

SITE INVESTIGATION REPORT FOR FORMER BUILDING 623 PCB STORAGE FACILITY

FORT MONMOUTH, NEW JERSEY

**BRAC 05 Facility
Contract W912DY-09-D-0062
Task Order: 0012, Project No. 369857**

Submitted To:

**U.S. Army Engineering and Support Center
Huntsville, Alabama**



Prepared By:

PARSONS

401 Diamond Dr. NW, Huntsville, AL 35806

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LIST OF ACRONYMS

ACRONYM	DEFINITION
µg/kg	micrograms per kilogram
bgs	below ground surface
BRAC	Base Realignment and Closure
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
cfm	cubic feet per minute
CFR	Code of Federal Regulation
COC	chain-of-custody
ECP	Environmental Condition of Property
FTMM	Fort Monmouth
HEPA	high-efficiency particulate air
LUCs	Land Use Controls
mg/kg	milligrams per kilogram
MP	Main Post
NCP	National Contingency Plan
ND	Non-Detect
NFA	no further action
NJAC	New Jersey Administrative Code
NJDEP	New Jersey Department of Environmental Protection
NRDCSCC	Non-Residential Direct Contact Soil Cleanup Criteria
PCB	polychlorinated biphenyl
ppm	parts per million
RDCSRS	Residential Direct Contact Soil Remediation Standards
RI/FS	remedial investigation/feasibility study
RSL	Regional Screening Level
SI	Site Investigation
TRSR	Technical Requirements for Site Remediation
TSCA	Toxic Substance Control Act
UCL	95 Upper Confidence Limit
USAESCH	United States Army Engineering & Support Center, Huntsville
USEPA	United States Environmental Protection Agency
UU/UE	unrestricted use/unrestricted exposure

1.0 INTRODUCTION

This Site Investigation (SI) report presents an evaluation of the potential release of hazardous substances at the former Building 623 Polychlorinated Biphenyl (PCB) Storage Facility, Fort Monmouth (FTMM), Oceanport, New Jersey. Building 623 was demolished in 1993, and was located within a small portion of Environmental Condition of Property (ECP) Parcel 51 (Figure 1). The location of former Building 623 is now partially overlain by the Building 600 McAfee Center (Figure 2). Correspondence notifying the United States Environmental Protection Agency (USEPA) of PCB decontamination activities at former Building 623 is provided in **Appendix A**.

1.1 OBJECTIVES

This SI report presents the results of previous evaluations of the former Building 623 site to determine if additional evaluation or remediation is recommended. This SI has been prepared in compliance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); the National Contingency Plan (NCP), Title 40 of the Code of Federal Regulation (40 CFR) Part 300; and to the extent possible to meet the requirements of New Jersey Administrative Code (NJAC) 7:26E Technical Requirements for Site Remediation (TRSR). In accordance with 40 CFR 300.420(c), the primary objective of this SI is to determine if the site can be eliminated from further consideration based on the demonstration that site releases pose no significant threat to public health or the environment. Alternatively, if this SI determines that further action is recommended, then a remedial investigation/feasibility study (RI/FS) or a removal action may be performed.

In accordance with CERCLA, the recommendation for additional consideration or no further action (NFA) will be based on assessment of the following:

- A description, history, and nature of waste handling;
- A description of known contaminants;
- A description of migration pathways for contaminants; and
- An identification and description of human and environmental targets.

Additional objectives of this SI include the following:

- Determine if the site is in compliance with applicable New Jersey Department of Environmental Protection (NJDEP) unrestricted use remediation standards; and
- Support the closure of environmental sites to facilitate the efficient transfer of real property to other parties.

1.2 FACILITY DESCRIPTION AND HISTORY

FTMM is located in the central-eastern portion of New Jersey in Monmouth County, approximately 45 miles south of New York City, New York; 70 miles northeast of Philadelphia, Pennsylvania; and 40 miles east of Trenton, New Jersey. The Atlantic Ocean is approximately 3 miles to the east. Former Building 623 is located within the Main Post (MP) area of Fort Monmouth (**Figure 1**). FTMM's MP was selected for closure by the Base Realignment and Closure (BRAC) Commission in 2005, and officially closed on September 15, 2011. The portion of the MP where former Building 623 is located is within the Oceanport Borough.

Figure 2 shows the location of former Building 623, which was located near the intersection of Sherrill Avenue and Harmon Avenue. Building 623 was a 2,592 square feet wooden structure constructed on a concrete floor that was built approximately 1941. It was originally designated as a general instrument building. In 1978, Building 623 became the central PCB storage facility for Fort Monmouth, and was used in that capacity until building decontamination in 1992. A description of the building decontamination activities is presented in Section 3.1 and **Appendix B**. Building 623 was demolished in approximately May 1993. The existing 123,000 square feet Building 600 McAfee Center was constructed over the former Building 623 site by 1997 (**Figure 2**).

1.3 DOCUMENT ORGANIZATION

This report includes the following sections:

- Section 1 provides an introduction and organization to the report;
- Section 2 presents the methodology for the SI;
- Section 3 presents the results of the SI;
- Section 4 summarizes the conclusions and recommendations;
- Section 5 presents the references cited;
- Appendix A provides the regulatory correspondence for this site;
- Appendix B provides documentation of Building 623 decontamination activities; and
- Appendix C provides the soil sample analytical data, including notes on methodology and sample locations.

2.0 SITE INVESTIGATION METHODOLOGY

2.1 FIELD INVESTIGATION

Following completion of building decontamination and demolition in 1993, soil samples were collected from below the former Building 623 location by field staff of EMSL Analytical Services. A summary of the soil sampling procedures and locations is provided in **Appendix C**. Soil samples were collected from each node of a grid pattern with 15 ft spacing between samples (see **Figure 3**). A total of 24 samples were collected from each of three depth intervals: 0 to 6 inches, 18 to 24 inches, and 36 to 42 inches below ground surface (bgs). The sample equipment was decontaminated between sample locations, and included the following:

- A stainless steel trowel to collect the surface (0 to 6 inches bgs) sample;
- A power auger to remove soil from above the top of the deeper sample intervals; and
- A hand auger to sample soils from the deeper sample intervals (18 to 24 inches bgs, and 36 to 42 inches bgs).

2.2 COMPARISON CRITERIA

Site soil concentrations were compared to the NJAC 7:26D Remediation Standards, as summarized below:

- The NJDEP Residential Direct Contact Soil Remediation Standards (RDCSRS) for total PCBs is 0.2 milligrams per kilogram (mg/kg).
- The NJDEP Impact to Ground Water Soil Screening Level for PCBs is also 0.2 mg/kg.

2.3 SAMPLE MANAGEMENT AND ANALYSIS

Site soil samples were transported to EMSL Analytical Services of New Jersey under Chain of Custody (COC) documentation. Soil samples were analyzed for PCBs (**Appendix C**).

2.4 QUALITY CONTROL

Site soil samples were accompanied by a field blank sample during transport from the field; there were no PCBs detected in either of two field blanks.

3.0 SITE INVESTIGATION RESULTS

3.1 SITE DESCRIPTION AND HISTORY

Building 623 served as Fort Monmouth's PCB storage facility, and was used from 1978 to 1992 to store PCB-contaminated transformers and oils prior to offsite disposal. FTMM Real Property records indicate that the total area of Building 623 was 2,592 square feet (25'-4" wide by 102'-4" long). Building 623 was a one-story wood structure constructed on a concrete slab that was built in 1941. The building was originally used for administrative and supply functions until 1976, and in 1978 it became Fort Monmouth's central PCB storage area. The building had three interior storage areas, and a separate office area. There was an 8-inch high concrete block interior dike along the building perimeter that served as secondary containment. Minor spills of PCB-class electrical oil were reported to have occurred within the building, and prior to building decontamination, PCB concentrations were assumed by the Army to exceed 500 parts per million (ppm) within the concrete floor in localized areas. The PCB storage function at Building 623 was replaced in 1992 with a PCB storage facility at Building 123, which was located approximately 4,500 feet east-northeast of Building 623 within the MP Central Hazardous Waste Storage area. Building 623 was subsequently decontaminated from December 1992 to January 1993 (as described further below), and then was demolished in May 1993. The existing 123,000 square foot Building 600 McAfee Center was constructed over the former Building 623 site by 1997; as shown on **Figure 2**, approximately the southern half of the former Building 623 footprint lies underneath the McAfee Center.

To address PCB contamination within Building 623, Fort Monmouth contracted with Dooley Environmental of Marlton, New Jersey in 1992 for building decontamination services, which included scarifying the top ¼-inch surface of the Building 623 concrete floor for PCB removal. A completion report prepared by Dooley is presented in **Appendix B**, and provides additional documentation of the building decontamination activities. A brief summary of the building decontamination activities performed by Dooley is presented below.

Prior to concrete removal, airtight enclosures were established within the building that maintained negative air pressure to mitigate the potential for cross contamination with other building surfaces. Ventilation was maintained using two 2,000 cubic feet per minute (cfm) air compressors, with exhaust air treated using high-efficiency particulate air (HEPA) and organic air filters. All interior walls and ceilings were lined with 6-mil polyethylene sheeting prior to decontamination. Linoleum floor tiles overlying portions of the concrete floor were removed first and placed in drums for disposal as PCB wastes. The top ¼-inch surface of the concrete was removed using a Blast-Trac shot blast apparatus, which included a vacuum assembly to collect the resulting concrete dust, followed by HEPA filtration. Steel shot used to remove the concrete was disposed of along with the concrete in steel open-top drums as PCB-contaminated waste.

Following the initial removal of the top ¼-inch surface of the concrete floor, Fort Monmouth environmental personnel collected wipe samples and concrete chip samples for confirmation PCB analysis. As a result, another 100 square feet of concrete floor area was designated for further removal to an additional depth of 1¼ inches.

Building decontamination activities were completed by January 1993. Following concrete removal, all interior building areas were vacuumed with HEPA vacuums. The removed

concrete, crushed block (from the secondary containment dike), plastic sheeting, PPE, steel shot, and HEPA and other filters were drummed, labeled, and shipped offsite under manifest for disposal at the Westinghouse-Aptus hazardous waste and Toxic Substance Control Act (TSCA) licensed incinerator facility in Coffeyville, Kansas. A total of 41 drums of waste were shipped offsite for disposal in April 1993.

Building demolition was performed on or about May 1993, which included removal of the wooden structure and the remaining concrete floor slab.

3.2 CONCEPTUAL SITE MODEL

A conceptual site model (CSM) is a description of a site and its environment that can be used to depict the nature of potential contamination, its location, and the possible interactions of human and environmental receptors with that contamination. The CSM for Building 623 is based on historical information and the physical characteristics of the building construction. As noted above, Building 623 was formerly used for storage of PCB transformers. Minor spills of PCB-class electrical oil were reported to have occurred within Building 623, and these minor spills would have been released to the concrete floors within the three storage areas within the building. An 8-inch high concrete block interior dike along the building perimeter served as secondary containment for any minor spills. The presence of floor drains within Building 623 has not been reported. Based on this configuration, the CSM for Building 623 includes minor PCB spills that were contained on the concrete floor within the building footprint. PCB transformer storage functions were transferred to another location in 1992, and Building 623 was subsequently decontaminated by concrete removal under controlled conditions, and then demolished in 1993. PCBs may have been released to the soil underlying the Building 623 through cracks or leaks in the concrete. PCBs absorb strongly to soil if present.

The anticipated future land use at the Building 623 area is for office buildings, and research and development (EDAW, Inc., 2008). Therefore, potentially complete exposure pathways might result in exposure of intrusive and non-intrusive site workers, site visitors, and recreational users to PCBs in soil. Although the property is not currently designated for residential use, the property is being transferred out of Army control. Therefore, in the absence of Land Use Controls (LUCs), the site will also be evaluated for unrestricted use/unrestricted exposure (UU/UE).

3.3 PREVIOUS INVESTIGATIONS

Prior to the soil sampling described in Section 3.4 below, there were no previous investigations of PCBs in environmental media such as soil or groundwater. However, correspondence to USEPA provided in **Appendix A** describes additional sampling and analysis of various building materials and interior air prior to decontamination of the concrete floor.

3.4 SITE INVESTIGATION SAMPLING

Following demolition of Building 623, soil sampling was performed from the general area of the building footprint. Soil sample locations are presented in **Figure 3**, and a summary of sampling information is presented in the December 9, 1993 EMSL letter provided in **Appendix C**. The field sampling activities are also described in Section 2.1. A total of 24 locations were sampled from 3 discrete sample depths, resulting in a total of 72 environmental samples.

