N61165.AR.003932
CNC CHARLESTON
5090.3a

COMPLETION REPORT FOR INTERIM MEASURE FOR ZONE H GRIDS G07 AND G038
WITH TRANSMITTAL CNC CHARLESTON SC
12/14/1999
U S NAVY

COMPLETION REPORT

INTERIM MEASURE FOR
ZONE H GRIDS G07 AND G038
NAVAL BASE CHARLESTON
CHARLESTON, SC

Prepared for:

DEPARTMENT OF THE NAVY
SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
CHARLESTON SC

Prepared by:

SOUTH CAROLINA RESEARCH AUTHORITY
Environmental Enterprise Group
1899 North Hobson Avenue, Bldg. 30
North Charleston, SC 29405-2106

October 12, 1999

SCRA®

1899 North Hobson Avenue
North Charleston, SC 29405-2106
TEL (843) 202-8000
FAX (843) 202-8001
http://www.eeg-scra.org

December 14, 1999
Ser:103

Director, Division of Hazardous and Infectious
Waste Management (John Litton, P. E.)
Bureau of Land and Waste Management
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, SC 29201

Re: Completion Report for Charleston Naval Complex (CNC) Area Of Concern (AOC) 710.

South Carolina Research Authority (SCRA), Environmental Enterprise Group was contracted to generate a Completion Report for AOC 710 per purchase requisition No. CHNPO9922. The enclosed report documents the actions performed at AOC 710.

Questions or information concerning this report should be addressed to Virginia Thomas at (843) 202-8065 or Jed Heames at 202-8060.

Respectfully,

for M G Tunstall
E. R. Dearhart
SCRA, Vice-President
Environmental Enterprise Group

DEPARTMENT OF THE NAVY
SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
P.O. BOX 190010
2155 EAGLE DRIVE
NORTH CHARLESTON, S.C. 29419-9010

5090/11
Code 18B1
22 November, 1999

Mr. John Litton, P.E.
Director, Division of Hazardous and Infectious Waste Management
Bureau of Land and Waste Management
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, SC 29201

Subj: SUBMITTAL OF FINAL COMPLETION REPORT FOR AOC 710 INTERIM MEASURE

Dear Mr. Litton,

The purpose of this letter is to submit the Final Completion Report for AOC 710 Interim Measure at Naval Base Charleston. The Completion Report is submitted to fulfill the requirements of condition II.F.3(b) of the RCRA Part B permit issued to the Navy by the South Carolina Department of Health and Environmental Control and U.S. Environmental Protection Agency.

We request that the Department and the EPA review the report and file for future reference. If you should have any questions, please contact Amy Daniel or myself at (803) 743-9985 and (803) 820-5525 respectively.

Sincerely,

M. A. Hunt

M.A.HUNT, P.E.
BRAC Environmental Coordinator
BRAC Division

Encl: Final AOC 710 Interim Measure Completion Report
Copy to:
SCDHEC (3)
USEPA (Dann Spariosu)
SOUTHNAVFACENGCOM (Matthew Hunt)
CSO Naval Base Charleston (Amy Daniel)

COMPLETION REPORT
Interim Remedial Measure for Zone H Grids G07 & G038 Charleston Naval Complex Charleston, SC

Engineering Branch Head: _____ **Date:** 12/14/99

Prepared By: _____ **Date:** 12/14/99

Site work for this Interim Measure was completed by SUPSHIP, Environmental Detachment Charleston. This report is being submitted by South Carolina Research Authority (SCRA) Environmental Enterprise Group (EEG) established as a result of the US Navy's privatization of SUPSHIP Environmental Detachment Charleston on 13 September 1999.

DOCUMENT GENERATED BY:
SOUTH CAROLINA RESEARCH AUTHORITY
Environmental Enterprise Group
1899 NORTH HOBSON AVENUE
NORTH CHARLESTON, SC 29405

COMPLETION REPORT

INTERIM MEASURE FOR
ZONE H GRIDS G07 AND G038
NAVAL BASE CHARLESTON
CHARLESTON, SC

Prepared for:

DEPARTMENT OF THE NAVY
SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
CHARLESTON SC

Prepared by:

SOUTH CAROLINA RESEARCH AUTHORITY
Environmental Enterprise Group
1899 North Hobson Avenue, Bldg. 30
North Charleston, SC 29405-2106

October 12, 1999

COMPLETION REPORT

INTERIM MEASURE FOR
ZONE H GRIDS G07 AND G038
NAVAL BASE CHARLESTON
CHARLESTON, SC

Prepared for:

DEPARTMENT OF THE NAVY
SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
CHARLESTON SC

Prepared by:

SOUTH CAROLINA RESEARCH AUTHORITY
Environmental Enterprise Group
1899 North Hobson Avenue, Bldg. 30
North Charleston, SC 29405-2106

October 12, 1999

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ACRONYMS, ABBREVIATIONS and SYMBOL

AOC	Area of Concern
BGS	Below Ground Surface
BEQs	Benzo(a)pyrene Equivalents
CFR	Code of Federal Regulation
CMS	Corrective Measures Study
COPC	Constituents of Potential Concern
cPAHs	Carcinogenic Polyaromatic Hydrocarbons
DERP	Defense Environmental Restoration Program
DET	Environmental Detachment Charleston
DON	Department of the Navy
DQO	Data Quality Objective
EDC	Environmental Detachment Charleston
EPA	U. S. Environmental Protection Agency
IM	Interim Measure
IR	Installation Restoration
OIAs	Other Impacted Areas
PCBs	Polychlorinated biphenyls
ppm	Parts Per Million
RBC	Risk-Based Concentration
RBSLs	Risk Based Screening Levels
RCRA	Resource Conservation and Recovery Act
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
SARA	Superfund Amendments and Reauthorization Act
SCDHEC	South Carolina Department of Health and Environmental Control
SOUTHDIV	Southern Division Naval Facilities Engineering Command
SSL	Soil Screening Levels
SUPSHIP	Supervisor of Shipbuilding, Conversion and Repair, USN
SWMU	Solid Waste Management Units
USN	United States Navy

1. INTRODUCTION

1.1 INSTALLATION RESTORATION PROGRAM The purpose of the Department of the Navy (DON) Installation Restoration (IR) Program is to identify, assess, characterize and clean up or control contamination from past hazardous waste disposal operations and hazardous material spills at Navy and Marine Corps activities. The Defense Environmental Restoration Program (DERP) is codified in the Superfund Amendments and Reauthorization Act (SARA) Section 211 (10 USC 2701). The IR Program is a component of DERP.

