on the information from the property owner)."*

Project Management

To better understand the length of time the process has taken, it is important to consider the other ongoing events within the Spring Valley project during this time. First, when the specialty sampling was conducted within the 3 focus areas, the Corps was responding to community requests to initiate area-wide sampling for arsenic, to conduct a time-critical removal action at the AU Child Development Center and to establish the Restoration Advisory Board. By June, the area-wide arsenic sampling had commenced, requiring significant project coordination over the next 12 months to obtain rights-of-entry, collect the data, return data results letters and coordinate follow-on sampling. This short list does not convey the time and detail required to:

- Reach consensus with the RAB representatives on ROE and results letter content
- Delineate the remediation goal of 20 ppm for the arsenic removals
- Plan and execute the time-critical removal action process
- Finish remediation on the Korean Ambassador's residence
- Investigate the pit on 4825 Glenbrook
- Respond to congressional inquiries
- Coordinate community meetings and educational materials,
- Address real estate and data results requests from individual residents
- Develop a long-term plan to resolve ordnance concerns
- Discuss other potential areas of investigation
- Address Administrative Record/Information Repository issues
- Explore concerns regarding missing historical records
- Etc.

In short, initial review of the data from the Child Development Center, Sedgwick Trench and OU-4 in 2001 caused the finalization of these data to be placed on a slower track. It was never a question of whether these data would be released,

noting that it would be included in the Engineering Evaluation and Cost Analysis (EE/CA). This document is required to be released for public comment.

The Corps must execute this project with a finite amount of funding and manpower. Given that the specialty sampling data from the three focus areas did not reveal any apparent risks, the identified arsenic risks and resulting community needs took priority out of necessity to keep the project moving as fast as possible.

The Corps' Relationship with Spring Valley Residents

Corps personnel and our contractors make every effort possible to meet special requests regardless of whether it is from a RAB member with substantial project understanding, or a resident interacting with the Corps for the first time. Unfortunately, the environmental cleanup process is not perfect and neither are those trying to execute the project nor those overseeing it or otherwise participating in the cleanup. The Corps acknowledges that it should have provided data results sooner in order to help address any lingering questions or concerns a given resident might have had. Although we do our best to work closely with Spring Valley residents and meet their needs, occasionally we are unable to meet a specific request and sometimes we do make mistakes.

In this case, from a community relationship perspective, the Corps should have provided each property owner with a timely set of data, even if we did not have the support materials ready to explain all the data. Clearly, we fell short of meeting the needs of the four property owners/residents. On this point I have already apologized and do so again; the entire team feels bad about this delay and the subsequent repercussions on our relationship with the RAB and those specific property owners. Nevertheless, the Corps remains hopeful that this informational issue can be resolved and that the Corps and the community RAB members can continue to work together to address community needs.

SPRING VALLEY OU-4
Child Development Center
Washington, DC

MEETING MINUTES

PURPOSE OF MEETING: Child Development Center

LOCATION: Federal Property Trailer

DATE: January 3, 2001

TIME: 1:30 p.m. – 5:00 pm

---

1. INTRODUCTIONS

Everyone was introduced. Attendees attached.

Maj Plaisted began with a discussion plan for the CDC sampling

He provided an update of current projects on SV. Doing the excavation at 4801 and 4825. Getting the permit to place the roll-offs on Glenbrook.

SDA – People arrive back on site today to finish the set-up. Have the approvals to start working and will start the actual operation on Monday.

OU-4 sampling. Completed at 42 properties and on AU. Results on the 42 properties sent to the owners, USEPA and DC Health.

CDC.

Rich Albright stated the DC Health Department is ordering an immediate removal of the soil in the playground of the SDA. There was discussion on the need for an immediate removal. The discussion focused on sampling. The workplan was discussed. Sampling on 20' grids to determine the extent of the contamination. Willi Suter stated he did not feel the 20' grid was sufficiently fine. Discussion focused around using 10' grid. It was agreed sampling within the CDC will be performed on a 10' grid. Willi Suter stated AU wants split samples as does EPA. Parsons will be able to sample approximately 30 samples (two duplicates) per day with a three person team.

Ed Bishop discussed the analysis of the samples for volatiles and semi-volatile compounds for the target contaminant list (TCL) (EPA standard list) and tentatively identified compounds (TICs). TICs

are peaks that are not on the TCL but do give a peak that can be compared against a national mass spectrometry database. These peaks can be identified but not quantified.

Rich Albright suggested two samples at 4-5 feet within the CDC area.

Need to make sure we analyze for semi-vols (BNAs) to pick up the compounds identified in sample Baker 03

Surface sampling will be done on 10' grids. Two borings will be advanced to a depth of 4'. For each of the two borings, at 1' a discrete sample for TAL metals will be taken. At 4', a discrete sample will be taken and analyzed for agent breakdown products (mustard and lewisite), and volatiles, semi-volatiles TCLs and TICS. For the highest 5% arsenic results within the CDC, samples will be taken and analyzed for agent breakdown products (mustard and lewisite), and volatiles, semi-volatiles TCLs, TICS, and TAL metals. As results will be compared to background and the areas removed. It will take approximately 15 days to excavate, load out, receive results, and backfill. Assume an extra week for weather and other contingencies. AU will select a date after mid February when they can vacate for a month. The excavation will then progress at that date.

No need to do a geophysical survey within the CDC fence unless sampling indicates otherwise. Additional geophysical sampling will be based upon results of the AU sampling. The validated samples for AU should be available in 2 weeks.

OU-4 Sample Results

MAJ Plaisted presented the results of the 42 properties. Lan Reeser explained the approach for those properties with elevated arsenic (4641, 4637, 4633, 4625, 4621 Rockwood Parkway, 4710 Quebec, 4710 Woodway, and 4861 Indian Lane). These lots (including 4629 Rockwood) will be gridded on 20' centers and samples taken and analyzed for arsenic.

On 4625 and 4633 Rockwood Parkway, three surface samples will be taken in the highest quadrant(s) [4625 2 in Q3, 1 in Q4] [4633 take the sample at the borehole and two randomly in the backyard] (based up the initial arsenic results) and analyzed for agent breakdown products (mustard and lewisite), and volatiles and semi-volatiles TCLs and TICS. For these properties, each of the three quadrants not already containing a subsurface boring will be further sampled by compositing three 1' borings from each quadrant and analyzing for arsenic. 4604 and 4608 will be sampled with the quadrant sampling approach.

The same approach will be used for 4710 Quebec [1 ea in front quadrants and 1 in the high backyard quadrant]. Samples will be analyzed for agent breakdown products (mustard and lewisite), and volatiles and semi-volatiles TCLs and TICS. OU-4 will be expanded to include the three houses across the street from 4710 Quebec. These properties will be sampled with the quadrant sampling approach.

The 4710 Woodway front yard, specifically quadrant 4 and the northern portion of quadrant 3 will be gridded on 20' centers and sampled for arsenic. A composite of three 1' borings will be taken in each of these two quadrants in the front yard and analyzed for arsenic.

The lot at 4861 Indian Lane will gridded on 20' centers and sampled for arsenic. The property directly across the street will be sampled with the quadrant sampling approach.

A CENAB representative will accompany the sampling team.

Name	Organization/Address
Mike Rogers	CENAB
Lan Reeser	CENAB
Brian Plaisted	CENAB
Terry Schlonecker	EPA
Ken Shuster	EPA
Willi Suter	AU
Verna Green	AU CDC
Richard Albright	DC DOH EHA
Chuck Twing	CEHNC
Mike Winningham	Parsons ES
Kevin Brennan	CENAB
Ray Livermore	CENAB
Eryn Lussier	Parsons ES
James Taylor	Parsons ES

Hughes, Edward T NAB02

From: Rogers, Michael J NAB02
Sent: Thursday, February 08, 2001 12:10 PM
To: Peloquin, Michael CPT NAB02
Subject: FW: Chem list

-----Original Message-----
From: Plaisted, Brian D MAJ NAB02
Sent: Wednesday, January 24, 2001 10:28 AM
To: 'Albright, Rich'; 'Harbold, Harry'; 'Shuster, Ken'; 'EPIC - Slonecker, Terry'; Anderson-Hudgins, Sherri HNC; 'AU-Bridgham, Bethany'
Cc: Rogers, Michael J NAB02; Reeser, Leland H NAB02
Subject: Chem list

To all,
Attached is the list of contaminants that we had discussed at our last meeting and Parsons ability to have a lab for check for these compounds. This will be part of our discussion for tomorrow.

Brian Plaisted

chemic~1.xls

(Later called the AUES - list of contaminants)

SPRING VALLEY
AUES CHEMICALS

COMPOUND	ROUTINE	NON-ROUTINE	SPECIALTY LAB	NON-SPECIFIC	RESEARCH PROJ
	(TCL or TAL) + TICs	(But readily available methodology)			
Acetonitrile	VOC				
Acetyl Cyanide					
Acetyl Fluoride		IC/ICP SCAN			
Acetyl Thiocyanate					
Acrolein	VOC				
Adamsite			CWM		
Alcohol	VOC				
Allyl Alcohol	VOC				
Allyl Isocyanide		IC/ICP SCAN			
Allyl Isothiocyanate		IC/ICP SCAN			
Allylamine					
Aluminium	METAL				
Aluminium –CC14-NaC103					
Aluminium Selenide		IC/ICP SCAN			
Ammonia	E-350				
Ammonia Gas		IC/ICP SCAN			
Ammonium Chloride		IC/ICP SCAN			
Ammonium Cyanide		IC/ICP SCAN			
Ammonium Nitrate		IC/ICP SCAN			
Ammonium Picrate		IC/ICP SCAN			
Arsenic Trichloride		IC/ICP SCAN			
Arsenic Trifluoride		IC/ICP SCAN			
Arsenic Trioxide		AOAC 920			
Arsine		D 4490			
Barium Peroxide		IC/ICP SCAN			
Benzotrichloride	SVOC TIC	8121			
Benzyl Bromide	VOC				
Benzyl Chloride	VOC				
Benzyl Fluoride	SVOC TIC				
Benzyl Iodide	VOC				
Black Powder					
Bromine	SM-4500BR				
Bromoacetone	VOC				
Bromoketone		IC/ICP SCAN			
Bromoacetone, Chloroacetone	VOC TIC				
Bromoacetyl Bromide		IC/ICP SCAN			
Bromobenzene	VOC				
Bromobenzyl Cyanide		IC/ICP SCAN			
Bromomethyl Ether	VOC TIC				
Bromoxylyl Cyanide		IC/ICP SCAN			
Butyl Mercaptan	SVOC TIC	D 4490			
Cacodyl		IC/ICP SCAN			
Cacodyl Bromide		IC/ICP SCAN			
Cacodyl Chloride		IC/ICP SCAN			
Cacodyl Cyanide		IC/ICP SCAN			
Cadmium Methyl		IC/ICP SCAN			
Calcium Carbonate		7020			
Calcium Sulfate		IC/ICP SCAN			
Carbon Bisulphide	VOC				
Carbon Disulfide	VOC				
Carbon Monoxide		D 3416			
Carbon Tetrachloride	VOC				
Carborundum					
Celluloid					
Chlorinated Acetone, Turpentine	VOC TIC				
Chlorinated Carbon Disulfide	VOC TIC				
Chlorine		IC/ICP SCAN			
Chloroacetic Anhydride					

SPRING VALLEY
AUES CHEMICALS

COMPOUND	ROUTINE	NON-ROUTINE	SPECIALTY LAB	NON-SPECIFIC	RESEARCH PROJ
	(TCL or TAL) + TICs	(But readily available methodology)			
Chloroacetonitrile	VOC TIC				
Chloroacetyl Fluoride					
Chlorobenzene	VOC				
Chlorobenzol					
Chlorodiethyl Sulfide					
Chloroform	VOC				
Chloroformate					
Chloromethyl Chloroformate					
Chloromethyl Ether	VOC				
Chloromethyl Ethyl Ether	VOC				
Chloropicrin	SVOC-MODIF.				
Chloroacetone	VOC TIC				
Chromyl Chloride					
Crotonaldehyde	VOC TIC	D 3695			
Cyanogen		D 4490			
Cyanogen Bromide		IC/ICP SCAN			
Cyanogen Chloride		IC/ICP SCAN			
Diazomethane					
Dichloroethyl Disulfide					
Dichloromethyl Ether	VOC				
Dichloromethyl Sulfide		IC/ICP SCAN			
Dichloropropyl Sulfide		IC/ICP SCAN			
Diiodoacetylene					
Dimethylarsine		IC/ICP SCAN			
Diphenylchloroarsine	SVOC				
Ethyl Bromoacetate	VOC TIC				
Ethyl Chloroformate	VOC TIC				
Ethyl Dibromoacetate	VOC TIC				
Ethyl Iodoacetate					
Ethyl Isocyanide					
Ethyl Isothiocyanate					
Ethyl Mercaptan	SVOC				
Ethyl Sulfide		GC FPD			
Ethyl Trichloroacetate					
Ethyldichloroarsine					
Flash mixture					
Halo Wax					
Hexachloroethane	SVOC				
Hydrochloric Acid		IC/ICP SCAN			
Hydrocyanic Acid		IC/ICP SCAN			
Hydrofluoric Acid		IC/ICP SCAN			
Hydrogen Selenide		IC/ICP SCAN			
Iron	METAL				
Isoallylamine					
Kendallite					
Kieselguhr					
Lead Ferrocyanide		IC/ICP SCAN			
Lead Peroxide		IC/ICP SCAN			
Lead Thiocyanate		IC/ICP SCAN			
Magnesium	METAL				
Magnesium Arsenide		IC/ICP SCAN			
Magnesium Carbonate		IC/ICP SCAN			
Magnesium Oxide and Limestone		IC/ICP SCAN			
Methyl					
Methyl Bromoacetate	VOC TIC				
Methyl Chloroacetate	VOC TIC				
Methyl Chloroarsine		IC/ICP SCAN			
Methyl Chloroformate	VOC TIC				
Methyl Chlorosulfonate	VOC TIC				
Methyl Isocyanide		IC/ICP SCAN			

SPRING VALLEY
AUES CHEMICALS

COMPOUND	ROUTINE	NON-ROUTINE	SPECIALTY LAB	NON-SPECIFIC	RESEARCH PROJ
	(TCL or TAL) + TICs	(But readily available methodology)			
Methyl Selenide		IC/ICP SCAN			
Methyl Sulfate					
Methyldichloroarsine					
Methylnitrosourethan					
Mustard (crude, pure, distilled, gas forms)			CWM		
Nickel Carbonyl		IC/ICP SCAN			
o-Chloronitrobenzene	SVOC TIC				
Oil Smoke					
Oleic Acid					
o-Tolyl Isocyanide	SVOC				
Oxalyl Chloride		IC/ICP SCAN			
Paraffin					
Parazol					
Perchloromethylmercaptan	SVOC TIC				
Phenyl Isocyanate	SVOC				
Phenyl Isocyanide	SVOC				
Phenyl Isothiocyanate	SVOC				
Phenylcarbylamine Chloride		IC/ICP SCAN			
Phenyldichloroarsine	SVOC				
Phenylhydrazine	SVOC				
Phosgene		IC/ICP SCAN			
Phosphorus	E-365.2				
Phosphorus, Red	SVOC TIC				
Phosphorus, White	SVOC TIC				
Potassium Chlorate		IC/ICP SCAN			
Potassium Chlorate and Aluminum		IC/ICP SCAN			
Potassium Nitrate		IC/ICP SCAN			
Potassium Perchlorate		IC/ICP SCAN			
Potassium Permanganate		IC/ICP SCAN			
Ricin					
Rosin, Turpentine					
Silicon		IC/ICP SCAN			
Silicon Tetrachloride		IC/ICP SCAN			
Sodium	METAL				
Sodium (metallic)	METAL				
Sodium Bicarbonate		IC/ICP SCAN			
Sodium Chlorate		IC/ICP SCAN			
Sodium Cyanide		IC/ICP SCAN			
Sodium Hydroxide		IC/ICP SCAN			
Sodium Nitrate		IC/ICP SCAN			
Sodium Oleate		IC/ICP SCAN			
Sodium Silicate		IC/ICP SCAN			
Sodium Stearate		IC/ICP SCAN			
Stannic Chloride (Tin Tetrachloride)		IC/ICP SCAN			
Stannic Chloride, Anhydrous		IC/ICP SCAN			
Stearic Acid					
Sulfur	GPL's SOP				
Sulfur Chloride		IC/ICP SCAN			
Sulfur Trioxide		IC/ICP SCAN			
Sulfuryl Chloride		IC/ICP SCAN			
Superpalite					
Tetrachloromethyl Sulfide		IC/ICP SCAN			
Thermite					
Thermite Igniter					
Thiophene	SVOC TIC				
Thiophosgene		IC/ICP SCAN			
Titanium Tetrachloride:					
Cyanogen Chloride		IC/ICP SCAN			
Tolyl Isocyanides		IC/ICP SCAN			

SPRING VALLEY
AUES CHEMICALS

COMPOUND	ROUTINE (TCL or TAL) + TICs	NON-ROUTINE (But readily available methodology)	SPECIALTY LAB	NON-SPECIFIC	RESEARCH PROJ
Trichloroacetonitrile	VOC TIC				
Trichloroacetyl Chloride		IC/ICP SCAN			
Trichloroacetyl Cyanide		IC/ICP SCAN			
Trichlorohydrin		IC/ICP SCAN			
Trichloromethyl Chloroformate		IC/ICP SCAN			
Trinitrotoluene	8330				
Turpentine					
Waste					
Xylyl Bromide	VOC TIC				
Zinc	METAL				
Zinc Chloride mixture		IC/ICP SCAN			
Zinc Oxide		IC/ICP SCAN			
Zinc Powder		IC/ICP SCAN			
Totals	62	82	2	12	32

IC/ICP SCAN — This process uses ion chromatography or induction coupled plasma to scan for prominent atoms in the compound. For example, for bromobenzyl cyanide, the sample would be scanned for bromine and cyanide. If both were present, then this compound could be "tentatively" identified. The idea is similar to the TICs.

ROUTINE — Standard services from most labs. Either the compound category, whether it can be identified as a TIC, or a separate method no., is shown.

NON-ROUTINE — These are either the scan as described above, or a method not typically used but which has an established method. These are non-routine, but do not present difficulties for most labs to provide. In some cases, where the routine analyses only identify TICs, the non-routine method is shown if an additional level beyond the TIC is needed.

RESEARCH PROJECT — If none of the labs suggested a way to identify these items, they were categorized as research projects. Some of these may not be familiar because of outdated names, synonyms, or "brand" names.

Henry, Theodore J NAB02 Contractor

From: Hughes, Edward T NAB02
Sent: Monday, May 19, 2003 9:00 AM
To: Henry, Theodore J NAB02 Contractor
Subject: FW: Sampling at CDC

-----Original Message-----
From: Plaisted, Brian D MAJ NAB02
Sent: Wednesday, January 31, 2001 9:00 AM
To: 'Albright, Rich'; 'Harbold, Harry'; 'Shuster, Ken'
Subject: Sampling at CDC

To all,

Attached is the sampling plan for the additional sampling that we agreed to at the meeting on Thursday for your review. This covers only the CDC. A second plan will be coming out to address the other AU lots. We will be ready to sample a couple days after AU give us the go ahead. On Thursday we start on the private residences in OU-4 so that will likely have some impact on the scheduling. If you have questions give me a call.

Brian Plaisted

final-WP CDC.pdf

FINAL

WORK MANAGEMENT PLAN – AMENDMENT 1
AU LOT 12 / CHILD DEVELOPMENT CENTER
GRID SAMPLING

REMEDIAL INVESTIGATION / FEASIBILITY STUDY
SPRING VALLEY OPERABLE UNIT 4
WASHINGTON, D.C.

Prepared For:

U.S. ARMY CORPS OF ENGINEERS,
BALTIMORE DISTRICT

Prepared By:

PARSONS ENGINEERING SCIENCE, INC.
10521 ROSEHAVEN STREET
FAIRFAX, VIRGINIA 22030

JANUARY 30, 2001

Hughes, Edward T NAB02

From: Plaisted, Brian D MAJ NAB02
Sent: Thursday, February 22, 2001 3:42 PM
To: 'Albright, Richard'; 'Thomas Bachovchin'; 'bjbesq@american.edu'; Whisenant, Bruce K HNC; 'HARBOLD.HARRY@epamail.epa.gov'; Durham, Jon HNC; Reeser, Leland H NAB02; Rogers, Michael J NAB02; Peloquin, Michael CPT NAB02; Hill, Robert F NAB02; Anderson-Hudgins, Sherri HNC; 'Slonecker.T@epa.gov'; 'jorge@american.edu'; 'shuster.kenneth@epa.gov'; 'Hope, Gregory (DC Health)'; 'Bishop, Ed'; Walters, Wilson C HNC
Subject: Next Partnering Meeting

AGENDA 27
Feb 01.doc

To all,

Although Richard Albright will be vacationing at Mardi Gras next week :-), there was a consensus that the Spring Valley team needed to meet as scheduled on 27 Feb. Greg Hope (Rich's partner) will be there to represent DC Health. I have attached the agenda. I have also included below some ideas that Harry Harbold from EPA had about expanding and expediting sampling. We will discuss these as part of our review and discussion of the sampling options. If you have additions for the agenda or questions about it let me know. I can be reached at 410-962-6784 or 202-686-03359.

Greg, I will send you a separate e-mail with directions to the EPA Science Building at Ft. Meade. The meeting will start at 1000 and we should be finished around 4:00 P.M.

Brian Plaisted

Harry Habold's ideas for expanding/expediting sampling:

-Increase number of sampling teams and use existing composite sampling protocol at several high priority POI geographic areas

-Increase sampling at special interest areas(young children, known health problems,real estate transfer

-Increase number of sampling teams and focus more on grab sampling

-Use geostatistical sampling method to grid out entire 660 acre parcel and sample randomly assigned grid sectors concurrent with sampling at high priority POIs

-Use of EPA laboratory support to accelerate sampling

Spring Valley Meeting Agenda
February 27, 2001

EPA Science Center at Ft. Meade, Maryland
Ruckelhaus Room

Introductions/Review Agenda	**10:00-10:15**
Update on **OU-3 (arsenic removal, test pits, risk assessment for 4835, restoration)** **OU-4 (sample status and results)** **SDA (confirmation results and stream sediment removal)** **Geophysical surveys at 4835 Glenbrook & 4710 Woodway** **Anomaly Review Board for 5 Sedgwick area properties** **-Major Plaisted and others**	**10:15-11:00**
Review and discussion of sampling options **This will include a review of EPA input** **-Spring Valley team**	**11:00-1:00**
Break-lunch sandwiches delivered	**12:15-12:30**
Geophysical survey in OU-4 area **-Spring Valley team**	**1:00-1:45**
Review of 52nd Court Trench data **-Terry Slonecker & SV team**	**1:45- 2:45**
Break	**2:45-3:00**
Other issues of concern	**3:00-3:30**
Action Items/Timelines	**3:30-3:45**

FINAL

SPRING VALLEY
Partnering Meeting
Fort Meade, EPA Science Building

MEETING MINUTES

PURPOSE OF MEETING:	Partnering Meeting
LOCATION:	Fort Meade, EPA Science Building
DATE:	February 27, 2001
TIME:	10:00 a.m. – 4:30 p.m.

Action items are *underlined and italicized.*

OU3 Non-Time Critical Removal Action, Risk Assessment, Test Pits

Major Plaisted summarized the status of this work.

4825 Glenbrook: Front yard done. Waiting for confirmation sample results. The Right of Entry expires February 28, 2001.

Test Pit Investigation at 4825 Glenbrook is tentatively set to start the week of 3/19/01.

The property owner will do the restoration of 4825 Glenbrook with funding from CENAB. The restoration of 4801 will be done by CENAB. The landscape architect for the Korean residents is completing the design.

The draft Risk Assessment (RA) for 4835 Glenbrook was distributed. Within EPA's acceptable risk range of 10^{-4} to 10^{-6}. The RA concludes that hot spot removal will not need to be done. American University (AU) wanted to know more about this process. Major Plaisted explained how the removal levels have previously been determined. *The draft-final report will be submitted to DC Health, American University, and EPA by March 9, 2001.* Once draft-final RA is delivered, will wait on feedback from EPA and AU on how to proceed. *Comments are due back to Parsons by March 16, 2001.*

There was a brief discussion of phytoremediation (planting a special type of fern that 'absorbs' high levels of arsenic).

Terry Slonecker (EPIC): Review of 52nd Court and POI 16 Areas

This presentation focused on the 52nd Court and POI 16 Areas and concluded that there were many more ground scars or disturbed earth areas than previously indicated. Should these be considered new POIs? Mr. Slonecker indicated there were no obvious ones. *CENAB will review the issue further.* Mr. Slonecker thought he could differentiate between stressed vegetation and ground scars. *Parsons will assist Mr. Slonecker's deliverable by providing information from the 2000 aerial photography.*

Major Plaisted suggested EPA, DC Health, and CENAB should take a look at the latest EPIC information to see if there is a need for additional geophysical surveys in the areas identified by Mr. Slonecker along Massachusetts Avenue. It was suggested that geophysics be done where there are ground scars, but no POIs (since these have been tested).

Mr. Harbold (EPA) presented the list of things residents have asked for. CENAB questioned whether this was a formal list from all residents or one person's idea of what is needed.

Mr. Harbold suggested that the residents be informed of the new ground scar information presented by Mr. Slonecker, but others questioned whether this will cause more problems if done as a half-measure, i.e., the residents could get the wrong idea about the ground scars if they had no other information to put this in context. Mr. Harbold also suggested that when sampling properties, residents should be given maps with info (scars, cut/fill {finalized}) because residents want to know what was put on their property (sprayed, fired, dumped). Mike Rogers (CENAB) pointed out that when a resident requests information, they are directed to the many previous reports (zone reports, lot reports) that generally contain all the old historical information for their area.

Mr. Slonecker volunteered to add the property lines into the ArcView database. Major Plaisted mentioned that with 1200 properties, this was a considerable effort. Mr. Slonecker added that his report was a draft and that these scars might not mean chemical agents impacts. *Mr. Slonecker will produce a report by the end of the month that includes whether these scars could be stressed vegetation.* Mr. Slonecker's overall report will be done by the end of March.

The review of ground scars at POI 16 brought up the issue of how to provide this information to the residents. It was suggested that an historical POI report be compiled by CENAB. Mark Baker, CENAB historian will need to get involved. Major Plaisted and Mr. Harbold agreed that it was necessary to show all information to residents to let them know whether there is a problem or not.

DC Health suggested that maybe they should just get a general idea of historic testing. Major Plaisted mentioned that Zone reports were distributed to every resident, but many people have left, so new people don't know the site history. These reports detailed what POIs are on their property, what was tested (geophysical and environmental sampling). A question was raised on the structure of the report: divide by POI or zone? It was decided that zone boundaries are arbitrary, so should probably do it by POI. *CENAB will review the level of effort (cost) for this type of report.*

DC Health and EPA would like to categorize all ground scars and/or stressed vegetation to determine whether or not any action (e.g., geophysical survey, sampling, intrusive investigation, etc.) has been accomplished at these areas as identified by the photo interpretation. If no action has been taken what should be taken if anything for each area identified? *The EPA will take the lead on the photo interpretation.*

Brian mentioned the next public meeting was March 14, 2001.

Principals need to get together to review 52nd court area and historic documentation (Schedule for early April). Brian said CENAB will need at least 4-5 weeks (also to give time to Mark Baker to do research), and that DC Health, EPA, and one person from Parsons should attend.

The question was asked if a Community Representative needs to attend the Partnering Meetings? It was decided in the future that the Chair or Co-Chair of the RAB might attended the Partnering Meetings.

OU-4 Follow-on Sampling and Sampling Options

Major Plaisted/Parsons reviewed the results of the OU-4 residential follow-on sampling action (not all the results had been received as of the meeting date). Based on arsenic levels, EPA requested three additional borings at the 4900 Quebec property at the 1-2 foot depth (CENAB agreed). 20 foot grid sampling was recommended by Major Plaisted for 4871 Glenbrook Road, based on the quadrant sampling results. In response to a question, Major Plaisted explained the basic procedure following grid sampling for a given property: once the sampling is completed a Risk Assessment will be completed for each property, followed by a Feasibility Study, and then a ROD.