3.5 SITE INVESTIGATION RESULTS

The PCB analytical results from soil underlying the former Building 623 are presented in **Table 1**, and the analytical data packages are provided in **Appendix C**. There were no PCB isomers detected in 69 of the 72 soil samples collected from below the former Building 623. However, PCBs were detected in the following three soil samples:

- 0.8 mg/kg of total PCBs was detected in soil sample SS-8 at a depth of 0 to 6 inches bgs;
- 1.1 mg/kg of total PCBs was detected in soil sample SS-13 at a depth of 0 to 6 inches bgs; and
- 1.2 mg/kg of total PCBs was detected in soil sample SS-13 at a depth of 18 to 24 inches bgs.

Individual PCB isomers that were detected included Aroclor-1016 (sample SS-8 at 0 to 6 inches bgs), Aroclor-1260 (sample SS-13 at 0 to 6 inches bgs), and Aroclor 1254 (sample SS-13 at 18 to 24 inches bgs). None of the individual Aroclor isomers were detected twice, or within the same sample; therefore, the individual isomer concentrations are the same as total PCB concentrations for each of these samples.

Two soil sample locations (SS-8 and SS-13) contained detected PCBs in excess of the comparison criteria. As shown on **Figure 3**, none of the sample locations surrounding SS-8 contained detectable concentrations of PCBs, and therefore the exceedance was horizontally delineated. Similarly, none of the sample locations to the north, east, and south of sample location SS-13 contained detectable concentrations of PCBs; there is no sample location to the west of SS-13. However, it is likely that any PCB oils released inside the building were contained by the 8-inch high concrete block interior dike along the building perimeter. In addition, a road was present during building operation (as well as during the 1993 sampling event) immediately west of the former Building 623, which provided a physical barrier to the west that helps define the site-related contamination in soil. The road west of Building 623 appears to be paved in a 1974 aerial photograph (**Figure 4**), based on the presence of parking stripes immediately west of the road. Since a physical barrier constrained the PCB contamination in soil to the west, the horizontal delineation of the SS-13 exceedance can be considered to be complete. Both SS-8 and SS-13 sample locations were adequately delineated vertically as demonstrated by non-detected PCB results in the lower sample intervals.

Each of the three samples with detected PCB results exceeded the RDCSRS for total PCBs of 0.2 mg/kg. Therefore, additional assessment of the results was performed using compliance averaging in accordance with the NJDEP (2012) *Technical Guidance for the Attainment of Remediation Standards and Site-Specific Criteria*.

3.6 COMPLIANCE AVERAGING AND ADDITIONAL CONSIDERATIONS

In accordance with NJDEP (2012) guidance, compliance averaging was performed using the arithmetic mean, which is applicable in circumstances where there are two or fewer distinct sample values, or nine or fewer total sample points. For the former Building 623 site, the data sets evaluated in the functional areas meet both of these situations.

As shown on **Table 1**, the Building 623 soil dataset consists of many nondetected sample points. Therefore, the data set was further refined by focusing on the central area of the building where the detections were found to reduce possible concerns with “diluting” the data set with uncontaminated samples. **Figure 5** presents the area of the sample data set used for compliance averaging, which is comprised of sample locations SS-7 through SS-15. This designated area represents the horizontal functional area for the compliance averaging and is biased toward the worst case contaminant concentrations. In this manner, the calculated average was based upon the soil results in the immediate vicinity of soil samples with detected PCBs. In addition, two vertical functional areas were evaluated: one from 0 to 1 foot and another from 1 to 2 feet. Each of the functional areas is consistent with the use of compliance averaging using the arithmetic mean in that two distinct sample values were present for the 0 to 1 foot functional area (SS-8 and SS-13 at 0 to 6 inches bgs interval), and only one distinct sample value was present for the 1 to 2 foot interval (SS-13 at the 18 to 24 inch depth interval). Each of these functional areas also meets the maximum data size of 9 samples for calculating a compliance average using the arithmetic mean, as specified in the NJDEP (2012) guidance. While the NJDEP (2012) guidance does not provide specifics on the geographic distribution of data for use of the arithmetic mean, the sample configuration within the functional areas as described above is believed to meet the intent of the technical guidance.

The arithmetic mean was calculated using 0 as the substitute value for each non-detect sample result, in accordance with NJDEP (2012) guidance. The compliance average was calculated for the total PCB concentrations for comparison with the NJDEP RDCSRS. As presented in **Table 2**, the compliance average for total PCBs meets the RDCSRS of 0.2 mg/kg; therefore, the average PCB result complies with unrestricted use standards, and there are no site releases that pose a significant threat to public health or the environment.

An additional consideration for the former Building 623 site is the low likelihood that PCB contamination is still present at the locations sampled in 1993. The Building 600 McAfee Center was constructed in 1997 over approximately half of the former Building 623 location, as shown on **Figure 2**. The approximate location of the northern edge of the existing Building 600 is also shown on **Figure 5** along with the soil sample locations, based on careful scaling of the Building 623 and Building 600 positions from available historical maps and aerial photographs. There is no basement for Building 600; however, the excavation of soil for placement of the spread footing for the foundation could be expected to disturb the soil near and below the building perimeter. Therefore, both sample locations at location SS-13 with detectable PCBs may have been excavated during construction of Building 600. Additional movement or mixing of surface soils during construction of Building 600 due to landscaping activities may have also disturbed

sample location SS-8, which is now a grass landscaped area. Therefore, when considering the later construction of Building 600, it is uncertain that the detected PCB concentrations are still present at the previously sampled locations. However, this uncertainty is mitigated by the meeting of UU/UE criteria as determined by the compliance averaging evaluation.

3.7 SUMMARY OF FINDINGS

Following is a summary of SI findings in accordance with the reporting requirements of 40 CFR 300.420(c)(5). Former Building 623 was used from 1976 to 1992 for storage of PCB-contaminated oils and transformers. The CSM indicates that some minor leakage of PCB-contaminated oils occurred onto the concrete floor, which was likely contained by the 8-inch high concrete block interior dike along the building perimeter. The concrete floor was decontaminated by removal of the upper ¼-inch to 1¼-inch of concrete from the top surface. The building was then demolished in 1993, and soil samples were collected along a grid pattern from beneath the former building. PCBs were detected in only 3 of the 72 soil samples collected from the underlying soils, and individual sample concentrations exceeded the current RDCSRS for total PCBs.

The pathway of migration from the PCB storage area to the underlying soils is not precisely known, but could have resulted from cracks or leakage within the concrete building with subsequent infiltration into soils. Potential human receptors include site workers, site visitors, and recreational users, depending on future land use.

Additional evaluation of the soil results was performed using compliance averaging (arithmetic mean) consistent with NJDEP (2012) guidance. The arithmetic mean concentration of total PCBs in soil meets the RDCSRS, which is the NJDEP criterion for unrestricted use. There is some uncertainty concerning the current location of the PCBs detected in soils, since subsequent construction of the Building 600 McAfee Center would have resulted in disturbance (such as removal or blending) of the previous sample locations.

Since the average concentration of site soils meets unrestricted use standards, no further action is recommended for this site.

4.0 CONCLUSIONS AND RECOMMENDATIONS

Soil sampling conducted in 1993 indicated exceedance of unrestricted use comparison criteria in a limited number of samples. However, compliance averaging results for the data set indicate that the soil complies with UU/UE criteria. Based on this evaluation, no further action is recommended for the former Building 623 PCB Storage Facility.

5.0 REFERENCES

- EDAW, Inc. 2008. *Fort Monmouth Reuse and Redevelopment Plan, Final Plan*. Prepared for Fort Monmouth Economic Revitalization Planning Authority. August 22.
- New Jersey Administrative Code (NJAC). 2012b. *Remediation Standards, NJAC 7:26D*. May 7. Available at: http://www.nj.gov/dep/rules/rules/njac7_26d.pdf
- New Jersey Administrative Code (NJAC). 2012b. *Technical Requirements for Site Remediation (TRSR), NJAC 7:26E*. May 7. Available at: http://www.nj.gov/dep/rules/rules/njac7_26e.pdf
- New Jersey Department of Environmental Protection (NJDEP). 2012. *Technical Guidance for the Attainment of Remediation Standards and Site-Specific Criteria*. Site Remediation Program; Version 1.0. September 24. Available at: http://www.nj.gov/dep/srp/guidance/srra/attainment_compliance.pdf
- United States Environmental Protection Agency (USEPA). 2015. *Regional Screening Level (RSL) Summary Table (TR=1E-6, HQ=1), June 2015 (Revised)*. Available at: http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/Generic_Tables/index.htm

TABLES

Table 1	Summary of Soil PCB Results
Table 2	Results of Compliance Averaging

Table 1
Summary of Soil PCB Results ^{a/}
Building 623 Former PCB Storage Facility
Fort Monmouth, New Jersey

Sample Number	0 to 6 inch Depth (mg/kg)	18 to 24 inch Depth (mg/kg)	36 to 42 inch Depth (mg/kg)
SS1	<0.2 ^{b/}	<0.2	<0.2
SS2	<0.2	<0.2	<0.2
SS3	<0.2	<0.2	<0.2
SS4	<0.2	<0.3	<0.2
SS5	<0.2	<0.2	<0.2
SS6	<0.2	<0.2	<0.2
SS7	<0.2	<0.2	<0.2
SS8	0.8 (Aroclor-1016)	<0.2	<0.2
SS9	<0.2	<0.2	<0.2
SS10	<0.2	<0.2	<0.2
SS11	<0.2	<0.2	<0.2
SS12	<0.2	<0.2	<0.2
SS13	1.1 (Aroclor-1260)	1.2 (Aroclor-1254)	<0.2
SS14	<0.2	<0.2	<0.2
SS15	<0.2	<0.2	<0.2
SS16	<0.2	<0.2	<0.2
SS17	<0.2	<0.2	<0.2
SS18	<0.2	<0.2	<0.2
SS19	<0.2	<0.2	<0.2
SS20	<0.2	<0.2	<0.2
SS21	<0.2	<0.2	<0.2
SS22	<0.2	<0.2	<0.2
SS23	<0.2	<0.2	<0.2
SS24	<0.2	<0.2	<0.2

^{a/} Concentrations represent the sum total of combined Aroclor isomers.

^{b/} Indicates that no PCB isomers were detected at or above the Reporting Limit (RL) shown; Method Detection Limits (MDLs) were not reported by the laboratory.

Table 2
Results of Compliance Averaging
Building 623 Former PCB Storage Facility
Fort Monmouth, New Jersey

Total PCBs

Sample Number	0 to 6 inch Depth (mg/kg)	18 to 24 inch Depth (mg/kg)
SS7	0	0
SS8	0.8	0
SS9	0	0
SS10	0	0
SS11	0	0
SS12	0	0
SS13	1.1	1.2
SS14	0	0
SS15	0	0
Average:	0.2	0.1
<i>Comparison Criteria</i> ^{1/} :	0.2	0.2

^{1/} NJAC 7:26D Residential Direct Contact Soil Remediation Standard (RDCSRS).

FIGURES

- Figure 1 Site Location
- Figure 2 Vicinity of Former Building 623
- Figure 3 Soil Sample Locations
- Figure 4 1974 Aerial Photograph of Building 623 and Vicinity
- Figure 5 Samples Locations Used for Compliance Averaging