1.1.1 NAVAL BASE CHARLESTON IR PROGRAM At Naval Base Charleston, a Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA) was prepared which divided the Naval Base into zones and identified Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) within each zone. The RFA evaluated each SWMU and AOC and determined which sites required further investigation. Based on the RFA, a RCRA Facility Investigation (RFI) work plan has been or is being prepared for each zone containing SWMUs and AOCs requiring further investigation. On completion of the RFI for each Zone, a RFI report will be prepared for that zone. The RFI reports will identify SWMUs and AOCs containing wastes requiring remediation. Eventually, Corrective Measures Studies (CMSs) will be prepared to determine the best means of remediating each site.

1.2. INTERIM MEASURES Interim Measures (IM) performed as part of the Installation Restoration Program (IR) are intended to eliminate sources of environmental contamination or limit the spread of environmental contaminants prior to the completion of the RFI CMSs.

1.3 ZONE H OTHER IMPACTED AREAS GRIDS G07 & G038 HISTORY During the RFI, soil and groundwater samples were collected at grid-based sampling locations across Zone H and used for the determination of background or upper tolerance limit concentrations for select compounds and elements. Other Impacted Areas (OIAs) represents grid based areas where significant surface soil impacts of polychlorinated biphenyls (PCB as Aroclor 1260) and

benzo(a)pyrene equivalents (BEQs as benzo(a)anthracene, benzo(b)fluoranthene, dibenz(a,h)anthracene and benzo(a)pyrene) were noted in surface soil samples. The Zone H RFI dated 5 July 1996, PCB and BEQs are identified as the contaminants of concern. Grid-based soil borings GDHSB007 (G07) and GDHSB038 (G038) contained Aroclor 1260 at concentrations higher than the Risk Based Screening Level (RBSL) of 83 μg/kg for that compound. Refer to the map for Zone H grid-based site locations in Figure 1 of Appendix A. During the RFI, BEQs were also detected at locations adjacent to grid sample G038. The BEQs detected could possibly be attributed to the asphalt paved surfaces present in the area.

Grid location G07 is a small grassy area encompassed by a concrete sidewalk, an asphalt parking area and street curbing. This area is situated at the west entrance of the parking lot adjacent to Buildings 644 and 644 Annex.

Grid location G038, a grassy area, is bounded by asphalt on the east and west. G038 is approximately 70 feet southeast of the Allied Technology Building 1135, formerly Building NS-84, adjacent to the associated parking lot.

PCBs were detected in the grassy areas of the grid locations and were the targeted contaminants for removal. Investigative sampling performed by Environmental Detachment Charleston (EDC) delineated the horizontal extent of PCB contamination at both sites. See Figures 2 & 4 of Appendix A for sample locations and results associated with grids G07 and G038 respectively.

1.4 ZONE H OTHER IMPACTED AREAS GRIDS G07 & G038 INTERIM MEASURE

During the interval between the RFI and the completion of the CMS, it was decided by Southern Division Naval Facilities Engineering Command (SOUTHDIV) that an IM would be performed by Supervisor of Shipbuilding, Conversion and Repair (SUPSHIP), United States Navy (USN), Portsmouth Va. Environmental Detachment Charleston (SPORTENVDETCHASN). The objective of this IM was to excavate and dispose of soil contaminated with PCB at grids G07 and G038. The excavations were to continue until a sampling program indicated with reasonable confidence that the concentration of PCB at the two sites was less than the clean soil definition as specified by 40 Code of Federal Regulations (CFR) 761.125 of < 1 ppm. Additionally,

SOUTHDIV requested that analysis for BEQs be included during the confirmation sampling at G038 excavation for informational purposes. Subsequent to the issue of this completion report the area designation was changed from OIA Grids G07 and G038 to AOC 710.

This IM is consistent with the ultimate cleanup of the site and is not intended to circumvent the public participation process inherent within environmental cleanup under RCRA authority.

2. INTERIM MEASURE EXECUTION

2.1 ACTIONS REQUIRED BY INTERIM MEASURE WORK PLAN The Interim Measure Work Plan accomplish the following at G07 and G038 sample grid locations:

Grid G07

- Removal and disposal of approximately 37 cubic yards of soils contaminated with PCB at G07 (see Appendix F for manifests)
- Perform confirmation sampling of excavated area for PCBs
- Backfill excavation with clean soil
- Grade and seed to restore site to original conditions

Grid G038

- Removal and disposal of approximately 123 cubic yards of soils contaminated with PCB at G038 (see Appendix F for manifests)
- Perform confirmation sampling of excavated area for PCBs and BEQ informational analysis
- Backfill excavation with clean soil
- Grade and seed to restore site to original conditions

The land surface to approximately 18-inches below ground surface was made up of topsoil interspersed with rocks and minor debris. Soil color ranged from medium to dark brown. Groundwater was not encountered during the course of the excavation work.

2.1.1 PLAN MODIFICATIONS AND JUSTIFICATION The IM Work Plan specified removal of soil to a depth of one foot and beyond if deemed necessary at two grid locations G07 and G038.

Grid location GO38 confirmation sample results revealed that the excavation required further horizontal expansion of sidewall sample locations 1, 3, 6 and 7. Refer to Figure 5 of Appendix A for sample locations and results. An additional six inches was removed from the sidewalls at each of these sample locations. Second round confirmatory sampling indicated that the objective of this IM was met.

