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.

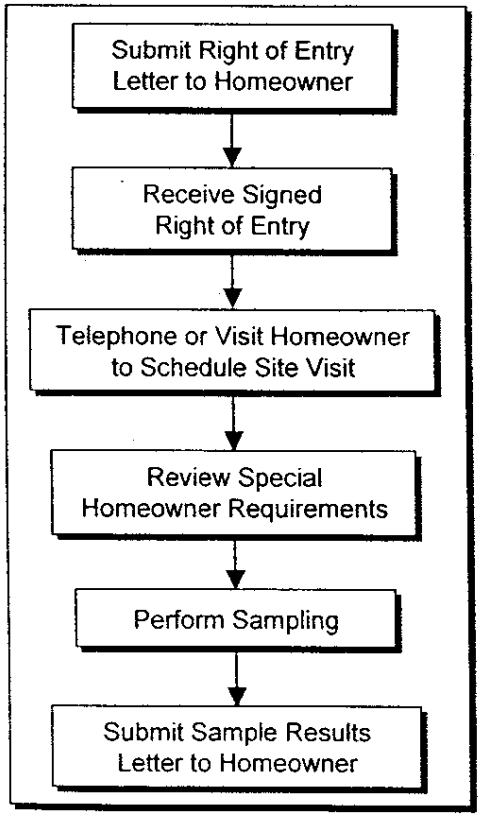
1.5.9.2 During sampling, it is anticipated that Ms. McQuilkin will be on site at the CENAB trailer located at the Federal Property.

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