Major Plaisted reviewed the sampling options for addressing the rest of the 661 acre Spring Valley boundary. Plans 1 and 2 were variations on the current sampling work being performed. Plan 3 included quadrant-type sampling of a 200 ft buffer zone around the POIs with documented CWM testing. Plan 4 included quadrant sampling the entire 661 acres (approximately 1600 homes/half-acre lots).

Mr. Harbold said Plan 3 was a good start but felt all 1600 should be addressed. He suggested a lesser level of sampling to cover these areas, involving only two surface samples (front and back yards) and no subsurface samples. Mike Rogers questioned whether EPA will commit to supporting this since CENAB was following EPA guidance with the quadrant approach. Tom Bachovchin questioned whether this approach was defensible or produced enough data to make risk assessment conclusions. It was also questioned whether "sooner" was a better rationale than "more complete" for follow on sampling. DC Health stated they would prefer that all of the 1600 properties be sampled using the standard quadrant method (Plan 4).

The Plan 4 discussion focused on obtaining all of the Rights-Of-Entry (ROEs). Mr. Harbold suggested that an easy way might be to simply have the residents sign up for sampling at the community meeting, but CENAB suggested that only a relatively small percentage of people

might be at these meetings and many will be missed. Mr Stephens suggested that an Area Neighborhood Commission (ANC) get involved to get the word to all residents involved.

AU personnel asked if additional samples will be taken outside the AUES boundary lines. CENAB stated that only if the contamination was indicating a pattern where the contamination might cross the property boundaries. AU personnel expressed an interest in ensuring that the northern parts of the campus be tested so that AU has assurances that the entire campus has been tested.

Major Plaisted will present these options at the upcoming community meeting. *Parsons was tasked with costing the option with the decreased sampling scope (two surface samples, no subsurface samples for 1600 homes/lots).*

Parsons strongly recommended that one lab will be used for all the additional follow-on sampling.

CDC Time Critical Removal Action

Soil samples have been taken with a 4 –6 week turn around time due to the constituents being analyzed. Once the soil results have been received and evaluated by the USACE, DC Health, EPA, and AU, the soil will be excavated (tentatively schedule for the end of May after the students have left for the summer).

SDA

Mike Winningham presented the data on the SDA characterization samples. Based on the arsenic and lead levels, over-excavation was recommended. *Based on a question from EPA, Parsons will review the comparison standards and derive a construction worker standard for lead and mercury.*

AU was asked to provide the timing for placing the large Baker Tank back on the parking area overlooking the SDA for the purposes of containing the stream water per the previous excavation procedures.

Need to obtain the last three ROEs prior to starting the culvert cleaning.

Geophysics

Bob Selfridge, Huntsville COE lead geophysicist joined the meeting by phone and summarized the proposed additional geophysical investigations for Spring Valley. *Mr. Selfridge said the contract action draft statement of work will be finalized by Friday March 2.* The new prove out area had not been selected yet but could be in the area of the AU soccer fields and possibly near the radio tower. Mr. Selfridge said he will be using the EM 31 and 61, the GEM-3, and the man-portable MTADS. The commercial MTADS will be used at the prove out and if certain problems were resolved, it could be used for the investigation. The radio tower will not be

turned off, therefore instruments will need to be tested near the radio tower. The objective is pits/trenches.

Mr. Selfridge explained that the EM 61 can locate a drum at 3 meters, but this depth decreases to ~ 4 feet for a 105 mm or 2.5 feet for a 75 mm item. The EM 31 can see a drum at 6 meters. For smaller, shallower objects, Mr. Selfridge recommended the EM 61. Mr. Selfridge indicated that GPR is ineffective in high clay soils. Mr. Shuster indicated that the USGS could conduct a GPR survey at the prove-out.

CENAB and EPA need to send Bob Selfridge the four AU areas needing to be geophysically surveyed.

ARB is scheduled for March 2, 2001 in Huntsville.

Sedgwick Trench Area

Major Plaisted briefly described the scope of the Sedgwick Trench investigation. It was decided to add the full scan parameters (including the AUES List) to the bottom of the trench samples. It was decided that making the leap over quadrant sampling to grid sampling set a bad precedent for sampling actions, and that quadrant sampling will be done on the Sedgwick properties. *Parsons will have the draft Work Plan for that investigation submitted by March 2, 2001.* Cases of multiple myeloma and aplastic anemia were discussed, but it was not clear exactly which house was reported to have which case.

Ken Shuster of EPA suggested using the Gore Sorber soil gas technology to get a better idea of volatile contamination. Parsons explained that the Encore sampling device was now being used for all volatile sampling and that this was the best method for obtaining good data. *However, Major Plaisted said that CENAB will look into the soil gas suggestion.* Ken suggested that the best way to find the trench bottom was to look at the six feet below the 1918 level depth because the old photos indicate the trench was generally six feet deep.

The meeting concluded at approximately 4:30 pm. The next Partnering meeting will be March 28, 2001, same time and place.

Name	Organization/Address
Tom Bachovchin	Parsons ES
Mike Winningham	Parsons ES
Marianne Cardwell	Parsons ES
Mike Rogers	CENAB
Lan Reeser	CENAB
Brian Plaisted	CENAB
Capt. Peloquin	CENAB
Wilson Walters	USAESCH
Mr. Bob Selfridge (by phone)	USAESCH
Gregory Hope	DCEHA
Mr. Harry Harbold	USEPA
Ken Shuster	USEPA
Terry Slonecker	EPA/EPIC
Jorge Abud	AU
Bethany Bridgham	AU
Patience Nwanna	CENAB
Bill Abadie	CENAB
Mark Stephens	USEPA

From: Peloquin, Michael CPT NAB02
Sent: Tuesday, May 08, 2001 12:40 PM
To: 'Edward Bishop'; 'Michael Winningham'; 'Thomas Bachovchin'
Cc: Reeser, Leland H NAB02
Subject: Support for the next partnering meeting

Ed,
I'm trying to give you a little prep time this month for the meeting.
If you look at the proposed agenda, there are several areas in which I'll need your help. First, in presenting any qualified sampling results we have back in since the March meeting. I'd also like to give an indication of what we are seeing in the preliminary results as well.
Second, I want to raise the issue to the partners that the results we anticipate from the SWRI AUES testing will require a good bit of interpretation prior to releasing them. Please be ready to talk this. I just spoke to Tom and he said we will actually have some of this data to use (as an example).
Third, need help getting to a final POI-specific contaminant list. Tom has some info that I asked him to share at the meeting.
Fourth, need the computer/projector to use in working through the addresses associated with each POI. A handout with the draft list would be a great starting point here as well.
Fifth, as the agenda shows, I'm trying to get (partial?) resolution regarding the soil gas and individual round issues. Your expertise and historical knowledge will be a great help.
Lastly, I'm sure there are some other issues to raise at the end. Tom mentioned at least one on the phone.

Major Michael D. Peloquin
Programs and Project Management Division
US Army Corps of Engineers, Baltimore District
michael.peloquin.cpt@nab02.usace.army.mil
410-962-0157 voice
410-962-9312 fax

Lee email dated June 01, 2001 1:39 PM
from Thomas Bachovchin
to Reeser, Peloquin
Subject – DATA TABLES FOR SPRING VALLEY (DRAFT)

FINAL

SPRING VALLEY

Partnering Meeting
DC Department of Health
51 N St NE, Washington, DC

MEETING MINUTES

PURPOSE OF MEETING: Sampling Strategy Meeting

LOCATION: DC Department of Health

DATE: May 14, 2001

TIME: 10:30 a.m. – 4:00 p.m.

Action items are ***bolded and italicized***.

1. INTRODUCTIONS/REVIEW AGENDA

2. UPDATE:

2.1 OU-5 (Sedgwick Trench sample status and results)

Tom Bachovchin presented the arsenic results for the Sedgwick Trench area. He also addressed the arsenic and pH results for the trench borings. Arsenic was below 13 ppm and pH was 5-7+ su (normal range). In general, the arsenic results were highest in the easterly section of the trenches (5040, 5046, and 5054 of Sedgwick, and Quadrant 1 of 3720 Fordham). The arsenic was below background in the lots in the western section (5059 and 5065 Sedgwick). Grid sampling will be accomplished for all 5040, 5046, and 5054 of Sedgwick, and 3720 Fordham properties in accordance with the grid sampling protocol. Since there were elevated results in these backyards, 3712 and 3706 Fordham will be assigned a high priority for quadrant sampling.

MAJ Peloquin proposed a community meeting for residents within the Sedgwick Trench area within the next month.

2.2 OU-3 (arsenic removal, test pits, risk assessment for 4835, restoration)

No results are yet available for the Horace Mann school quadrant properties.

The 4835 Glenbrook Road risk assessment is under review. Parsons is awaiting comments. ***Comments are due May 29, 2001.***

2.3 OU-4 (sample status and results for AU and private residences)

MAJ Peloquin reported they now have approximately 500 completed rights of entry.

Tom Bachovchin presented the arsenic results for grid samples on properties that had previously had elevated arsenic levels. There were additional elevated levels on properties on the ball field. A risk assessment will be performed combining these properties into a single exposure level commensurate with the use of the area (recreational). Results for the one property between the ball fields and the CDC are pending. Rich Albright raised the issues of skin rashes on teams using the fields. Bethany Bridgham reported these results were anecdotal.

The initial individual risk assessments are being developed, incorporating comments received to date on the 4835 risk assessment.

2.4 SDA (confirmation results and stream sediment removal).

The upper stream has been remediated. The current plan is to replace the railroad ties with new railroad ties. Parsons recommended against using railroad ties due to the creosote treatment. Pressure treated lumber sometimes contains arsenic. Parsons recommended concrete. Rich Albright suggested borax treated landscape timbers. (Update after meeting - The manufacture AWS contacted said wood treated this way should not be used where constantly exposed to water as the chemical used in the treatment process, disodium octaborate tetrahydrate is water soluble. ***Parsons will investigate other pressure treated lumber without toxics. CENAB will discuss the options, including concrete, with the property owners.***

The lower stream has been excavated and is awaiting confirmation sampling results.

2.5 Test Pits

The test pits were started today. Air monitoring indicated 2-3 X TWA for Lewisite. DAAMS have been pulled and are awaiting confirmation. It appears there is an associated 5 gallon drum. Rich Albright requested a copy of the tape. This will be copied from the video system that is a security system and requires special equipment. ***Parsons will make a copy.*** At a later update, Michael Winningham reported they had uncovered additional glassware and some contained liquid. Initial DAAMS tube results were negative for Lewisite.

2.6 Geophysical surveys at 5058 and 5054 Sedgwick

Chris Evans reported there is a large anomaly in the backyard of 5058. Sherri Anderson-Hudgins reported the homeowner is in the process of selling the property and wants the anomaly removed right away. Rich Albright distributed a letter from Mr. Gordon on these properties. Chris Evans reported the two anomalies have been confirmed and no more can be done without intrusive investigation.

Discussion was held on how to address the intrusive investigations from the USACE approval perspective. Previously intrusive investigations were done under operations orders. Since the area is known to have CWM, emergency removals cannot be used. Therefore, it appears it will require an amendment to the Site Safety Submission and associated pre-ops, etc. ***Sherri Anderson-Hudgins will take this as an action item to determine the path forward.***

MAJ Peloquin asked Chris Evans for an evaluation of the geophysics prioritization status. Chris Evans reported he has identified 40 priority one properties within the CTA.

Since an amendment to the Site Safety Submission will be required for any intrusive investigation, it was decided additional geophysics of the area could be accomplished concurrently. The geophysics will commence after the geophysics work plan is approved. The intrusive investigations will be accomplished at 5058 and 5054 Sedgwick first.

Regarding the geophysics of 5058 and 5054, the previously collected data will be evaluated using the newer version of Geosoft. ***Sherri Anderson-Hudgins will work with Scott Millhouse (USAESCH) to re-evaluate this data.***

MAJ Peloquin asked Rich Albright the DC Health response to this approach in light of the letter from Mr. Gordon. Rich Albright responded he felt it would be satisfactory so long as the residents are continually informed.

3. AIR MONITORING – 4825 GLENBROOK AND/OR 5065 SEDGWICK

CENAB made a request to do air monitoring in the basement of 4825 Glenbrook. The owners are requesting a detailed air monitoring plan outlining the objectives of the study. The homeowner at 5065 Sedgwick also requested indoor air monitoring. This is the residence where there was a reported case of multiple myeloma. Rich Albright wants to ensure the monitoring includes arsine.

Ken Shuster discussed his conversations with EPA emergency response team. This evidently is a real-time instrument that has not been tested for the contaminants of concern. The individual Ken Shuster talked to also stated the Gore Sorbers ? are not calibrated for the chemicals of concern. After discussion, it was decided to sample for arsine and mustard agent. These are contaminants that are unlikely to be present from any source other than chemical agents. ***Ken Shuster will follow up with the EPA contact regarding the applicability and availability of this instrument. Someone needs to take the lead with ECBC, CHPPM or others – Parsons or CENAB?***

Rich Albright requested air monitoring at 5054 Sedgwick because of the high arsenic and the anomaly. ***MAJ Peloquin will discuss this with the homeowner.***

4. SAMPLING PLAN ISSUES

4.1 Composite sampling

The issue of the number of composite samples per property for those properties outside of the CTA. Lan Reeser explained to obtain the same confidence level of 6 composite samples in each of 4 quadrants requires 8 composite samples in each of the two halves. This is based upon a low coefficient of variability for the background arsenic. Using 8 composite samples, the screening level for grid sampling should be lowered. ***Parsons will investigate the proper screening level.***

4.2 Final POI-specific contaminant lists

Tom Bachovchin briefed the attached list. Sampling will be performed from the 1918 level to one foot below for those properties with fill. For properties at the 1918 level or with cut, samples will taken from the surface to one foot below. There was no objection to the recommendation that Adamsite analysis be eliminated in favor of using arsenic as an indicator compound. Similarly, hydrocyanic acid and cyanogen chloride will be eliminated from the list in favor of using cyanide as an indicator analyte.

CENAB reviewed the "new" Mark Baker list of compounds filled into shells and determined there were no new compounds to add. Ray Livermore discussed their rationale. This included:

Xylyl Bromide—used as a gas, volatile, not expected to be present.

Oleum—fuming sulfuric acid, soluble in water and not expected to be present at this point.

Magnesium Arsenide—found as magnesium or arsenic. Magnesium is common metal and not a health hazard and arsenic will be analyzed.

Red Lead—Lead tetroxide, would be found as lead. Excluding the Small Disposal Area, only one sample contained lead greater than 400 ppm.

Aluminum Powder—found as aluminum. Abundant and not a health hazard. No samples except Small Disposal Area have been greater than the EPA RBC.

Magnesium Powder-- found as magnesium. Abundant and not a health hazard.

Benzoic Acid—becomes gaseous at 100 degrees F. Anaerobically degrades to CO2 and methane.

Methyl Alcohol—volatile and highly soluble in water. Not expected to be present at this time.

4.3 Soil sample depth

Soil sampling will be performed at the 6" level per USEPA guidance. This predicts the risk to residents from airborne dust or soil tracked into a residence. Harry Harbold recommended taking the boring in a garden area if requested by the resident if there is no ground scar.

4.4 Contaminants outside the CTA

Approximately 15% of the properties outside of the CTA will be subjected to additional boring sampling similar to the POIs within the CTA. These will be developed following receipt and review of EPIC's analysis of additional ground scars.

5. REVIEW LIST OF ADDRESSES IN EACH CTA POI

Discussion centered on what properties are within POIs in the CTA. Parsons presented the properties that had any portion of the lot within the POI. Everyone agreed these are the only properties that initially require sampling. If contamination is found at any POI, the POI bounds may be expanded.

6. SOIL GAS

Rich Albright distributed a paper discussing the formation of arsine from soil bacteriological activity. Ed Bishop recommended capturing a sample using an inverted vessel and sample for arsine. ***Someone needs to take the lead-DCEHA, Parsons or CENAB?***

7. NEXT PARTNERING MEETING

The next meeting will be held the second week of July 10, 2001, at the Spring Valley resident office.

SPRING VALLEY OU-5
POI SPECIFIC SAMPLING PLANS - CTA

Sampling Plan 1 (POI 19)

- ? Arsenic
- ? Mustard
- ? Mustard ABP (oxathiane, dithiane, thiodiglycol)

Sampling Plan 2 (POIs 15R and 16R)

- ? Arsenic
- ? Mustard
- ? Mustard ABP (oxathiane, dithiane, thiodiglycol)
- ? Lewisite ABP (CVAA/CVAO)
- ? Adamsite **(use arsenic as indicator)**
- ? Hydrocyanic acid **(use cyanide as indicator)**
- ? Cyanogen chloride **(use cyanide as indicator)**
- ? Cyanide
- ? Carbon Disulfide

Sampling Plan 3 (POIs 7, 13, 39)

- ? Arsenic
- ? Mustard
- ? Mustard ABP (oxathiane, dithiane, thiodiglycol)
- ? Lewisite ABP (CVAA/CVAO)
- ? Adamsite **(use arsenic as indicator)**
- ? Hydrocyanic acid **(use cyanide as indicator)**
- ? Cyanogen chloride **(use cyanide as indicator)**
- ? Cyanide
- ? Carbon Disulfide
- ? Tetryl
- ? Trinitrotoluene (TNT)
- ? Nitroglycerin
- ? 2,4 dinitrotoluene (2,4-DNT)
- ? 2,6 dinitrotoluene (2,6-DNT)
- ? **Nitrobenzene (part of original explosive suite)**

SPRING VALLEY OU-5
POI SPECIFIC SAMPLING PLANS - CTA

Sampling Plan 4 (POI 38)

- ? Arsenic
- ? Adamsite **(use arsenic as indicator)**
- ? Tetryl
- ? Trinitrotoluene (TNT)
- ? Nitroglycerin
- ? 2,4 dinitrotoluene (2,4-DNT)
- ? 2,6 dinitrotoluene (2,6-DNT)
- ? **Nitrobenzene (part of original explosive suite)**

CTA POIs	Sample Plan	Notes
16 R	Plan 2	Borings will be placed at the center of each patch. This POI area will be extended per the revised EPIC review. Now named POI 16R.
19	Plan 1	
15 R	Plan 2	This POI area will be extended per the revised EPIC review. Now named POI 15R.
7 R (?)	Plan 3	
13	Plan 3	
39	Plan 3	
38	Plan 4	Arsenic as an indicator of Adamsite
17	?	Potential dump area at end of ravine (truck turnaround), outside of the CTA. 2 composite arsenic samples per lot. Possible Geophysical investigation?

Name	Organization/Address
Sherri Anderson-Hudgins	USAESCH-OE-DC
Tom Bachovchin	Parsons ES
Ed Bishop	Parsons ES
Michael Winningham	Parsons ES
Marianne Cardwell	Parsons ES
Ray Livermore	CENAB
Lan Reeser	CENAB
MAJ Mike Peloquin	CENAB
Richard Albright	DCEHA
Chris Evans	CENAB-EH-GG
Mark Baker	CENAB
Mr. Harry Harbold	USEPA
Ken Shuster	USEPA
Jorge Abud	American University
Bethany Bridgham	American University
Mark Stephens	USEPA
Susan Platt	CENAB

Reeser, Leland H NAB02
From: Thomas Bachovchin [Thomas.Bachovchin@parsons.com]
Sent: Friday, June 01, 2001 1:39 PM
To: Reeser, Leland H; Peloquin, Michael CPT
Cc: David Badio
Subject: 'DRAFT' DATA TABLES FOR SPRING VALLEY

Mike,

Here are the versions handed out at the meeting. One is the residence AUES List sampling and the other is the lot 12/CDC. These are preliminary and more subject to change than preliminary arsenic data. For example we are still working out the wet/dry weight TDG issue.

Schedule—we have been having some problems with the lab. We just spoke to them and I think we can get the lot 12/CDC finalized by COB Monday. The others are actually farther along but we've prioritized the CDC.

I can only keep screaming at the lab to get us their stuff—again, it is promised to us by COB today, then David Badio needs to review the final submittal and then send out with the target COB Monday. As an aside, even allowing for the non-routine nature of the analyses, we're not real satisfied with what we're getting from this lab and we will not be using them on the upcoming OU-5 stuff, for what it's worth.

Sorry for these delays, but David has been working non stop on trying to get every issue hammered out.

Thanks.

SVSRI1.XLS

_____ Forward Header

Subject: 'DRAFT' DATA TABLES FOR SPRING VALLEY
Author: David Badio at NetTalk
Date: 6/1/2001 10:36 AM

TABLE 2
SUMMARY OF UNVALIDATED ANALYTICAL RESULTS

SAMPLE ID:		OU4-3819-1	OU4-3819-2	OU4-3819-3	OU4-3819-4	OU4-4710QS-1	OU4-4710QS-3	OU4-4710QS-4	OU4-4625-3A	OU4-4625-3B
SAMPLE TYPE:		NX	NX	NX	NX	NX	NX	NX	NX	NX
LAB SAMPLE ID:		157020	157021	157022	157023	157024	157025	157026	157203	157204
ORDER NO.:		1	1	1	1	1	1	1	1	1
SAMPLING DATE:		2/8/2001	2/8/2001	2/8/2001	2/8/2001	2/8/2001	2/8/2001	2/8/2001	2/13/2001	2/13/2001
Volatile Organic Compounds - SW8260B										
DICHLORODIFLUOROMETHANE	UG/KG	67 J	67 J	160 J	1 U	1 U	130 J	99 J	0.97 U	1.5 U
CHLOROMETHANE	UG/KG	1 J	1 J	1 J	2	2	2	1	0.97 U	3
VINYL CHLORIDE	UG/KG	1.1 U	1.1 U	1.1 U	1 U	1 U	0.97 U	1 U	0.97 U	1.5 U
BROMOMETHANE	UG/KG	1.1 U	1.1 U	1.1 U	1 U	1 U	0.97 U	1 U	0.97 U	1.5 U
CHLOROETHANE	UG/KG	1.1 U	1.1 U	1.1 U	1 U	1 U	0.97 U	1 U	0.97 U	1.5 U
ACETONE	UG/KG	27 J	27 J	28 J	27	56 J	39 J	57 J	47 UB	120 J
TRICHLOROFLUOROMETHANE	UG/KG	1.1 U	1.1 U	1.1 U	1 U	1 U	0.97 U	1 U	9	1.5 U
ACETONITRILE	UG/KG	5.3 U	5.4 U	5.6 U	5 U	5 U	4.8 U	5.2 U	4.8 U	7.4 U
1,1-DICHLOROETHENE	UG/KG	1.1 U	1.1 U	1.1 U	1 U	1 U	0.97 U	1 U	0.97 U	1.5 U
METHYLENE CHLORIDE	UG/KG	1.1 U	1.1 U	1.1 U	1 U	1 U	0.97 U	1 U	24	1.5 U
CARBON DISULFIDE	UG/KG	11	11	38 J	11	11	8	26	170 J	8
TRANS-1,2-DICHLOROETHENE	UG/KG	1.1 U	1.1 U	1.1 U	1 U	1 U	0.97 U	1 U	0.97 U	1.5 U
1,1-DICHLOROETHANE	UG/KG	1.1 U	1.1 U	1.1 U	1 U	1 U	0.97 U	1 U	0.97 U	1.5 U
METHYL TERT-BUTYL ETHER	UG/KG	1.1 U	1.1 U	1.1 U	1 U	1 U	0.97 U	1 U	0.97 U	1.5 U
2-BUTANONE	UG/KG	4	4	4	3	8	6	6	16	22
CIS-1,2-DICHLOROETHENE	UG/KG	1.1 U	1.1 U	1.1 U	1 U	1 U	0.97 U	1 U	0.97 U	1.5 U
CHLOROPICRIN	UG/KG	27 U	27 U	28 U	25 U	25 U	24 U	26 U	24 U	37 U
CHLOROFORM	UG/KG	1.1 U	1.1 U	1.1 U	1 U	1 U	0.97 U	1 U	0.97 U	1.5 U
1,2-DICHLOROETHANE	UG/KG	1.1 U	1.1 U	1.1 U	1 U	1 U	0.97 U	1 U	0.97 U	1.5 U
1,1,1-TRICHLOROETHANE	UG/KG	1.1 U	1.1 U	1.1 U	1 U	1 U	0.97 U	1 U	0.97 U	1.5 U
METHYL ACETATE	UG/KG	1.1 U	1.1 U	1.1 U	1 U	3	0.97 U	2	15	20
BENZENE	UG/KG	1.1 U	1.1 U	1.1 U	1 U	1 U	0.97 U	1 U	4	1.5 U
CARBON TETRACHLORIDE	UG/KG	1.1 U	1.1 U	1.1 U	1 U	1 U	0.97 U	1 U	0.97 U	1.5 U
CYCLOHEXANE	UG/KG	1.1 U	1.1 U	1.1 U	1 U	1 U	0.97 U	1 U	0.97 U	1.5 U
1,2-DICHLOROPROPANE	UG/KG	1.1 U	1.1 U	1.1 U	1 U	1 U	0.97 U	1 U	0.97 U	1.5 U
BROMODICHLOROMETHANE	UG/KG	1.1 U	1.1 U	1.1 U	1 U	1 U	0.97 U	1 U	0.97 U	1.5 U
TRICHLOROETHENE	UG/KG	1.1 U	1.1 U	1.1 U	1 U	1 U	0.97 U	1 U	0.97 U	1.5 U
4-METHYL-2-PENTANONE	UG/KG	1.1 U	1.1 U	1.1 U	1 U	1 U	0.97 U	1 U	0.97 U	1.5 U
CIS-1,3-DICHLOROPROPENE	UG/KG	1.1 U	1.1 U	1.1 U	1 U	1 U	0.97 U	1 U	0.97 U	1.5 U
TRANS-1,3-DICHLOROPROPENE	UG/KG	1.1 U	1.1 U	1.1 U	1 U	1 U	0.97 U	1 U	0.97 U	1.5 U
1,1,2-TRICHLOROETHANE	UG/KG	1.1 U	1.1 U	1.1 U	1 U	1 U	0.97 U	1 U	0.97 U	1.5 U
METHYLCYCLOHEXANE	UG/KG	1.1 U	1.1 U	1.1 U	1 U	1 U	0.97 U	1 U	0.97 U	1.5 U
TOLUENE	UG/KG	1.1 U	1.1 U	1.1 U	1 U	1 U	0.97 U	1 U	3	1.5 U
2-HEXANONE	UG/KG	1.1 U	1.1 U	1.1 U	1 U	1 U	0.97 U	1 U	1	1.5 U
DIBROMOCHLOROMETHANE	UG/KG	1.1 U	1.1 U	1.1 U	1 U	1 U	0.97 U	1 U	0.97 U	1.5 U
1,2-DIBROMOETHANE	UG/KG	1.1 U	1.1 U	1.1 U	1 U	1 U	0.97 U	1 U	0.97 U	1.5 U
TETRACHLOROETHENE	UG/KG	1.1 U	1.1 U	1.1 U	1 U	1 U	0.97 U	1 U	0.97 U	1.5 U
CHLOROBENZENE	UG/KG	1.1 U	1.1 U	1.1 U	1 U	1 U	0.97 U	1 U	0.97 U	1.5 U
ETHYLBENZENE	UG/KG	1.1 U	1.1 U	1.1 U	1 U	1 U	0.97 U	1 U	0.97 U	1.5 U
M&P-XYLENE	UG/KG	1.1 U	1.1 U	1.1 U	1 U	1 U	0.97 U	1 U	0.97 U	1.5 U
BROMOFORM	UG/KG	1.1 U	1.1 U	1.1 U	1 U	1 U	0.97 U	1 U	0.97 UJ	1.5 UJ
STYRENE	UG/KG	1.1 U	1.1 U	1.1 U	1 U	1 U	0.97 U	1 U	0.97 U	1.5 U
1,1,2,2,-TETRACHLOROETHANE	UG/KG	1.1 U	1.1 U	1.1 U	1 U	1 U	0.97 U	1 U	0.97 U	1.5 U
O-XYLENE	UG/KG	1.1 U	1.1 U	1.1 U	1 U	1 U	0.97 U	1 U	0.97 U	1.5 U
BENZYL BROMIDE	UG/KG	5.3 U	5.4 U	5.6 U	5 U	5 U	4.8 U	5.2 U	4.8 U	7.4 U
ISOPROPYLBENZENE	UG/KG	1.1 U	1.1 U	1.1 U	1 U	1 U	0.97 U	1 U	0.97 UJ	1.5 UJ
BENZYL CHLORIDE	UG/KG	5 U	5.4 U	5.6 U	5 U	5 U	4.8 U	5.2 U	4.8 UJ	7.4 UJ
ACROLEIN	UG/KG	5.3 U	5.4 U	5.6 U	5 U	5 U	4.8 U	5.2 U	4.8 U	16
1,3-DICHLOROBENZENE	UG/KG	1.1 U	1.1 U	1.1 U	1 U	1 U	0.97 U	1 U	0.97 UJ	1.5 UJ
1,4-DICHLOROBENZENE	UG/KG	1.1 U	1.1 U	1.1 U	1 U	1 U	0.97 U	1 U	0.97 UJ	1.5 UJ
1,2-DICHLOROBENZENE	UG/KG	1.1 U	1.1 U	1.1 U	1 U	1 U	0.97 U	1 U	0.97 UJ	1.5 UJ
1,2-DIBROMO-3-CHLOROPROPANE	UG/KG	1.1 U	1.1 U	1.1 U	1 U	1 U	0.97 U	1 U	0.97 UJ	1.5 UJ
1,2,4-TRICHLOROBENZENE	UG/KG	1.1 U	1.1 U	1.1 U	1 U	1 U	0.97 U	1 U	0.97 U	1.5 UJ
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	UG/KG	1.1 U	1.1 U	1.1 U	1 U	1 U	0.97 U	1 U	0.97 U	1.5 U
VOC Tentatively Identified Compounds										
1-HEXENE, 4-METHYL	UG/KG								10 NJ	
1-OCTANOL, 2,7-DIMETHYL-	UG/KG									10 NJ
2,4-HEXANEDIONE	UG/KG							3 NJ		
2-BUTANONE, 3-METHYL-	UG/KG			6 NJ	2 NJ	10 NJ	10 NJ	6 NJ		40 NJ
2-BUTENE, (Z)-	UG/KG									
2-HEPTANONE, 6-METHYL-	UG/KG									
2-HEXENE, (Z)-	UG/KG								10 J	
2-OCTENE, (E)	UG/KG						10 J			
2-OCTENE, (E)-	UG/KG	50 J	30 J	60 J	20 J	20 J		10 J	50 J	
ACETALDEHYDE	UG/KG	10 NJ	5 NJ	6 NJ	4 NJ	20 NJ	10 NJ	7 NJ	10 NJ	30 NJ
BENZALDEHYDE	UG/KG								10 NJ	
BENZENE, (1-METHYLETHENYL)-	UG/KG									
BENZENE, 1-METHYL-3-(1-METHYL	UG/KG									
BICYCLO 2.2.1 HEPTANE, 7, 7,-D	UG/KG		6 J							
BICYCLO 2.2.1 HEPTANE, 7,7-D	UG/KG									
BICYCLO 3.1.1 HEPT-2-ENE, 2,	UG/KG		10 J							
BICYCLO 3.1.1 HEPT-2-ENE, 2,6,6-TRIMETHYL	UG/KG									
BUTANAL	UG/KG									9 NJ
BUTANE	UG/KG									
CARBON OXIDE SULFIDE(COS)	UG/KG	8 NJ		6 NJ		10 NJ	8 NJ			
CYCLOHEXENE, 1-METHYL-4-(1-METHYLTHENYL)-,®	UG/KG									
CYCLOPROPANE, 1,2-DIMETHYL-, TRANS	UG/KG								10 J	
CYCLOTETRASILOXANE, OCTAMETH	UG/KG		10 NJ		4 NJ	10 NJ	10 NJ	3 NJ		
DODECANAL	UG/KG									
ETHANETHIOL	UG/KG									
ETHANONE, 1-(3-ETHYLOXIRANYL	UG/KG								20 NJ	
HEPTANE, 3-METHYLENE-	UG/KG	10 NJ	6 NJ		6 NJ					
HEPTANTE, 3-METHYLENE-	UG/KG			10 NJ						
HEXANAL	UG/KG	40 NJ	10 NJ	10 NJ	10 NJ	100 NJ	40 NJ	60 NJ	30 NJ	100 NJ
HEXANAL, 2-ETHYL-	UG/KG			5 NJ						
HEXANAL, 5-METHYL-	UG/KG	7 NJ			3 NJ	10 NJ	6 NJ	3 NJ		10 NJ
HEXANE	UG/KG									
NONANAL	UG/KG					10 NJ				10 NJ
OCTANAL	UG/KG	8 NJ			4 NJ	20 NJ	6 NJ	4 NJ		20 NJ
OCTANE	UG/KG	20 NJ	9 NJ	20 NJ	8 NJ					
PENTANAL	UG/KG	10 NJ	4 NJ	4 NJ	3 NJ	30 NJ	10 NJ	9 NJ		20 NJ
PENTANE	UG/KG									20 NJ
PROPANAL, 2-METHYL-	UG/KG									
PROPANE, 1,1-OXYBIS-	UG/KG								10 NJ	
Semivolatile Organic Compounds - SW8270C										
PHENYL ISOCYANATE	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	76 U	93 U
PHENOL	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	76 U	93 U
2-CHLOROPHENOL	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	76 U	93 U
1,3-DICHLOROBENZENE	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	76 U	93 U
1,4-DICHLOROBENZENE	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	76 U	93 U