Grid location G07 excavation was impacted by electrical, water and sewer utilities. Additionally, a storm drainage system was encountered 16" below ground surface at G038. The piping for the storm drain was approximately 24" in diameter. Soil surrounding the utility interference and storm drain was removed to the maximum extent possible.

3. INTERIM MEASURE OUTCOME

3.1 SITE CONDITIONS FOLLOWING COMPLETION OF WORK Following completion of all site work on 17 August 1998, the DET had accomplished the removal of 143.26 cubic yards (214.89 tons) of PCB contaminated soil. Sample results listed in tables C-2 "GRID G07", C-4, and C-5 "Grid G038" of Appendix C verify that the remaining soil in both excavations met the objective of paragraph 1.4 of this IM. Soil was removed to a depth of approximately 12-inches at G07 grid site and approximately 18-inches at G038 grid site. Both sites were back-filled, graded and seeded to existing conditions. Site photographs are included in Appendix E.

4. SAMPLING

4.1 SAMPLING EVOLUTIONS AND RESULTS

4.1.1 Delineation Sampling Discrete samples were collected around grid location G07 and the surrounding utility interference's within the boundary of grid location G07. Refer to Appendix A, Figure 2 for locations and results. See Table C-1 found in Appendix C "GRID G07" for analytical sample tables and data sheets.

Discrete samples were initially collected in close proximity surrounding grid location G038. All sample results indicated PCB levels >1ppm. The sample area was expanded to include sampling at intervals of fifty feet down the length of the grassy area within the asphalt boundaries of grid sample G 038. Refer to Figure 4 of Appendix A for sample locations and results. See Table C-3 found in Appendix "GRID G038" for analytical sample tables and data sheets.

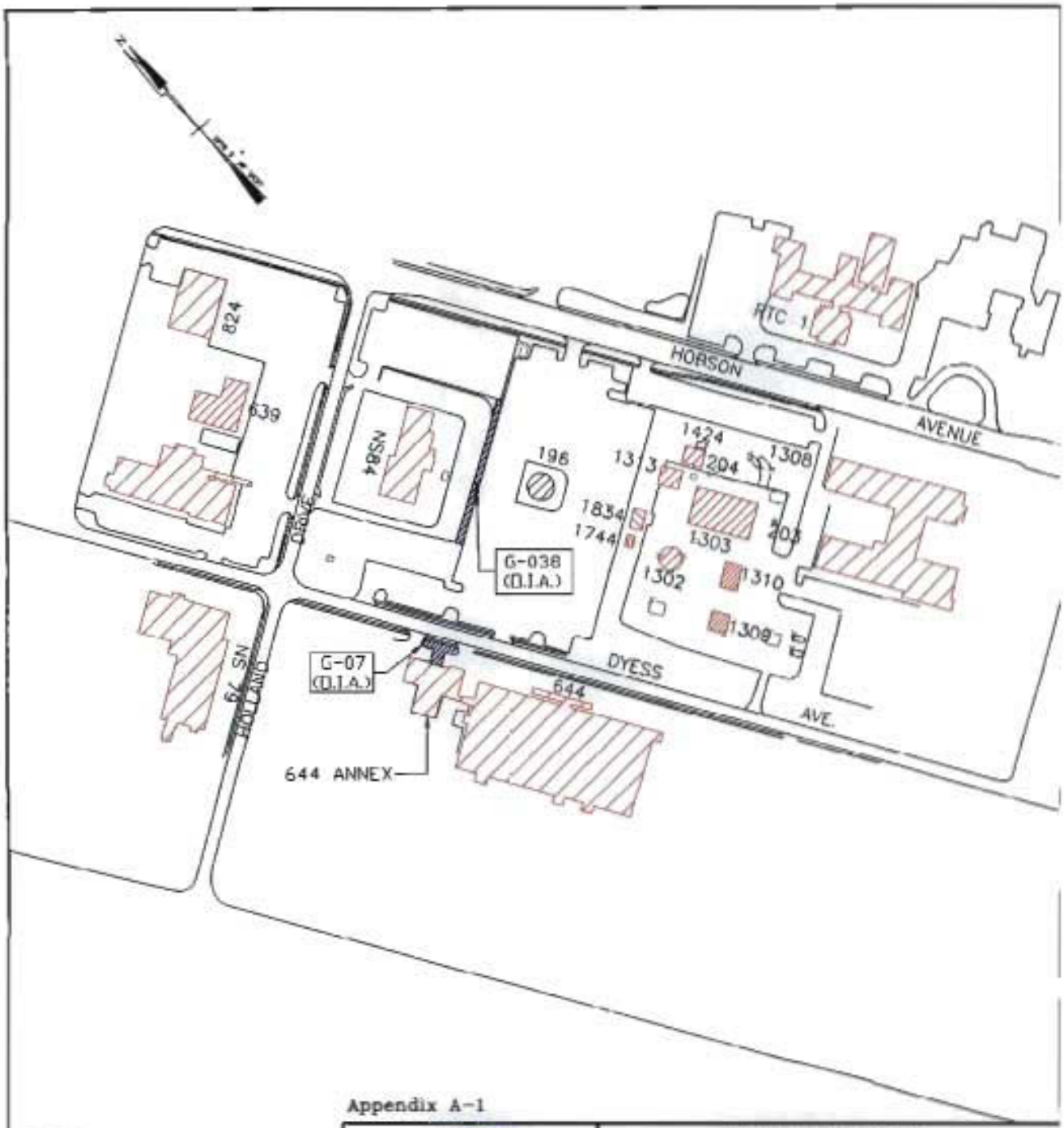
4.1.2 Confirmation Sampling Upon completion of excavation work, discrete samples were collected along the sidewalls and bottom of each of the excavations to determine the effectiveness of the soil removal. The samples were analyzed for PCBs (as Aroclor 1260). Grid site G038 analysis included BEQs for informational purposes. Refer to figures 3 (G07), 5 and 6 (G038) for sample locations and results. of Appendix Table C-2 found under "GRID G07" and tables C-3, C-4 and C-5 under "GRID G038"of Appendix C lists confirmation sampling results along with analytical data sheets.