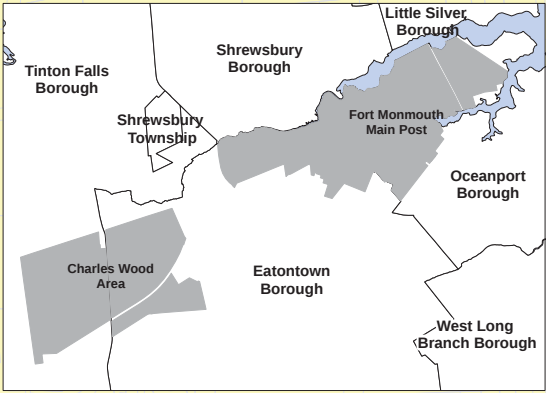


Figure 1 - Site Location

Former Building 623 PCB Storage Area

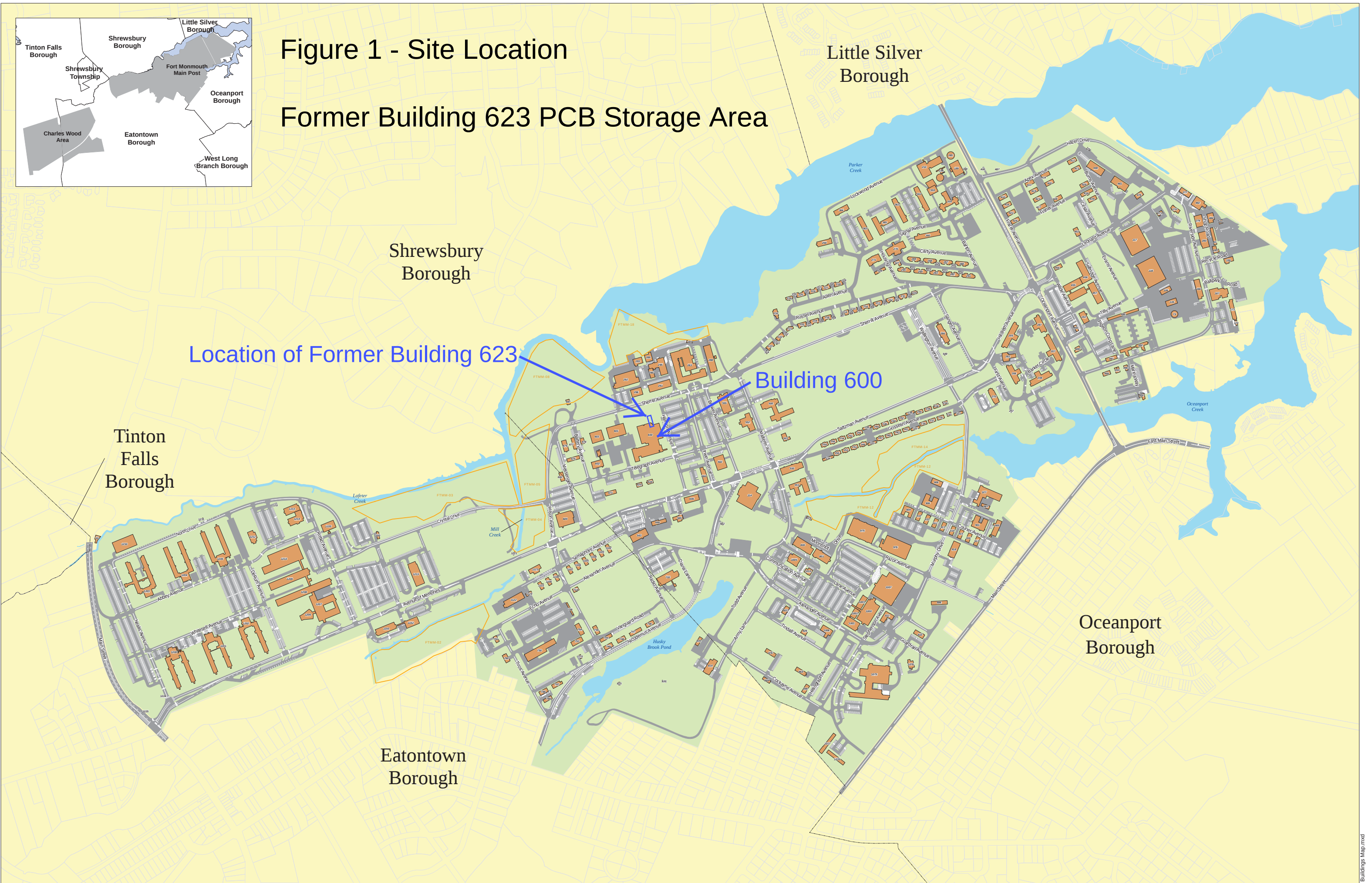




Figure 2

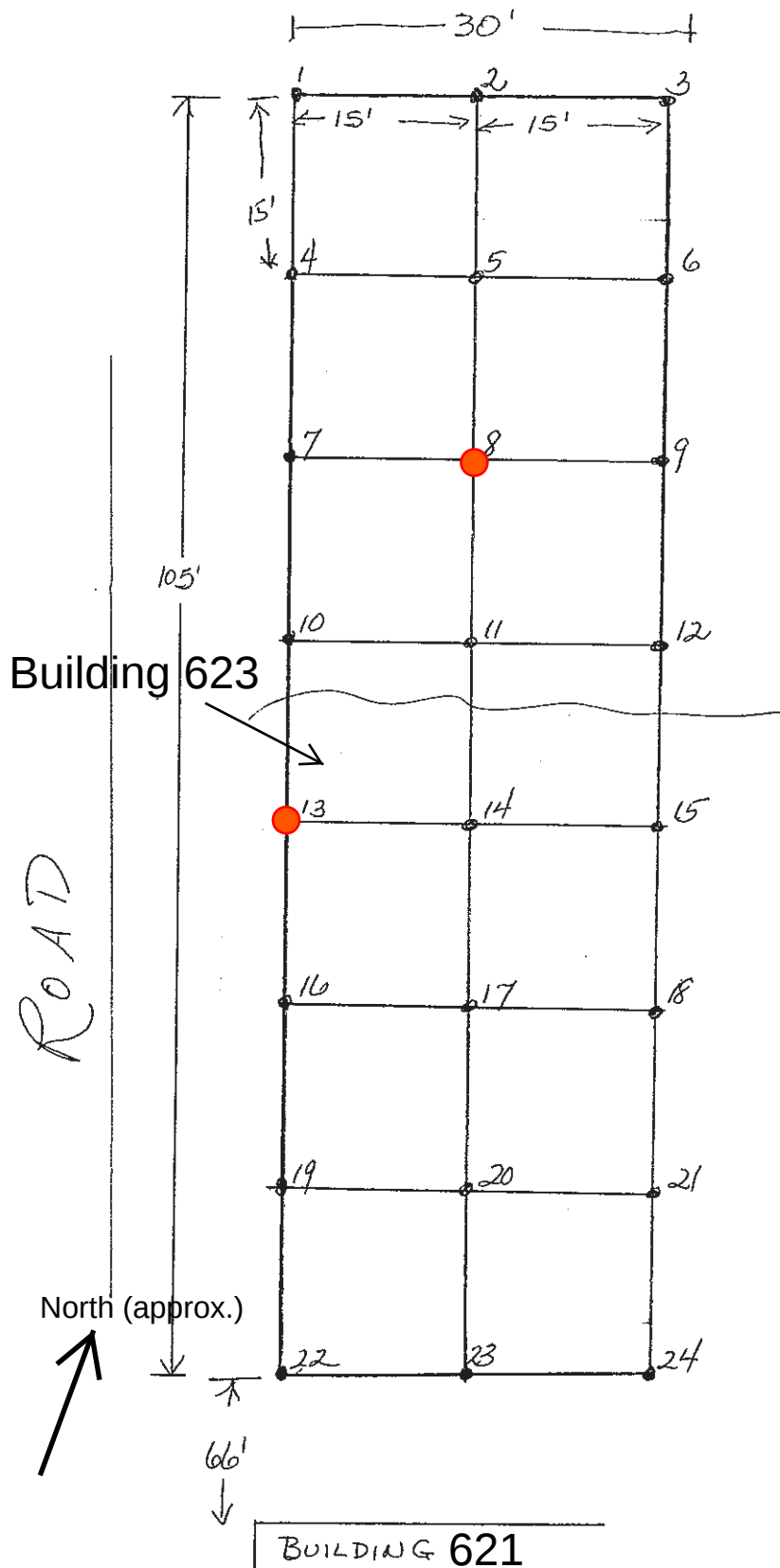
Vicinity of Former Building 623

BUILDING 625

E-Systems, Fort Monmouth, New Jersey

Figure 3

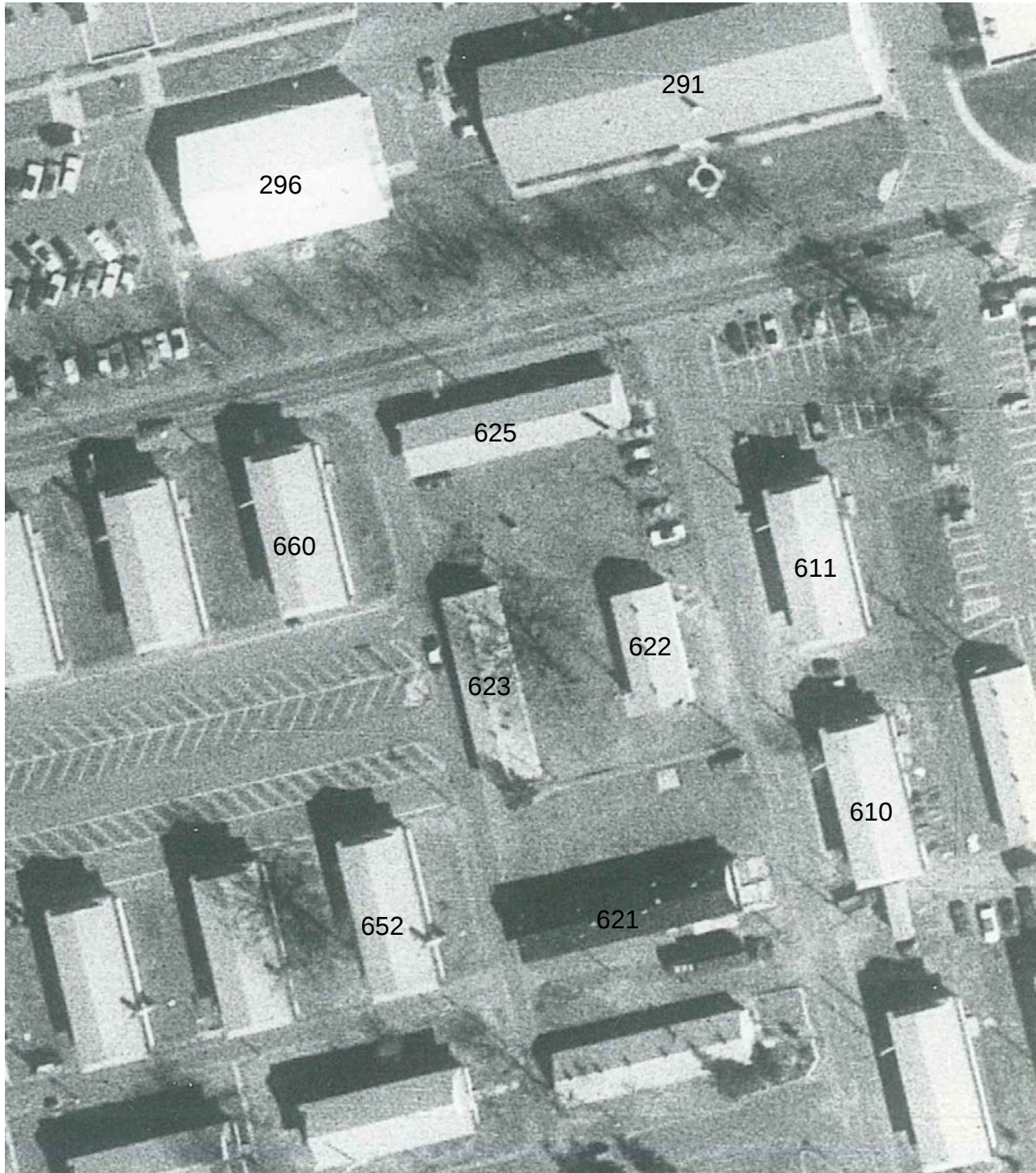
Soil Sample Locations



● Sample with Detected PCB

Figure 4

1974 Aerial Photograph of Building 623 and Vicinity



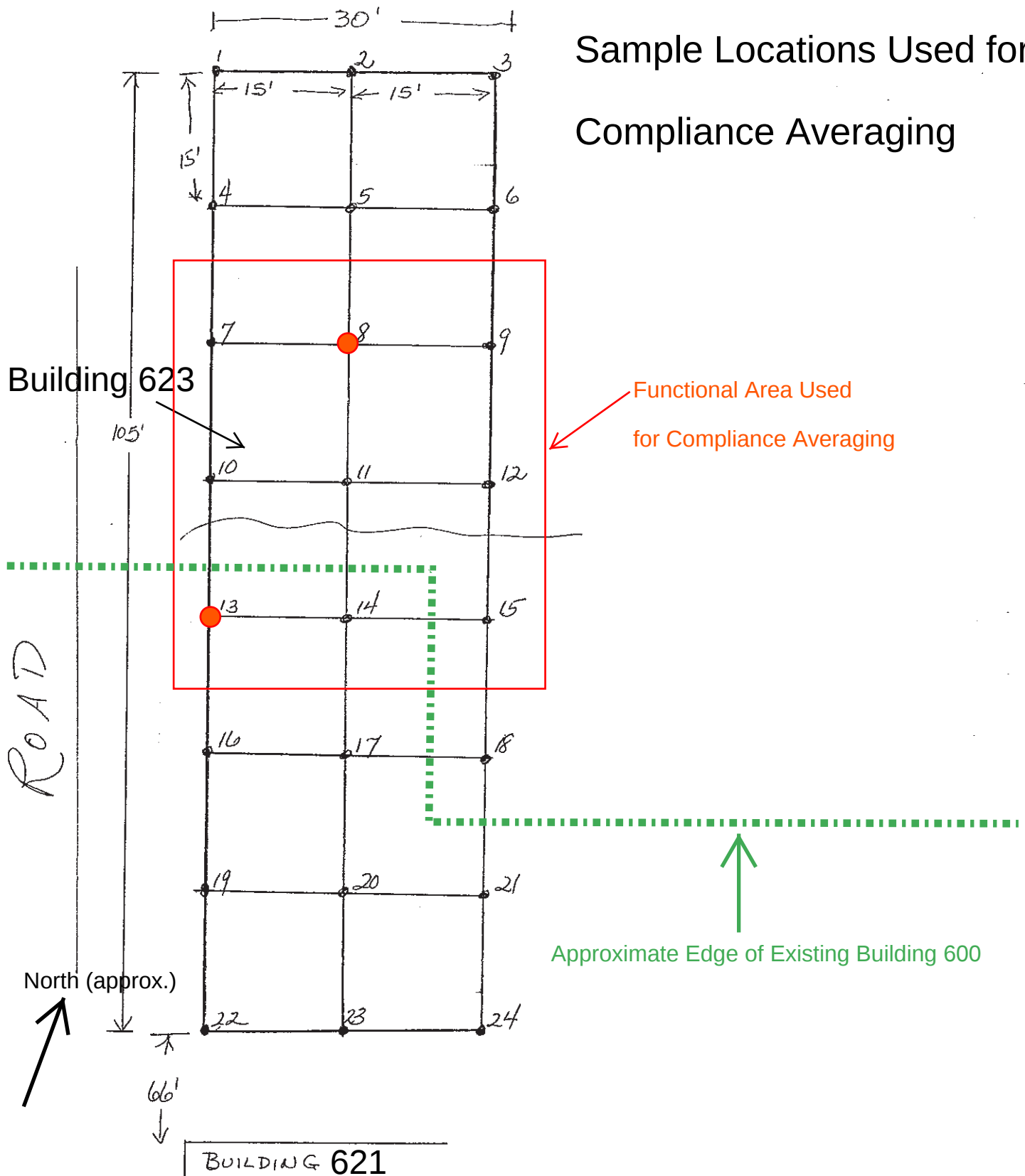
Flight Date: March 13, 1974

↑ North
(No Scale)