TABLE 2
SUMMARY OF UNVALIDATED ANALYTICAL RESULTS

SAMPLE ID:		OU4-3819-1	OU4-3819-2	OU4-3819-3	OU4-3819-4	OU4-4710QS-1	OU4-4710QS-3	OU4-4710QS-4	OU4-4625-3A	OU4-4625-3B
SAMPLE TYPE:		NX	NX	NX	NX	NX	NX	NX	NX	NX
LAB SAMPLE ID:		157020	157021	157022	157023	157024	157025	157026	157203	157204
ORDER NO.:		1	1	1	1	1	1	1	1	1
SAMPLING DATE:		2/8/2001	2/8/2001	2/8/2001	2/8/2001	2/8/2001	2/8/2001	2/8/2001	2/13/2001	2/13/2001
1,2-DICHLOROBENZENE	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	76 U	93 U
BENZYL ALCOHOL	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	76 U	93 U
BIS(2-CHLOROISOPROPYL)ETHER	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	76 U	93 U
2-METHYLPHENOL	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	76 U	93 U
HEXACHLOROETHANE	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	76 U	93 U
N-NITROSO-DI-N-PROPYLAMINE	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	76 U	93 U
4-METHYLPHENOL	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	76 U	93 U
NITROBENZENE	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	76 U	93 U
ISOPHORONE	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	76 U	93 U
2-NITROPHENOL	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	76 U	93 U
2,4-DIMETHYLPHENOL	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	76 U	93 U
BIS(2-CHLOROETHOXY)METHANE	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	76 U	93 U
2,4-DICHLOROPHENOL	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	76 U	93 U
1,2,4-TRICHLOROBENZENE	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	76 U	93 U
NAPHTHALENE	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	12 J	24 J
BENZOIC ACID	UG/KG	240 U	230 U	250 U	240 U	20 J	25 J	22 J	36 J	61 J
4-CHLOROANILINE	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	76 U	93 U
PHENYL ISOTHIOCYANATE	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	76 U	93 U
HEXACHLOROBUTADIENE	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	76 U	93 U
O-CHLORONITROBENZENE	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	76 U	93 U
4-CHLORO-3-METHYLPHENOL	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	76 U	93 U
2-METHYLNAPHTHALENE	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	76 U	18 J
HEXACHLOROCYCLOPENTADIENE	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	76 U	93 U
2,4,6-TRICHLOROPHENOL	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	76 U	93 U
2,4,5-TRICHLOROPHENOL	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	76 U	93 U
2-CHLORONAPHTHALENE	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	76 U	93 U
2-NITROANILINE	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	76 U	93 U
ACENAPHTHYLENE	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	18 J	91 J
2,6-DINITROTOLUENE	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	76 U	93 U
ACENAPHTHENE	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	76 U	93 U
3-NITROANILINE	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	76 U	93 U
2,4-DINITROPHENOL	UG/KG	240 U	230 U	250 U	240 U	240 U	240 U	250 U	230 U	280 U
DIBENZOFURAN	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	76 U	93 U
2,4-DINITROTOLUENE	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	76 U	93 U
4-NITROPHENOL	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	76 U	93 U
FLUORENE	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	76 U	20 J
4-CHLOROPHENYL-PHENYLETHER	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	76 U	93 U
DIETHYLPHTHALATE	UG/KG	82 U	78 U	250 UB	81 U	18 J	21 J	14 J	42 UB	93 U
4-NITROANILINE	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	76 U	93 U
4,6-DINITRO-2-METHYLPHENOL	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	76 U	93 U
N-NITROSODIPHENYLAMINE	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	76 U	93 U
4-BROMOPHENYL-PHENYLETHER	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	76 U	93 U
HEXACHLOROBENZENE	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	76 U	93 U
PENTACHLOROPHENOL	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	76 U	93 U
PHENANTHRENE	UG/KG	82 U	78 U	83 U	81 U	81 U	18 J	84 U	170	230
ANTHRACENE	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	19 J	34 J
CARBAZOLE	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	15 J	23 J
DI-N-BUTYLPHTHALATE	UG/KG	25 UB	23 UB	26 UB	29 UB	33 UB	24 UB	32 UB	28 UB	29 UB
FLUORANTHENE	UG/KG	82 U	78 U	83 U	81 U	12 J	67 J	17 J	440	700
PYRENE	UG/KG	82 U	78 U	83 U	81 U	11 J	56 J	14 J	440	1100
BUTYLBENZYLPHTHALATE	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	76 U	15 J
PHENYL HYDRAZINE	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	76 U	93 U
3,3-DICHLOROBENZIDINE	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	76 U	93 U
BENZO[A]ANTHRACENE	UG/KG	82 U	78 U	83 U	81 U	81 U	62 J	12 J	250	620
CHRYSENE	UG/KG	82 U	78 U	83 U	81 U	81 U	30 J	84 U	160	360
BIS(2-ETHYLHEXYL)PHTHALATE	UG/KG	82 U	21 UB	13 UB	81 U	18 J	12 J	14 J	79 UB	110 UB
DI-N-OCTYLPHTHALATE	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	76 U	93 U
BENZO[B]FLUORANTHENE	UG/KG	82 U	78 U	83 U	81 U	81 U	67 J	15 J	350	900
BENZO[K]FLUORANTHENE	UG/KG	82 U	78 U	83 U	81 U	81 U	20 J	84 U	150	350
BENZO[A]PYRENE	UG/KG	82 U	78 U	83 U	81 U	81 U	28 J	84 U	160	440
INDENO[1,2,3-CD]PYRENE	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	120	320
DIBENZ[A,H]ANTHRACENE	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	37 J	76 J
BENZO[G,H,I]PERYLENE	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	87	230
DIMETHYLPHTHALATE	UG/KG	82 U	78 U	83 U	81 U	81 U	80 U	84 U	76 U	93 U
SVOC Tentatively Identified Compounds										
.ALPHA.-LINDANE	UG/KG						180 NJ			
.GAMMA.-SITOSTEROL	UG/KG							130 NJ		
1-EICOSANOL	UG/KG		190 NJ						200 NJ	
1-OCTADECANOL	UG/KG									
1-PROPENE, 1,2,3-TRICHLORO-	UG/KG								100 UB	
1-PROPENE,1,1,2-TRICHLORO-	UG/KG									
1-PROPENE,1,2,3-TRICHLORO-	UG/KG	130 UB	280 UB							
13-OCTADECENAL	UG/KG					1700 NJ				
14-OCTADECENAL	UG/KG		180 NJ							
5-EICOSENE, (E)-	UG/KG									
7-HEXADECENE, (Z)-	UG/KG									
9,12-OCTADECADIENOIC ACID (Z,Z)-	UG/KG							97 NJ		
9-HEXADECENOIC ACID	UG/KG					440 NJ		140 NJ		
BENZENEETANOL, 4-HYDROXY-	UG/KG									
CARBOXYLIC ACID ESTER	UG/KG									
DOCOSANE	UG/KG									
ETHANOL, 2-(2-ETHOXYETHOXY)-	UG/KG					240 UB	240 UB	220 UB		
HEPADECANE, 9-OCTYL-	UG/KG									
HEPTADECANE	UG/KG									
HEPTADECANE, 9-OCTYL-	UG/KG									
HEXADECANOIC ACID	UG/KG	110 NJ				670 NJ	140 NJ	160 NJ	120 NJ	440 NJ
NONACOSANE	UG/KG						1000 NJ	1000 NJ	870 NJ	
NONADECANE	UG/KG									
OCTACOSANE	UG/KG								500 NJ	
OLEIC ACID	UG/KG	260 NJ				4200 NJ	260 NJ	250 NJ	140 NJ	
PENTADECANE, 8-HEXYL-	UG/KG						590 NJ			
PHENANTHRENE, 2-METHYL-	UG/KG									
PHENANTHRENE,9-METHYL-	UG/KG								230 NJ	
SEPTUM BLEED	UG/KG									
TRICOSANE	UG/KG									
UNKNOWN	UG/KG	150 UB	330 UB			170 J		130 J	210 J	230 J
UNKNOWN ALKANE	UG/KG					510 J	260 J	420 J	180 J	190 J
UNKNOWN HYDROCARBON	UG/KG	220 J				890 J	670 J	290 J	410 J	160 J
UNKNOWN SILOXANE	UG/KG					400 J	280 J	190 J		
ICP Scan Metals - SW6010B										
ALUMINUM	MG/KG	24800	27300	36300	26000	18400	21400	29700	12400	15500

TABLE 2
SUMMARY OF UNVALIDATED ANALYTICAL RESULTS

	SAMPLE ID:		OU4-3819-1	OU4-3819-2	OU4-3819-3	OU4-3819-4	OU4-4710QS-1	OU4-4710QS-3	OU4-4710QS-4	OU4-4625-3A	OU4-4625-3B
	SAMPLE TYPE:		NX	NX	NX	NX	NX	NX	NX	NX	NX
	LAB SAMPLE ID:		157020	157021	157022	157023	157024	157025	157026	157203	157204
	ORDER NO.:		1	1	1	1	1	1	1	1	1
	SAMPLING DATE:		2/8/2001	2/8/2001	2/8/2001	2/8/2001	2/8/2001	2/8/2001	2/8/2001	2/13/2001	2/13/2001
ANTIMONY		MG/KG	0.96 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.1 UJ	1.3 UJ
ARSENIC		MG/KG	1.5	1.7	1.4	2.2	36.1	14	12	53.9	133
BARIUM		MG/KG	121	156	168	124	69	98	168	73.3	109
BERYLLIUM		MG/KG	1.8	1.9	2.4	2.1	1.2	1.6	1.9	0.68	0.87
CADMIUM		MG/KG	0.48 U	0.56 U	0.57 U	0.55 U	0.56 U	0.56 U	0.54 U	0.57 U	0.65 U
CALCIUM		MG/KG	707	705	1010	737	868	951	1320	1580	2520
CHROMIUM		MG/KG	45.6	53.7	192	80.4	46.5	53.3	62.5	56.9	54.8
COBALT		MG/KG	19.5	22.1	27.9	27.6	14.2	21.1	25.7	13.1	18.5
COPPER		MG/KG	28.3	48.7	36.9	48.7	35.4	61.9	116	32.9	47.6
IRON		MG/KG	32300	36500	43900	38600	26400	28300	36600	30500	34200
LEAD		MG/KG	13.6	21.5	16.4	15.9	24.6	26.6	24.5	64.3	71.9
MAGNESIUM		MG/KG	11700 J	14000 J	22300 J	11700 J	8180 J	10100 J	13100 J	1360 J	3940 J
MANGANESE		MG/KG	401 J	366 J	840 J	516 J	344 J	726 J	512 J	571 J	800 J
NICKEL		MG/KG	53.3	43.1	87.2	53.6	32.7	41.9	43.9	13.7	19.9
PHOSPHORUS		MG/KG	221 J	239 J	296 J	280 J	333 J	357 J	420 J	792 J	850 J
POTASSIUM		MG/KG	8530 J	12500 J	13900 J	9190 J	5400 J	6650 J	9580 J	514 J	888 J
SELENIUM		MG/KG	0.48 UJ	0.56 UJ	0.72 J	0.55 UJ	0.56 UJ	0.58 J	0.54 UJ	1.2 J	0.71 J
SILICON		MG/KG	1510 J	1380 J	1580 J	1300 J	2080 J	2590 J	2300 J	1290 J	1850 J
SILVER		MG/KG	0.48 U	0.56 U	0.57 U	0.55 U	0.56 U	0.56 U	0.54 U	2	1.3
SODIUM		MG/KG	130	134	157	92.6	68	139	112	57.2 U	65 U
STRONTIUM		MG/KG	7.5	9.7	7.4	6	5.1	6.8	8.2	8.1	11.8
SULFUR		MG/KG	75.8	76.7	103	101	106	81.7	99.4	212	293
THALLIUM		MG/KG	0.96 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.6	1.1 U	1.3 U
TIN		MG/KG	1.9 U	2.4	2.3 U	2.2 U	2.3 U	2.2 U	3.1	3.8	3.4
TITANIUM		MG/KG	1420	1900	2320	1730	991	1010	1440	252	445
VANADIUM		MG/KG	62.2	81	108	91.3	47.9	56.9	103	52	85.8
ZINC		MG/KG	135	114	140	109	73.5	89.9	103	73.5	88.8
MERCURY		MG/KG	0.11 U	0.11 U	0.11 U	0.1 U	0.35	0.26	0.29	0.41	0.54
IC Scan - EPA 300M											
BROMIDE		MG/KG	1.22 U	1.17 U	1.25 U	1.22 U	1.2 U	1.18 U	1.26 U	1.23 U	1.39 U
CHLORIDE		MG/KG	17.7	4.07	3.88	2.58	4.24	70.1	23.5	3	7.36
FLUORIDE		MG/KG	1.58	1.17 U	1.25 U	1.22 U	3.55 J	3.91 J	6.66 J	4.86 J	4.88 J
NITRATE-N		MG/KG	1.22 U	1.17 U	1.25 U	1.22 U	2.68	1.18 U	4.06	3.28	5.47
NITRITE-N		MG/KG	1.22 U	1.17 U	1.25 U	1.22 U	1.2 U	1.18 U	1.26 U	1.23 U	1.39 U
PHOSPHATE-P		MG/KG	1.22 U	1.17 U	1.25 U	1.22 U	1.2 UJ	1.18 UJ	1.26 UJ	3.84 J	4 J
SULFATE		MG/KG	83.6	46.7	62	58.9	14.7	27.2	19	9.6	9.3
Mustard Degradation Products											
1,4-Oxathiane		UG/KG	81 U	82 U	80 U	83 U	78 U	80 U	81 U	78 U	78 U
1,4-Dithiane		UG/KG	79 U	79 U	77 U	80 U	76 U	77 U	79 U	76 U	76 U
Thiodiglycol		UG/KG	1056 U	1001 U	1069 U	1039 U	257 J	411 J	1088 U	985 U	813 J
Lewisite Degradation Products											
TOTAL CVAA & CVAO		UG/KG	8 U	8 U	8 U	8 U	8 U	8 U	8 U	8 U	8 U
Other Parameters											
2,4,6-Trinitrotoluene		UG/KG	180 U	180 U	180 U	180 U	180 U	180 U	180 U	180 U	180 U
AMMONIA-N		MG/KG	1.2 U	1.15 U	1.23 U	1.22 U	1.2 U	1.19 U	1.27 U	1.25 U	1.38 U
CYANIDE		MG/KG	0.61 U	0.54 U	0.6 U	0.59 U	0.61 U	0.59 U	0.64 U	0.58 U	0.68 U

TABLE 2
SUMMARY OF UNVALIDATED ANALYTICAL RESULTS

SAMPLE ID:		**OU4-4625-4**	**OU4-4633-1**	**OU4-4633-2**	**OU4-4633-SB**
SAMPLE TYPE:		**NX**	**NX**	**NX**	**NX**
LAB SAMPLE ID:		**157205**	**157206**	**157207**	**157208**
ORDER NO.:		**1**	**1**	**1**	**1**
SAMPLING DATE:		**2/13/2001**	**2/13/2001**	**2/13/2001**	**2/13/2001**
1,2-DICHLOROBENZENE	UG/KG	86 U	88 U	90 U	86 U
BENZYL ALCOHOL	UG/KG	86 U	88 U	27 J	86 U
BIS(2-CHLOROISOPROPYL)ETHER	UG/KG	86 U	88 U	90 U	86 U
2-METHYLPHENOL	UG/KG	86 U	88 U	90 U	86 U
HEXACHLOROETHANE	UG/KG	86 U	88 U	90 U	86 U
N-NITROSO-DI-N-PROPYLAMINE	UG/KG	86 U	88 U	90 U	86 U
4-METHYLPHENOL	UG/KG	13 J	88 U	90 U	86 U
NITROBENZENE	UG/KG	86 U	88 U	90 U	86 U
ISOPHORONE	UG/KG	86 U	88 U	90 U	86 U
2-NITROPHENOL	UG/KG	86 U	88 U	90 U	86 U
2,4-DIMETHYLPHENOL	UG/KG	86 U	88 U	90 U	86 U
BIS(2-CHLOROETHOXY)METHANE	UG/KG	86 U	88 U	90 U	86 U
2,4-DICHLOROPHENOL	UG/KG	86 U	88 U	90 U	86 U
1,2,4-TRICHLOROBENZENE	UG/KG	86 U	88 U	90 U	86 U
NAPHTHALENE	UG/KG	27 J	88 U	90 U	86 U
BENZOIC ACID	UG/KG	41 J	26 J	28 J	260 U
4-CHLOROANILINE	UG/KG	86 U	88 U	90 U	86 U
PHENYL ISOTHIOCYANATE	UG/KG	86 U	88 U	90 U	86 U
HEXACHLOROBUTADIENE	UG/KG	86 U	88 U	90 U	86 U
O-CHLORONITROBENZENE	UG/KG	86 U	88 U	90 U	86 U
4-CHLORO-3-METHYLPHENOL	UG/KG	86 U	88 U	90 U	86 U
2-METHYLNAPHTHALENE	UG/KG	14 J	88 U	90 U	86 U
HEXACHLOROCYCLOPENTADIENE	UG/KG	86 U	88 U	90 U	86 U
2,4,6-TRICHLOROPHENOL	UG/KG	86 U	88 U	90 U	86 U
2,4,5-TRICHLOROPHENOL	UG/KG	86 U	88 U	90 U	86 U
2-CHLORONAPHTHALENE	UG/KG	86 U	88 U	90 U	86 U
2-NITROANILINE	UG/KG	86 U	88 U	90 U	86 U
ACENAPHTHYLENE	UG/KG	230	12 J	13 J	86 U
2,6-DINITROTOLUENE	UG/KG	86 U	88 U	90 U	86 U
ACENAPHTHENE	UG/KG	86 U	88 U	90 U	86 U
3-NITROANILINE	UG/KG	86 U	88 U	90 U	86 U
2,4-DINITROPHENOL	UG/KG	260 U	260 U	270 U	260 U
DIBENZOFURAN	UG/KG	14 J	88 U	90 U	86 U
2,4-DINITROTOLUENE	UG/KG	86 U	88 U	90 U	86 U
4-NITROPHENOL	UG/KG	86 U	88 U	90 U	86 U
FLUORENE	UG/KG	24 J	88 U	90 U	86 U
4-CHLOROPHENYL-PHENYLETHER	UG/KG	86 U	88 U	90 U	86 U
DIETHYLPHTHALATE	UG/KG	86 U	14 UB	90 U	86 U
4-NITROANILINE	UG/KG	86 U	88 U	90 U	86 U
4,6-DINITRO-2-METHYLPHENOL	UG/KG	86 U	88 U	90 U	86 U
N-NITROSODIPHENYLAMINE	UG/KG	86 U	88 U	90 U	86 U
4-BROMOPHENYL-PHENYLETHER	UG/KG	86 U	88 U	90 U	86 U
HEXACHLOROBENZENE	UG/KG	86 U	88 U	90 U	86 U
PENTACHLOROPHENOL	UG/KG	86 U	88 U	90 U	86 U
PHENANTHRENE	UG/KG	300	33 J	49 J	38 J
ANTHRACENE	UG/KG	62 J	13 J	14 J	86 U
CARBAZOLE	UG/KG	33 J	88 U	90 U	86 U
DI-N-BUTYLPHTHALATE	UG/KG	28 UB	27 UB	22 UB	22 UB
FLUORANTHENE	UG/KG	1200	110	140	87
PYRENE	UG/KG	1800	170	210	130
BUTYLBENZYLPHTHALATE	UG/KG	22 J	12 J	90 U	86 U
PHENYL HYDRAZINE	UG/KG	86 U	88 U	90 U	86 U
3,3-DICHLOROBENZIDINE	UG/KG	86 U	88 U	90 U	86 U
BENZO[A]ANTHRACENE	UG/KG	1100	88 J	110	48 J
CHRYSENE	UG/KG	620	66 J	78 J	49 J
BIS(2-ETHYLHEXYL)PHTHALATE	UG/KG	120 UB	230 UB	170 B	23 UB
DI-N-OCTYLPHTHALATE	UG/KG	86 UJ	88 UJ	90 UJ	86 UJ
BENZO[B]FLUORANTHENE	UG/KG	1800 J	130 J	180 J	62 J
BENZO[K]FLUORANTHENE	UG/KG	800 J	82 J	83 J	34 J
BENZO[A]PYRENE	UG/KG	720 J	49 J	58 J	41 J
INDENO[1,2,3-CD]PYRENE	UG/KG	660 J	88 UJ	32 J	86 UJ
DIBENZ[A,H]ANTHRACENE	UG/KG	140 J	88 UJ	90 UJ	86 UJ
BENZO[G,H,I]PERYLENE	UG/KG	350 J	88 UJ	23 J	86 UJ
DIMETHYLPHTHALATE	UG/KG	86 UJ	88 UJ	90 UJ	86 UJ
SVOC Tentatively Identified Compounds					
.ALPHA.-LINDANE	UG/KG				
.GAMMA.-SITOSTEROL	UG/KG				
1-EICOSANOL	UG/KG				
1-OCTADECANOL	UG/KG		5000 NJ		
1-PROPENE, 1,2,3-TRICHLORO-	UG/KG				160 UB
1-PROPENE,1,1,2-TRICHLORO-	UG/KG				
1-PROPENE,1,2,3-TRICHLORO-	UG/KG				
13-OCTADECENAL	UG/KG				
14-OCTADECENAL	UG/KG				
5-EICOSENE, (E)-	UG/KG		950 NJ		
7-HEXADECENE, (Z)-	UG/KG				
9,12-OCTADECADIENOIC ACID (Z,Z)-	UG/KG				
9-HEXADECENOIC ACID	UG/KG				
BENZENEETANOL, 4-HYDROXY-	UG/KG			290 NJ	
CARBOXYLIC ACID ESTER	UG/KG		360 J		
DOCOSANE	UG/KG			570 NJ	
ETHANOL, 2-(2-ETHOXYETHOXY)-	UG/KG				
HEPADECANE, 9-OCTYL-	UG/KG		450 NJ		
HEPTADECANE	UG/KG			790 NJ	
HEPTADECANE, 9-OCTYL-	UG/KG			2000 NJ	
HEXADECANOIC ACID	UG/KG	89 NJ			
NONACOSANE	UG/KG			1800 NJ	840 NJ
NONADECANE	UG/KG	160 NJ	430 NJ		
OCTACOSANE	UG/KG				
OLEIC ACID	UG/KG		130 NJ	190 NJ	
PENTADECANE, 8-HEXYL-	UG/KG				
PHENANTHRENE, 2-METHYL-	UG/KG				
PHENANTHRENE,9-METHYL-	UG/KG				
SEPTUM BLEED	UG/KG				
TRICOSANE	UG/KG			570 NJ	
UNKNOWN	UG/KG	140 J	290 J	880 J	180 BJ
UNKNOWN ALKANE	UG/KG	120 J		1700 J	
UNKNOWN HYDROCARBON	UG/KG	160 J	190 NJ	730 J	150 J
UNKNOWN SILOXANE	UG/KG				
ICP Scan Metals - SW6010B					
ALUMINUM	MG/KG	12500	8520	7020	13500