4.1.3 Waste Characterization The excavated soils were characterized as a special waste (<50 ppm PCBs) based on all site delineation samples showing PCB levels <10 ppm and RFI data.

5. WASTE GENERATION

5.1 NON-HAZARDOUS SPECIAL WASTE

A total of 143.26 cubic yards of non-hazardous PCB and BEQ contaminated soil was disposed of to Chambers Landfill, a Subtitle D landfill permitted to accept special waste. Waste Manifests are enclosed in Appendix F.



Appendix A-1

LEGEND

(O.I.A.) - OTHER IMPACTED AREA

250' 0 250'

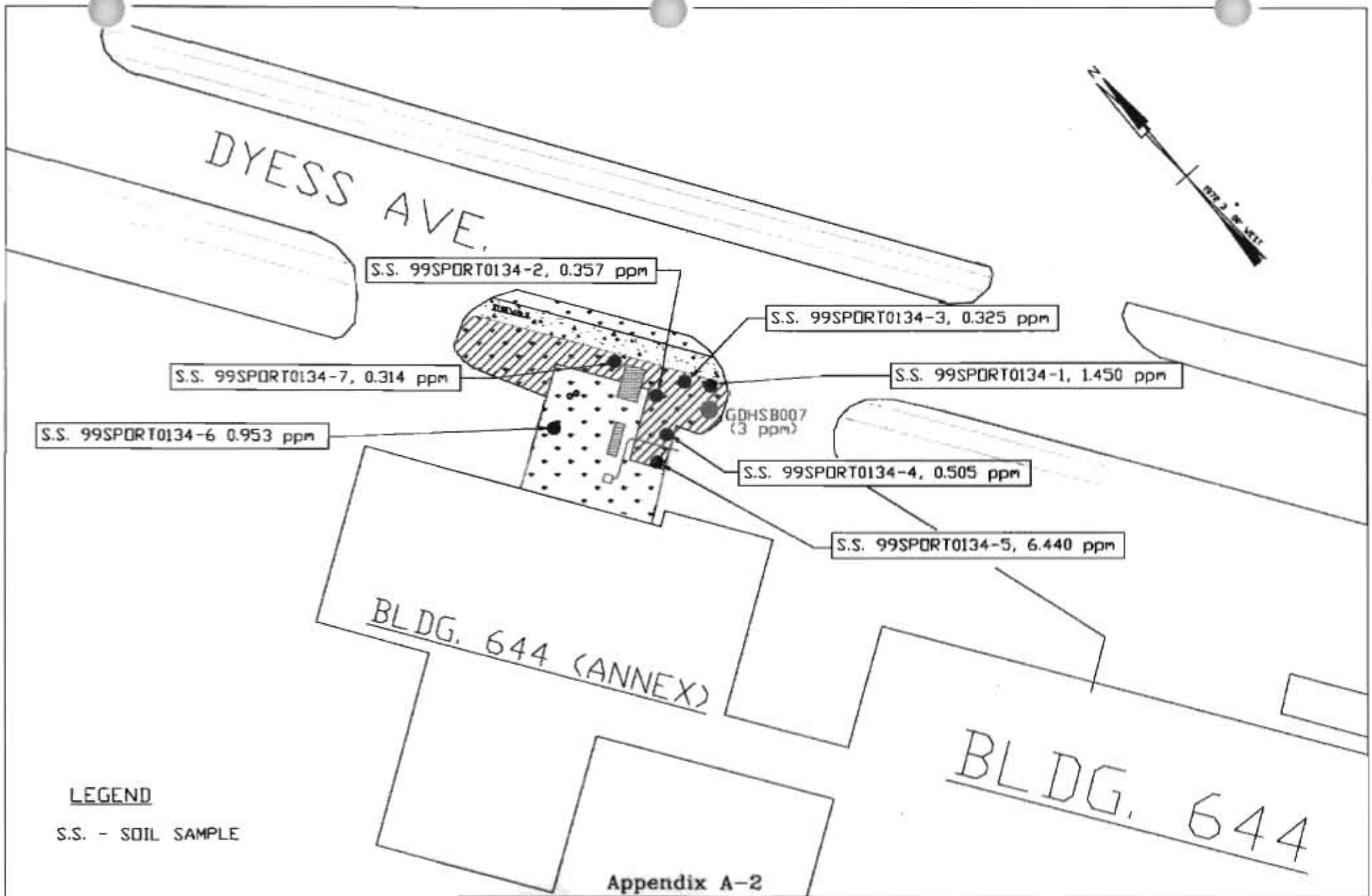
GRAPHIC SCALE

ENVIRONMENTAL DETACHMENT CHARLESTON SOUTH CAROLINA

SPOKTENVDETCHASN
1899 North Hobson Ave.
North Charleston, SC 29405-2106
Ph. (803) 743-6777

Figure 1 - Zone H - Grid G07
OTHER IMPACTED AREAS
Charleston Naval Base
Charleston, SC