BUILDING 625

Figure 5

Sample Locations Used for Compliance Averaging



● Sample with Detected PCB

APPENDICES

Appendix A Regulatory Correspondence

Appendix B Documentation of Building Decontamination

Appendix C Soil Sample Locations and Analyses

APPENDIX A

REGULATORY CORRESPONDENCE



DEPARTMENT OF THE ARMY
Headquarters, U.S. Army Garrison Fort Monmouth
Fort Monmouth, New Jersey 07703-5000



REPLY TO
ATTENTION OF

20 APR 1993

Directorate of Engineering
and Housing

U.S. Environmental Protection Agency
Toxic Substances Section
ATTN: Mr. Daniel Craft
2890 Woodbridge Avenue
Edison, NJ 08837
MS 105

SUBJECT: Cleanup and Decontamination of Former PCB Storage
Facility, Bldg. # 623.

Dear Mr. Craft:

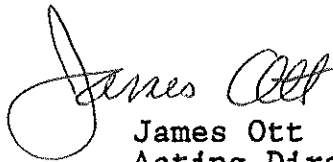
On December 09, 1992, Mr. Joseph Fallon contacted your office to provide the USEPA with advanced notice that plans were currently under way at Fort Monmouth to clean and decontaminate a former PCB storage facility, Bldg. # 623. A copy of the cleanup plan was mailed to your attention following the verbal notification (See Attachment 1). A contract had previously been awarded to Doolan Environmental, Inc. to implement the cleanup plan and decontamination activities commenced at the site on December 21, 1992. Site cleanup operations were completed on January 25, 1993 and all work was accomplished in accordance with the referenced specification. A total of forty one 55 gallon drums of PCB contaminated waste was generated as a result of the cleanup; 31 drums of concrete debris, 3 drums of linoleum floor tile, and 7 drums of polyethylene sheeting and used personal protective equipment (PPE). The 41 drums were shipped to the Aptus Facility in Coffeyville, Kansas on April 19, 1992. The entire waste shipment is slated for incineration. A copy of the hazardous waste disposal manifest is enclosed for your review (See Attachment 2).

Various types of samples for subsequent PCB analysis were collected in conjunction with this project. On November 23, 1992, before cleanup activities commenced, 24 samples were collected from inside the building. The samples consisted of sheetrock material from the walls and ceiling and wood samples from the building's frame. The mean PCB test result for the 24 samples was 3.9 mg/kg, with the highest PCB test result being 21.0 mg/kg. Based upon these results no action was taken to remediate the walls, ceiling or frame of the building. Following the scarification of the concrete floor, 12 samples were collected from the floor's surface. Seven were wipe samples and the other five were concrete chip samples. A single PCB test result (concrete chip sample) of 62.5 mg/kg identified an

approximate area of 100 square feet which would require further scarification. The effected area was scarified to an additional depth of 1 1/4 inches. Two more chip samples were collected following this procedure and the test results were 20.7 mg/kg and 6.3 mg/kg respectively. The mean PCB test result for the eight wipe samples was 0.276 mg/wipe, with the highest PCB test result being 1.512 mg/wipe. The mean PCB test result for the six chip samples was 6.1 mg/kg, with the highest PCB test result being 20.7 mg/kg. The mean average test result for the chip samples excludes the one result of 62.5 mg/kg which underwent further cleanup action. Four outside air samples were also collected during the scarification procedure. Each sample was collected adjacent to an exhaust vent which was feed from the negative air machines. No PCBs were detected in any of the four samples.

At the present time, the Directorate of Engineering and Housing has made plans to demolish Bldg. # 623. Notification has already been made to the USEPA Air Compliance Branch, Region II (See Attachment 3). The demolition is scheduled to take place on or about May 7, 1993. This action should bring this matter to a close.

Should you have any questions or concerns regarding this matter, please contact Mr. Joseph Fallon. He can be reached at the following telephone number: 908-532-6223.

A handwritten signature in cursive script, appearing to read "James Ott".

James Ott
Acting Director
Directorate of Eng. & Hsg.

APPENDIX B

DOCUMENTATION OF BUILDING DECONTAMINATION

Enclosed:

- **Background History of Building 623**
- **Vendor Completion Report**



DEPARTMENT OF THE ARMY
Headquarters, U.S. Army Garrison Fort Monmouth
Fort Monmouth, New Jersey 07703-5000



REPLY TO
ATTENTION OF

24 MAR 1993

**Directorate of Engineering
and Housing**

Doolan Environmental
Attn: Mr. Tony Prisco
2 Eves Drive
Marlton, NJ 08053

Subject: Background History of Building 623.

Dear Mr. Prisco:

Building 623 is a one story wood structure which was constructed in 1941. The facility was originally used for administrative and supply functions up until about 1976. In 1978, building 623 became Fort Monmouth's central PCB storage facility and has served in that capacity up until the present date. Should you require any additional information regarding this facility, please contact the undersigned.

Joseph M. Fallon

**Joseph M. Fallon
Environmental Protection Specialist
Directorate of Eng. & Hsg.**

Ft. Monmouth PCB Scarification
Project Bldg 623 - Summary Report

April 22, 1993

Project Summary

DOOLAN ENVIRONMENTAL was contracted through E-Systems (Serv-Air) to provide PCB remediation services at Building 623 on the Main Post at Ft. Monmouth. This building was used to store PCB contaminated transformers and oil prior to shipment for disposal. The primary concern was that floor surfaces were potentially contaminated above federal and site criteria for free release as the building was scheduled for demolition.

The scope of work included removal and packaging for incineration a concrete block spill containment dike that ran the perimeter of the building's interior. Following the dike removal, the entire floor surface area was scarified to one fourth inch (1/4") depth using a Blast-Trac machine. This equipment was chosen because removal depth can be infinitely controlled and the fine particle dust is immediately vacuumed into the material collection unit which is provided with HEPA filtration on the discharge.

The project specification also required that all adjacent areas be protected from dust contamination and that air within the building would be exhausted through HEPA filter units providing a minimum of 4000 CFM air flow through the media. These filtration units were required to include granulated activated carbon (GAC) absorption units installed in line on the discharge ports.

A three stage personnel decontamination unit was required to act as access control to the primary contamination area. This unit provides an incoming change area, a personnel decontamination area with shower, and contamination control area where PPE is removed and packaged for disposal.

All generated waste was required to be packaged in 55 gallon 17H drums and shipped to an approved facility for incineration destruction.

Additional provision was made within the contract to return and remove an additional one fourth inch of material from the floors in areas where, after initial scarification testing indicated contamination still existed.

Sampling and analytical was provided by Fort Monmouth and E-Systems personnel.

Chronologic Progression

Week one - 12/7 thru 12/11/93

DOOLAN ENVIRONMENTAL crew arrived on site to begin site preparation for scarification function on December 8, 1992. The crew consisted of one project manager/site supervisor and three technicians. On that date the three stage personnel access control/decontamination unit arrived on site and was placed, blocked, and leveled by the supplier. The DOOLAN ENVIRONMENTAL (DE) crew proceeded to construct an airlock/passage way connecting this unit to the personnel access door of building. Two 2000 CFM HEPA ventilation units were installed in the building at strategic locations for optimal air flow. The exhaust flow was directed through ductwork and exited through two windows fitted with duct openings. E-Systems/Serv-Air provided continuous air monitoring as well as electric and water for personnel access trailers.

It was determined that there was not sufficient electric power available to power all equipment, especially the scarifier. DE provided an auxiliary generator capable of 240 volt three phase power with splits for 110 single phase to power lights and auxiliary equipment.

Once equipment was in place, the crew proceeded to cover all openings (doors, windows, and vents) with 6 Mil poly sheeting. A full layer of this poly sheet was then placed over all interior surfaces of walls and ceilings and stapled in place to preclude dust contamination of surfaces. A lumber framed enclosure was constructed and double wrapped in poly sheet to enclose the exterior concrete ramp leading to the roll-up door permitting this surface to be scarified. Additionally, an 8' X 8' X 8' foot double layered portable containment was constructed to enclose the immediate work area where concrete block dike was removed and crushed into pieces (less than 6" in any dimension disposal criteria). This enclosure was connected to a 200 CFM HEPA vacuum to control dust emissions. Site was now prepared to begin scarification.

Week Two - 12/14 thru 12/18/93

It was determined that approximately 400 square feet of linoleum floor tile needed to be removed prior to the scarification effort. This was accomplished using electric powered tile removal equipment and small electric rotary hammers with knife edged blades. The concrete block dike was removed using electric rotary hammers and manual sledgehammers. Block was crushed with a modified hydraulic log splitter with special blade attachments and manual sledgehammers. All block removal and crushing was performed within the 8' X 8' X 8' portable containment under negative air. All

block crushed block and tile was loaded into 55 gallon 17H drums, labeled accordingly, and staged for eventual transport.

Week Three - 12/21 thru 12/24

Scarification began and ran for three consecutive days using a Blast-Trac shot blast machine. This equipment propels steel shot across a 22 inch wide swath and immediately vacuums up the shot and removed concrete, separating the shot for re-use, and passing the dust to a collection apparatus. Vacuum discharge is HEPA filtered with the net effect of virtually no dust. The depth of removal can be varied by speed and intensity of shot delivery. Experimentation developed a combination that removed one eighth inch (1/8") per pass. The second pass was made at right angles to the first. All areas not reached by this machine (approximately three inches from walls) was scarified using hand held scrabblers. Sampling was performed by Fort Monmouth and E-Systems personnel using both chip samples and wipe samples. Work was now on hold until sample verification.

Week Four - 12/28/92 thru 1/2/93

Sampling indicated one small area, approximately 5 feet by 20 feet, where contamination still existed at very low levels. It was decided that an additional one and one fourth inch of material be removed to ensure that all traces of contamination were gone. This was accomplished using rotary hammers in the portable enclosure that was placed under negative pressure through a 200 CFM HEPA vacuum unit. Dislodged material was drummed as other wastes, and labeled, and stored awaiting disposal. It also was determined that a thin layer of asbestos was located behind two sheet metal plates on the wall areas of the building. 150 square feet was removed by two asbestos certified technicians. Asbestos was packaged according to regulation at turned over to DEH personnel for its eventual disposition. The remainder of the week was spent in clean up and demobilization. All floors and some wall sections were HEPA vacuumed to remove extraneous dust and chips. The plastic sheeting was sprayed with an approved particulate encapsulant and allowed to dry before removal. Once removed, it was placed in drums and labeled for disposal. The primary and HEPA filters from the Blast-Trac, HEPA vacuums, and the ventilators were removed, crushed, and drummed for disposal. All equipment was decontaminated using Hexane wipes and prepared for shipment.

Week Five - 1/4 thru 1/8/93

This week was spent completing the demobilization process. The personnel access trailer was cleaned and picked up by the supplier.

All PPE was drummed in 55 gallon 17H drums and staged for disposal.

All drums were numbered, labeled appropriately, and sampled. Samples and documentation was sent to Westinghouse APTUS facility in Coffeerville, Kansas for waste classification and acceptance. Remaining DE equipment was loaded out and shipped.