TABLE 2
SUMMARY OF UNVALIDATED ANALYTICAL RESULTS

SAMPLE ID:		OU4-4625-4	OU4-4633-1	OU4-4633-2	OU4-4633-SB
SAMPLE TYPE:		NX	NX	NX	NX
LAB SAMPLE ID:		157205	157206	157207	157208
ORDER NO.:		1	1	1	1
SAMPLING DATE:		2/13/2001	2/13/2001	2/13/2001	2/13/2001
Volatile Organic Compounds - SW8260B					
DICHLORODIFLUOROMETHANE	UG/KG	1.3 U	1 U	1.4 U	1.1 U
CHLOROMETHANE	UG/KG	3	7	1.4 U	3
VINYL CHLORIDE	UG/KG	1.3 U	1 U	1.4 U	1.1 U
BROMOMETHANE	UG/KG	1.3 U	1 U	1.4 U	1.1 U
CHLOROETHANE	UG/KG	1.3 U	1 U	1.4 U	1.1 U
ACETONE	UG/KG	120 J	70 UB	62 UB	57 J
TRICHLOROFLUOROMETHANE	UG/KG	1.3 U	1 U	1.4 U	1.1 U
ACETONITRILE	UG/KG	6.5 U	5 U	7 U	5.5 U
1,1-DICHLOROETHENE	UG/KG	1.3 U	1 U	1.4 U	1.1 U
METHYLENE CHLORIDE	UG/KG	1.3 U	1 U	1.4 U	1.1 U
CARBON DISULFIDE	UG/KG	8	15	8	10
TRANS-1,2-DICHLOROETHENE	UG/KG	1.3 U	1 U	1.4 U	1.1 U
1,1-DICHLOROETHANE	UG/KG	1.3 U	1 U	1.4 U	1.1 U
METHYL TERT-BUTYL ETHER	UG/KG	1.3 U	1 U	1.4 U	1.1 U
2-BUTANONE	UG/KG	25	25	30	9
CIS-1,2-DICHLOROETHENE	UG/KG	1.3 U	1 U	1.4 U	1.1 U
CHLOROPICRIN	UG/KG	32 U	25 U	25 U	27 U
CHLOROFORM	UG/KG	1 J	1 U	1.4 U	1.1 U
1,2-DICHLOROETHANE	UG/KG	1.3 U	1 U	1.4 U	1.1 U
1,1,1-TRICHLOROETHANE	UG/KG	1.3 U	1 U	1.4 U	1.1 U
METHYL ACETATE	UG/KG	11	11	1.4 U	2
BENZENE	UG/KG	1.3 U	1 U	1.4 U	1.1 U
CARBON TETRACHLORIDE	UG/KG	1.3 U	1 U	1.4 U	1.1 U
CYCLOHEXANE	UG/KG	1.3 U	1 U	1.4 U	1.1 U
1,2-DICHLOROPROPANE	UG/KG	1.3 U	1 U	1.4 U	1.1 U
BROMODICHLOROMETHANE	UG/KG	1.3 U	1 U	1.4 U	1.1 U
TRICHLOROETHENE	UG/KG	1.3 U	1 U	1.4 U	1.1 U
4-METHYL-2-PENTANONE	UG/KG	1.3 U	1 U	1.4 U	1.1 U
CIS-1,3-DICHLOROPROPENE	UG/KG	1.3 U	1 U	1.4 U	1.1 U
TRANS-1,3-DICHLOROPROPENE	UG/KG	1.3 U	1 U	1.4 U	1.1 U
1,1,2-TRICHLOROETHANE	UG/KG	1.3 U	1 U	1.4 U	1.1 UJ
METHYLCYCLOHEXANE	UG/KG	1.3 U	1 U	1.4 U	1.1 U
TOLUENE	UG/KG	1 J	2	1.4 U	8 J
2-HEXANONE	UG/KG	1.3 U	1	1.4 U	1.1 UJ
DIBROMOCHLOROMETHANE	UG/KG	1.3 U	1 U	1.4 U	1.1 U
1,2-DIBROMOETHANE	UG/KG	1.3 U	1 U	1.4 U	1.1 UJ
TETRACHLOROETHENE	UG/KG	1.3 U	1 U	1.4 U	1.1 UJ
CHLOROBENZENE	UG/KG	1.3 U	1 U	1.4 U	1.1 UJ
ETHYLBENZENE	UG/KG	1.3 U	1 U	1.4 U	1.1 UJ
M&P-XYLENE	UG/KG	1.3 U	1 U	1.4 U	1.1 UJ
BROMOFORM	UG/KG	1.3 UJ	1 UJ	1.4 UJ	1.1 UJ
STYRENE	UG/KG	1.3 U	1 U	1.4 U	1.1 UJ
1,1,2,2,-TETRACHLOROETHANE	UG/KG	1.3 U	1 U	1.4 U	1.1 UJ
O-XYLENE	UG/KG	1.3 U	1 U	1.4 U	1.1 U
BENZYL BROMIDE	UG/KG	6.5 U	16	7 U	5.5 U
ISOPROPYLBENZENE	UG/KG	1.3 UJ	1 UJ	1.4 UJ	1.1 UJ
BENZYL CHLORIDE	UG/KG	6.5 UJ	5 UJ	7 UJ	5.5 UJ
ACROLEIN	UG/KG	10	5 U	7 U	7
1,3-DICHLOROBENZENE	UG/KG	1.3 UJ	1 UJ	1.4 UJ	1.1 UJ
1,4-DICHLOROBENZENE	UG/KG	1.3 UJ	1 UJ	1.4 UJ	2 J
1,2-DICHLOROBENZENE	UG/KG	1.3 UJ	1 UJ	1.4 UJ	1.1 UJ
1,2-DIBROMO-3-CHLOROPROPANE	UG/KG	1.3 UJ	1 UJ	1.4 UJ	1.1 UJ
1,2,4-TRICHLOROBENZENE	UG/KG	1.3 UJ	1 UJ	1.4 UJ	1.1 UJ
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	UG/KG	1.3 U	1 U	1.4 U	1.1 U
VOC Tentatively Identified Compounds					
1-HEXENE, 4-METHYL	UG/KG				
1-OCTANOL, 2,7-DIMETHYL-	UG/KG				
2,4-HEXANEDIONE	UG/KG				
2-BUTANONE, 3-METHYL-	UG/KG	20 NJ	4 NJ		
2-BUTENE, (Z)-	UG/KG			3 J	
2-HEPTANONE, 6-METHYL-	UG/KG	10 NJ			
2-HEXENE, (Z)-	UG/KG				
2-OCTENE, (E)	UG/KG				
2-OCTENE, (E)-	UG/KG	7 J	10 J	60 J	10 J
ACETALDEHYDE	UG/KG	40 NJ	20 NJ		
BENZALDEHYDE	UG/KG		10 NJ	5 NJ	
BENZENE, (1-METHYLETHENYL)-	UG/KG		5 NJ		
BENZENE, 1-METHYL-3-(1-METHYL	UG/KG				30 NJ
BICYCLO 2.2.1 HEPTANE, 7, 7,-D	UG/KG				
BICYCLO 2.2.1 HEPTANE, 7,7-D	UG/KG				50 J
BICYCLO 3.1.1 HEPT-2-ENE, 2,	UG/KG				
BICYCLO 3.1.1 HEPT-2-ENE, 2,6,6-TRIMETHYL	UG/KG				80 J
BUTANAL	UG/KG		5 NJ		
BUTANE	UG/KG			1 NJ	
CARBON OXIDE SULFIDE(COS)	UG/KG				
CYCLOHEXENE, 1-METHYL-4-(1-METHYLTHENYL)-,(S-	UG/KG				10 J
CYCLOPROPANE, 1,2-DIMETHYL-, TRANS	UG/KG				
CYCLOTETRASILOXANE, OCTAMETH	UG/KG	3 NJ			
DODECANAL	UG/KG	7 NJ			
ETHANETHIOL	UG/KG			10 NJ	
ETHANONE, 1-(3-ETHYLOXIRANYL	UG/KG				
HEPTANE, 3-METHYLENE-	UG/KG			10 NJ	
HEPTANTE, 3-METHYLENE-	UG/KG				
HEXANAL	UG/KG	40 NJ	60 NJ		100 NJ
HEXANAL, 2-ETHYL-	UG/KG				
HEXANAL, 5-METHYL-	UG/KG				
HEXANE	UG/KG			4 NJ	
NONANAL	UG/KG				
OCTANAL	UG/KG	10 NJ			10 NJ
OCTANE	UG/KG			10 NJ	
PENTANAL	UG/KG		8 NJ		20 NJ
PENTANE	UG/KG	8 NJ	9 NJ	5 NJ	20 NJ
PROPANAL, 2-METHYL-	UG/KG	8 NJ			
PROPANE, 1,1-OXYBIS-	UG/KG				
Semivolatile Organic Compounds - SW8270C					
PHENYL ISOCYANATE	UG/KG	86 U	88 U	90 U	86 U
PHENOL	UG/KG	86 U	88 U	90 U	86 U
2-CHLOROPHENOL	UG/KG	86 U	88 U	90 U	86 U
1,3-DICHLOROBENZENE	UG/KG	86 U	88 U	90 U	86 U
1,4-DICHLOROBENZENE	UG/KG	86 U	88 U	90 U	86 U

TABLE 2
SUMMARY OF UNVALIDATED ANALYTICAL RESULTS

	SAMPLE ID:	OU4-4625-4	OU4-4633-1	OU4-4633-2	OU4-4633-SB
	SAMPLE TYPE:	NX	NX	NX	NX
	LAB SAMPLE ID:	157205	157206	157207	157208
	ORDER NO.:	1	1	1	1
	SAMPLING DATE:	2/13/2001	2/13/2001	2/13/2001	2/13/2001
ANTIMONY	MG/KG	1.2 UJ	1.2 UJ	1.2 UJ	1.1 UJ
ARSENIC	MG/KG	107	4.4	6.3	2
BARIUM	MG/KG	108	53.4	44.9	54.6
BERYLLIUM	MG/KG	0.78	0.6 U	0.59 U	0.67
CADMIUM	MG/KG	0.62 U	0.6 U	0.59 U	0.56 U
CALCIUM	MG/KG	3250	2860	9240	1810
CHROMIUM	MG/KG	40.9	87.6	50.4	68.2
COBALT	MG/KG	15.1	7.1	5.4	14.9
COPPER	MG/KG	34	54.3	27	26.6
IRON	MG/KG	26900	18300	16700	25200
LEAD	MG/KG	72	65.6	62.5	20.6
MAGNESIUM	MG/KG	2520 J	1850 J	5350 J	4830 J
MANGANESE	MG/KG	695 J	216 J	231 J	342 J
NICKEL	MG/KG	13.5	14.4	10.7	31.4
PHOSPHORUS	MG/KG	921 J	1530 J	1320 J	205 J
POTASSIUM	MG/KG	890 J	704 J	625 J	859 J
SELENIUM	MG/KG	0.62 UJ	0.6 UJ	0.59 UJ	0.56 UJ
SILICON	MG/KG	1370 J	1300 J	1400 J	1350 J
SILVER	MG/KG	0.73	0.85	0.59 U	0.56 U
SODIUM	MG/KG	61.6 U	58.9 U	58.7 U	55.5 U
STRONTIUM	MG/KG	13	12.9	11	8.5
SULFUR	MG/KG	313	387	422	73.9
THALLIUM	MG/KG	1.2 U	1.2 U	1.2 U	1.1 U
TIN	MG/KG	2.7	4.5	2.3 U	2.2 U
TITANIUM	MG/KG	378	253	199	272
VANADIUM	MG/KG	55.8	37.6	33.7	47.6
ZINC	MG/KG	76.9	86.1	80.2	33.1
MERCURY	MG/KG	0.15	0.16	0.13	0.1 U
IC Scan - EPA 300M					
BROMIDE	MG/KG	1.3 U	1.32 U	1.4 U	1.2 U
CHLORIDE	MG/KG	4.49	2.2	2.21	3.39
FLUORIDE	MG/KG	3.35	4.83	4.61	4.76
NITRATE-N	MG/KG	6.68	10.3	11.6	1.2 U
NITRITE-N	MG/KG	1.3 U	1.32 U	1.4 U	1.2 U
PHOSPHATE-P	MG/KG	5.07	37.5	34	2.36
SULFATE	MG/KG	8.62	8.38	10.6	11.2
Mustard Degradation Products					
1,4-Oxathiane	UG/KG	83 U	83 U	81 U	84 U
1,4-Dithiane	UG/KG	81 U	81 U	79 U	82 U
Thiodiglycol	UG/KG	1117 U	1130 U	1156 U	1105 U
Lewisite Degradation Products					
TOTAL CVAA & CVAO	UG/KG	8 U	8 U	8 U	8 U
Other Parameters					
2,4,6-Trinitrotoluene	UG/KG	180 U	180 U	180 U	180 U
AMMONIA-N	MG/KG	1.29 U	1.3 U	1.41 U	1.18 U
CYANIDE	MG/KG	0.62 U	1.19	0.68 U	0.54 U

Reeser, Leland H NAB02
From: Peloquin, Michael CPT NAB02
Sent: Friday, July 27, 2001 7:24 AM
To: Brennan, Kevin M NAB02
Cc: Leland Reeser; Michael Rogers
Subject: RE: Sedgwick trench AUES list

Kevin,
I spoke to Rich Albright about the AUES list results.
Here are the items I'd like you to communicate in a letter sent with the results today. Also, please try to call the four residents to let them know the results are going out.
After conferring with EPA and DC Health officials we have decided to provide the results to the residents before we complete our analysis of what the mean in terms of any health risks.
In its preliminary review, DC Health did not see any results posing any serious health risks (i.e., a contaminants of concern). Arsenic remains the primary contaminant of concern for the Sedgwick trench area.
The detailed review of the data will take several more weeks, at which time we will notify the residents by mail (phone if there is any significant change in the preliminary assessment).
Analyzing the results is a difficult process and everyone involved wants to ensure the property owners have information that is useful to them.
-mike p

-----Original Message-----
From: Brennan, Kevin M NAB02
Sent: Wednesday, July 25, 2001 2:11 PM
To: 'Albright, Richard'; 'Harbold, Harry'
Cc: Peloquin, Michael CPT NAB02
Subject: Sedgwick trench AUES list

Rich and Harry,

As discussed during last week's partnership meeting, attached are the validated results from the Sedgwick trench borings. I will be furnishing these results to the property owners in this format with an explanation that we are currently working on formatting the results so that the reader (property owner) will better understand what they mean.

<< File: sedgw_~1.xls >> << File: sedgw.doc >> << File: justti~1.xls >>

Kevin Brennan
Civil Projects Management Branch
410.962.6113

SUMMARY OF VALIDATED ANALYTICAL RESULTS
SEDGWICK TRENCH AREA

SAMPLE ID:		5/8/2001		5040TR-SB	5065TR-SBDUP01	5054TR-SB	5059TR-SB	5065TR-SB
SAMPLE DEPTH:		REGION III	Result	4.5'-5.5'	4.5'-5.5'	3'-5'	9'-10'	2.5'-4'
LAB SAMPLE ID:		Residential	Exceeds	159223	159227	159224	159225	159226
TYPE or LOCATION:		RBC	RBC?	Trench Bottom	Dup 5040 Trench Bottom	Trench Bottom	Trench Bottom	Trench Bottom
SAMPLING DATE:		*(Adjusted Down by factor of 10)*		4/5/2001	4/5/2001	4/5/2001	4/5/2001	4/5/2001
Volatile Organic Compounds - SW8260B								
DICHLORODIFLUOROMETHANE	UG/KG	1.60E+06	NO	1 UB	1.1 U	1.3 U	1 UB	1 UB
CHLOROMETHANE	UG/KG	4.90E+04	NO	1 U	1.1 U	1.3 U	1.1 U	1.1 U
VINYL CHLORIDE	UG/KG	9.00E+01	NO	1 U	1.1 U	1.3 U	1.1 U	1.1 U
BROMOMETHANE	UG/KG	1.10E+04	NO	1 U	1.1 U	1.3 U	1.1 U	1.1 U
CHLOROETHANE	UG/KG	2.20E+05	NO	1 U	1.1 U	1.3 U	1.1 U	1.1 U
ACETONE	UG/KG	7.80E+05	NO	1 UB	2 UB	3 UB	2 UB	2 UB
TRICHLOROFLUOROMETHANE	UG/KG	2.30E+06	NO	1 U	1.1 U	1.3 U	1.1 U	1.1 U
ACETONITRILE	UG/KG	NA		5.2 U	5.3 U	6.3 U	5.4 U	5.3 U
1,1-DICHLOROETHENE	UG/KG	NA		1 U	1.1 U	1.3 U	1.1 U	1.1 U
METHYLENE CHLORIDE	UG/KG	8.50E+04	NO	1 U	1.1 U	1.3 U	1.1 U	1.1 U
CARBON DISULFIDE	UG/KG	7.80E+05	NO	1 U	1.1 U	1.3 U	1.1 U	1.1 U
TRANS-1,2-DICHLOROETHENE	UG/KG	1.60E+05	NO	1 U	1.1 U	1.3 U	1.1 U	1.1 U
1,1-DICHLOROETHANE	UG/KG	7.80E+05	NO	1 U	1.1 U	1.3 U	1.1 U	1.1 U
METHYL TERT-BUTYL ETHER	UG/KG	NA		1 U	1.1 U	1.3 U	1.1 U	1.1 U
2-BUTANONE	UG/KG	4.70E+06	NO	1 U	1.1 U	1.3 U	1.1 U	1.1 U
CIS-1,2-DICHLOROETHENE	UG/KG	7.80E+04	NO	1 U	1.1 U	1.3 U	1.1 U	1.1 U
CHLOROPICRIN	UG/KG	NA		26 UJ	27 UJ	32 UJ	27 UJ	27 UJ
CHLOROFORM	UG/KG	7.80E+04	NO	1 U	1.1 U	1.3 U	1.1 U	1.1 U
1,2-DICHLOROETHANE	UG/KG	7.00E+03	NO	1 U	1.1 U	1.3 U	1.1 U	1.1 U
1,1,1-TRICHLOROETHANE	UG/KG	2.20E+06	NO	1 U	1.1 U	1.3 U	1.1 U	1.1 U
METHYL ACETATE	UG/KG	7.80E+06	NO	1 U	1.1 U	1.3 U	1.1 U	1.1 U
BENZENE	UG/KG	1.20E+04	NO	1 UJ	1.1 UJ	1.3 UJ	1.1 UJ	1.1 UJ
CARBON TETRACHLORIDE	UG/KG	4.90E+03	NO	1 UJ	1.1 UJ	1.3 UJ	1.1 UJ	1.1 UJ
CYCLOHEXANE	UG/KG	4.70E+05	NO	1 UJ	1.1 UJ	1.3 UJ	1.1 UJ	1.1 UJ
1,2-DICHLOROPROPANE	UG/KG	9.40E+03	NO	1 UJ	1.1 UJ	1.3 UJ	1.1 UJ	1.1 UJ
BROMODICHLOROMETHANE	UG/KG	1.00E+04	NO	1 UJ	1.1 UJ	1.3 UJ	1.1 UJ	1.1 UJ
TRICHLOROETHENE	UG/KG	4.70E+04	NO	1 UJ	1.1 UJ	1.3 UJ	1.1 UJ	1.1 UJ
4-METHYL-2-PENTANONE	UG/KG	6.30E+06	NO	1 UJ	1.1 UJ	2 J	1.1 UJ	1.1 UJ
CIS-1,3-DICHLOROPROPENE	UG/KG	6.40E+03	NO	1 UJ	1.1 UJ	1.3 UJ	1.1 UJ	1.1 UJ
TRANS-1,3-DICHLOROPROPENE	UG/KG	6.40E+03	NO	1 UJ	1.1 UJ	1.3 UJ	1.1 UJ	1.1 UJ
1,1,2-TRICHLOROETHANE	UG/KG	1.10E+04	NO	1 UJ	1.1 UJ	1.3 UJ	1.1 UJ	1.1 UJ
METHYLCYCLOHEXANE	UG/KG	NA		1 UJ	1.1 UJ	1.3 UJ	1.1 UJ	1.1 UJ
TOLUENE	UG/KG	1.60E+06	NO	1 UJ	4 J	1.3 UJ	1.1 UJ	1.1 UJ
2-HEXANONE	UG/KG	3.10E+05	NO	1 UJ	1.1 UJ	1.3 UJ	1.1 UJ	1.1 UJ
DIBROMOCHLOROMETHANE	UG/KG	7.60E+03	NO	1 UJ	1.1 UJ	1.3 UJ	1.1 UJ	1.1 UJ
1,2-DIBROMOETHANE	UG/KG	7.50E+00	NO	1 UJ	1.1 UJ	1.3 UJ	1.1 UJ	1.1 UJ
TETRACHLOROETHENE	UG/KG	1.20E+04	NO	1 UJ	1.1 UJ	1.3 UJ	1.1 UJ	1.1 UJ
CHLOROBENZENE	UG/KG	1.60E+05	NO	1 UJ	1.1 UJ	1.3 UJ	1.1 UJ	1.1 UJ
ETHYLBENZENE	UG/KG	7.80E+05	NO	1 UJ	1.1 UJ	1.3 UJ	1.1 UJ	1.1 UJ
M&P-XYLENE	UG/KG	1.60E+07	NO	1 UJ	2 J	1.3 UJ	1.1 UJ	1.1 UJ
BROMOFORM	UG/KG	8.10E+04	NO	1 UJ	1.1 UJ	1.3 UJ	1.1 UJ	1.1 UJ
STYRENE	UG/KG	1.60E+06	NO	1 UJ	1.1 UJ	1.3 UJ	1.1 UJ	1.1 UJ
1,1,2,2-TETRACHLOROETHANE	UG/KG	3.20E+03	NO	1 UJ	1.1 UJ	1.3 UJ	1.1 UJ	1.1 UJ
O-XYLENE	UG/KG	1.60E+07	NO	1 UJ	2 J	1.3 UJ	1.1 UJ	1.1 UJ
BENZYL BROMIDE	UG/KG	NA		5.2 UJ	5.3 UJ	6.3 UJ	5.4 UJ	5.3 UJ
ISOPROPYLBENZENE	UG/KG	NA		1 UJ	1.1 UJ	1.3 UJ	1.1 UJ	1.1 UJ
BENZYL CHLORIDE	UG/KG	3.80E+03	NO	5.2 UJ	5.3 UJ	6.3 UJ	5.4 UJ	5.3 UJ

SUMMARY OF VALIDATED ANALYTICAL RESULTS
SEDGWICK TRENCH AREA

SAMPLE ID:		5/8/2001		5040TR-SB	5065TR-SBDUP01	5054TR-SB	5059TR-SB	5065TR-SB
SAMPLE DEPTH:		REGION III	Result	4.5'-5.5'	4.5'-5.5'	3'-5'	9'-10'	2.5'-4'
LAB SAMPLE ID:		Residential	Exceeds	159223	159227	159224	159225	159226
TYPE or LOCATION:		RBC	RBC?	Trench Bottom	Dup 5040 Trench Bottom	Trench Bottom	Trench Bottom	Trench Bottom
SAMPLING DATE:		*(Adjusted Down by factor of 10)*		4/5/2001	4/5/2001	4/5/2001	4/5/2001	4/5/2001
ACROLEIN	UG/KG	1.60E+05	NO	5.2 U	5.3 U	6.3 U	5.4 U	5.3 U
1,3-DICHLOROBENZENE	UG/KG	2.30E+05	NO	1 UJ	1.1 UJ	1.3 UJ	1.1 UJ	1.1 UJ
1,4-DICHLOROBENZENE	UG/KG	2.70E+04	NO	1 UJ	1.1 UJ	1.3 UJ	1.1 UJ	1.1 UJ
1,2-DICHLOROBENZENE	UG/KG	7.00E+05	NO	1 UJ	1.1 UJ	1.3 UJ	1.1 UJ	1.1 UJ
1,2-DIBROMO-3-CHLOROPROPANE	UG/KG	4.60E+02	NO	1 UJ	1.1 UJ	1.3 UJ	1.1 UJ	1.1 UJ
1,2,4-TRICHLOROBENZENE	UG/KG	7.80E+04	NO	1 UJ	1.1 UJ	1.3 UJ	1.1 UJ	1.1 UJ
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	UG/KG	2.30E+08	NO	1 U	1.1 U	1.3 U	1.1 U	1.1 U
VOC Tentatively Identified Compounds								
No AUES List VOC TICs Identified								
Semivolatile Organic Compounds - SW8270C								
PHENYL ISOCYANATE	UG/KG	NA		82 U	73 U	76 U	81 U	74 U
PHENOL	UG/KG	4.70E+06	NO	82 U	73 U	76 U	81 U	74 U
2-CHLOROPHENOL	UG/KG	NA		82 U	73 U	76 U	81 U	74 U
1,3-DICHLOROBENZENE	UG/KG	2.30E+05	NO	82 U	73 U	76 U	81 U	74 U
1,4-DICHLOROBENZENE	UG/KG	2.70E+04	NO	82 U	73 U	76 U	81 U	74 U
1,2-DICHLOROBENZENE	UG/KG	7.00E+05	NO	82 U	73 U	76 U	81 U	74 U
BENZYL ALCOHOL	UG/KG	2.30E+06	NO	82 U	73 U	76 U	81 U	74 U
BIS (2-CHLOROISOPROPYL)ETHER	UG/KG	9.10E+03	NO	82 U	73 U	76 U	81 U	74 U
2-METHYLPHENOL	UG/KG	3.90E+05	NO	82 U	73 U	76 U	81 U	74 U
HEXACHLOROETHANE	UG/KG	7.80E+02	NO	82 U	73 U	76 U	81 U	74 U
N-NITROSO-DI-N-PROPYLAMINE	UG/KG	NA		82 U	73 U	76 U	81 U	74 U
4-METHYLPHENOL	UG/KG	3.90E+04	NO	82 U	73 U	76 U	81 U	74 U
NITROBENZENE	UG/KG	3.90E+03	NO	82 U	73 U	76 U	81 U	74 U
ISOPHORONE	UG/KG	6.70E+05	NO	82 U	73 U	76 U	81 U	74 U
2-NITROPHENOL	UG/KG	6.30E+04	NO	82 U	73 U	76 U	81 U	74 U
2,4-DIMETHYLPHENOL	UG/KG	1.60E+05	NO	82 U	73 U	76 U	81 U	74 U
BIS (2-CHLOROETHOXY) METHANE	UG/KG	NA		82 U	73 U	76 U	81 U	74 U
2,4-DICHLOROPHENOL	UG/KG	2.30E+04	NO	82 U	73 U	76 U	81 U	74 U
1,2,4-TRICHLOROBENZENE	UG/KG	7.80E+04	NO	82 U	73 U	76 U	81 U	74 U
NAPHTHALENE	UG/KG	1.60E+05	NO	82 U	73 U	76 U	81 U	74 U
BENZOIC ACID	UG/KG	3.10E+07	NO	250 U	220 U	230 U	240 U	220 U
4-CHLOROANILINE	UG/KG	3.10E+04	NO	82 U	73 U	76 U	81 U	74 U
PHENYL ISOTHIOCYANATE	UG/KG	NA		82 U	73 U	76 U	81 U	74 U
HEXACHLOROBUTADIENE	UG/KG	1.60E+00	<PQL	82 U	73 U	76 U	81 U	74 U
O-CHLORONITROBENZENE	UG/KG	2.60E+04	NO	82 U	73 U	76 U	81 U	74 U
4-CHLORO-3-METHYLPHENOL	UG/KG	NA		82 U	73 U	76 U	81 U	74 U
2-METHYLNAPHTHALENE	UG/KG	1.60E+05	NO	82 U	73 U	76 U	81 U	74 U
HEXACHLOROCYCLOPENTADIENE	UG/KG	5.50E+04	NO	82 U	73 U	76 U	81 U	74 U
2,4,6-TRICHLOROPHENOL	UG/KG	5.80E+04	NO	82 U	73 U	76 U	81 U	74 U
2,4,5-TRICHLOROPHENOL	UG/KG	7.80E+05	NO	82 U	73 U	76 U	81 U	74 U
2-CHLORONAPHTHALENE	UG/KG	6.30E+05	NO	82 U	73 U	76 U	81 U	74 U