DWG DATE: 27 SEP 99 | DWG NAME: 9-644/NS84_1



Appendix A-2

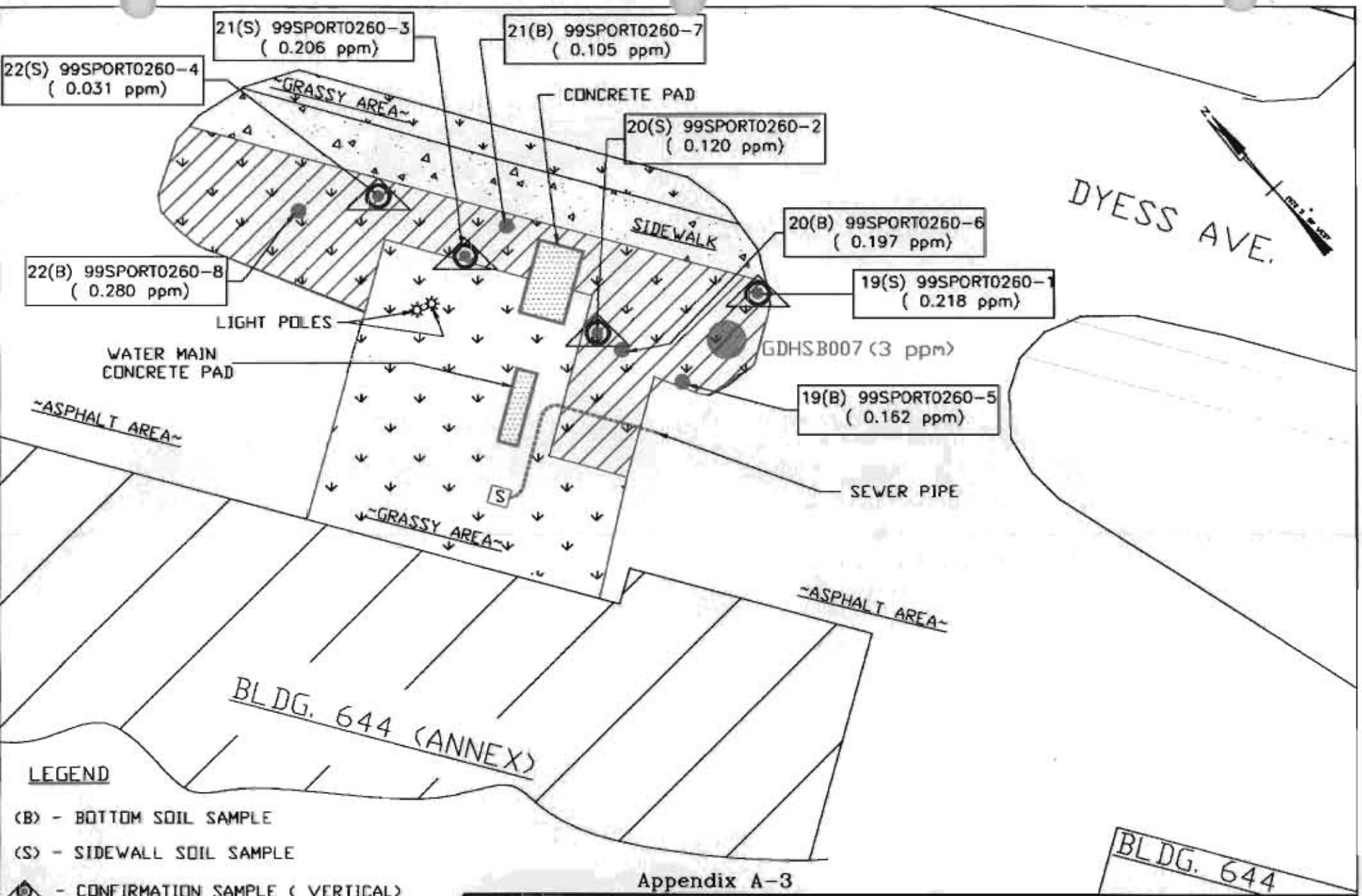
30' 0 30' 60'

GRAPHIC SCALE

SPORTENVDETCHASN
1899 North Hobson Ave.
North Charleston, SC
29405-2106
Ph. (803) 743-6777

Figure 2 PCB DELINEATION SAMPLES
Zone H Grid G07
BUILDING 644
Naval Base Charleston, SC

DWG DATE:16 APR 99 | DWG NAME: B-644_2A



LEGEND

(B) - BOTTOM SOIL SAMPLE

(S) - SIDEWALL SOIL SAMPLE

- CONFIRMATION SAMPLE (VERTICAL)

- EXCAVATION AREA

15' 0 15' 30'