Week Six

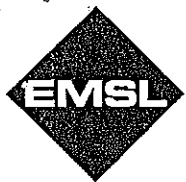
Westinghouse APTUS informed DE that slightly elevated levels of total metals, specifically lead, had shown up in the analysis. Although these levels did not exceed RCRA limits, they requested a TCLP metals analysis be performed and submitted. A new composite sample was collected and sent to a local certified lab for analysis. Results were sent to the APTUS facility and final approval was awaited.

Finalization - 4/12 thru 4/19/93

Final approvals received from Westinghouse APTUS on 4/14 for forty one (41) drums of waste which included thirty one (31) drums of block and dust, three (3) drums of floor tile, and seven (7) drums of plastic, PPE, and filters. Transportation and receipt was scheduled. Forty one drums were picked up by Merola Enterprises (an NJDEPE and EPA licensed transporter) on Monday, April 19th. The drums were received at the APTUS facility for processing in Coffeerville, Kansas at 10:00 am on Wednesday, April 21, 1993. We await documents on destruction.

APPENDIX C

SOIL SAMPLE LOCATIONS AND ANALYSES



ANALYTICAL SERVICES

environmental
materials
asbestos

Area Soil Samples

Corporate Office &
Main Laboratory

108 Haddon Avenue
Westmont, NJ 08108
(609) 858-4800

December 9, 1993

New Jersey
3 Cooper Street
Westmont, NJ 08108
(609) 858-9573

E-Systems
PO Box 360
Fort Monmouth, NJ 07703

Attention: Barbara O'Toole

1056 Stelton Road
Piscataway, NJ 08854
(908) 981-0550

Reference: Fort Monmouth Soil Sampling
PO #R3-2804
EMSL Projects 9310358, 9310372, 9310625

Georgia
1600 Roswell Street, SE
Suite One
Smyrna, GA 30080
(404) 333-6066

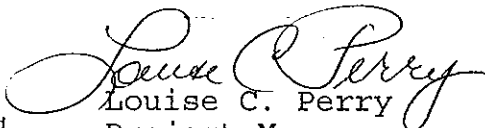
Enclosed is the sampling information for referenced PCB project.

If you have any questions, do not hesitate to call.

California
1720 S. Amphlett Boulevard
Suite 130
San Mateo, CA 94402
(415) 570-5401

Very truly yours,

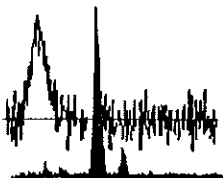
Michigan
212 S. Wagner Road
Ann Arbor, MI 48103
(313) 668-6810


Louise C. Perry
Project Manager

Rec'd

12/14/93

B. MK



E-Systems, Fort Monmouth, New Jersey
EMSL Projects 9310358
9310372
9310625

EMSL

SAMPLE COLLECTION

Equipment: Power auger
Stainless steel trowel
Hand auger
Gloves
200' tape

Decon: Tap rinse
Non-phosphate scrub
Tap rinse
Hexane rinse
Air dry
DIH₂O water rinse
Air dry

Soil borings: 0-6", 18-24", 36-42"
0-6" - grab (stainless steel trowel)
Power auger to 18"
Hand auger 18-24" (sample)
Decon all equipment
Power auger 24-36"
Hand auger 36-42" (sample)
Decon

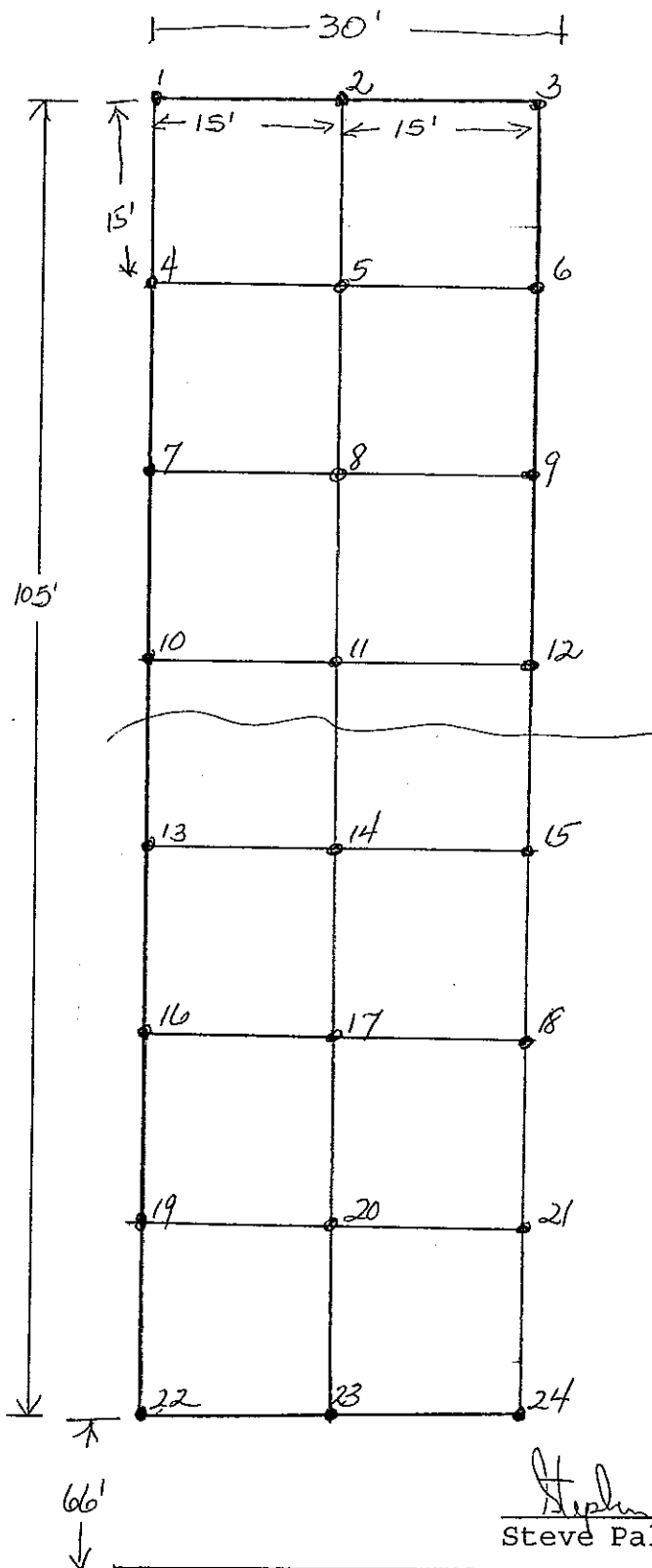
Same process followed at each location to collect total
of 72 samples.


Steve Palmissano, EMSL Field Sampler

BUILDING

E-Systems, Fort Monmouth, New Jersey

EMSL



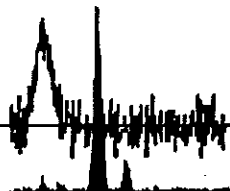
EMSL Project 9310358
Day 1: October 7, 1993
Time on site: 0930
Left site: 1400

EMSL Project 9310372
Day 2: October 8, 1993
Time on site: 0800
Left site: 1230

EMSL Project 9310625
Resample SS#23 (36-42")
October 29, 1993

Stephen E. Palmissano
Steve Palmissano, EMSL Field Sampler

BUILDING





EMSL

ANALYTICAL SERVICES

Area Soil Samples

environmental

materials

asbestos

Corporate Office &
Main Laboratory

108 Haddon Avenue
Westmont, NJ 08108
(609) 858-4800

New Jersey
3 Cooper Street
Westmont, NJ 08108
(609) 858-9573

1056 Stelton Road
Piscataway, NJ 08854
(908) 981-0550

Georgia
1600 Roswell Street, SE
Suite One
Smyrna, GA 30080
(404) 333-6066

California
1720 S. Amphlett Boulevard
Suite 130
San Mateo, CA 94402
(415) 570-5401

Michigan
212 S. Wagner Road
Ann Arbor, MI 48103
(313) 668-6810

Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth, NJ 07703

10/21/1993

SS#1 thru
SS#12

The following report covers the analysis performed on samples submitted to EMSL Analytical on 10/07/1993. The results are tabulated on the attached data pages for the following client designated project:

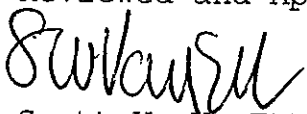
Fort Monmouth Soil Sampling/PO#R3-2804

The reference number for these samples is EMSL Project # 9310358. Please use this reference when calling about these samples.

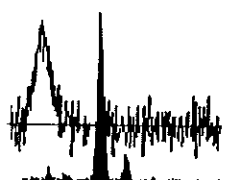
If you have any questions, please do not hesitate to contact me at (609) 858-9573.

Sarah J. Hubbard
rec. 11/4/93

Reviewed and Approved By:



Scott W. VanEtten
Laboratory Manager
NJ Certification No:04653



Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/21/93
Project Number: 9310358
Lab ID: 93-0014121
Date Collected: 10/07/93 09:45
Collected By: Client
Date Received: 10/07/93 17:00

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-1, 0-6"

	Conc.	Unit
LIMITED		
Solids, Total	96	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg

Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/21/93
Project Number: 9310358
Lab ID: 93-0014122
Date Collected: 10/07/93 09:45
Collected By: Client
Date Received: 10/07/93 17:00

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-1, 18"-24"

	Conc.	Unit
LIMITED		
Solids, Total	90	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg

Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/21/93
Project Number: 9310358
Lab ID: 93-0014123
Date Collected: 10/07/93 09:45
Collected By: Client
Date Received: 10/07/93 17:00

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-1, 36"-42"

	Conc.	Unit
LIMITED		
Solids, Total	83	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg

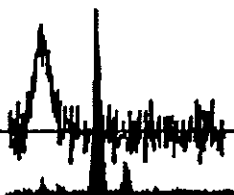
Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/21/93
Project Number: 9310358
Lab ID: 93-0014124
Date Collected: 10/07/93 10:10
Collected By: Client
Date Received: 10/07/93 17:00

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-2, 0-6"

	Conc.	Unit
LIMITED		
Solids, Total	94	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg



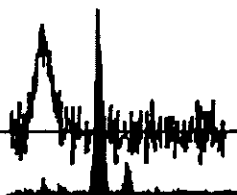
Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/21/93
Project Number: 9310358
Lab ID: 93-0014125
Date Collected: 10/07/93 10:10
Collected By: Client
Date Received: 10/07/93 17:00

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-2, 18"-24"

	Conc.	Unit
LIMITED		
Solids, Total	91	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg



Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/21/93
Project Number: 9310358
Lab ID: 93-0014126
Date Collected: 10/07/93 10:10
Collected By: Client
Date Received: 10/07/93 17:00

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-2, 36"-42"

	Conc.	Unit
LIMITED		
Solids, Total	85	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg

Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/21/93
Project Number: 9310358
Lab ID: 93-0014127
Date Collected: 10/07/93 10:25
Collected By: Client
Date Received: 10/07/93 17:00

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-3, 0-6"

	Conc.	Unit
LIMITED		
Solids, Total	90	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg

Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/21/93
Project Number: 9310358
Lab ID: 93-0014128
Date Collected: 10/07/93 10:25
Collected By: Client
Date Received: 10/07/93 17:00

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-3, 18"-24"

	Conc.	Unit
LIMITED		
Solids, Total	85	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg

Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/21/93
Project Number: 9310358
Lab ID: 93-0014129
Date Collected: 10/07/93 10:25
Collected By: Client
Date Received: 10/07/93 17:00

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-3, 36"-42"

	Conc.	Unit
LIMITED		
Solids, Total	86	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg

Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/21/93
Project Number: 9310358
Lab ID: 93-0014130
Date Collected: 10/07/93 10:35
Collected By: Client
Date Received: 10/07/93 17:00

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-4, 0-6"

	Conc.	Unit
LIMITED		
Solids, Total	91	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg

Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/21/93
Project Number: 9310358
Lab ID: 93-0014131
Date Collected: 10/07/93 10:35
Collected By: Client
Date Received: 10/07/93 17:00

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-4, 18"-24"

	Conc.	Unit
LIMITED		
Solids, Total	78	%
ORGANIC		
PCBs		
Aroclor-1016	<300	ug/kg
Aroclor-1221	<300	ug/kg
Aroclor-1232	<300	ug/kg
Aroclor-1242	<300	ug/kg
Aroclor-1248	<300	ug/kg
Aroclor-1254	<300	ug/kg
Aroclor-1260	<300	ug/kg

Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/21/93
Project Number: 9310358
Lab ID: 93-0014132
Date Collected: 10/07/93 10:35
Collected By: Client
Date Received: 10/07/93 17:00

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-4, 36"-42"

	Conc.	Unit
LIMITED		
Solids, Total	81	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg

Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/21/93
Project Number: 9310358
Lab ID: 93-0014133
Date Collected: 10/07/93 10:55
Collected By: Client
Date Received: 10/07/93 17:00