SUMMARY OF VALIDATED ANALYTICAL RESULTS
SEDGWICK TRENCH AREA

SAMPLE ID:		5/8/2001		5040TR-SB	5065TR-SBDUP01	5054TR-SB	5059TR-SB	5065TR-SB
SAMPLE DEPTH:		REGION III	Result	4.5'-5.5'	4.5'-5.5'	3'-5'	9'-10'	2.5'-4'
LAB SAMPLE ID:		Residential	Exceeds	159223	159227	159224	159225	159226
TYPE or LOCATION:		RBC	RBC?	Trench Bottom	Dup 5040 Trench Bottom	Trench Bottom	Trench Bottom	Trench Bottom
SAMPLING DATE:		*(Adjusted Down by factor of 10)*		4/5/2001	4/5/2001	4/5/2001	4/5/2001	4/5/2001
2-NITROANILINE	UG/KG	NA		82 U	73 U	76 U	81 U	74 U
ACENAPHTHYLENE	UG/KG	NA		82 U	73 U	76 U	81 U	74 U
DIMETHYLPHTHALATE	UG/KG	7.80E+07	NO	82 U	73 U	76 U	81 U	74 U
2,6-DINITROTOLUENE	UG/KG	7.80E+03	NO	82 U	73 U	76 U	81 U	74 U
ACENAPHTHENE	UG/KG	4.70E+05	NO	82 U	73 U	76 U	81 U	74 U
3-NITROANILINE	UG/KG	NA		82 U	73 U	76 U	81 U	74 U
2,4-DINITROPHENOL	UG/KG	1.60E+04	NO	250 U	220 U	230 U	240 U	220 U
DIBENZOFURAN	UG/KG	3.10E+04	NO	82 U	73 U	76 U	81 U	74 U
2,4-DINITROTOLUENE	UG/KG	1.60E+04	NO	82 U	73 U	76 U	81 U	74 U
4-NITROPHENOL	UG/KG	6.30E+04	NO	82 U	73 U	76 U	81 U	74 U
FLUORENE	UG/KG	3.10E+05	NO	82 U	73 U	76 U	81 U	74 U
4-CHLOROPHENYL-PHENYLETHER	UG/KG	NA		82 U	73 U	76 U	81 U	74 U
DIETHYLPHTHALATE	UG/KG	6.30E+06	NO	82 U	73 U	76 U	81 U	74 U
4-NITROANILINE	UG/KG	NA		82 U	73 U	76 U	81 U	74 U
4,6-DINITRO-2-METHYLPHENOL	UG/KG	7.80E+02	NO	82 U	73 U	76 U	81 U	74 U
N-NITROSODIPHENYLAMINE	UG/KG	1.30E+05	NO	82 U	73 U	76 U	81 U	74 U
4-BROMOPHENYL-PHENYLETHER	UG/KG	NA		82 U	73 U	76 U	81 U	74 U
HEXACHLOROBENZENE	UG/KG	4.00E+02	NO	82 U	73 U	76 U	81 U	74 U
PENTACHLOROPHENOL	UG/KG	5.30E+03	NO	82 U	73 U	76 U	81 U	74 U
PHENANTHRENE	UG/KG	NA		82 U	73 U	270	81 U	74 U
ANTHRACENE	UG/KG	2.30E+06	NO	82 U	73 U	75 J	81 U	74 U
CARBAZOLE	UG/KG	3.20E+04	NO	82 U	73 U	76 U	81 U	74 U
DI-N-BUTYLPHTHALATE	UG/KG	7.80E+05	NO	10 UB	73 U	76 U	81 U	74 U
FLUORANTHENE	UG/KG	3.10E+05	NO	82 U	73 U	650	81 U	74 U
PYRENE	UG/KG	2.30E+05	NO	82 U	73 U	450	81 U	74 U
BUTYLBENZYLPHTHALATE	UG/KG	1.60E+06	NO	82 U	73 U	76 U	81 U	74 U
PHENYL HYDRAZINE	UG/KG	NA		82 U	73 U	76 U	81 U	74 U
3,3-DICHLOROBENZIDINE'	UG/KG	1.40E+03	NO	82 U	73 U	76 U	81 U	74 U
BENZO [A] ANTHRACENE	UG/KG	8.70E+02	NO	82 U	73 U	340	81 U	74 U
CHRYSENE	UG/KG	8.70E+04	NO	82 U	73 U	160	81 U	74 U
BIS (2-ETHYLHEXYL) PHTHALATE	UG/KG	4.60E+04	NO	82 U	73 U	51 J	81 U	74 U
DI-N-OCTYLPHTHALATE	UG/KG	1.60E+05	NO	82 U	73 U	76 U	81 U	74 U
BENZO [B] FLUORANTHENE	UG/KG	8.70E+02	NO	82 U	73 U	300	81 U	74 U
BENZO [K] FLUORANTHENE	UG/KG	8.70E+03	NO	82 U	73 U	130	81 U	74 U
BENZO [A] PYRENE	UG/KG	8.70E+01	YES	82 U	73 U	140	81 U	74 U
INDENO [1,2,3-CD] PYRENE	UG/KG	8.70E+02	NO	82 U	73 U	120	81 U	74 U
DIBENZ [A,H] ANTHRACENE	UG/KG	8.70E+01	NO	82 U	73 U	34 J	81 U	74 U
BENZO [G,H,I] PERYLENE	UG/KG	NA		82 U	73 U	97	81 U	74 U

SVOC Tentatively Identified Compounds

No AUES List SVOC TICs Identified

SUMMARY OF VALIDATED ANALYTICAL RESULTS
SEDGWICK TRENCH AREA

SAMPLE ID:		**5/8/2001**		**5040TR-SB**	**5065TR-SBDUP01**	**5054TR-SB**	**5059TR-SB**	**5065TR-SB**
SAMPLE DEPTH:		**REGION III**	**Result**	**4.5'-5.5'**	**4.5'-5.5'**	**3'-5'**	**9'-10'**	**2.5'-4'**
LAB SAMPLE ID:		**Residential**	**Exceeds**	**159223**	**159227**	**159224**	**159225**	**159226**
TYPE or LOCATION:		**RBC**	**RBC?**	**Trench Bottom**	**Dup 5040 Trench Bottom**	**Trench Bottom**	**Trench Bottom**	**Trench Bottom**
SAMPLING DATE:		*(Adjusted Down by factor of 10)*		**4/5/2001**	**4/5/2001**	**4/5/2001**	**4/5/2001**	**4/5/2001**
ICP Scan Metals - SW6010B								
ALUMINUM	MG/KG	7.80E+03	YES	13100	16100	18800	12600	14800
ANTIMONY	MG/KG	3.10E+00	NO	1.2 UJ	1.1 UJ	1 UJ	1.1 UJ	0.97 UJ
ARSENIC	MG/KG	4.30E-01	YES	2.2	0.62	1.4	1.3	0.7
BARIUM	MG/KG	5.50E+02	NO	62.4	75.4	85.4	66.5	74.6
BERYLLIUM	MG/KG	1.60E+01	NO	1.1	1.6	2.1	1.6	1.5
CADMIUM	MG/KG	7.80E+00	NO	0.59 U	0.55 U	0.52 U	0.57 U	0.49 U
CALCIUM	MG/KG	NA		171	296	448	265	306
CHROMIUM	MG/KG	2.30E+01	YES	26.5	20.6	20.3	26.4	21.4
COBALT	MG/KG	1.60E+02	NO	10.9	18	15.5	21.1	14.4
COPPER	MG/KG	3.10E+02	NO	31.4	29.2	38.2	34.1	27.9
IRON	MG/KG	2.30E+03	YES	26800	19600	18000	24200	19400
LEAD	MG/KG	4.00E+02	NO	11.1	10.1	5	12.8	7.4
MAGNESIUM	MG/KG	NA		5010	7490	7440	6170	7410
MANGANESE	MG/KG	1.10E+03	NO	177 J	602 J	438 J	460 J	384 J
NICKEL	MG/KG	1.60E+02	NO	22.5	32.4	32.1	29.3	29.4
PHOSPHORUS	MG/KG	1.60E-01	YES	213	220	502	234	217
POTASSIUM	MG/KG	NA		3820	6010	5700	4750	6020
SELENIUM	MG/KG	3.90E+01	NO	0.59 U	0.55 U	0.52 U	0.57 U	0.49 U
SILICON	MG/KG	NA		2340	2280	2320	2410	2110
SILVER	MG/KG	3.90E+01	NO	0.59 U	0.55 U	0.52 U	0.57 U	0.49 U
SODIUM	MG/KG	NA		58.6 U	57.5	55.9	57.3 U	53.7
STRONTIUM	MG/KG	4.70E+03	NO	2.5	4.2	7.9	2.3	3.9
SULFUR	MG/KG	NA		116	18.9	51	98.8	21
THALLIUM	MG/KG	5.50E-01	<PQL	1.2 U	1.1 U	1 U	1.1 U	0.97 U
TIN	MG/KG	4.70E+03	NO	2.3 U	2.2 U	2.1 U	2.3 U	1.9 U
TITANIUM	MG/KG	3.10E+04	NO	835	922	930	899	923
VANADIUM	MG/KG	5.50E+01	NO	39.8	24	23.1	32.8	23.4
ZINC	MG/KG	2.30E+03	NO	67.9	92.7	96.7	80.4	91.9
GFAA/CVAA Metals								
MERCURY	MG/KG	NA		0.06 U	0.05 U	0.05 U	0.05	0.04 U
Hexavalent Chromium	MG/KG	2.30E+01	NO	0.488 U	0.436 U	0.449 U	0.466 U	0.432 U

SUMMARY OF VALIDATED ANALYTICAL RESULTS
SEDGWICK TRENCH AREA

SAMPLE ID:		5/8/2001		5040TR-SB	5065TR-SBDUP01	5054TR-SB	5059TR-SB	5065TR-SB
SAMPLE DEPTH:		REGION III	Result	4.5'-5.5'	4.5'-5.5'	3'-5'	9'-10'	2.5'-4'
LAB SAMPLE ID:		Residential	Exceeds	159223	159227	159224	159225	159226
TYPE or LOCATION:		RBC	RBC?	Trench Bottom	Dup 5040 Trench Bottom	Trench Bottom	Trench Bottom	Trench Bottom
SAMPLING DATE:		*(Adjusted Down by factor of 10)*		4/5/2001	4/5/2001	4/5/2001	4/5/2001	4/5/2001
IC Scan - EPA 300M								
BROMIDE	MG/KG	NA		1.22 U	1.07 U	1.1 U	1.17 U	1.08 U
CHLORIDE	MG/KG	NA		20.2	7.51	9	8.34	8.17
FLUORIDE	MG/KG	NA		1.22 R	1.07 R	1.1 R	1.17 R	1.08 R
NITRATE-N	MG/KG	1.30E+04	NO	1.22 U	1.69	1.1 U	1.17 U	1.68
NITRITE-N	MG/KG	7.80E+02	NO	1.22 UJ	1.07 UJ	1.1 UJ	1.17 UJ	1.08 UJ
PHOSPHATE-P	MG/KG	NA		1.22 R	1.07 R	1.1 R	1.17 R	1.08 R
SULFATE	MG/KG	NA		52.8 J	12.5 J	69.1 J	67.7 J	13.5 J
Mustard and Mustard Degradation Products								
MUSTARD	UG/KG			200 U	Not Analyzed	200 U	200 U	200 U
1,4-OXATHIANE	UG/KG	NA		102 U	87 U	90 U	101 U	87 U
1,4-DITHIANE	UG/KG	7.80E+01	<PQL	99 U	84 U	87 U	97 U	84 U
THIODIGLYCOL	UG/KG	NA		1061 U	940 U	971 U	1043 U	940 U
Lewisite Degradation Products								
TOTAL CVAA & CVAO	UG/KG	NA		10 U	9 U	9 U	10 U	9 U
ADAMSITE*								
Other Parameters								
2,4,6-TRINITROTOLUENE	UG/KG	3.90E+00	<PQL	180 U	180 U	180 U	180 U	180 U
AMMONIA-N	MG/KG	NA		1.21 UJ	1.09 UJ	1.12 UJ	1.16 UJ	1.06 UJ
CYANIDE	MG/KG	1.60E+02	NO	0.61 U	0.54 U	0.56 U	0.58 U	0.53 U

*ECBC's method was to run samples based on the initial arsenic content. ECBC did nothese samples for Adamsite since the arsenic concentration was so low.

QUALITY ASSURANCE SUMMARY REPORT FOR

SOIL SAMPLES ASSOCIATED WITH SPRING VALLEY SEDGWICK STREET RESIDENTIAL AND TRENCH SAMPLING (FINAL WORK PLAN, *MARCH 30, 2001*)

INTRODUCTION

This data validation summary report covers environmental soil samples collected from the following Spring Valley Sedgwick Street locations in Washington, DC: 5040, 5054, 5059, and 5065 Sedgwick Street. These are included in laboratory Sample Delivery Group 159223. The samples, collected April 5, 2001, are the interval representing the bottom of the Sedgwick Trench. All samples were analyzed for Full Scan Parameters including volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), mustard and mustard degradation products, adamsite, lewisite degradation products, trinitrotoluene, metals, ions (bromide, chloride, fluoride, nitrate, nitrite, phosphate and sulfate) and selected wet chemistry parameters (ammonia and total cyanide). VOC and SVOC analyses included tentatively identified compounds (TICs).

All work was performed in accordance with the Work Plan (WP) prepared by Parsons ES (Final, March 30, 2001). The WP included a Quality Assurance Project Plan (QAPjP) which was prepared and approved for use to ensure generation of legally defensible data. Southwest Research Institute (SwRI) of San Antonio, Texas, following procedures outlined in the QAPjP and the WMP, performed the majority of the analyses. SwRI did not perform mustard and adamsite analyses. Those were performed by the Edgewood Chemical and Biological Command (ECBC).

A summary of the samples collected is presented in Table 1 (Attachment 1). A glossary of the validation qualifiers is presented in Attachment 2.

SUMMARY OF VALIDATED ANALYTICAL RESULTS
SEDGWICK TRENCH AREA

SAMPLE ID:				5040TR-SB	5065TR-SBDUP01	5054TR-SB	5059TR-SB	5065TR-SB
SAMPLE DEPTH:		REGION III	Result	4.5'-5.5'	4.5'-5.5'	3'-5'	9'-10'	2.5'-4'
LAB SAMPLE ID:		Residential	Exceeds	159223	159227	159224	159225	159226
TYPE or LOCATION:		RBC	RBC?	Trench Bottom	Dup 5040 Trench Bottom	Trench Bottom	Trench Bottom	Trench Bottom
SAMPLING DATE:		5/8/2001		4/5/2001	4/5/2001	4/5/2001	4/5/2001	4/5/2001
VOC Tentatively Identified Compounds								
1-NONENE, 4,6,8-TRIMETHYL-	UG/KG						3 NJ	
BENZENE, (1-METHYLETHENYL)-	UG/KG			1 NJ	0.8 NJ	1 NJ		
BUTANE, 1,1-OXYBIS-'	UG/KG			1 NJ		0.9 NJ		
CYCLOTETRASILOXANE, OCTAMETH	UG/KG				1 NJ	3 NJ	7 NJ	
FURAN, TETRAHYDRO-	UG/KG				1 NJ			1 NJ
PROPANE, OCTAFLUORO-	UG/KG				2 NJ			2 NJ
UNKNOWN	UG/KG				4 J		3 J	0.9 J
SVOC Tentatively Identified Compounds								
1-EICOSANOL	UG/KG						160 NJ	
1-NONADECANOL	UG/KG				110 NJ			110 NJ
1-OCTADECENE	UG/KG					480 NJ		
BENZO[E] PYRENE	UG/KG					46 NJ		
UNKNOWN HYDROCARBON	UG/KG				150 J			150 J

Bochnowicz, Frank NAB02

From: Thomas Bachovchin [Thomas.Bachovchin@parsons.com]
Sent: Wednesday, May 08, 2002 2:21 PM
To: 'Peloquin, Michael MAJ NAB02'
Cc: Frank. Bochnowicz@nab02. usace. army. mil (E-mail); Leland. H. Reeser@nab02. usace. army. mil (E-mail); James.W.Baron@nab02.usace.army.mil (E-mail)
Subject: RE: May partnering meeting

Mike,

One other thing is the Final presentation of the AUES List sampling results. The CDC and Sedgwick reports have been sent Final to Jim and Frank. The 3819 (Telecki) and other OU-4 properties report will go out today or tomorrow. This may be more than you want to get into at the meeting, but it also might be a way to get final buy-off from regulators as to how these have been presented and the conclusions resulting.

I am not certain whether your items 1 and 2 below impact those documents.

Thanks.

-----Original Message-----
From: Peloquin, Michael MAJ NAB02
Sent: Wednesday, May 08, 2002 1:15 PM
To: Bethany Bridgham; Bruce Whisenant; Christopher Evans; Edward Hughes; Frank Vavra; Gary Schilling; Gerald Pollis; Gregory Nielson; Jon Durham; Jorge Abud; Ken Shuster; Laura Frazier; Leland Reeser; Mark Baker; Michael Peloquin; Michael Rogers; Richard Albright; Robert Hill; Sherri Anderson-Hudgins; Stukas.Tom@epamail.epa.gov; Susan Platt; Terry Slonecker; Theodore Henry; Wilson Walters; abjackson@starpower.net; 'Beumel, Greg'; Dorothy Zolandz; Doug Garman; 'dperkins@iiaa.org'; 'drrobins@llgm.com'; Geza Teleki; Jim Girard (Dr.); Jim Sweeney; 'jpb@gdllaw.com'; Karen Egbert; Kent Slowinski; 'Liebenthal, Andres'; Lucy Lather; 'mleone@ANTH.umd.edu'; 'pdenby@bellatlantic.net'; Rich Albright; 'ssshap@starpower.net'; 'whall@winston.com'; 'woodway2@mindspring.com'; Bachovchin, Thomas; Bishop, Edward
Subject: FW: May partnering meeting

All:
Votes are in and the next partnering meeting will be 22 May.
Here is a list of proposed topics for discussion. Please review and add to/comment on it by 14 May so I can get the agenda out shortly thereafter.

Agenda Topics:

1. Thallium Issue - Presentation/discussion on how to address the elevated thallium results from the 1995 RI.
2. Adjusted Background Results - Recalculation using only EPA's data collected in 1999.
3. Test Pit 23 Characterization on 4801 Glenbrook property - status of arsenic overexcavation. Issues with other metals should be resolved by the time of the Partnering Meeting, but if not, they can be discussed also.
4. 4835 Glenbrook Rd. Risk Assessment - No unacceptable risk. Elevated grids will be addressed under current Non-TCRA and concurrent with any follow-up geophys investigation.
5. General status of overall work on 4801 Glenbrook
6. Update on OU4 AU TCRA (resolve any EPA, DC Health and AU comments on the R.A.D. document not finalized during the 8 May "on-board" meeting
7. Update on OU5 Residential TCRA
8. Update on the draft SSS and appendices for the Sedgwick properties
9. Indoor air monitoring status update
10. Presentation by Rich/Ken/Terry on recent research efforts

Michael D. Peloquin
Major, Corps of Engineers
Deputy District Engineer for Spring Valley

410-962-0157 (Baltimore voice)
410-962-9312 (Balt. fax)
202-686-3359 (DC voice)
202-686-3596 (DC fax)

> -----Original Message-----
> From: Peloquin, Michael MAJ NAB02
> Sent: Friday, April 26, 2002 2:36 PM
> To: Bethany Bridgham; Bruce Whisenant; Christopher Evans; Edward Bishop;
> Edward Hughes; Frank Vavra; Gary Schilling; Gerald Pollis; Gregory
> Nielson; Jon Durham; Jorge Abud; Ken Shuster; Laura Frazier; Leland
> Reeser; Mark Baker; Michael Peloquin; Michael Rogers; Richard Albright;
> Robert Hill; Sherri Anderson-Hudgins; Stukas.Tom@epamail.epa.gov; Susan
> Platt; Terry Slonecker; Theodore Henry; 'Thomas Bachovchin'; Wilson
> Walters
> Subject: May partnering meeting
>
> All:
> Despite our on-board review meetings last week and next week, we still
> need to schedule a regular partnering meeting in mid-May to cover all the
> stuff not addressed in the recent meetings. I would like to hold the
> meeting 21, 22 or 23 May and need your input. Please respond, indicating
> your first and second choice.
>
> Also, please identify topics or specific issues you would like to see
> addressed at the meeting.
>
> Thanks,
>
> Michael D. Peloquin
> Major, Corps of Engineers
> Deputy District Engineer for Spring Valley
> 410-962-0157 (Baltimore voice)
> 410-962-9312 (Balt. fax)
> 202-686-3359 (DC voice)
> 202-686-3596 (DC fax)
>
>

SPRING VALLEY

Partner Meeting
Spring Valley Resident Office

PURPOSE OF MEETING: Partnering Meeting

LOCATION: Spring Valley Resident Office

DATE: May 22, 2002

TIME: 10:00 a.m. – 4:00 p.m.

Discussion of New Boundaries and POIs

Rich Albright, Greg Nielson, and Frank Vavra discussed a recent meeting of the regulators and CENAB personnel.

Rich Albright handed out copies of photos of ordnance items he uncovered from research. One of the documents referenced is "History of the Chemical Warfare Service in the United States" by Lt. Col Bancroft.

Rich Albright presented a summary of the report he distributed, "Draft Comments on the Corps of Engineers Selection of Points of Interest and Boundary Delineation for the Spring Valley DERP/FUDS Site", May 2002. His summary included:

- Expansion of FUDS boundary west of Zone 9 and north of Zone 6
- Additional POIs based upon the plan view of 1918 buildings. He also supplied a list of the buildings.
- He feels POI 7 requires additional investigation because he has uncovered information there was significant CWM testing within this POI.
- He stated the 1918 Manual of Gas Shell Storage required a pre-dug 4' deep hole for disposal of leaking shells.
- The area previously identified as an airstrip is actually an area composed of linear trenches.

- The circular testing area was an area for smoke candle testing. It is also his opinion 3-4 million candles were loaded with toxic smoke at AUES.
- He recommends including all shell loading plants.
- He believes there is another large persistency test area to the west of POI 16.
- He believes there a number of additional burial pits.
- He wants the anomalies investigated near the debris field on 4835 Glenbrook.
- The area of Dalecarlia Reservoir requires additional geophysical investigation.
- His summary of the DC report is that there are still many unknowns that require additional investigation.

Greg Nielson explained the next geophysics effort will be focused on areas agreed to by the partners. He will develop the prioritization guidelines and coordinate these with the partners. It will then be distributed to the public. This will be based upon the current prioritization scheme.

MAJ Peloquin would like to develop a Spring Valley Master Plan that would condense available information and integrate DC DOH, EPA, and CENAB prioritizations that would serve as a guide for future investigations and activities on the Spring Valley FUDS.

Glenbrook Road Activities

Update at 4801 Glenbrook Road

MAJ Peloquin reported work is starting on the separation wall and backfilling the pit. The VCS will be removed shortly followed by the removal of the access road and turn over of the property to the landscape contractor.

Right of Entry for 4825

The ROE is currently being addressed at the Dept of the Army level. Work is complete for this fiscal year. When access is again gained, the pit will be excavated, and the other areas of interest investigated (driveway, front yard).

There was discussion on the items found under the concrete retaining wall. Greg Nielson will send copies of photos of the glassware to Rich Albright.

4835 Human Health Risk Assessment

Lan Reeser reported the risk assessment for this property is complete and did not identify an unacceptable risk. However, there are approximately five grids with arsenic above 20 ppm that will be removed. Greg Nielson reported consensus from the partners will be obtained on the geophysical anomalies to be removed prior to initiating intrusive investigations.

OU5 Sampling Plan

Status/Results

MAJ Peloquin provided the results of sampling to date to Rich Albright. He will email the results to Ken Shuster and Frank Vavra. MAJ Peloquin will meet with Rich Albright to discuss prioritization of additional sampling.

MAJ Peloquin discussed the grid sample results for OU-5 and OU-4.

Van Ness Reservoir

MAJ Peloquin pointed out the Van Ness Reservoir and stated composite samples were taken today in each of 9 one-half acre lots. Rich Albright requested a boring sample for arsenic be performed in one of the garden lots. Parsons will review exactly where borings in this area have already been taken.

Sample Result Reporting

MAJ Peloquin stated the group needs to come to a conclusion on how to report the results of the AUES List of compounds. Tom Bachovchin explained these are chemical compounds where one or more indicators are above the RBC and, therefore, the result is reported as the potential compound. Frank Vavra suggested reviewing the fate and transport of the chemicals, stoichiometry, and also reviewing the relative toxicity of the compound compared to the indicators. Rich Albright stated this needs to be put in context to the historical area. Ed Bishop stated Parsons will also discuss other potential sources of the indicator compound.

CTA vs CSA Sampling

Drew Rak provided an explanation of the sampling in the CTA in four quadrants compared to the CSA with half lots compared to the EPA soil screening guidance. The sampling was based upon the criteria that CWM testing occurred within the CTA but not in the CSA.

Parsons and Drew Rak will retrieve the statistical discussion on the CTA and CSA sampling.

Removals

AU lots TCRA

These lots were addressed during the geophysics review meeting. Lots were defined as pink, yellow, or red. The pink are arsenic removal grids without anomalies for intrusive investigation. The red are arsenic removal grids with anomalies for intrusive investigation. The yellow are grids with anomalies (only) for intrusive investigation. The pink grids will be removed under HTRW conditions. The red and yellow grids will be addressed under the site-wide locally approved work plan and AU lot annex. Removal actions on the pink grids are scheduled to begin on or about June 3 with intrusive investigations in yellow and red grids likely beginning in mid-July.

Residential TCRA

Ed Hughes updated the group on the status of the pending TCRA removal action at 7 residential properties. The update included scheduling considerations (preliminary actions in June, removals starting in July/August and the goal for completion in September). Ed H mentioned about the need for cooperation from the Partnering group in support of the aggressive removal schedule, especially for issues such as the adjusted action level (43ppm) near large trees or other sensitive items, crawl space remediation options (if required) and decisions about continuing removal activities onto adjacent properties. The partners indicated concurrence with this request.

Discussion of Sedgwick Trench Investigation

Status of SSS

Ed Bishop reported the SSS will go out final tomorrow. Work will start on the site-wide local approved work plan and associated annexes. Greg Nielson stated we plan to start work mid-July. He is meeting with the property owners this evening to discuss the work plans.

Air monitoring plan revisions

Liza Finley described her concerns with the air monitoring. The methods used had levels of detection that were too low to meet the RBCs. The EPA methods that will meet the RBCs are not suitable for indoor use in residences. Her recommendation is to put the air monitoring on hold until a suitable method is determined. Greg Nielson stated the Corps' recommendation was to finalize the current work effort. However, since that effort was inconclusive, a new effort was needed. Discussion followed.

Recommendation is to use size selection to determine particulates < 10 um or < 2.5 um. It was recommended to sample 6 houses with high, low, or background levels of arsenic in soil. Ed Bishop recommended sampling for PM_{10} arsenic, mustard, and arsine. He

will work with Liza Finley (CENAB) and Pat Flores (EPA). There will be a conference call with the above personnel, DC DOH, and an EPA toxicologist (Frank Vavra will supply a name) to determine the best methods for sampling. We will use 10^{-5} as the RBC.