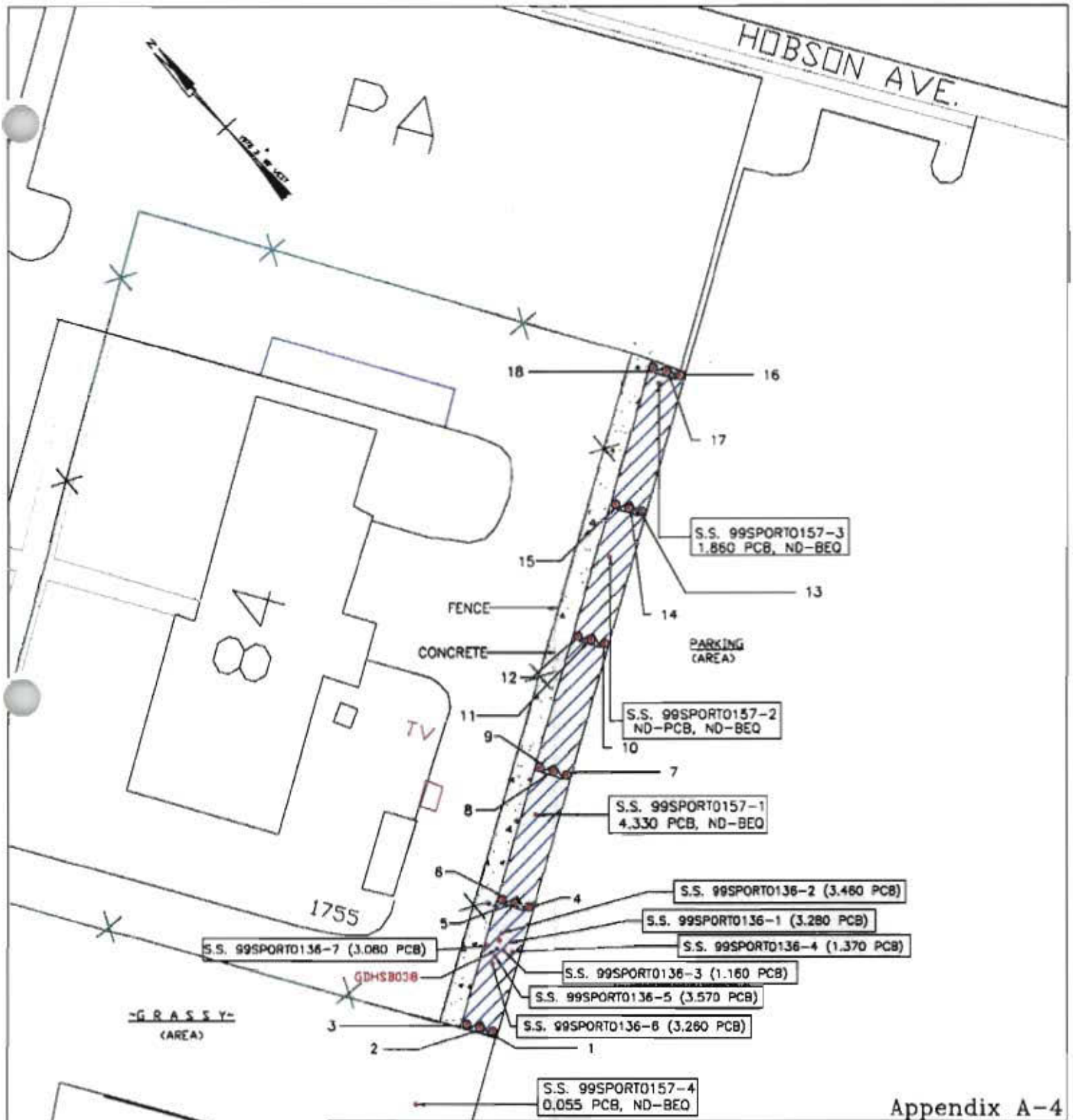
GRAPHIC SCALE

Appendix A-3

SPORTENVDETCHASN
1899 North Hobson Ave.
North Charleston, SC
29405-2106
Ph. (803) 743-6777

Figure 3 PCB CONFIRMATION SAMPLES
Zone H Grid G07
BUILDING 644
Naval Base Charleston, SC

DWG DATE: 24 SEP 99 | DWG NAME: B-644_3A

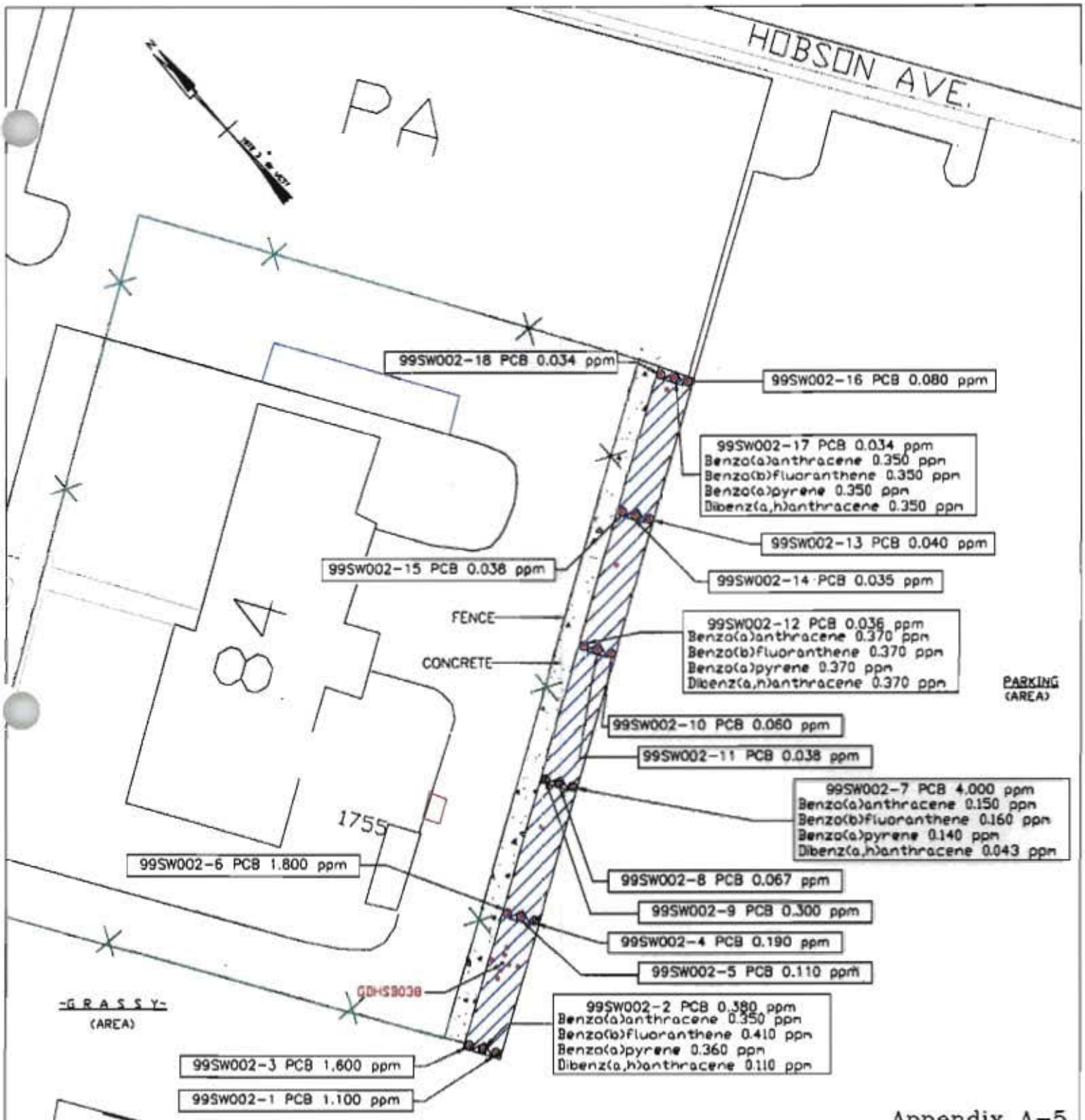


Appendix A-4

SPORTENVDETCHASN
1899 North Hobson Ave.
North Charleston, SC 29405-2106
Ph. (803) 743-8777