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-5, 0-6"

	Conc.	Unit
LIMITED		
Solids, Total	90	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg

Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/21/93
Project Number: 9310358
Lab ID: 93-0014134
Date Collected: 10/07/93 10:55
Collected By: Client
Date Received: 10/07/93 17:00

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-5, 18"-24"

	Conc.	Unit
LIMITED		
Solids, Total	89	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg

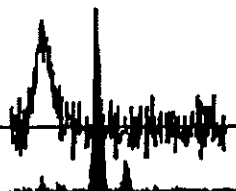
Attention: Barbara O'Toole
 E-Systems
 P.O. Box 360
 Fort Monmouth NJ 07703

Date of Report: 10/21/93
 Project Number: 9310358
 Lab ID: 93-0014135
 Date Collected: 10/07/93 10:55
 Collected By: Client
 Date Received: 10/07/93 17:00

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-5, 36"-42"

	Conc.	Unit
LIMITED		
Solids, Total	84	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg



Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/21/93
Project Number: 9310358
Lab ID: 93-0014136
Date Collected: 10/07/93 11:15
Collected By: Client
Date Received: 10/07/93 17:00

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-6, 0-6"

	Conc.	Unit
LIMITED		
Solids, Total	94	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg

Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/21/93
Project Number: 9310358
Lab ID: 93-0014137
Date Collected: 10/07/93 11:15
Collected By: Client
Date Received: 10/07/93 17:00

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-6, 18"-24"

	Conc.	Unit
LIMITED		
Solids, Total	93	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg

Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/21/93
Project Number: 9310358
Lab ID: 93-0014138
Date Collected: 10/07/93 11:15
Collected By: Client
Date Received: 10/07/93 17:00

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-6, 36"-42"

	Conc.	Unit
LIMITED		
Solids, Total	83	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg

Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/21/93
Project Number: 9310358
Lab ID: 93-0014139
Date Collected: 10/07/93 11:30
Collected By: Client
Date Received: 10/07/93 17:00

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-7, 0-6"

	Conc.	Unit
LIMITED		
Solids, Total	93	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg

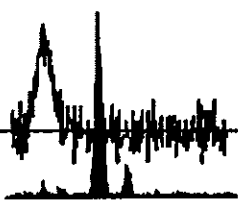
Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/21/93
Project Number: 9310358
Lab ID: 93-0014140
Date Collected: 10/07/93 11:30
Collected By: Client
Date Received: 10/07/93 17:00

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-7, 18"-24"

	Conc.	Unit
LIMITED		
Solids, Total	90	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg



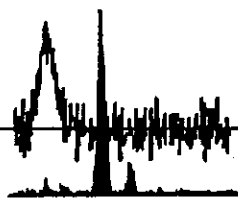
Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/21/93
Project Number: 9310358
Lab ID: 93-0014141
Date Collected: 10/07/93 11:30
Collected By: Client
Date Received: 10/07/93 17:00

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-7, 36"-42"

	Conc.	Unit
LIMITED		
Solids, Total	82	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg



Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/21/93
Project Number: 9310358
Lab ID: 93-0014142
Date Collected: 10/07/93 11:50
Collected By: Client
Date Received: 10/07/93 17:00

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-8, 0-6"

	Conc.	Unit
LIMITED		
Solids, Total	96	%
ORGANIC		
PCBs		
Aroclor-1016	800	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg

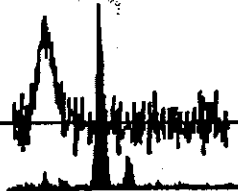
Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/21/93
Project Number: 9310358
Lab ID: 93-0014143
Date Collected: 10/07/93 11:50
Collected By: Client
Date Received: 10/07/93 17:00

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-8, 18"-24"

	Conc.	Unit
LIMITED		
Solids, Total	96	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg



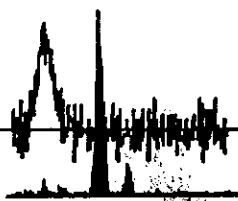
Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/21/93
Project Number: 9310358
Lab ID: 9310014144
Date Collected: 10/07/93 11:50
Collected By: Client
Date Received: 10/07/93 17:00

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-8, 36"-42"

	Conc.	Unit
LIMITED		
Solids, Total	85	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg



Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/21/93
Project Number: 9310358
Lab ID: 93-0014145
Date Collected: 10/07/93 12:00
Collected By: Client
Date Received: 10/07/93 17:00

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-9, 0-6"

	Conc.	Unit
LIMITED		
Solids, Total	95	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg

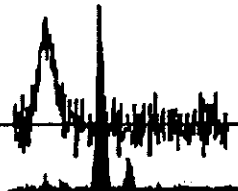
Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/21/93
Project Number: 9310358
Lab ID: 93-0014146
Date Collected: 10/07/93 12:00
Collected By: Client
Date Received: 10/07/93 17:00

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-9, 18"-24"

	Conc.	Unit
LIMITED		
Solids, Total	88	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg



Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/21/93
Project Number: 9310358
Lab ID: 93-0014147
Date Collected: 10/07/93 12:00
Collected By: Client
Date Received: 10/07/93 17:00

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-9, 36"-42"

	Conc.	Unit
LIMITED		
Solids, Total	87	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg

Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/21/93
Project Number: 9310358
Lab ID: 93-0014148
Date Collected: 10/07/93 12:10
Collected By: Client
Date Received: 10/07/93 17:00

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-10, 0-6"

	Conc.	Unit
LIMITED		
Solids, Total	91	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg

Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/21/93
Project Number: 9310358
Lab ID: 93-0014149
Date Collected: 10/07/93 12:10
Collected By: Client
Date Received: 10/07/93 17:00

Client Project: Fort Monmouth Spil Sampling/PO#R3-2804

Client Designation: SS-10, 18"-24"

	Conc.	Unit
LIMITED		
Solids, Total	91	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg

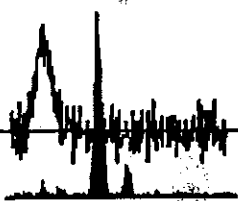
Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/21/93
Project Number: 9310358
Lab ID: 93-0014150
Date Collected: 10/07/93 12:10
Collected By: Client
Date Received: 10/07/93 17:00

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-10, 36"-42"

	Conc.	Unit
LIMITED		
Solids, Total	90	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg



Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/21/93
Project Number: 9310358
Lab ID: 93-0014151
Date Collected: 10/07/93 12:20
Collected By: Client
Date Received: 10/07/93 17:00

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-11, 0-6"

	Conc.	Unit
LIMITED		
Solids, Total	96	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg

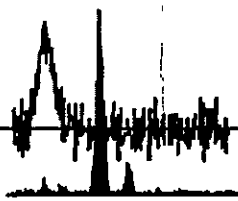
Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/21/93
Project Number: 9310358
Lab ID: 93-0014152
Date Collected: 10/07/93 12:20
Collected By: Client
Date Received: 10/07/93 17:00

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-11, 18"-24"

	Conc.	Unit
LIMITED		
Solids, Total	95	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg



Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/21/93
Project Number: 9310358
Lab ID: 93-0014153
Date Collected: 10/07/93 12:20
Collected By: Client
Date Received: 10/07/93 17:00

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-11, 36"-42"

	Conc.	Unit
LIMITED		
Solids, Total	86	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg

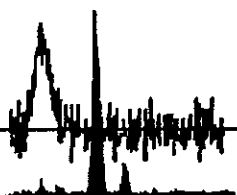
Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/21/93
Project Number: 9310358
Lab ID: 93-0014154
Date Collected: 10/07/93 12:30
Collected By: Client
Date Received: 10/07/93 17:00

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-12, 0-6"

	Conc.	Unit
LIMITED		
Solids, Total	93	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg



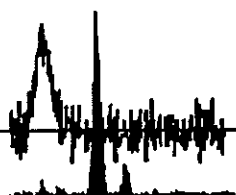
Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/21/93
Project Number: 9310358
Lab ID: 93-0014155
Date Collected: 10/07/93 12:30
Collected By: Client
Date Received: 10/07/93 17:00

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-12, 18"-24"

	Conc.	Unit
LIMITED		
Solids, Total	89	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg



Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/21/93
Project Number: 9310358
Lab ID: 93-0014156
Date Collected: 10/07/93 12:30
Collected By: Client
Date Received: 10/07/93 17:00

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-12, 36"-42"

	Conc.	Unit
LIMITED		
Solids, Total	87	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg

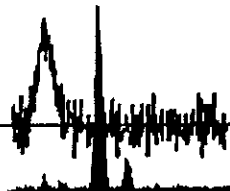
Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/21/93
Project Number: 9310358
Lab ID: 93-0014157
Date Collected: 10/07/93 12:45
Collected By: Client
Date Received: 10/07/93 17:00

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: Field Blank

	Conc.	Unit
ORGANIC		
PCBs		
Aroclor-1016	<5	ug/l
Aroclor-1221	<5	ug/l
Aroclor-1232	<5	ug/l
Aroclor-1242	<5	ug/l
Aroclor-1248	<5	ug/l
Aroclor-1254	<5	ug/l
Aroclor-1260	<5	ug/l



METHODOLOGY



EMSL

All analyses are adapted from one or more of the following reference methods:

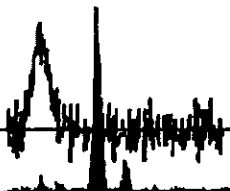
- . "Guidelines Establishing Test Procedures for the Analysis of Pollutants", Code of Federal Regulations Vol. 40, Part 136.
- . "Test Methods for Evaluating Solid Waste", SW846 Third Edition, September 1986, USEPA.
- . Code of Federal Regulations Vol. 40, Part 261, "Appendix II-Method 1311 Toxicity Characteristic Leaching Procedure (TCLP)".
- . "Standard Methods for the Examination of Water and Wastewater", 15th, 16th and 17th editions.
- . "Methods for the Chemical Analysis of Water and Wastes", EPA 600/4-79-020, March 1983, EMSL.
- . "Annual Book of Standards, Section 11-Water", American Society for Testing and Materials (ASTM).
- . "Methods for the Determination of Organic Compounds in Drinking Water", EPA 600/4-88/039, December 1988.

DEFINITIONS

U: Not Detected
B: Compound found in method blank
E: Estimated Concentration
J: Compound detected, however below report detection limit.
NFL: No Free Liquid
NR: Not Reactive
NA: Not Applicable
NS: Not Requested
NI: Not Ignitable

COMMENTS

All soil samples are calculated on a dry weight basis except as noted.



Chain of Custody / Analysis Request Form

Tracking # 9310358Way Bill #

Custody and Sample Information - Complete ALL information. Put N/A in blanks not applicable. Press firmly.

1. Requestor's Name/Address/Telephone No. <u>E Systems / Joe Fallow</u> <u>908.542.5990</u>			2. Sampling Site Address <u>Fort Monmouth</u> <u>NJ.</u>			Number of Containers	Indicate Analysis Requested											
3. Sampled by (Signature) <u>B. Palmer</u>		4. # of Samples in Shipment <u>36</u>		5. Date of Sample Shipment <u>10-7-93</u>			6. Date Results Needed <u>S.T.A.T</u>		<u>PCD</u> <u>5/2/94</u> <u>14/121</u>, <u>14/122</u>, <u>14/123</u>, <u>14/124</u>, <u>14/125</u>, <u>14/126</u>, <u>14/127</u>, <u>14/128</u>, <u>14/129</u>, <u>14/130</u>, <u>14/131</u>, <u>14/132</u>, <u>14/133</u>, <u>14/134</u>, <u>14/135</u>, <u>14/136</u>, <u>14/137</u>, <u>14/138</u>, <u>14/139</u>, <u>14/140</u>, <u>14/141</u>, <u>14/142</u>, <u>14/143</u>, <u>14/144</u>, <u>14/145</u>, <u>14/146</u>, <u>14/147</u>, <u>14/148</u>, <u>14/149</u>, <u>14/150</u>									
Item No.	Sample Number	Station Location / Sample ID	COMP	GRAB	Matrix			Method Preserved							Sampling			
					WATER	SOIL	AIR	SLUDGE	OTHER	HCl	HNO ₃	H ₂ SO ₄	ICE	NONE	OTHER	Date	Time	
1	SS#1	0.6", 18" 24", 36" 42"		X													10-7-93	0945
2	SS#2																1010	3
3	SS#3																1025	3
4	SS#4																1035	3
5	SS#5																1055	3
6	SS#6																1115	3
7	SS#7																1130	3
8	SS#8																1150	3
9	SS#9																1200	3
10	SS#10																1210	3
Released by (Signature) <u>B. Palmer</u>		Date/Time Released <u>10-7-93</u>	Delivery Method		Received by (Signature) <u>Decker</u>			Company/Agency Affiliation <u>EMSL</u>			Date/Time Received <u>10/7/93 17:00</u>		Condition Noted					
		/																
		/																
		/																
		/			To Archive/Disposal													
Comments:																		

EMSL ANALYTICAL INC.
 3 Cooper Street
 Westmont, New Jersey 08108
 609-858-9573

Chain of Custody / Analysis Request Form

Tracking # _____

Way Bill # _____

Custody and Sample Information - Complete ALL information. Put N/A in blanks not applicable. Press firmly.