On the issue of swipe samples, the group recommended collecting dust samples rather than swipe samples. Dust samples were collected by ATSDR. Drew Rak asked about collecting vacuum cleaner bags.

Miscellaneous Issues

Adjusted background results

Drew Rak explained the results of recalculation of the background data. There were some discrepancies with the data from field duplicates, and a transcription error. He presented a summary of the combined 1993/94 and 1999 data to the 1999 data. Some metals were higher and some were lower. However, in general, the results are not vastly different. He recommends continuing to use the corrected combined 1993/94 and 1999 data The group concurred.

Scientific Advisory Panel

The Scientific Advisory Panel meets May 29, 2002. MAJ Peloquin will briefly present on the sampling results. ATSDR will also present.

Evergreen document

This is a document to capture all of the open items from RAB and partnering meetings. These items will be prioritized and addressed. Gary Schilling, CENAB, will be preparing this document.

Open Discussion

Greg Nielson stated the Donovan Chamber will be mobilized to the site within 3 months. He stated he is still awaiting an approval from the DC DOH on the use of the chamber on the Federal Property.

There has been a change in the security service. They are now using the Washington Aqueduct (WAD) security personnel at the Federal Facility with the DC Police at American University. In the future, an intrusion detection system (IDS) will be installed at the Federal Facility with on-site guard presence only during working hours. The IDS will be monitored during non-working hours by WAD security personnel. DC Police Special Operations Division (SOD) will continue to be used at intrusive investigations where OE/CWM are found.

Ed Hughes brought up the re-sampling of the Teleki property. Frank Vavra said the homeowner was not happy with the locations because they were in the homeowner's clean soil. Tom Bachovchin stated we took the samples with anomaly avoidance protocols. Any location change was the result of anomaly avoidance procedures. Parsons will summarize all sampling procedures and provide an analysis of where the surface samples were taken compared to the homeowner's map.

Short Term Taskers:

1. Greg Nielson – provide photos of glassware found within or near the concrete footer of the 4825 Glenbrook wall to Rich Albright

2. Greg Nielson – prepare a narrative describing general methodology for selecting future sites for geophysical investigation

3. Ed Bishop – take lead in setting up conference call with DC DOH, EPA, and CENAB to determine appropriate means for sampling/measuring indoor air quality

4. Frank Vavra – provide EPA POC to Ed Bishop so he can address #3 above

5. Gary Schilling – compile draft Evergreen List

6. Parsons – provide to CENAB, EPA, and DC DOH an analysis of where the Teleki property surface samples were taken compared to the homeowner's map

7. CENAB/Parsons – review boring samples collected near the Van Ness reservoir in the garden lots

8. Major Peloquin - . E-mail OU5 sampling results to Ken Shuster and Frank Vavra and meet with Rich Albright to discuss prioritization of additional sampling

Evergreen List:

1. Major Peloquin – Initiate master plan effort.

2. All partners – review DC DOH report on new POIs for incorporation into future master plan effort

3. CENAB – reevaluation of data collected to date and additional geophysics on the Dalecarlia Reservoir

Attendees

Name	Organization/Address
Major Mike Peloquin	CENAB
Lan Reeser	CENAB
Rich Albright	DCEHA
Frank Vavra	USEPA
Wilson Walters	USAESCH
Ken Shuster	USEPA
Ed Hughes	CENAB
Greg Nielson	CENAB
Jim Baron	CENAB
Ben Rooney	CENAB
Bethany Bridgham	AU
Frank Bochnowicz	CENAB
Drew Rak	CENAB
Mark Baker	CENAB
Liza Finley	CENAB
Tom Stukas	ATSDR
Terry Slonecker	USEPA
RAB Member	Not Otherwise Identified
Tom Bachovchin	Parsons ES
Ed Bishop	Parsons ES
Pete Crowley	Parsons ES

DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, U.S. ARMY CORPS OF ENGINEERS
P.O. BOX 1715
BALTIMORE, MD 21203-1715

March 15, 2001

REPLY TO
ATTENTION OF
Programs and Project
Management Division

Mr. and Mrs. Curtis Bohlen
4710 Quebec Street
Washington, D.C. 20016

Dear Mr. and Mrs. Bohlen:

I have enclosed the preliminary results of the arsenic sampling that we conducted on your property on February 2, 2001. I have also included a map identifying the samples' locations.

If you have any questions on this matter, please feel free to contact me, at 410-962-6782

Sincerely,

Patience N. Nwanna
Spring Valley OU4 Project Manager

Enclosure

Curtis

Lot Number	Sample Type	Sample ID	Date Collected	Date Reviewed	Data Validated	PARAMETER Arsenic mg/kg	Qualifier
4710 Quebec	soil	OU4-4710QS-150,90	2/2/01	2/12/01		5.70	
	soil	OU4-4710QS-130,110	2/2/01	2/12/01		20.8	
The Bohlens	soil	OU4-4710QS-130,90	2/2/01	2/12/01		3.52	
	soil	OU4-4710QS-130,70	2/2/01	2/12/01		17.2	
	soil	OU4-4710QS-110,130	2/2/01	2/12/01		12.5	
	soil	OU4-4710QS-110,110	2/2/01	2/12/01		25.3	
	soil	OU4-4710QS-110,90	2/2/01	2/12/01		27.2	
	soil	OU4-4710QS-110,70	2/2/01	2/12/01		45.4	
	soil	OU4-4710QS-110,50	2/2/01	2/12/01		42.7	
	soil	OU4-4710QS-90,150	2/2/01	2/12/01		43.2	
	soil	OU4-4710QS-90,130	2/2/01	2/12/01		5.38	
	soil	OU4-4710QS-90,110	2/2/01	2/12/01		35.1	
	soil	OU4-4710QS-90,90	2/2/01	2/12/01		10.4	
	soil	OU4-4710QS-90,50	2/2/01	2/12/01		5.13	
	soil	OU4-4710QS-90,30	2/2/01	2/12/01		10.6	
	soil	OU4-4710QS-70,150	2/2/01	2/12/01		3.52	
	soil	OU4-4710QS-70,130	2/2/01	2/12/01		7.98	
	soil	OU4-4710QS-70,110	2/2/01	2/12/01		30.0	
	soil	OU4-4710QS-70,70	2/2/01	2/12/01		15.9	
	soil	OU4-4710QS-70,50	2/2/01	2/12/01		46.1	
	soil	OU4-4710QS-70,30	2/2/01	2/12/01		7.46	
	soil	OU4-4710QS-70,10	2/2/01	2/12/01		8.03	
	soil	OU4-4710QS-50,130	2/2/01	2/12/01		6.16	
	soil	OU4-4710QS-50,110	2/2/01	2/12/01		19.6	
	soil	OU4-4710QS-50,90	2/2/01	2/12/01		30.7	
	soil	OU4-4710QS-50,70	2/2/01	2/12/01		30.8	
	soil	OU4-4710QS-50,50	2/2/01	2/12/01		6.58	
	soil	OU4-4710QS-50,30	2/2/01	2/12/01		9.74	
	soil	OU4-4710QS-30,110	2/2/01	2/12/01		6.82	
	soil	OU4-4710QS-30,90	2/2/01	2/12/01		39.1	
	soil	OU4-4710QS-30,70	2/2/01	2/12/01		38.6	
	soil	OU4-4710QS-30,50	2/2/01	2/12/01		6.97	
	soil	OU4-4710QS-10,90	2/2/01	2/12/01		41.5	
	soil	OU4-4710QS-10,70	2/2/01	2/12/01		12.5	
	soil	OU4-4710QS-DUP01	2/2/01	2/12/01		21.3	
	soil	OU4-4710QS-DUP02	2/2/01	2/12/01		22.0	

>13 ppm, < 26 ppm
> 26 ppm, < 43 ppm
> 43 ppm

J - Result is estimated due to a minor QA/QC problem (see report for specific explanation).
U - Analyte not detected at the quantitation limit.
D - Sample was diluted due to matrix interferences.
B - Nondetect due to laboratory blank contamination.

SPRING VALLEY OU-4
4710 Quebec Street Grid Sampling Data
(PRELIMINARY / UNVALIDATED)

Lot Number	Sample Type	Sample ID	Date Collected	Date Reviewed	Data Validated	PARAMETER Arsenic mg/kg	Qualifier
4710 Quebec Grid	soil	OU4-4710QS-150,90	2/2/2001	2/12/2001		5.70	
	soil	OU4-4710QS-130,110	2/2/2001	2/12/2001		20.8	
	soil	OU4-4710QS-130,90	2/2/2001	2/12/2001		3.52	
	soil	OU4-4710QS-130,70	2/2/2001	2/12/2001		17.2	
	soil	OU4-4710QS-110,130	2/2/2001	2/12/2001		12.5	
	soil	OU4-4710QS-110,110	2/2/2001	2/12/2001		25.3	
	soil	OU4-4710QS-110,90	2/2/2001	2/12/2001		27.2	
	soil	OU4-4710QS-110,70	2/2/2001	2/12/2001		49.4	
	soil	OU4-4710QS-110,50	2/2/2001	2/12/2001		42.7	
	soil	OU4-4710QS-90,150	2/2/2001	2/12/2001		17.2	
	soil	OU4-4710QS-90,130	2/2/2001	2/12/2001		5.38	
	soil	OU4-4710QS-90,110	2/2/2001	2/12/2001		35.1	
	soil	OU4-4710QS-90,90	2/2/2001	2/12/2001		10.4	
	soil	OU4-4710QS-90,50	2/2/2001	2/12/2001		5.13	
	soil	OU4-4710QS-90,30	2/2/2001	2/12/2001		10.6	
	soil	OU4-4710QS-70,150	2/2/2001	2/12/2001		3.52	
	soil	OU4-4710QS-70,130	2/2/2001	2/12/2001		7.98	
	soil	OU4-4710QS-70,110	2/2/2001	2/12/2001		20.0	
	soil	OU4-4710QS-70,70	2/2/2001	2/12/2001		15.9	
	soil	OU4-4710QS-70,50	2/2/2001	2/12/2001		56.3	
	soil	OU4-4710QS-70,30	2/2/2001	2/12/2001		7.46	
	soil	OU4-4710QS-70,10	2/2/2001	2/12/2001		8.03	
	soil	OU4-4710QS-50,130	2/2/2001	2/12/2001		6.16	
	soil	OU4-4710QS-50,110	2/2/2001	2/12/2001		19.6	
	soil	OU4-4710QS-50,90	2/2/2001	2/12/2001		30.7	
	soil	OU4-4710QS-50,70	2/2/2001	2/12/2001		30.8	
	soil	OU4-4710QS-50,50	2/2/2001	2/12/2001		6.58	
	soil	OU4-4710QS-50,30	2/2/2001	2/12/2001		9.74	
	soil	OU4-4710QS-30,110	2/2/2001	2/12/2001		6.82	
	soil	OU4-4710QS-30,90	2/2/2001	2/12/2001		39.1	
	soil	OU4-4710QS-30,70	2/2/2001	2/12/2001		38.6	
	soil	OU4-4710QS-30,50	2/2/2001	2/12/2001		6.97	
	soil	OU4-4710QS-10,90	2/2/2001	2/12/2001		41.5	
	soil	OU4-4710QS-10,70	2/2/2001	2/12/2001		12.5	

[ ] >13 ppm

J - Result is estimated due to a minor QA/QC problem (see report for specific explanation).
U - Analyte not detected at the quantitation limit.
D - Sample was diluted due to matrix interferences.
B - Nondetect due to laboratory blank contamination.

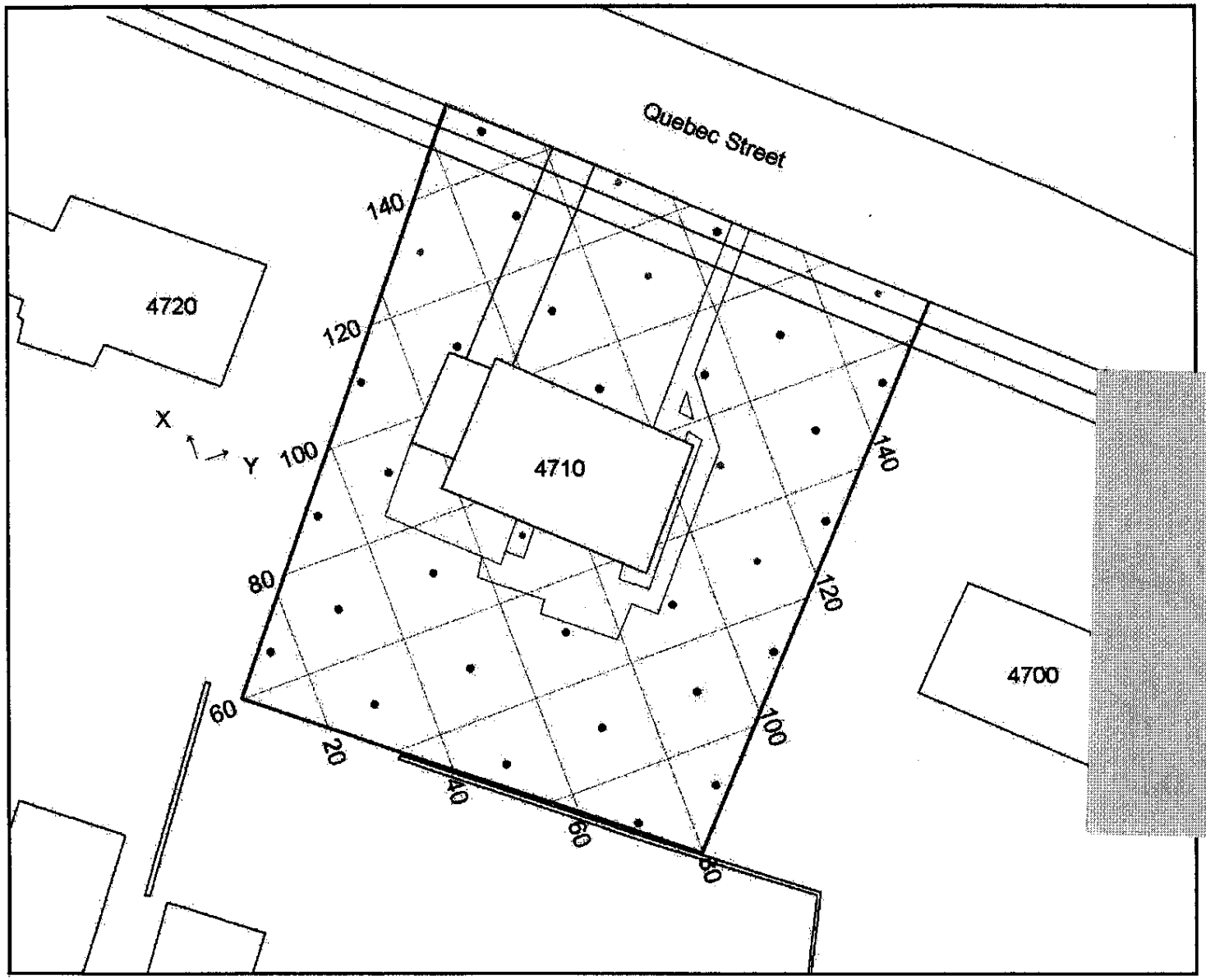


Figure 1-6
Grid Sampling Plan
4710 Quebec Street

Spring Valley Operable Unit 3
Washington D.C.

Legend

Property Line
Sample Points
< 13 ppm
> 13 ppm AND < 26 ppm
> 26 ppm
Roads/Residences
20ft Grid

Results given to Mr Carey Bohlen over the phone on 2/12

Scale:	1" 340'
Created By:	Parsons ES
File:	Y:\Projects\Fed\Districts\Spring\site\grid.apr
Date:	01/29/2001
Figure Number:	X-X
Page Number:	X-X

PARSONS ENGINEERING SCIENCE

DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, U.S. ARMY CORPS OF ENGINEERS
P.O. BOX 1715
BALTIMORE, MD 21203-1715

May 15, 2001

REPLY TO
ATTENTION OF
Programs and Project
Management Division

Mr. Geza Teleki
3819 48th Street
Washington, D.C. 20016

Dear Mr. Teleki:

Enclosed are the preliminary results of the arsenic sampling that we conducted on your property on February 7 and 8, 2001. These results have been validated in accordance with standards set by the U.S. Army Corps of Engineers and the U.S. Environmental Protection Agency (EPA). The results for your property are within the range of arsenic levels that are expected to occur in this area.

Please note that 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 it varies from area to area. To ascertain the background level for your area, the EPA took soil samples in August and September 1999. The sample results showed that background levels of arsenic in the soil in your area ranges in value from 3.3 mg/kg to 18 mg/kg. The results for the samples we took from your property fall within this range.

If you have any questions regarding these results, please feel free to contact me at 410-962-6782.

Sincerely,

Patience N. Nwanna
Spring Valley OU4 Project Manager

Enclosure

Appendix 3

While ROE language and notification have evolved over the years of the Spring Valley project, USACE has never intentionally sampled a property in Spring Valley without the property owner's knowledge and consent. The following attachments are provided in support of this USACE position:

- **Attachment O:** Signed Right-of-Entry for 3819 48th Street. Included in this attachment is the cover letter accompanying the ROE that was sent to the property owner for signature. It should be noted that neither the ROE nor the cover letter limited the planned sampling to just arsenic. It should also be noted that the ROE form signed by the property owner had not been updated before sending so is misdated as 2000 instead of 2001 like the cover letter. Regardless of this clerical error, the ROE was in effect for 18 months from the date of owner approval and, thus, was active at the time of AUES List sampling in February 2001.
- **Attachment P:** Signed ROE for 4625 Rockwood Parkway, dated May 25, 2000.
- **Attachment Q:** Signed ROE for 4633 Rockwood Parkway, dated September 10, 2000. Attached with this ROE is the letter sent by USACE showing its efforts to keep the property owner informed of the sampling plan for arsenic, which was the initial impetus for obtaining this ROE.
- **Attachment R:** Signed ROE for 4710 Quebec Street, dated May 22, 2000.
- **Attachment S:** USACE e-mail dated January 12, 2001 demonstrating USACE's plans for notifying property owners about impending sampling events. This e-mail also notes that the owner of 3819 48th Street was already aware of the planned sampling event.
- **Attachment T:** Letter dated February 5, 2001 to the owners of 4633 Rockwood Parkway informing them that in addition to the arsenic sampling, three surface samples from their property and 4625 Rockwood (another OU4 AUES residential property) will be "analyzed for a complete suite of contaminants….to verify that there are not elevated levels of other contaminants in this area."
- **Attachment U:** USACE e-mail dated February 6, 2001 acknowledging that the property owner of 4710 Quebec Street agreed to the USACE plan to conduct additional sampling on their property, and instructing that a telephone call be placed to the owner to explain the planned sampling. AUES List sampling was conducted on this property on February 8, 2001.
- **Attachment V:** Summary memorandum dated May 24, 2002 prepared by Parsons in follow-up to partnership discussions at the May 22, 2002 Partnering meeting. This memo describes the sampling activities at 3819 48th Street on February 7 and 8, 2001 and notes the presence of the property owner during sampling and the concerns he expressed. The description is supported by the logbook field notes made on those two dates.

3819 48th Street, NW.
Washington, DC 20016-2301

DEPARTMENT OF THE ARMY

RIGHT-OF-ENTRY

This Right-of-Entry sets forth the arrangements by which the United States Government (the "Government") will conduct certain operations relating to the investigation of the Camp American University (Spring Valley) site on the lot of the homeowner (s) whose signature (s) appear (s) below (the "Owner"). The Owner, by this instrument, in consideration of the potential assistance and advantages to be derived by the owner, does hereby grant to the Government a right-of-entry upon the following terms and conditions:

1. The Owner hereby grants to the Government the right to enter the lot located at the address identified above at any time during daylight hours of the investigation to inspect and survey the lot. The purpose of this right-of-entry is to permit the Government to perform surface and subsurface soil sampling. The investigation will include a physical walk-through of the lot, and a survey of the lot using such non-intrusive equipment as it determined appropriate by the Government. If intrusive measures are required to complete a satisfactory investigation, these shall be subject to the provisions of Paragraph 4 below.

2. The Owner may revoke this right-of-entry at any time by notice delivered to the Government at its Spring Valley Resident Office, 5201 Little Falls Road, NW., Washington, DC (behind Sibley Memorial Hospital), telefax No. (202) 686-3596. This right-of-entry shall expire without further action by the owner on the earlier of (a) completion of the investigation, or (b) 18 months from the date of execution of this MOU by the Owner. Owner will use its best efforts to notify the Government at any time during the investigation if owner will be away for an extended period of time.

3. The Government will use its best efforts to give the Owner at least 24 hours prior notice of the non-intrusive inspection, such notice to be delivered either by telephone, mail, or to the Owner's front door. Owner hereby grants the Government a right of ingress and egress to the lot for purposes of the non-intrusive inspection, provided, however, that entry into any enclosed structures shall occur only with the further permission of the Owner.

4. If the Government determines, in its best judgement, that an intrusive inspection of the Owner's lot is necessary and appropriate, the Government shall give the Owner at least 72 hours prior written notice of its determination with a plan or drawing showing where on the Owner's lot the Government proposes to conduct subsurface exploratory work, and the methods by which it proposes to conduct its exploration. Such methods may include, but not be limited to, surface and subsurface soil sampling, test borings, and the drilling of monitoring wells for ground water testing.

5. The Government shall promptly notify the Owner of the results of any inspection or investigation of Owner's lot. If the Government determines, based on such inspection or investigation, that it will be necessary to remove any buried materials or soil, the Government shall give the Owner at least 72 hours prior written notice of its determination with a plan or drawing showing where on the Owner's lot the Government proposes to conduct removal operations and the methods by which it proposes to conduct the removal work. The Government shall obtain the Owner's permission before beginning any removal operations.

6. Data gathered during any inspection of the lot by the Government, and any written summaries or evaluations of such data, shall promptly by made available for review and copying by the Owner or Owner's agents, subject to the Freedom of Information Act. However, the Owner will not need to make a formal, written Freedom of Information Act request to obtain these documents.

7. Without prejudice to any other rights the Owner may have, the Government is responsible, in accordance with applicable law, for the acts and omissions of its employees and agents which cause injuries to persons or damages to property, including any claims arising from such injuries or damages, caused by or arising from the inspections or removal actions, unless such injuries or losses are caused by the Owner's negligence. The Government represents that funds have generally been available for such purposes and that it will seek on an annual basis from Congress such funds as may be required for these purposes.

8. The Government may use private contractors to assist in or conduct the inspections, tests, and other response actions. The Government will ensure that independent contractors participating in the investigation and possible response actions on the Owner's property are required to carry levels of insurance coverage that are appropriate for the activities to be conducted on the property. The Owner shall have the right to review and copy, at the Government's expense, any contract between the Government and such private contractors.

9. All tools, equipment, and other property taken upon the lot by the Government shall remain the property of the Government and shall be removed by the Government as soon as reasonably possible with the completion of the work covered by this right-of-entry.

10. The Government shall have the right to patrol the lot during the period of this right-of-entry.

11. Subject to the availability of funds, the Government shall, at its sole election, either (1) restore the premises to the same condition as that existing at the time of entering, or (2) pay to the Owner a sum of money representing the actual cost of restoration. Interim restoration will be considered on a case by case basis if requested by the Owner. The Government represents that funds have generally been available for such purposes and that it will seek on an annul basis from Congress such funds as may be required for these purposes.

12. Nothing in this instrument shall be deemed to waive any rights of any kinds the Owner now has, or may hereinafter have, to assert any claim against the Government or any other person or entity, including, without limitation, claims with respect to any and all past events and activities of the Government or of any other person or entity.

WITNESS MY HAND AND SEAL this 5th day of February 2000.

(OWNER)

GEZA TELEKI
(OWNER)

3819 48th St, NW
(ADDRESS)

202 362-1993
(TELEPHONE)

THE UNITED STATES OF AMERICA

JAMES S. TURKEL
Chief, Real Estate Division
U.S. Army Corps of Engineers
Baltimore District
P.O. Box 1715, Baltimore, MD 21203-1715
Telephone: (410) 962-3000

DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, U. S. ARMY CORPS OF ENGINEERS
P. O. BOX 1715
BALTIMORE, MD 21203-1715

REPLY TO
ATTENTION OF

January 30, 2001

Real Estate Division
Special Projects Support Branch

Ms. Geza Teleki
3819 48th Street, NW.
Washington, DC 20016-2301

Dear Ms. Geza:

As you may be aware, the Baltimore District, U.S. Army Corps of Engineers has been conducting an exhaustive investigation of the Spring Valley area of Washington, DC to determine the presence of possible buried munitions, remnants thereof, or associated materiel. These efforts have focused on a formerly used defense site known as American University Experiment Station/Camp Leach.

Although the initial Spring Valley Project field work was concluded in 1996, document reviews, analyses and recent additional field work have occurred in order to ensure every possible precaution is taken to protect residents of the area and the environment. Based on these efforts, we have determined it necessary to conduct limited additional investigations in the vicinity of our recent field work. Your property is one of those on which we would like to conduct additional investigations. This investigation will include an additional survey of your property to take surface soil samples and possibly subsurface soil samples. All work will be coordinated in advance with you.

Weather permitting, we anticipate the investigation will begin in February. To do so, we first need your signature on the enclosed Right of Entry. This Right of Entry is the same document that has been used during previous investigations in the Spring Valley area. Please sign and return two copies of the Right of Entry to this office in the envelope provided. Once the agreement has been fully executed by the government, a copy will be returned to you for your records.

We greatly appreciate your cooperation in allowing us to proceed with this important work. If you have any questions at any time, or would like one of our representatives to meet with you to discuss this matter, please feel free to call either Major Brian Plaisted at 202-686-3359 or Ms. Melissa Jones at 410-962-5166.

Sincerely,

SIGNED.

James S. Turkel
Chief, Real Estate Division

DEUTSCH/CENAB-RE-S/md/20994

PENN/CENAB-RE

TURKEL/CENAB-RE

Enclosures

1526 0806

March 26, 2001

Real Estate Division
Special Projects Support Branch

Mr. Geza Teleki
3819 48th Street, NW.
Washington, DC 20016-2301

Dear Mr. Teleki:

Enclosed is a fully executed copy of Department of the Army Right-of-Entry for Survey and Exploration in connection with the Camp American University (Spring Valley), Washington, DC.

Thank you for your cooperation. If you have any questions, please feel free to call either Major Brian Plaisted at (202) 686-3359 or Ms. Melissa Jones at (410) 962-5166.

Sincerely,

James S. Turkel
Chief, Real Estate Division

Enclosure

me

DEUTSCH/CENAB-RE-S/md/20994

PENN/CENAB-RE

TURKEL/CENAB-RE

4625 Rockwood Parkway, NW.
Washington, DC 20016-3206

DEPARTMENT OF THE ARMY

RIGHT-OF-ENTRY

This Right-of-Entry sets forth the arrangements by which the United States Government (the "Government") will conduct certain operations relating to the investigation of the Camp American University (Spring Valley) site on the lot of the homeowner (s) whose signature (s) appear (s) below (the "Owner"). The Owner, by this instrument, in consideration of the potential assistance and advantages to be derived by the owner, does hereby grant to the Government a right-of-entry upon the following terms and conditions:

1. The Owner hereby grants to the Government the right to enter the lot located at the address identified above at any time during daylight hours of the investigation to inspect and survey the lot. The purpose of this right-of-entry is to permit the Government to perform surface and subsurface soil sampling. The investigation will include a physical walk-through of the lot, and a survey of the lot using such non-intrusive equipment as it determined appropriate by the Government. If intrusive measures are required to complete a satisfactory investigation, these shall be subject to the provisions of Paragraph 4 below.

2. The Owner may revoke this right-of-entry at any time by notice delivered to the Government at its Spring Valley Resident Office, 5201 Little Falls Road, NW., Washington, DC (behind Sibley Memorial Hospital), telefax No. (202) 686-3596. This right-of-entry shall expire without further action by the owner on the earlier of (a) completion of the investigation, or (b) 18 months from the date of execution of this MOU by the Owner. Owner will use its best efforts to notify the Government at any time during the investigation if owner will be away for an extended period of time.