Figure 4 PCB DELINEATION SAMPLES
Zone H Grid G038
BUILDING 84/1135
Naval Base Charleston, SC

DWG DATE: 21 JUL 99 | DWG NAME: B-84_4A



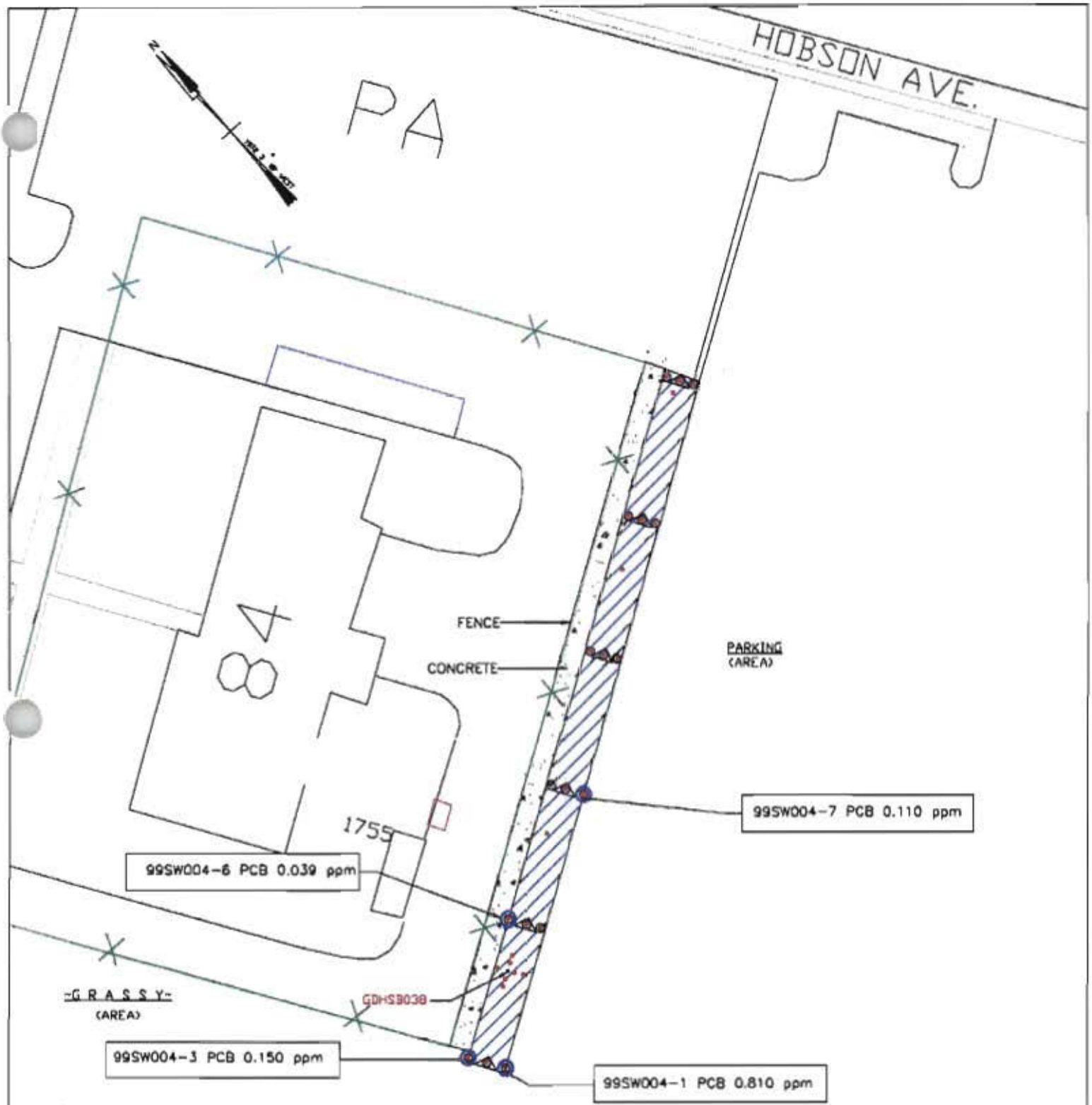
Appendix A-5

ENVIRONMENTAL DETACHMENT CHARLESTON
SOUTH CAROLINA

SPORTENVDETCHASN
1899 North Hobson Ave.
North Charleston, SC 29405-2106
Ph. (803) 743-6777

Figure 5 PCB INITIAL EXCAVATION
Zone H Gird G038 Confirmation Samples
BUILDING 84/1135
Naval Base Charleston, SC

DWG DATE: 23 SEP 99 | DWG NAME: B-84_5A



Appendix A-6

LEGEND

- CONFIRMATION SAMPLE (HORITZ.)
- EXCAVATION AREA
- CONFIRMATION SAMPLE (VERT.)
- FINAL CONFIRMATION SAMPLE (HORTZ.)