1. Requestor's Name/Address/Telephone No. E. Systems / Joe Fallon 908-542-5998			2. Sampling Site Address Fort Monmouth N.J.			Number of Containers	Indicate Analysis Requested																		
3. Sampled by (Signature) [Signature]		4. # of Samples in Shipment 36		5. Date of Sample Shipment 10-7-93			6. Date Results Needed J.T.A.T.		PLR Laboratory Numt.																
Item No.	Sample Number	Station Location / Sample ID	COMP	GRAB	Matrix														Method Preserved				Sampling		
					WATER		SOIL	AIR											SLUDGE	OTHER	HCl	HNO ₃	H ₂ SO ₄	ICE	NONE
1	35# 11	0.6", 18.24", 36" 42"		X											10-7-93	1220	3	14157	14152	14153					
2	35# 12	↓ ↓ ↓													1230		3	14154	14155	14156					
3		Field Blank			X								X		1245		2	14157							
4																									
5																									
6																									
7																									
8																									
9																									
10																									

Released by (Signature) [Signature]	Date/Time Released 10-7-93	Delivery Method	Received by (Signature) [Signature]	Company/Agency Affiliation EMSL	Date/Time Received 10/7/93 17:00	Condition Noted
	/				/	
	/				/	
	/		To Archive/Disposal		/	

Comments:



ANALYTICAL SERVICES

Area Soil Samples

environmental

materials

asbestos

Corporate Office &
Main Laboratory

108 Haddon Avenue
Westmont, NJ 08108
(609) 858-4800

New Jersey
3 Cooper Street
Westmont, NJ 08108
(609) 858-9573

1056 Stelton Road
Piscataway, NJ 08854
(908) 981-0550

Georgia
1600 Roswell Street, SE
Suite One
Smyrna, GA 30080
(404) 333-6066

California
1720 S. Amphlett Boulevard
Suite 130
San Mateo, CA 94402
(415) 570-5401

Michigan
212 S. Wagner Road
Ann Arbor, MI 48103
(313) 668-6810

10/28/1993

Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth, NJ 07703

SS# 13 thru

SS# 24

The following report covers the analysis performed on samples submitted to EMSL Analytical on 10/08/1993. The results are tabulated on the attached data pages for the following client designated project:

Fort Monmouth Soil Sampling/PO#R3-2804

The reference number for these samples is EMSL Project # 9310372. Please use this reference when calling about these samples.

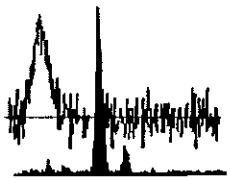
If you have any questions, please do not hesitate to contact me at (609) 858-9573.

72 Samples
2 Field Bks
74 total

Sarah J. Hubbard
rec. 11-4-93

Reviewed and Approved By:

Scott W. VanEtten
Laboratory Manager
NJ Certification No:04653



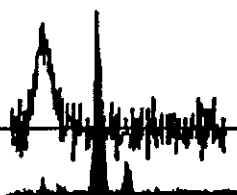
Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/21/93
Project Number: 9310372
Lab ID: 93-0014353
Date Collected: 10/08/93 08:10
Collected By: Client
Date Received: 10/08/93 16:30

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-13, 0-6"

	Conc.	Unit
LIMITED		
Solids, Total	94	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	1100	ug/kg



Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/21/93
Project Number: 9310372
Lab ID: 93-0014354
Date Collected: 10/08/93 08:10
Collected By: Client
Date Received: 10/08/93 16:30

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-13, 18"-24"

	Conc.	Unit
LIMITED		
Solids, Total	86	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	1200	ug/kg
Aroclor-1260	<200	ug/kg

Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/21/93
Project Number: 9310372
Lab ID: 93-0014355
Date Collected: 10/08/93 08:10
Collected By: Client
Date Received: 10/08/93 16:30

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-13, 36"-42"

	Conc.	Unit
LIMITED		
Solids, Total	82	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg

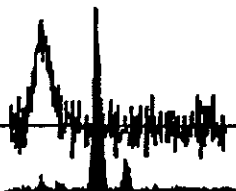
Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/21/93
Project Number: 9310372
Lab ID: 93-0014356
Date Collected: 10/08/93 08:30
Collected By: Client
Date Received: 10/08/93 16:30

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-14, 0-6"

	Conc.	Unit
LIMITED		
Solids, Total	96	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg



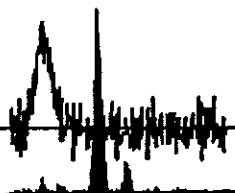
Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/21/93
Project Number: 9310372
Lab ID: 93-0014357
Date Collected: 10/08/93 08:30
Collected By: Client
Date Received: 10/08/93 16:30

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-14, 18"-24"

	Conc.	Unit
LIMITED		
Solids, Total	96	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg



Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/21/93
Project Number: 9310372
Lab ID: 93-0014358
Date Collected: 10/08/93 08:30
Collected By: Client
Date Received: 10/08/93 16:30

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-14, 36"-42"

	Conc.	Unit
LIMITED		
Solids, Total	83	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg

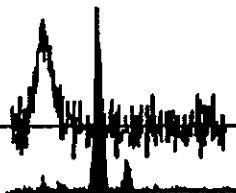
Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/27/93
Project Number: 9310372
Lab ID: 93-0014359
Date Collected: 10/08/93 08:50
Collected By: Client
Date Received: 10/08/93 16:30

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-15, 0-6"

	Conc.	Unit
LIMITED		
Solids, Total	96	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg



Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/27/93
Project Number: 9310372
Lab ID: 93-0014360
Date Collected: 10/08/93 08:50
Collected By: Client
Date Received: 10/08/93 16:30

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-15, 18"-24"

	Conc.	Unit
LIMITED		
Solids, Total	87	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg

Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/27/93
Project Number: 9310372
Lab ID: 93-0014361
Date Collected: 10/08/93 08:50
Collected By: Client
Date Received: 10/08/93 16:30

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-15, 36"-42"

	Conc.	Unit
LIMITED		
Solids, Total	86	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg

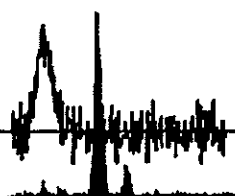
Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/27/93
Project Number: 9310372
Lab ID: 93-0014362
Date Collected: 10/08/93 09:10
Collected By: Client
Date Received: 10/08/93 16:30

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-16, 0-6"

	Conc.	Unit
LIMITED		
Solids, Total	91	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg



Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/27/93
Project Number: 9310372
Lab ID: 93-0014363
Date Collected: 10/08/93 09:10
Collected By: Client
Date Received: 10/08/93 16:30

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-16, 18"-24"

	Conc.	Unit
LIMITED		
Solids, Total	87	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg

Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/27/93
Project Number: 9310372
Lab ID: 93-0014364
Date Collected: 10/08/93 09:10
Collected By: Client
Date Received: 10/08/93 16:30

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-16, 36"-42"

	Conc.	Unit
LIMITED		
Solids, Total	83	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg

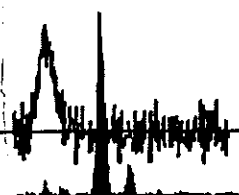
Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/27/93
Project Number: 9310372
Lab ID: 93-0014365
Date Collected: 10/08/93 09:20
Collected By: Client
Date Received: 10/08/93 16:30

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-17, 0-6"

	Conc.	Unit
LIMITED		
Solids, Total	95	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg



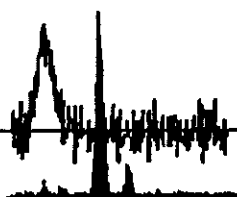
Attention: Barbara O'Toole
 E-Systems
 P.O. Box 360
 Fort Monmouth NJ 07703

Date of Report: 10/27/93
 Project Number: 9310372
 Lab ID: 93-0014366
 Date Collected: 10/08/93 09:20
 Collected By: Client
 Date Received: 10/08/93 16:30

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-17, 18"-24"

	Conc.	Unit
LIMITED		
Solids, Total	94	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg



Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/27/93
Project Number: 9310372
Lab ID: 93-0014367
Date Collected: 10/08/93 09:20
Collected By: Client
Date Received: 10/08/93 16:30

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-17, 36"-42"

	Conc.	Unit
LIMITED		
Solids, Total	88	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg



Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/27/93
Project Number: 9310372
Lab ID: 93-0014368
Date Collected: 10/08/93 09:40
Collected By: Client
Date Received: 10/08/93 16:30

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-18, 0-6"

	Conc.	Unit
LIMITED		
Solids, Total	95	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg

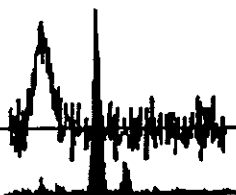
Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/27/93
Project Number: 9310372
Lab ID: 93-0014369
Date Collected: 10/08/93 09:40
Collected By: Client
Date Received: 10/08/93 16:30

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-18, 18"-24"

	Conc.	Unit
LIMITED		
Solids, Total	87	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg



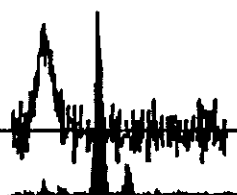
Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/27/93
Project Number: 9310372
Lab ID: 93-0014370
Date Collected: 10/08/93 09:40
Collected By: Client
Date Received: 10/08/93 16:30

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-18, 36"-42"

	Conc.	Unit
LIMITED		
Solids, Total	81	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg



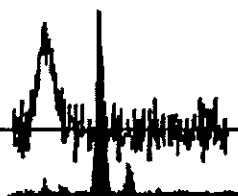
Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/27/93
Project Number: 9310372
Lab ID: 93-0014371
Date Collected: 10/08/93 09:55
Collected By: Client
Date Received: 10/08/93 16:30

Client Project: Fort Monmouth Soil Sampling/P0#R3-2804

Client Designation: SS-19, 0-6"

	Conc.	Unit
LIMITED		
Solids, Total	94	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg



Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/27/93
Project Number: 9310372
Lab ID: 93-0014372
Date Collected: 10/08/93 09:55
Collected By: Client
Date Received: 10/08/93 16:30

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-19, 18"-24"

	Conc.	Unit
LIMITED		
Solids, Total	87	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg



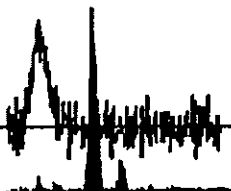
Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/27/93
Project Number: 9310372
Lab ID: 93-0014373
Date Collected: 10/08/93 09:55
Collected By: Client
Date Received: 10/08/93 16:30

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-19, 36"-42"

	Conc.	Unit
LIMITED		
Solids, Total	88	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg



Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/27/93
Project Number: 9310372
Lab ID: 93-0014374
Date Collected: 10/08/93 10:15
Collected By: Client
Date Received: 10/08/93 16:30

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-20, 0-6"

	Conc.	Unit
LIMITED		
Solids, Total	96	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg

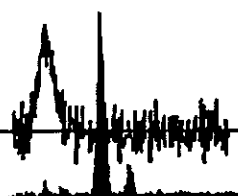
Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/27/93
Project Number: 9310372
Lab ID: 93-0014375
Date Collected: 10/08/93 10:15
Collected By: Client
Date Received: 10/08/93 16:30

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-20, 18"-24"

	Conc.	Unit
LIMITED		
Solids, Total	93	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg



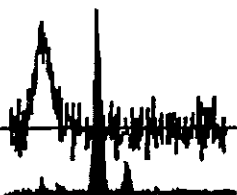
Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/27/93
Project Number: 9310372
Lab ID: 93-0014376
Date Collected: 10/08/93 10:15
Collected By: Client
Date Received: 10/08/93 16:30

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-20, 36"-42"

	Conc.	Unit
LIMITED		
Solids, Total	85	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg



Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/27/93
Project Number: 9310372
Lab ID: 93-0014377
Date Collected: 10/08/93 10:35
Collected By: Client
Date Received: 10/08/93 16:30

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-21, 0-6"

	Conc.	Unit
LIMITED		
Solids, Total	95	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg

Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/28/93
Project Number: 9310372
Lab ID: 93-0014378
Date Collected: 10/08/93 10:35
Collected By: Client
Date Received: 10/08/93 16:30

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-21, 18"-24"

	Conc.	Unit
LIMITED		
Solids, Total	87	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg

Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/28/93
Project Number: 9310372
Lab ID: 93-0014379
Date Collected: 10/08/93 10:35
Collected By: Client
Date Received: 10/08/93 16:30

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-21, 36"-42"