3. The Government will use its best efforts to give the Owner at least 24 hours prior notice of the non-intrusive inspection, such notice to be delivered either by telephone, mail, or to the Owner's front door. Owner hereby grants the Government a right of ingress and egress to the lot for purposes of the non-intrusive inspection, provided, however, that entry into any enclosed structures shall occur only with the further permission of the Owner.

4. If the Government determines, in its best judgement, that an intrusive inspection of the Owner's lot is necessary and appropriate, the Government shall give the Owner at least 72 hours prior written notice of its determination with a plan or drawing showing where on the Owner's lot the Government proposes to conduct subsurface exploratory work, and the methods by which it proposes to conduct its exploration. Such methods may include, but not be limited to, surface and subsurface soil sampling, test borings, and the drilling of monitoring wells for ground water testing. The Government shall obtain the Owner's written permission before beginning any intrusive inspection.

5. The Government shall promptly notify the Owner of the results of any inspection or investigation of Owner's lot. If the Government determines, based on such inspection or investigation, that it will be necessary to remove any buried materials, the Government shall give the Owner at least 72 hours prior written notice of its determination with a plan or drawing showing where on the owner's lot the Government proposes to conduct removal operations and the methods by which it proposes to conduct the removal work. The Government shall obtain the Owner's permission before beginning any removal operations.

6. Data gathered during any inspection of the lot by the Government, and any written summaries or evaluations of such data, shall promptly be made available for review and copying by the Owner's agents, subject to make a Freedom of Information Act. However, the Owner will not need to make a formal, written Freedom of Information Act request to obtain these documents.

7. Without prejudice to any other rights the Owner may have, the Government is responsible, in accordance with applicable law, for the acts and omissions of its employees and agents which cause injuries to persons or damages to property, including any claims arising from such injuries or damages, caused by or arising from the inspections or removal actions, unless such injuries or losses are caused by the Owner's negligence. The Government represents that funds have generally been available for such purposes and that it will seek on an annual basis from Congress such funds as may be required for these purposes.

8. The Government may use private contractors to assist in or conduct the inspections, tests, and other response actions. The Government will ensure that independent contractors participating in the investigation and possible response actions on the Owner's property are required to carry levels of insurance coverage that are appropriate for the activities to be conducted on the property. The Owner shall have the right to review and copy, at the Government's expense, any contract between the Government and such private contractors.

9. All tools, equipment, and other property taken upon the lot by the Government shall remain the property of the Government and shall be removed by the Government as soon as reasonably possible consistent with the completion of the work covered by this right-of-entry.

10. The Government shall have the right to patrol the lot during the period of this right-of-entry.

11. Subject to the availability of funds, the Government shall, at its sole election, either (1) restore the premises to the same condition as that existing at the time of entering, or (2) pay to the Owner a sum of money representing the actual cost of restoration. Interim restoration will be considered on a case by case basis if requested by the Owner. The Government represents that funds have generally been available for such purposes and that it will seek on an annual basis from Congress such funds as may be required or these purposes.

12. Nothing in this instrument shall be deemed to waive any rights of any kinds the Owner now has, or may hereinafter have, to assert any claim against the Government or any other person or entity, including, without limitation, claims with respect to any and all past events and activities of the Government or of any other person or entity.

WITNESS MY HAND AND SEAL this 25 day of May 2000.

p.p. Jodi Praf
(OWNER)

(OWNER)

4625 Rockwood Pkwy, NW
(ADDRESS)

202 - 364 6590
(TELEPHONE)

THE UNITED STATES OF AMERICA

James S Turkel
JAMES S. TURKEL
Chief, Real Estate Division
U.S. Army Corps of Engineers
Baltimore District
P.O. Box 1715, Baltimore, MD 21203-1715
Telephone: (410) 962-3000

DEPARTMENT OF THE ARMY

RIGHT-OF-ENTRY

This Right-of-Entry sets forth the arrangements by which the United States Government (the "Government") will conduct certain operations relating to the investigation of the Camp American University (Spring Valley) site on the lot of the homeowner (s) whose signature (s) appear (s) below (the "Owner"). The Owner, by this instrument, in consideration of the potential assistance and advantages to be derived by the owner, does hereby grant to the Government a right-of-entry upon the following terms and conditions:

1. The Owner hereby grants to the Government the right to enter the lot located at the address identified above at any time during daylight hours of the investigation to inspect and survey the lot. The purpose of this right-of-entry is to permit the Government to confirm the absence of buried munitions, remnants thereof, and associated material. The investigation will include a physical walk-through of the lot, and a survey of the lot using such non-intrusive equipment as it determined appropriate by the Government. This non-intrusive equipment may include a magnetometer, a ground conductivity meter, and ground penetrating radar. If intrusive measures are required to complete a satisfactory investigation, these shall be subject tot he provisions of Paragraph 4 below.

2. The Owner may revoke this right-of-entry at any time by notice delivered to the Government at its Spring Valley Resident Office, 5201 Little Falls Road, NW., Washington, DC (behind Sibley Memorial Hospital), telefax No. (202) 686-3596. This right-of-entry shall expire without further action by the owner on the earlier of (a) completion of the investigation, or (b) 18 months from the date of execution of this MOU by the Owner. Owner will use its best efforts to notify the Government at any time during the investigation if owner will be away for an extended period of time.

3. The Government will use its best efforts to give the Owner at least 24 hours prior notice of the non-intrusive inspection, such notice to be delivered either by telephone, mail, or to the Owner's front door. Owner hereby grants the Government a right of ingress and egress to the lot for purposes of the non-intrusive inspection, provided, however, that entry into any enclosed structures shall occur only with the further permission of the Owner.

4. If the Government determines, in its best judgement, that an intrusive inspection of the Owner's lot is necessary and appropriate, the Government shall give the Owner at least 72 hours prior written notice of its determination with a plan or drawing showing where on the Owner's lot the Government proposes to conduct subsurface exploratory work, and the methods by which it proposes to conduct its exploration. Such methods may include, but not be limited to, surface and subsurface soil sampling, test borings for the purpose of subsurface magnetometer equipment readings, and the drilling of monitoring wells for ground water testing. The Government shall obtain the Owner's written permission before beginning any intrusive inspection.

5. The Government shall promptly notify the Owner of the results of any inspection or investigation of Owner's lot. If the Government determines, based on such inspection or investigation, that it will be necessary to remove any buried materials, the Government shall give the Owner at least 72 hours prior written notice of its determination with a plan or drawing showing where on the owner's lot the Government proposes to conduct removal operations and the methods by which it proposes to conduct the removal work. The Government shall obtain the Owner's permission before beginning any removal operations.

6. Data gathered during any inspection of the lot by the Government, and any written summaries or evaluations of such data, shall promptly be made available for review and copying by the Owner's agents, subject to make a Freedom of Information Act. However, the Owner will not need to make a formal, written Freedom of Information Act request to obtain these documents.

7. Without prejudice to any other rights the Owner may have, the Government is responsible, in accordance with applicable law, for the acts and omissions of its employees and agents which cause injuries to persons or damages to property, including any claims arising from such injuries or damages, caused by or arising from the inspections or removal actions, unless such injuries or losses are caused by the Owner's negligence. The Government represents that funds have generally been available for such purposes and that it will seek on an annual basis from Congress such funds as may be required for these purposes.

8. The Government may use private contractors to assist in or conduct the inspections, tests, and other response actions. The Government will ensure that independent contractors participating in the investigation and possible response actions on the Owner's property are required to carry levels of insurance coverage that are appropriate for the activities to be conducted on the property. The Owner shall have the right to review and copy, at the Government's expense, any contract between the Government and such private contractors.

9. All tools, equipment, and other property taken upon the lot by the Government shall remain the property of the Government and shall be removed by the Government as soon as reasonably possible consistent with the completion of the work covered by this right-of-entry.

10. The Government shall have the right to patrol the lot during the period of this right-of-entry.

11. Subject to the availability of funds, the Government shall, at its sole election, either (1) restore the premises to the same condition as that existing at the time of entering, or (2) pay to the Owner a sum of money representing the actual cost of restoration. Interim restoration will be considered on a case by case basis if requested by the Owner. The Government represents that funds have generally been available for such purposes and that it will seek on an annual basis from Congress such funds as may be required or these purposes.

12. Nothing in this instrument shall be deemed to waive any rights of any kinds the Owner now has, or may hereinafter have, to assert any claim against the Government or any other person or entity, including, without limitation, claims with respect to any and all past events and activities of the Government or of any other person or entity.

WITNESS MY HAND AND SEAL this 10th day of September 2000.

(OWNER)

(OWNER)

4633 Rockwood Parkway, NW
Washington DC 20016
(ADDRESS)

202-362-1964
(TELEPHONE)

THE UNITED STATES OF AMERICA

JAMES S. TURKEL
Chief, Real Estate Division
U.S. Army Corps of Engineers
Baltimore District
P.O. Box 1715, Baltimore, MD 21203-1715
Telephone: (410) 962-3000

DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, U.S. ARMY CORPS OF ENGINEERS
P.O. BOX 1715
BALTIMORE, MD 21203-1715

REPLY TO
ATTENTION OF
Programs and Project
Management Division

Dear Resident,

I have enclosed a summary sheet detailing the plans for the arsenic sampling to be conducted on your property. Susan McQuilkin will call to coordinate the specific dates for the sampling activities. Please sign below to allow us to conduct the sampling. The signed copy can be returned in the enclosed envelope.

If you have any questions on this matter, please feel free to contact Susan McQuilkin at (703) 218-1093.

Sincerely,

Brian D. Plaisted
Major, Corps of Engineers
Deputy District Engineer
for Spring Valley

Enclosure

Property Owner Approval

I have reviewed the attached summary sheet outlining the plans for the arsenic sampling to take place on my property. I approve of the implementation of these plans.

Signed _____

Printed Name Scott Greenberg Cynthia Welsh

Property 4633 Rockwood Pkwy, NW

4710 Quebec Street, NW.
Washington, DC 20016-3227

DEPARTMENT OF THE ARMY

RIGHT-OF-ENTRY

This Right-of-Entry sets forth the arrangements by which the United States Government (the "Government") will conduct certain operations relating to the investigation of the Camp American University (Spring Valley) site on the lot of the homeowner (s) whose signature (s) appear (s) below (the "Owner"). The Owner, by this instrument, in consideration of the potential assistance and advantages to be derived by the owner, does hereby grant to the Government a right-of-entry upon the following terms and conditions:

1. The Owner hereby grants to the Government the right to enter the lot located at the address identified above at any time during daylight hours of the investigation to inspect and survey the lot. The purpose of this right-of-entry is to permit the Government to perform surface and subsurface soil sampling. The investigation will include a physical walk-through of the lot, and a survey of the lot using such non-intrusive equipment as it determined appropriate by the Government. If intrusive measures are required to complete a satisfactory investigation, these shall be subject to the provisions of Paragraph 4 below.

2. The Owner may revoke this right-of-entry at any time by notice delivered to the Government at its Spring Valley Resident Office, 5201 Little Falls Road, NW., Washington, DC (behind Sibley Memorial Hospital), telefax No. (202) 686-3596. This right-of-entry shall expire without further action by the owner on the earlier of (a) completion of the investigation, or (b) 18 months from the date of execution of this MOU by the Owner. Owner will use its best efforts to notify the Government at any time during the investigation if owner will be away for an extended period of time.

3. The Government will use its best efforts to give the Owner at least 24 hours prior notice of the non-intrusive inspection, such notice to be delivered either by telephone, mail, or to the Owner's front door. Owner hereby grants the Government a right of ingress and egress to the lot for purposes of the non-intrusive inspection, provided, however, that entry into any enclosed structures shall occur only with the further permission of the Owner.

4. If the Government determines, in its best judgement, that an intrusive inspection of the Owner's lot is necessary and appropriate, the Government shall give the Owner at least 72 hours prior written notice of its determination with a plan or drawing showing where on the Owner's lot the Government proposes to conduct subsurface exploratory work, and the methods by which it proposes to conduct its exploration. Such methods may include, but not be limited to, surface and subsurface soil sampling, test borings, and the drilling of monitoring wells for ground water testing. The Government shall obtain the Owner's written permission before beginning any intrusive inspection.

5. The Government shall promptly notify the Owner of the results of any inspection or investigation of Owner's lot. If the Government determines, based on such inspection or investigation, that it will be necessary to remove any buried materials, the Government shall give the Owner at least 72 hours prior written notice of its determination with a plan or drawing showing where on the owner's lot the Government proposes to conduct removal operations and the methods by which it proposes to conduct the removal work. The Government shall obtain the Owner's permission before beginning any removal operations.

6. Data gathered during any inspection of the lot by the Government, and any written summaries or evaluations of such data, shall promptly be made available for review and copying by the Owner's agents, subject to make a Freedom of Information Act. However, the Owner will not need to make a formal, written Freedom of Information Act request to obtain these documents.

7. Without prejudice to any other rights the Owner may have, the Government is responsible, in accordance with applicable law, for the acts and omissions of its employees and agents which cause injuries to persons or damages to property, including any claims arising from such injuries or damages, caused by or arising from the inspections or removal actions, unless such injuries or losses are caused by the Owner's negligence. The Government represents that funds have generally been available for such purposes and that it will seek on an annual basis from Congress such funds as may be required for these purposes.

8. The Government may use private contractors to assist in or conduct the inspections, tests, and other response actions. The Government will ensure that independent contractors participating in the investigation and possible response actions on the Owner's property are required to carry levels of insurance coverage that are appropriate for the activities to be conducted on the property. The Owner shall have the right to review and copy, at the Government's expense, any contract between the Government and such private contractors.

9. All tools, equipment, and other property taken upon the lot by the Government shall remain the property of the Government and shall be removed by the Government as soon as reasonably possible consistent with the completion of the work covered by this right-of-entry.

10. The Government shall have the right to patrol the lot during the period of this right-of-entry.

11. Subject to the availability of funds, the Government shall, at its sole election, either (1) restore the premises to the same condition as that existing at the time of entering, or (2) pay to the Owner a sum of money representing the actual cost of restoration. Interim restoration will be considered on a case by case basis if requested by the Owner. The Government represents that funds have generally been available for such purposes and that it will seek on an annual basis from Congress such funds as may be required or these purposes.

12. Nothing in this instrument shall be deemed to waive any rights of any kinds the Owner now has, or may hereinafter have, to assert any claim against the Government or any other person or entity, including, without limitation, claims with respect to any and all past events and activities of the Government or of any other person or entity.

WITNESS MY HAND AND SEAL this 22 day of May 2000.

_____ Curtis Bohler
(OWNER) (OWNER)

_____ 202-362-0094
(ADDRESS) (TELEPHONE)

THE UNITED STATES OF AMERICA

_____
JAMES S. TURKEL
Chief, Real Estate Division
U.S. Army Corps of Engineers
Baltimore District
P.O. Box 1715, Baltimore, MD 21203-1715
Telephone: (410) 962-3000

Hughes, Edward T NAB02

From: Plaisted, Brian D MAJ NAB02
Sent: Friday, January 12, 2001 11:10 AM
To: Jones, Melissa J NAB02; Deutsch, Marion NAB02
Cc: Rogers, Michael J NAB02; Reeser, Leland H NAB02; 'McQuilkin, Susan'
Subject: Additional ROEs for OU-4 Sampling

Melissa & Marion,

Attached is a spreadsheet with 6 additional properties in the vicinity of OU-4 where we will need to do sampling. For two of them I have the names of the property owners. Those property owners are aware of the sampling. I will be sending letters on Tuesday to the others explaining the details. I want to sample these with the additional sampling that we will do in February, so I would like to send out the ROEs in the next week or so. Thanks.

Brian Plaisted

OU-4 Phase 2.xls

Property	Name	Phone	Remarks
4900 Quebec	Roger Gerstenfeld		Check name spelling
4705 Quebec			
4711 Quebec			
3700 University Blvd			
3819 48th Street	Geza Teleki		Check name spelling
4900 Indian Lane			

DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, U.S. ARMY CORPS OF ENGINEERS
P.O. BOX 1715
BALTIMORE, MD 21203-1715

February 5, 2001

REPLY TO
ATTENTION OF
Programs and Project
Management Division

Mr. and Mrs. Scott Greenburg
4633 Rockwood Parkway, NW
Washington, DC 20016

Dear Mr. and Mrs. Greenburg,

This letter is to follow-up on my letter from December with the details of how we plan to conduct the additional sampling at your property. All six properties along Rockwood Parkway that border the university will be sampled over a 20-foot grid. A sample will be taken every 20 feet and analyzed for arsenic. In addition, at 4625 and 4633 Rockwood three surface sample locations will be analyzed for a complete suite of contaminants. This is to verify that there are not elevated levels of other contaminants in this area.

We began sampling at other properties on February 1, 2001. Susan McQuilkin from Parsons ES will be contacting you to set up a sampling date. I appreciate your patience in this matter. If you have questions regarding the sampling you can reach me at 202-686-3359.

Sincerely,

Brian D. Plaisted
Major, U.S. Army
Deputy District Engineer
for Spring Valley

Hughes, Edward T NAB02

From: Plaisted, Brian D MAJ NAB02
Sent: Tuesday, February 06, 2001 10:41 AM
To: Reeser, Leland H NAB02
Subject: 4710 Quebec Street

Lan,

I got a call from Susan McQuilkin and Mrs. Bohlen from 4710 Quebec Street has approved the addtional sampling that we wanted, but she wanted to talk to some about the rationale for why the additional sampling is needed. Can you or one of your guys call her at 202-362-0094? Thanks.

Brian Plaisted

DRAFT

PARSONS

Memo

To: Major Peloquin, CENAB

From: Tom Bachovchin, Parsons

CC:

Date: 5/24/02

Re: 3819 48th Street Sampling

The following summarizes the sampling that was performed on Geza Teleki's property at 3819 48th Street.

Originally, this property was an OU-4 procedure, including surface quadrant composite sampling for arsenic only and a single boring for arsenic only. As described below, additional sampling was also performed.

Feb 7, 2001. James Taylor of Parsons arrives to place the boring. The proposed location was in the front yard based on the original OU-4 logic, i.e., a fill area if available. Our map (prior to the newer OU-5 info with detailed groundscars) at the time showed the only non cut area to be in the front yard. That's where we proposed to take it. However, using anomaly avoidance protocols, we could never find a clear area. Based on that and after conferring with Mr. Teleki who further explained that there was construction debris in that area, we placed it in the backyard where he wanted it. He pointed to a location he described as undisturbed, and that's where it went in.

James prepared to take the random surface samples, but Mr. Teleki had concerns about the surface soil 0-6 inch interval because he had brought in new topsoil for landscaping. James returned to the trailer and conferred with Maj. Plaisted and Lan Reeser (by phone) and the decision was made to sample 0-6 inches and 12-18 inches (see log book documentation of this situation). That is, for the 6 random sub-sample locations per quadrant, there would be a 0-6 inch sample and a 12-18 inch sample. The 0-6 and the 12-18 were taken from the same sub-sample location.

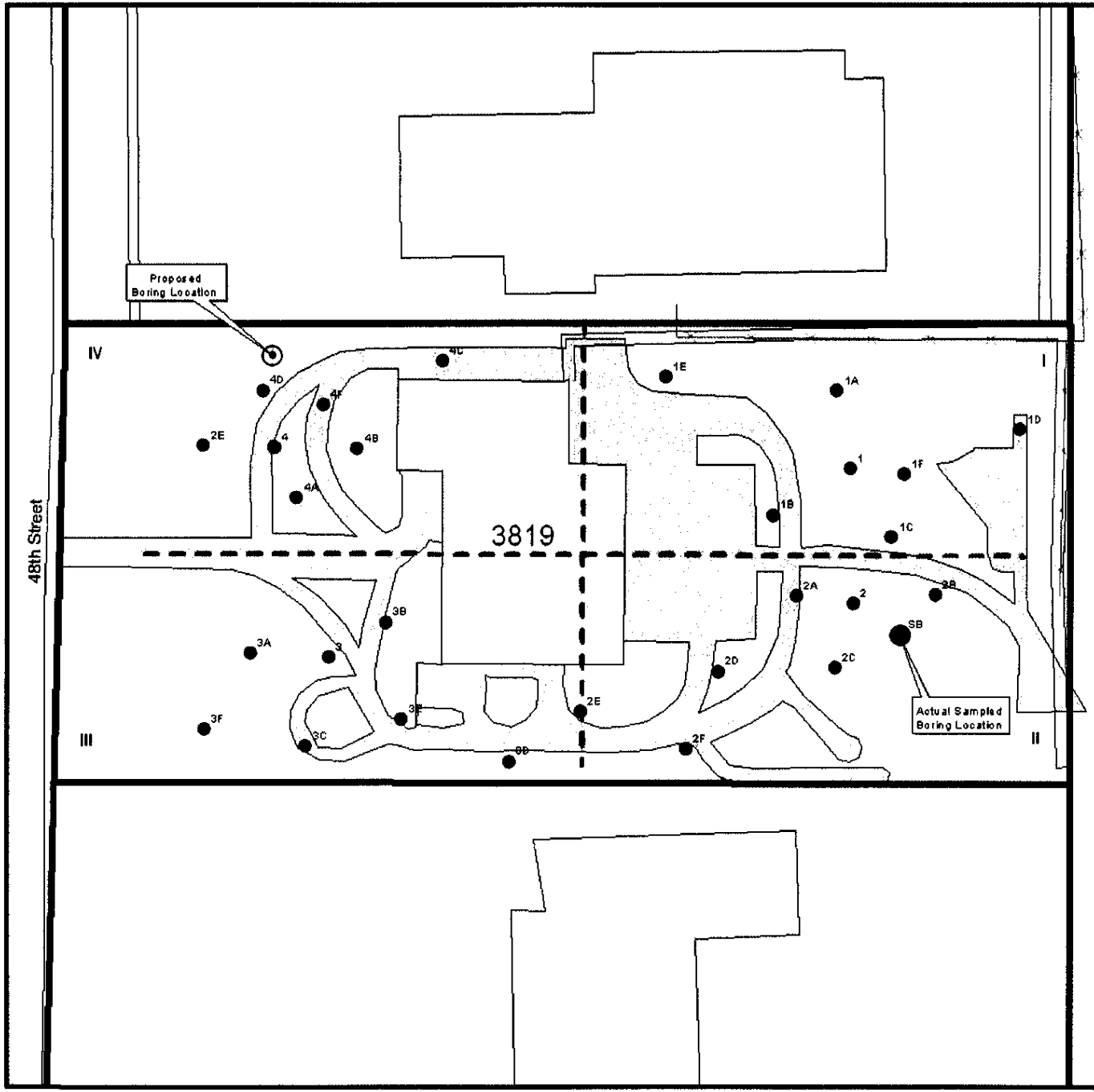
Feb 8, 2001. James placed the flags randomly in each quadrant to take the samples (for the OU-4 work, those sub-sample locations were surveyed, so we have

the exact locations plotted on the map). At some point Mr. Teleki had some input on some of those random locations and James accommodated his requests to move flags for whatever reason. For the 12-18 inch interval, anomaly avoidance protocols applied, so some of the sub-sample location flags had to be moved to find a clear spot. James is certain no flags were moved more than1-2 feet from the original locations. Mr. Teleki never complained or indicated his concern with moved flags.

In addition to the standard OU-4 level sampling, this property was selected for the full AUES List sampling. On the same day, Feb 8th, James collected one sample from each of the 4 quadrants for the AUES List parameters. These were random locations with discrete samples collected at the 1-foot level. *Note that there is a slight error in the Final Report of Results for these recently sent to Jim Baron and copied to you. I mistakenly called these 12-18 inch samples. They were collected at the bottom of the 1-foot level (actually, with the amount of dirt, it is realistically a ~9-15 inch sample). I can clean this up when responding to the comments Jim has or when we firm up Frank's suggestions of further reviewing the relative toxicities or Stoichiometry, etc.*

Attachments:

Map
Log Book Field Notes



3819 48th St

Spring Valley Operable Unit 4
Washington D.C.

Legend

Borings
- Composite Sub-Sample Locations (One at 0-6" and one at 12-18")
- AUES List Sample (12")
- Subsurface Boring 6'
- Proposed Boring Location

Retaining Wall
Fence
Roads
Quadrant
Buildings
Parcels
Walkway/Patio

N
W E
S

20 0 20 Feet

1 inch = 20 feet

Scale:	1 : 200
Created By:	Parsons
File:	Y:\Projects\FedUsaoe\springva\springva.APR
Date:	05/22/2002
Figure Number:	X-X
Page Number:	X-X

PARSONS

Logbook Input on 3819 48th Street Sampling, Page 1

(24)

07 Feb. 01

0655 - on site at Fed. property. will start SV at 4710 WL & 3819 48th St. HFA contracts on site

0730 preparing sample kit & SV equip.

0810 called Menominee about the grid layout for 4710 WL it turns out it is upside down need to redo it. Also talked to the Surveyors he will be on site at 0830. got a call from 4604. she informed me that the main gates informed the P.O. being on site 4710 WL, we will be sampling today as soon as the surveyors lay out the grid at 4710 WL.

0900 starting to clear boring location at 3819. P.O. home.

0910 got a refusal. P.O. informs us that our locate is in construction rubble.

0925 starting new location. move boring location to back of the house to an area that apparently has not been developed by the P.O.

0930 CPJA laying grid at 4710 WL. There is a question about grid numbering. Ec will investigate. O.C. Tech also on site to do the borings.

1010 We have cleared the boring location to 6' in nature S.V. Soil.

1015 -3819-SB-1

R: 100 %

Transcription of Logbook Notes for 3819 48th Street Sampling

Note: The writer is James Taylor of Parsons. As Sample Team Leader, he is overseeing 2 teams sampling concurrently. In various notations below, he is responding to cell phone calls from the other site and writing information about the other property.

This is a verbatim transcript of the logbook notes. Abbreviations are presented at the end of this transcript.

Page 24 **07 Feb. 01**

0655 Onsite at Fed. property, Will start SX at 4710 WL and 3819 48th Street. HFA contractor on site.

0730 Preparing sample kit and SX equip.

0810 Called Marianne about the grid layout for 4710WL; it turns out it is upside down, need to redo it. Also talked to the surveyors. He will be onsite at 0830. Got a call from 4604. She informed me that the main gates…are open (unfinished thought)

On site 4710 WL, informed the P.O. that we will be sampling today as soon as the surveyors layout the grid at 4710WL.

0900 Starting to clear boring location at 3819. P.O. home.

0910 Got a refusal. P.O. informs us that our locate is in construction rubble.

0925 Starting new location. Move boring location to back of the house to an area that apparently has not been developed by the P.O.

0930 CPJA laying grid at 4710 WL. There is a question about grid numbering. EC will investigate. Col. Tech. also onsite to do the borings.

1010 We have cleared the boring location to 6' in native S.V. soil.

1015 -3819-SB-1

R:100%

PID:0.0

Brown silty clay with some top soil.

1020 -SB-2 [Dup04]* JOT
PID:0.0
R:80%
Brown to yellow brown, with greenish tinge, silty sand with trace mica.

1025 -SB-3

R:100
P.D.: 0.0

Brown to yellow brown silty sand with some remnant structures.

1030 -SB-4

R: 100%
P.D.:0.0

SAA, probably native soil.

1035 -SB-5

P.D.:0.0
R:100%

Brown to rusty brown silty sand with mica

1040 -SB-6

P.D.:0.0
R:100%

SAA

1050 Have finished the subsurface SX at

3819 48th. Will head to 4710 WL to continue grid SX. Calling Marianne to clarify the grid coordinates.

1100 Collecting SX – OU4-3819-EB04.
Continuing to Sx perimeter grids. (at 4710 WL)

1155 GPL courier on site. JT heading over to AU trailer to deliver SX.

1220 Back at 4710WL. JT will start the additional non-grid sampling at 4710 WL with HFA.

1240 Collecting sample OU4-4710 WL-4-SB-A(1) – brown silty soil

1250 Starting to collect OU4-4710 WL-4-SB-B. The boring is located to the (right-if back is to house) left of the driveway when facing the lot from Woodway Lane.

1330 - -4-SB-B

brown silty soil

1400 Spoke to MAJ Plaisted (at Fed Prop trailer) about 3819 48th. P.O. expressed some reservations about sampling his top soil as opposed to a 1' below. MAJ P. suggested it might make sense to get the SX at a deeper level. Will call Lan R.-CENAB to confer.

1415 Conference call with Lan Reeser. → We

should take a 2nd composite at the 12-18" interval and composite for each quadrant (for arsenic—these aren't AUES samples). Essentially we will have 2 samples from each sub location within the quadrant, (0-6") and (12-18").

1420 Back at 4710 WL continuing to sample grids.

1700 Have ended sampling at 4710 WL for the day.

1730 OU4-4710 WL-EB01

1735 OU4-4710 WL-EB02

1810 JT leaving site for the day. We still have about 8.5 rows to complete the sampling at 4710 WL.

Signature of James Taylor

Page 28 **02/08/01**

0710 Arriving at Fed. Property. We will sample 3819 48th quadrant and non-quadrant samples and continue to sample 4710 WL. CPJA, Columbia Technologies and HFA onsite.

0745 Preparing sampling equipment. We will also be taking encore (special VOC sampling device) SX at 4710 QS and 3819 48th street.

0815 Heading out to site. EC/MH will collect (0-6") sample and JT with HFA and Col. Tech will collect the 12-18" samples.

0920 -3819-3 (12-18") (arsenic, not AUES)

brown to yellow brown silty to sandy clay with trace mica

0945 -3819-2 (12-18") (arsenic, not AUES)

brown to yellow brown silty sand

0946 P.O. outside talking to contractors (and James—this is not second hand info). He is concerned about his 6 year old son, 'cause his cat and dog died of cancer. He mentioned that the ridge between AU and UA is artificial and that it had been sampled and was hot. He is not impressed with the way the Army has handled this issue. He will call MAJ Plaisted in 3 weeks to check on the outcome of the sampling.

1010 3819-1 (12-18") (arsenic, not AUES)

brown to tan silty sand

1030 3819-4 (12-18") (arsenic, not AUES)

brown silty clay with quartz crystals

1040 Have finished the quadrant SX. EC/MH will head to 4710 WL and start SX and JT/HFA will do the non-quadrant SX. Col. Tech is done for the day.

1055 CPJA on site to survey flags.

1100 -3819-4 (12") (additional/other samples) (AUES Sample – realistically a 9"-15" sample)

brown silty sand to be sent to SWRI.

1135 -3819-3 (AUES Sample)

brown silty sand with mica

1205 -3819-2 (AUES Sample)

brown to yellow brown silty sand

1245 -3819-1 (AUES Sample)

brown to yellow brown silty sand

1255 Have finished sampling at 3819. Informed P.O. we were done SX. He will call MAJ P. and Susan M. with questions.

1410 Heading to 4710QS to collect additional samples/resample with encore samplers.

Page 30 **02/08/01**

1415 4710QS-4

brown silty soil

1430 4710 QS-3

brown to reddish brown silty soil

1445 4710 QS-1

B.S.S. with trace mica

1500 Have finished sampling at 4710 QS. Will head to 4710 WL to continue grid SX.

1630 Have finished sampling at 4710 WL for the day.

1616 EB02-

1620 EB04

1640 EC/MH off site for the day.

1710 JT heading to FedEx to ship samples to SWRI. Will call Tom B. to update him.

1740 Call Tom B. We reportedly got some perimeter hits at 4710 WL. Will head back to Fed. Property to get COCs for Tom. B. Will fax detailed sheets for Tom B. Printer at Fed. property malfunctioning. Will fax from home.

1748 Done for the day. JT leaving Fed property.

Signature of James Taylor

Abbreviations:

P.O. – Property Owner
PID – Photo ionization detector
R% - percent recovery
SAA – same as above
-3819-SB-1 – Partial sample ID
SX – Sample or Sampling
UA – University Avenue
EB – Equipment Blank

Parsons personnel:
EC – Eric Cheng
JT/JOT – James Taylor
MH – Monica Harrington
Susan M – Susan McQuilkin
Tom B – Tom Bachovchin

MAJ P. – Major Plaisted (USACE)
Lan R – Lan Reeser (USACE)
CPJA – Surveyors
HFA – Anomaly Aviodance/UXO Contractor
Columbia Technologies – Geoprobe Contractor
GPL – Haz Waste Lab Contractor
SWRI – Southwest Research Institute-Lab Contractor

Appendix 4

This appendix responds to comments provided by DC DOH on 23 specific chemicals. Some of DC DOH chemical-specific comments were made in the main body of the report, and some were made in the attachments. USACE has reviewed each of the 23 compounds identified by DC DOH in its comments; the resulting USACE responses are grouped into the following categories:

- Ubiquitous Chemicals
- Hydrocarbons and Combustion Products
- Natural Products
- Analytical Artifacts
- Other Chemicals

USACE maintains the following with regard to the compounds in question:

- 8 of the 23 compounds are likely to have originated as naturally occurring contaminants, or have a large number of industrial sources not associated with the AUES.
- 9 of the 23 compounds are either hydrocarbon constituents of fuels or are products of incomplete wood combustion in fireplaces and woodstoves.
- 3 of the 23 compounds are components of food items.
- 2 of the 23 compounds are almost certainly analytical artifacts.
- The remaining compound is a potential contaminant in a widely used adhesive component.
- None of the 23 compounds listed are experimental chemical warfare agents, and only two could be a precursor compound to a potential agent. Finally, all chemicals are present at levels likely to correspond to a *de minimis* risk.

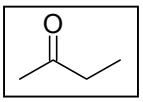
It is worth noting that USACE found several statements by DC DOH that mischaracterize the content of the standard references utilized to discuss the toxicity and potential health impacts of various compounds. The toxicological, production, and occurrence information used to address these chemical-specific comments by DC DOH in the following sections was collected primarily from the following sources:

- EPA Region III Risk-Based Concentration Table (October 2002 and April 2003). Available on line at http://www.epa.gov/reg3hwmd/risk/index.htm
- Hazardous Chemical Desk Reference (Sax, N. I.; Lewis, R. J., Van Nostrand Reinhold, NY, 1987
- Merck Index, (Merck & Co., Inc., Whitehouse Station, NJ)
- EPA, Office of Pollution Prevention and Toxics, Chemical Fact Sheets. Available on line at http://www.epa.gov/opptintr/chemfact/

Ubiquitous Chemicals

Of the 23 compounds listed in DC DOH's Tab B, 8 are likely either to have originated as naturally occurring chemicals or to have large potential sources not associated with the AUES. Furthermore, these chemicals appear likely to be ubiquitous contaminants in an urban residential environment.

2-Butanone

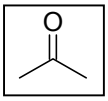


2-Butanone (CAS Registry No. 78-93-3), also known as Methyl Ethyl Ketone (MEK), occurs in the environment at low levels as a natural product (produced by some trees and found in small amounts in some fruits and vegetables). It occurs naturally and has been found in a number of foods and beverages, including Swiss cheese, cream, barley, bread, honey, oranges, black tea, rum, non-alcoholic beverages, and ice cream. It is also released to the air from car and truck exhausts. 2-Butanone is produced in large quantities for use in paints and other coatings, in adhesives, and as a cleaning agent. It is also found in cigarette smoke. Annual production in the United States in the late 1980s was on the order of 500-700 million pounds.

Tab B in the DC DOH report comments that 2-butanone is "toxic by ingestion and dermal, affects peripheral nervous system," citing *Hazardous Chemical Desk Reference* (Sax, N. I.; Lewis, R. J., Van Nostrand Reinhold, New York, 1987). This statement by DC DOH mischaracterizes the content of that reference. A complete reading of Sax and Lewis shows that 2-butanone is "moderately toxic by ingestion, skin contact, and intraperitoneal routes." The moderate toxicity is reflected in EPA Region III's risk-based concentration for residential soil. 2-Butanone was detected at levels ranging from 0.003 to 0.030 mg/kg at the OU4 residential properties, whereas EPA Region III has established a risk-based concentration for residential soil at 46,900 mg/kg. Because 2-butanone is a non-carcinogen, USACE screened the concentrations detected at OU4 using an adjusted risk-based concentration of 4,600 mg/kg.

2-Butanone is not listed on the AUES list of chemicals, and has never been considered either an experimental chemical warfare agent or an agent precursor compound. It is used extensively in industry and is potentially of natural origin. Given its use in consumer products, it is likely to be a ubiquitous contaminant in an urban residential environment.

Acetone



Acetone (CAS Registry No. 67-64-1) is a manufactured chemical that is also found naturally in the environment. It occurs naturally in plants and trees at low concentrations. Low levels of acetone are normally present in the body from the breakdown of fat; the body can use it in normal processes to make sugar and fat. It is present in vehicle exhaust, tobacco smoke, and landfill sites. Acetone is used to make plastic, fibers, drugs, and other chemicals. It is also sold commercially as a solvent and in such consumer products as nail polish remover. The reported total production volume of acetone in the United States was 2.3 billion pounds in 1990. Industrial processes contribute more acetone to the environment than natural processes.

Acetone was detected at levels ranging from 0.027 to 0.120 mg/kg, whereas EPA Region III has established a risk-based concentration for residential soil at 7,800 mg/kg. Because acetone is a non-carcinogen, USACE screened the concentrations detected at OU4 using an adjusted risk-based concentration of 780 mg/kg.

Acetone is not listed on the AUES list of chemicals and has never been considered an experimental chemical warfare agent, although it can be an agent precursor compound. It is used extensively in industry and is potentially of natural origin. Given its use in consumer products, it is likely to be a ubiquitous contaminant in an urban residential environment.

Carbon Disulfide

Carbon disulfide (CS_2, CAS Registry No. 75-15-0) is a natural product of anaerobic biodegradation. It is also used to manufacture viscose rayon, cellophane, carbon tetrachloride, dyes, and rubber. Some solvents, waxes, and cleaners contain carbon disulfide. It is also used as an insecticide. In 1985, commercial production was estimated to be 315 million pounds.

Carbon disulfide was detected at levels ranging from 0.008 to 0.170 mg/kg, whereas EPA Region III has established a risk-based concentration for residential soil at 7,800 mg/kg. Because carbon disulfide is a non-carcinogen, USACE screened the concentrations detected at OU4 using an adjusted risk-based concentration of 780 mg/kg.

Carbon disulfide is listed on the AUES list of chemicals, but it has never been considered either an experimental chemical warfare agent or an agent precursor compound. It is used extensively in industry, is potentially of natural origin, and is likely to be a ubiquitous contaminant in an urban residential environment.

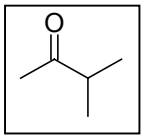
Chloromethane

Chloromethane (CH_3Cl, CAS Registry No. 74-87-3), also known as methyl chloride, is both an anthropogenic and naturally occurring chemical. Anthropogenic sources include industrial production, polyvinyl chloride burning, and wood burning; natural sources include the oceans, microbial fermentation, and biomass fires (e.g., forest fires, grass fires). Other sources of exposure to methyl chloride include cigarette smoke, polystyrene insulation, aerosol propellants, and chlorinated swimming pools. Chloromethane is produced industrially; 994 million pounds were produced in 1994.

Chloromethane was detected at levels ranging from 0.001 to 0.007 mg/kg, whereas EPA Region III has established a risk-based concentration for residential soil at 49 mg/kg. Because chloromethane is a carcinogen, USACE screened the concentrations detected at OU4 using an unadjusted risk-based concentration of 49 mg/kg. (Note: In 2003, the EPA eliminated the risk-based concentration for chloromethane in soil.)

Chloromethane is not listed on the AUES list of chemicals and has never been considered either an experimental chemical warfare agent or an agent precursor compound. It is used extensively in industry, is potentially of natural origin, and is likely to be a ubiquitous contaminant in an urban residential environment.

3-Methyl-2-Butanone

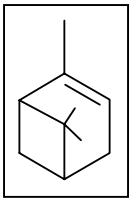


3-methyl-2-butanone (CAS Registry No. 563-80-4) is also known as Methyl Isopropyl Ketone (MIPK). The analysis indicates that there is sufficient evidence to make a tentative identification of MIPK as present in some of the samples. MIPK is used as an intermediate in the synthesis of other chemicals and as an industrial solvent. It may also find some use as a solvent in specialty coatings applications, such as nitrocellulose lacquers. It can be used as an MEK substitute. No production data for MIPK were readily available.

The MIPK concentration was estimated at levels ranging from 0.002 to 0.040 mg/kg; EPA Region III has not established a risk-based concentration for MIPK. Given its structural similarity to MEK, it likely corresponds to a *de minimis* risk.

MIPK is not listed on the AUES list of chemicals and has never been considered either an experimental chemical warfare agent or an agent precursor compound. It is used extensively in industry and is likely to be a ubiquitous contaminant in an urban residential environment.

2,6,6-Trimethylbicyclo[3.1.1]hept-2-ene



2,6,6-Trimethylbicyclo[3.1.1]hept-2-ene (CAS Registry No. 80-56-8) is also known as α-pinene. The analysis indicates that there is sufficient evidence to make a tentative identification of α-pinene as present in some of the samples. α-Pinene is a monoterpene that is a major component of wood turpentine; it is obtained from the resinous sap of pine trees by steam distillation. Terpenes are widely used as solvents for paints, protective coatings, polishes, and waxes; flavorings; deodorants; and medicines (as in the treatment of acne). α-Pinene is continuously emitted into the atmosphere from all plants, mainly from conifers. Estimates of biogenic and anthropogenic emissions indicate that all human exposure to α-pinene is essentially from biogenic sources. No production data for α-pinene were readily available.

The α-pinene concentration was estimated at levels ranging from 0.010 to 0.080 mg/kg; EPA Region III has not established a risk-based concentration for α-pinene. Based on toxicity data for laboratory mammals (LD_{50} of 3,700 mg/kg), this concentration is not anticipated to present any adverse health effects. In addition, α-pinene is recognized as a food additive by the U.S. Food and Drug Administration.

α-Pinene is not listed on the AUES list of chemicals, although turpentine is listed (α-pinene is a component of turpentine). α-Pinene has never been considered either an experimental chemical warfare agent or an agent precursor compound. It is of natural origin, is used extensively in industry, and is likely to be a ubiquitous contaminant in an urban residential environment.

Dichlorodifluoromethane

The DC DOH's Tab B lists "dichlorofluoromethane," whereas the USACE report indicates that dichlorodifluoromethane (CCl_2F_2, CAS Registry No. 75-71-8) was found in samples from the site. Dichlorodifluoromethane is also known as CFC-12. Because it is an ozone-depleting chemical, production of CFC-12 was halted on 1 January 1996. However, prior to being banned, it was used as a refrigerant in domestic and automobile air conditioners, aerosol propellant, foam-blowing agent, and solvent, as well as in the manufacture of fluoropolymers. Peak annual production in the United States was over 500 million pounds.

The CFC-12 concentration was estimated at levels ranging from 0.067 to 0.160 mg/kg; EPA Region III has established a risk-based concentration for CFC-12 in residential soil at 16,000 mg/kg. Because CFC-12 is a non-carcinogen, USACE screened the concentrations detected at OU4 using an adjusted risk-based concentration of 1,600 mg/kg. As an indicator of the non-toxic nature of CFC-12, it is noted that existing stocks continue to be used as propellants in bronchial dilator pharmaceutical preparations.

CFC-12 is not listed on the AUES list of chemicals and has never been considered either an experimental chemical warfare agent or an agent precursor compound. It is almost certainly unrelated to AUES activities; the compound was only discovered in the late 1920s and the first patent application for the manufacture of CFC-12 was filed on 5 April 1930 (Midgley et al., *Manufacture of aliphatic fluoro compounds*, U.S. Patent 1,930,129). It has been used extensively in industry and consumer products and is likely to be a ubiquitous contaminant in an urban residential environment.

Carbonyl Sulfide

Carbonyl sulfide (COS, CAS Registry No. 463-58-1) is also known as carbon oxide sulfide. The analysis indicates that there is sufficient evidence to make a tentative identification of carbonyl sulfide as present in some of the samples. Carbonyl sulfide is a gas at normal temperatures and pressures. It is used as an intermediate in the synthesis of organic sulfur compounds and alkyl carbonates. The compound can be released to the atmosphere naturally from marshes, soils, and deciduous and coniferous trees. It can also be released to the ambient environment as a result of the combustion of sulfur-containing fuels. Anthropogenic emissions have been estimated to be less than one-third of natural emissions.

The carbonyl sulfide concentration was estimated at levels ranging from 0.006 to 0.010 mg/kg; EPA Region III has not established a risk-based concentration for carbonyl sulfide. Based on data summarized by the EPA's Office Pollution Prevention and Toxics (1994), this concentration in soil is not anticipated to present any adverse health effects.

Carbonyl sulfide is not listed on the AUES list of chemicals and has never been considered either an experimental chemical warfare agent or an agent precursor compound. It is used extensively in industry, is potentially of natural origin, and is likely to be a ubiquitous contaminant in an urban residential environment.

Hydrocarbons and Combustion Products

Of the 23 compounds listed in DC DOH's Tab B, 9 are either hydrocarbon constituents of fuels—such as gasoline (octane, *E*-2-octene, 3-methyleneheptane)—or are aldehydes (acetaldehyde, hexanal, 5-methylhexanal, octanal, pentanal, 14 octadecenal). Aldehydes are formed as a result of incomplete wood combustion in fireplaces, woodstoves, forest fires, and wildfires. They are also produced during pulp and paper production and emitted from stationary internal combustion engines and turbines, vehicle exhaust, and wastewater processing. The analysis indicates that there is sufficient evidence to make a tentative identification of these compounds as present in some of the samples.

These compounds are not listed on the AUES list of chemicals and they have never been considered either an experimental chemical warfare agent or an agent precursor compound. They are mostly of natural origin and used to a minor degree in industry; some are components of gasoline and other fuels. They are likely to be a ubiquitous contaminant in an urban residential environment. Estimated concentrations are given in Table App.4-1.

Table App.4-1: Estimated Concentrations of Hydrocarbons and Combustion Products

Compound	Synonym	CAS Registry No.	Estimated concentration (µg/kg)
Octane		111-65-9	8-20
E-2-octene	Trans-2-octene	13389-42-9	7-60
3-methyleneheptane	2-ethyl-1-hexene	1632-16-2	6-10
Acetaldehyde		75-07-0	4-40
Hexanal		66-25-1	10-100
5-methylhexanal		1860-39-5	3-10
Octanal		124-13-0	4-20
Pentanal isomer 1		NA	3-30
14 octadecenal		NA	180

In Tab B, DC DOH states that acetaldehyde "causes respiratory paralysis" and cites the Ninth Edition of the Merck Index. This statement mischaracterizes the content of that reference and fails to take into account the concentration of the chemical reported at the OU4 properties. The Merck Index entry for acetaldehyde notes that "large doses may cause death by respiratory paralysis" and provides an oral LD_{50} of 1.9 g/kg in laboratory rats; this roughly corresponds to a dose of 140 g for 70 kg human. At soil concentrations of 0.040 mg/kg, acute poisoning would require consumption of over 3,000 metric tons of soil. Although children are potentially more susceptible, they would still need to consume many times their body weight in contaminated soil in order to experience toxic effects. EPA Region III does not list an RBC for acetaldehyde in soil, likely because it is essentially non-toxic by ingestion as demonstrated by its use as a flavoring agent. Acetaldehyde is a by-product of yeast production and is a naturally occurring compound in wine, bread, soy sauce, and other yeast-fermented products.

Tab B in the DC DOH report states that octane is an "asphyxiant and blister agent" and cites Sax and Lewis. This statement mischaracterizes the content of the reference. Sax and Lewis write that octane "may act as a simple asphyxiant." Elsewhere, the reference describes the action of a simple asphyxiant as "excluding O_2 from the lungs. The effect of simple asphyxiant gases is proportional to the extent to which they diminish the amount (partial pressure) of O_2 in the air that is breathed." Parts per million levels in soil will not significantly diminish the amount of oxygen in the air that is breathed. Similarly, Sax and Lewis write that "human dermal exposure to undiluted octane for five hours resulted in blister formation." This effect is unrelated to the class of chemical warfare agents classified as blister agents and is very unlikely to occur at the levels found in the samples.

Tab B of the DC DOH's comments states that hexanal is "toxic [by] ingestion and inhalation, (acrid smoke)," citing Sax and Lewis. This statement mischaracterizes the content of that reference. Sax and Lewis write that hexanal is "mildly toxic" and "when heated to decomposition, it emits acrid smoke and fumes." The oral LD_{50} for hexanal in laboratory rats is 4,890 mg/kg, which corresponds to a dose of 342 grams (0.8 lb) for an adult human. At soil concentrations on the order of 0.100 mg/kg, acute poisoning would require consumption of over 3,000 metric tons of soil.

Natural Products

Of the 23 compounds listed in Tab B of the DC DOH's comments, 3 are major components of a number of food items, are likely to have originated as naturally occurring contaminants, or have large potential sources that are not associated with the AUES.

Hexadecanoic Acid

Hexadecanoic acid (CAS Registry No. 57-10-3) is also known as palmitic acid. The analysis indicates that there is sufficient evidence to make a tentative identification of this compound as present in some of the samples.

The DC DOH's Tab B confuses "hexadecanoic acid" with "decanoic acid." The DC DOH material on hexadecanoic acid indicates that "decanoic acid is a poison (acrid smoke)." Decanoic acid (chemical formula $C_{10}H_{20}O_2$) is a different chemical compound than hexadecanoic acid (chemical formula $C_{16}H_{32}O_2$). Sax and Lewis have an entry under "palmitic acid" that indicates that it is a poison by the intravenous route; the substance is essentially non-toxic by the oral route. Sax and Lewis also write that when heated to decomposition, it emits acrid smoke and irritating fumes; the relevance of smoke generation, as cited in the DC DOH report, to parts per billion levels in soil is unclear. Palm oil contains 44 percent palmitic acid esters; other natural

oils contain significant quantities of palmitic acid esters. Enzymatic digestion of the oil produces the free acid.

The palmitic acid concentration was estimated at levels ranging from 0.089 to 0.670 mg/kg. EPA Region III has not established a risk-based concentration for palmitic acid, most likely because it is essentially non-toxic and is a major component of many food items.

Palmitic acid is not listed on the AUES list of chemicals and has never been considered either an experimental chemical warfare agent or an agent precursor compound. It is of natural origin, is used extensively in industry, and is likely to be a ubiquitous component of the environment.

Oleic Acid

Oleic Acid (CAS Registry No. 112-80-1) is also known as Z-9- octadecenoic acid. The analysis indicates that there is sufficient evidence to make a tentative identification of this compound as present in some of the samples.

The DC DOH's Tab B states that oleic acid is a "poison and skin irritant," citing Sax and Lewis. This statement mischaracterizes the content of that reference. Sax and Lewis write that oleic acid is a "poison by intravenous route;" they also cite toxicological data for laboratory rats indicating an intravenous LD_{50} of 2,400 μg/kg versus an oral LD_{50} of 74 g/kg; this indicates that oleic acid is 30,000 times less toxic by ingestion. Olive oil contains 55-85 percent oleic acid esters. Extra virgin olive oil can have up to 1 percent free oleic acid, virgin between 1 and 3 percent free oleic acid. Other natural oils contain significant quantities of oleic acid esters. Enzymatic digestion of these oils produces the free acid.

The oleic acid concentration was estimated at levels ranging from 0.130 to 4.20 mg/kg; EPA Region III has not established a risk-based concentration for oleic acid, most likely because it is essentially non-toxic and is a major component of many food items.

Oleic acid is listed on the AUES list of chemicals, but it has never been considered either an experimental chemical warfare agent or an agent precursor compound. It is of natural origin, is used extensively in industry, and is likely to be a ubiquitous component of the environment.

1-Eicosanol

The analysis indicates that there is sufficient evidence to make a tentative identification of 1-eicosanol (CAS Registry No. 629-96-9) as present in some of the samples. 1-Eicosanol is used by plants and animals to make wax, which is a mixture of esters of long-chain alcohols and long-chain carboxylic acids. The alcohol has been found in the secretions from the abdominal tips of queen bees, and beeswax samples have included eicosyl hexadecanoate and eicosyl octadecanoate. It is also present in plant waxes, including Jojoba wax.

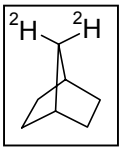
The 1-eicosanol concentration was estimated at levels ranging from 0.190 to 0.200 mg/kg. EPA Region III has not established a risk-based concentration for 1-eicosanol, most likely because it is essentially non-toxic and is a major component of a number of natural products.

1-Eicosanol is not listed on the AUES list of chemicals and has never been considered either an experimental chemical warfare agent or an agent precursor compound.

Analytical Artifacts

Of the 23 compounds listed in the DC DOH's Tab B, 2 are likely to be analytical artifacts—false positives—because they are not present in the soil samples collected from the OU4 residential locations. These compounds are unlikely to be present in the soil at AUES.

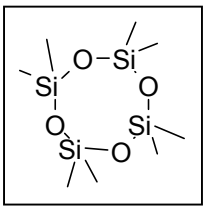
Bicyclo[2.2.1]heptane-7,7-d



Bicyclo[2.2.1]heptane-7,7-d is almost certainly a misidentified substance or an analytical artifact. The analysis indicates that this is a tentatively identified compound (TIC). In practice, TICs result from analyses using gas chromatography/mass spectrometry (GC/MS) when a compound not on the target analyte list is detected. The instrument compares the pattern of ions produced in the MS part of the instrument with a computer library and tentatively identifies the compound with the library spectrum that provides the best match. In this case, the best match apparently was an isotopically-labeled compound that is unlikely to occur outside a laboratory. It almost certainly would not result from AUES activities, as isotopically labeled compounds did not become common research tools until well after World War II. Isotopically labeled compounds have never been considered either experimental chemical warfare agents or agent precursor compounds.

It is possible that identification could be made by an analyst reviewing the reconstructed ion chromatogram from the data package. However, it is very likely that this is a monoterpene (similar in structure to α-pinene) of some sort; a more specific identification may not be possible. Given that the concentration of this compound is estimated at 0.006 to 0.050 mg/kg, further effort at identification may not be reasonable.

Octamethylcyclotetrasiloxane

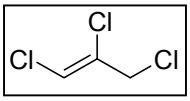


Octamethylcyclotetrasiloxane (CAS Registry No. 556-67-2) is an analytical artifact. Traditional polysiloxane-type GC column stationary phases degrade at elevated temperatures. The degradation process is well documented and consists of the thermal rearrangement of the siloxane backbone to produce cyclosiloxanes, such as octamethylcyclotetrasiloxane. These compounds are volatile and elute from the column as column "bleed". The estimated concentrations reported (0.003 to 0.010 mg/kg) are typical of column bleed; the likelihood that this substance was present in the samples as taken is very small. Where octamethylcyclotetrasiloxane is a suspected contaminant, the analysis must be performed using an extra-low bleed capillary column to avoid this potential for interference.

Other Chemicals

There was only one chemical that could not be characterized within the other groups listed above.

1,2,3-Trichloropropene



The analysis indicates that there is sufficient evidence to make a tentative identification of 1,2,3-trichloropropene (CAS Registry No.96-19-5) or a similar compound as present in some of the samples. 1,2,3-Trichloropropene is generally found as a contaminant of epichlorohydrin, which is used in turn to manufacture glycerin and unmodified epoxy resins.

The 1,2,3-trichloropropene concentration was estimated at levels ranging from 0.100 to 0.280 mg/kg, whereas EPA Region 3 has established a risk-based concentration for residential soil at 390 mg/kg. Because 1,2,3-trichloropropene is a non-carcinogen, USACE screened the concentrations detected at OU4 using an adjusted risk-based concentration of 39 mg/kg.

1,2,3-trichloropropene is not listed on the AUES list of chemicals; 1,2,3-trichloropropane, which is on the list, is a different substance. 1,2,3-Trichloropropene has never been considered an experimental chemical warfare agent, although it can be an agent precursor compound.