	Conc.	Unit
LIMITED		
Solids, Total	81	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg

Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/28/93
Project Number: 9310372
Lab ID: 93-0014380
Date Collected: 10/08/93 10:50
Collected By: Client
Date Received: 10/08/93 16:30

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-22, 0-6"

	Conc.	Unit
LIMITED		
Solids, Total	94	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg

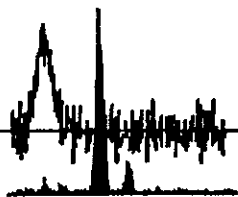
Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/28/93
Project Number: 9310372
Lab ID: 93-0014381
Date Collected: 10/08/93 10:50
Collected By: Client
Date Received: 10/08/93 16:30

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-22, 18"-24"

	Conc.	Unit
LIMITED		
Solids, Total	88	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg



Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/28/93
Project Number: 9310372
Lab ID: 93-0014382
Date Collected: 10/08/93 10:50
Collected By: Client
Date Received: 10/08/93 16:30

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-22, 36"-42"

	Conc.	Unit
LIMITED		
Solids, Total	82	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg

Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/28/93
Project Number: 9310372
Lab ID: 93-0014383
Date Collected: 10/08/93 11:00
Collected By: Client
Date Received: 10/08/93 16:30

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-23, 0-6"

	Conc.	Unit
LIMITED		
Solids, Total	95	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg

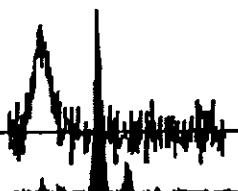
Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/28/93
Project Number: 9310372
Lab ID: 93-0014384
Date Collected: 10/08/93 11:00
Collected By: Client
Date Received: 10/08/93 16:30

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-23, 18"-24"

	Conc.	Unit
LIMITED		
Solids, Total	92	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg



Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/28/93
Project Number: 9310372
Lab ID: 93-0014385
Date Collected: 10/08/93 11:00
Collected By: Client
Date Received: 10/08/93 16:30

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-23, 36"-42"

	Conc.	Unit
LIMITED		
Solids, Total	84	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg

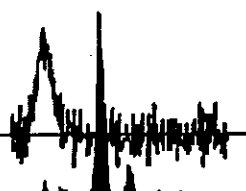
Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/28/93
Project Number: 9310372
Lab ID: 93-0014386
Date Collected: 10/08/93 11:15
Collected By: Client
Date Received: 10/08/93 16:30

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-24, 0-6"

	Conc.	Unit
LIMITED		
Solids, Total	93	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg



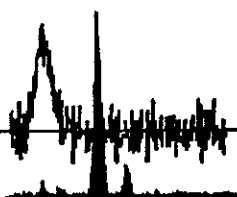
Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/28/93
Project Number: 9310372
Lab ID: 93-0014387
Date Collected: 10/08/93 11:15
Collected By: Client
Date Received: 10/08/93 16:30

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: SS-24, 18"-24"

	Conc.	Unit
LIMITED		
Solids, Total	85	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg



Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 11/08/93
Project Number: 9310625
Lab ID: 93-0016244
Date Collected: 10/29/93 00:00
Collected By: Client
Date Received: 10/29/93 14:15

Client Project: Fort Monmouth Soil Sampling (PO#R3-2804)

Client Designation: SS#24(36-42")

	Conc.	Unit
	-----	-----
LIMITED		
Solids, Total	80	%
ORGANIC		
PCBs		
Aroclor-1016	<200	ug/kg
Aroclor-1221	<200	ug/kg
Aroclor-1232	<200	ug/kg
Aroclor-1242	<200	ug/kg
Aroclor-1248	<200	ug/kg
Aroclor-1254	<200	ug/kg
Aroclor-1260	<200	ug/kg

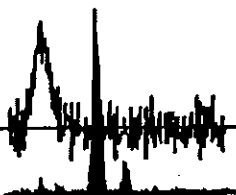
Attention: Barbara O'Toole
E-Systems
P.O. Box 360
Fort Monmouth NJ 07703

Date of Report: 10/27/93
Project Number: 9310372
Lab ID: 93-0014389
Date Collected: 10/08/93 11:35
Collected By: Client
Date Received: 10/08/93 16:30

Client Project: Fort Monmouth Soil Sampling/PO#R3-2804

Client Designation: Field Blank

	Conc.	Unit
ORGANIC		
PCBs		
Aroclor-1016	<5	ug/l
Aroclor-1221	<5	ug/l
Aroclor-1232	<5	ug/l
Aroclor-1242	<5	ug/l
Aroclor-1248	<5	ug/l
Aroclor-1254	<5	ug/l
Aroclor-1260	<5	ug/l



METHODOLOGY

EMSL

All analyses are adapted from one or more of the following reference methods:

- . "Guidelines Establishing Test Procedures for the Analysis of Pollutants", Code of Federal Regulations Vol. 40, Part 136.
- . "Test Methods for Evaluating Solid Waste", SW846 Third Edition, September 1986, USEPA.
- . Code of Federal Regulations Vol. 40, Part 261, "Appendix II-Method 1311 Toxicity Characteristic Leaching Procedure (TCLP)".
- . "Standard Methods for the Examination of Water and Wastewater", 15th, 16th and 17th editions.
- . "Methods for the Chemical Analysis of Water and Wastes", EPA 600/4-79-020, March 1983, EMSL.
- . "Annual Book of Standards, Section 11-Water", American Society for Testing and Materials (ASTM).
- . "Methods for the Determination of Organic Compounds in Drinking Water", EPA 600/4-88/039, December 1988.

DEFINITIONS

U: Not Detected
B: Compound found in method blank
E: Estimated Concentration
J: Compound detected, however below report detection limit.
NFL: No Free Liquid
NR: Not Reactive
NA: Not Applicable
NS: Not Requested
NI: Not Ignitable

COMMENTS

All soil samples are calculated on a dry weight basis except as noted.

EMSL ANALYTICAL INC.
3 Cooper Street
Westmont, New Jersey 08108
609-858-9573

Chain of Custody / Analysis Request Form

Tracking # 931031A
Way Bill # _____

Custody and Sample Information - Complete ALL information. Put N/A in blanks not applicable. Press firmly.

1. Requestor's Name/Address/Telephone No. <u>E. Systems / Joe Fallon</u> <u>215.542.5990</u>			2. Sampling Site Address <u>Fort Monmouth</u> <u>N.J.</u>			Number of Containers <u>3</u>	Indicate Analysis Requested <u>PCB</u>										Labor? Number			
3. Sampled by (Signature) <u>[Signature]</u>		4. # of Samples in Shipment <u>36</u>		5. Date of Sample Shipment <u>10-8-93</u>			6. Date Results Needed <u>S.T.A.T</u>													
Item No.	Sample Number	Station Location / Sample ID	COMP	GRAB	Matrix					Method Preserved					Sampling					
					WATER		SOIL	AIR	SLUDGE	OTHER	HCl	HNO ₃	H ₂ SO ₄	ICE	NONE	OTHER		Date	Time	
1		<u>SS# 13 0.6", 18.24", 36.42"</u>		<u>X</u>		<u>X</u>										<u>10-8-93</u>	<u>0810</u>		<u>14353, 14354, 14355</u>	<u>1435</u>
2		<u>14</u>															<u>0830</u>		<u>14356, 14357, 14358</u>	
3		<u>15</u>															<u>0850</u>		<u>14359, 14360, 14361</u>	
4		<u>16</u>															<u>0910</u>		<u>14362, 14363, 14364</u>	
5		<u>17</u>															<u>0920</u>		<u>14365, 14366, 14367</u>	
6		<u>18</u>															<u>0940</u>		<u>14368, 14369, 14370</u>	
7		<u>19</u>															<u>0955</u>		<u>14371, 14372, 14373</u>	
8		<u>20</u>															<u>1015</u>		<u>14374, 14375, 14376</u>	
9		<u>21</u>															<u>1035</u>		<u>14377, 14378, 14379</u>	
10		<u>22</u>															<u>1050</u>		<u>14380, 14381, 14382</u>	
Released by (Signature) <u>[Signature]</u>		Date/Time Released <u>10-8-93 1:30</u>		Delivery Method <u>Hand Deliver</u>		Received by (Signature) <u>[Signature]</u>		Company/Agency Affiliation <u>EMSL</u>		Date/Time Received <u>10/8/93 1:15</u>		Condition Noted <u>OK</u>								
		<u>/</u>				<u>[Signature]</u>		<u>EMSL</u>		<u>10/5/93 1:30</u>										
		<u>/</u>								<u>/</u>										
		<u>/</u>				To Archive/Disposal				<u>/</u>										
Comments: <u>Sample</u>																				

ANALYTICAL INC.
3 Cooper Street
Westmont, New Jersey 08108
609-858-9573

Chain of Custody / Analysis Request Form

Tracking # _____

Way Bill # _____

Custody and Sample Information - Complete ALL information. Put N/A in blanks not applicable. Press firmly.

1. Requestor's Name/Address/Telephone No.						2. Sampling Site Address								Number of Containers		Indicate Analysis Requested PCB																	
<i>E. Systems / Joe Fallon</i> 215-542-5990						<i>Fort Monmouth N.J.</i>																											
3. Sampled by (Signature)			4. # of Samples in Shipment			5. Date of Sample Shipment				6. Date Results Needed																							
Item No.	Sample Number	Station Location / Sample ID	COMP	GRAB	Matrix					Method Preserved					Sampling														Laboratory Number				
					WATER	SOIL	AIR	SLUDGE	OTHER	HCl	HNO ₃	H ₂ SO ₄	ICE	NONE	OTHER	Date														Time			
1		SS#23		X	X											10-8-93	1100	3	X														
2		J 24		X	X												1115	3															
3		Field Blank		X	X									X			1135	2															
4																																	
5																																	
6																																	
7																																	
8																																	
9																																	
10																																	

Released by (Signature)	Date/Time Released	Delivery Method	Received by (Signature)	Company/Agency Affiliation	Date/Time Received	Condition Noted
<i>S. Palmesano</i>	10-8-93 / 130	Hand Delivered	<i>[Signature]</i>	FMSL	10/8/93 2:15	O.K.
	/				/	
	/				/	
	/		To Archive/Disposal		/	

Comments:
Sampler 14388 (3'-4'") broken in lab

METHODOLOGY

EMSL

All analyses are adapted from one or more of the following reference methods:

- . "Guidelines Establishing Test Procedures for the Analysis of Pollutants", Code of Federal Regulations Vol. 40, Part 136.
- . "Test Methods for Evaluating Solid Waste", SW846 Third Edition, September 1986, USEPA.
- . Code of Federal Regulations Vol. 40, Part 261, "Appendix II-Method 1311 Toxicity Characteristic Leaching Procedure (TCLP)".
- . "Standard Methods for the Examination of Water and Wastewater", 15th, 16th and 17th editions.
- . "Methods for the Chemical Analysis of Water and Wastes", EPA 600/4-79-020, March 1983, EMSL.
- . "Annual Book of Standards, Section 11-Water", American Society for Testing and Materials (ASTM).
- . "Methods for the Determination of Organic Compounds in Drinking Water", EPA 600/4-88/039, December 1988.

DEFINITIONS

U: Not Detected
B: Compound found in method blank
E: Estimated Concentration
J: Compound detected, however below report detection limit.
NFL: No Free Liquid
NR: Not Reactive
NA: Not Applicable
NS: Not Requested
NI: Not Ignitable

COMMENTS

All soil samples are calculated on a dry weight basis except as noted.

Chain of Custody / Analysis Request Form

Tracking #

93101025

Way Bill #

Custody and Sample Information - Complete ALL information. Put N/A in blanks not applicable. Press firmly.

1. Requestor's Name/Address/Telephone No. E. Systems / Joe Fallon 215-542-5990			2. Sampling Site Address Fort Monmouth N.J.			Number of Containers	Indicate Analysis Requested						Laboratory Number				
3. Sampled by (Signature) J. Palmisano		4. # of Samples in Shipment 36		5. Date of Sample Shipment 10-8-93			6. Date Results Needed STAT										
Item No.	Sample Number	Station Location / Sample ID	COMP	GRAB	Matrix										Method Preserved		
					WATER	SOIL	AIR	SLUDGE	OTHER	HCl	HNO ₃	H ₂ SO ₄	ICE	NONE	OTHER	Date	Time
1	25#23			X	X											10-8-93	1100
2	24 10/29/93			X	X											1115	
3	Field Blank			X	X									X		1135	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Released by (Signature) J. Palmisano	Date/Time Released 10-8-93 / 130	Delivery Method Hand Deliver	Received by (Signature) J. Palmisano	Company/Agency Affiliation EMSL	Date/Time Received 10/8/93 2:15	Condition Noted O.K.
				EMSL	10/29/93 14:15	
To Archive/Disposal						

Comments:

Sample 14388 (30-42) broken in lab