30' 0 30' 60'

GRAPHIC SCALE

ENVIRONMENTAL DETACHMENT CHARLESTON
SOUTH CAROLINA

SPORTENVDETCHASN
1899 North Hobson Ave.
North Charleston, SC 29405-2106
Ph. (803) 743-6777

Figure 6 PCB FINAL EXCAVATION
Zone H Gird G038 Confirmation Samples
BUILDING 84/1135
Naval Base Charleston, SC

DWG DATE: 23 SEP 99 | DWG NAME: B-84_6A

D H E C
PROMOTE PROTECT PROSPER
2600 Bull Street
Columbia, SC 29201-1708

MEMORANDUM

TO: Mihir Mehta, Environmental Engineer Associate
Corrective Action Engineering Section
Hazardous and Infectious Waste Management
Bureau of Land and Waste Management

PMB

FROM: Paul M. Bergstrand, P.G., Hydrogeologist
Hazardous Waste Section
Division of Hydrogeology
Bureau of Land and Waste Management

DATE: 8 July 1999

RE: Charleston Naval Base (CNAV)
Charleston County, South Carolina
SC0 170 022 560

Interim Measure Workplan
Zone H, OIAs G07 and G038
Received 1 July 1999, Revision 0

The materials referenced above have been reviewed with respect to the requirements of R.61-79 of the South Carolina Hazardous Waste Management Regulations, The Environmental Protection Agency's (EPA) RCRA Facility Investigation Guidance Document dated May 1989, the EPA Region IV Environmental Compliance Branch Standard Operating Procedures and Quality Assurance Manual (SOP/QAM) dated May 1996 and the CNAV Final Comprehensive Sampling and Analysis Plan dated 30 August 1994.

Two comments have been provided.

DD990559.PMB

Zone H, OIAs G07 and G038 Work Plan
Paul M. Bergstrand
8 July 1999

1. Page 2, Section 4 WORK PLAN IMPLEMENTATION

This section states "The extent of the excavation...at location G07 shown in Figure 3 of Appendix D.... (and)... at location G038 shown in Figure 4 of Appendix D..." The extent of excavation is not clearly indicated on either figure. Please revise these two figures.

The two revised figures may be submitted to be included in the workplan. The two revised figures should be submitted before the document can be approved.

2. Appendix B, Site Specific Health and Safety Plan

Review of this section is deferred.

South Carolina Department of Health and Environmental Control comments on: Interim Measures Work Plan for Other Impacted Areas (OIAs) Grid G07 and Grid G038; dated June 29, 1999; Located in Zone H Charleston Naval Complex SCO 170 022 560.

Comments Generated By Mihir Mehta:

1. Section 4; Work Plan Implementation; page 2.
Third line states, "The excavation depth for both locations is approximately 1 foot."

Section 2; Work Plan Objective; page 1.
This section states that the cleanup level for PCB contaminated soil will be < 1 ppm (parts per million)-which is the clean definition

The two goals stated above are contradicting as 1 foot of soil excavation may not reduce the PCB contaminated soils to levels below 1 ppm. Therefore, only one interim measure objective or goal should be stated in the referenced document (i.e., the PCB contaminated soils will be removed to meet the clean definition of less than 1 ppm as specified by 40 CFR 761.125). Please revise the document to address this concern.

2. Section 5; Sampling; page 2.
This paragraph does not describe whether the confirmatory samples collected be composited into one sample or discrete analysis will be performed. The confirmatory sampling and analysis should be discrete to understand the nature and extent of residual contaminant concentration at these two sites.

grab discrete

Also, explain how or what criteria were used for the selection of confirmatory samples (both location and number).

Please revise this section to address this concern.

3. Appendix A; 1. Site History; page A-1.
Please provide brief description and figure to orient the sites (G07 & G038) within Zone H and with respect to SWMU or AOC within which the RFI sampling was conducted.

4. Figure 3 and 4; PCB Excavation Area for Grid07 and G038.
Section 4, page 2, fourth line states that, "Samples collected to delineate the site horizontally will be used to confirm the horizontal extent of excavation." The referenced figure does not show any sample locations to confirm the horizontal extent of excavation. Please revise these figures to address this concern. Please show the excavation area for G038 on Figure 4.

D H E C
PROMOTE PROTECT PROSPER
2600 Bull Street
Columbia, SC 29201-1708

COMMISSIONER:
Douglas E. Bryant

BOARD:
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William M. Hull, Jr., MD
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Secretary

Mark B. Kent

Cyndi C. Mosteller

Brian K. Smith

Rodney L. Grandy

July 12, 1999

Henry Shepard II, P.E.
Caretaker Site Office
NAVFACENGCOM, Southern Division
P. O. Box 190010
North Charleston, SC 29419-9010

Re: Interim Measures Work Plan for Other Impacted Areas (OIAs) Grid G07 and Grid G038; dated June 29, 1999; Located in Zone H Charleston Naval Complex SCO 170 022 560.

Dear Mr. Shepard:

The South Carolina Department of Health and Environmental Control (Department) has reviewed the above referenced Interim Measures Work Plan (6/29/99) according to applicable State and Federal Regulations, and the Charleston Naval Complex Hazardous Waste Permit, effective September 17, 1999. The attached comments were generated based on this review. These comments must be addressed prior to the final approval of the referenced document and field implementation of the interim measure.

Further, the Department is available to clarify any of the attached comments before the submittal of the comment responses and the revised pages in order to expedite the resolution of these issues.

Should you have any questions, please contact me at Mihir Mehta at (803) 896-4088 or Paul Bergstrand at (803) 896-4016.

Attachment: Memorandum from Paul Bergstrand to Mihir Mehta dated July 8, 1999.

Sincerely,

M. P. Mehta.

Mihir P. Mehta, Project Manager
Corrective Action Engineering Section
Bureau of Land & Waste Management

cc: Paul Bergstrand, Hydrogeology
Rick Richter, Trident EQC
David Dodds, SOUTHDIV
Dann Spariosu, EPA Region IV

H E C
PROMOTE PROTECT PROSPER
2600 Bull Street
Columbia, SC 29201-1708

MEMORANDUM

TO: Mihir Mehta, Environmental Engineer Associate
Corrective Action Engineering Section
Hazardous and Infectious Waste Management
Bureau of Land and Waste Management

FROM: Paul M. Bergstrand, P.G., Hydrogeologist PMB
Hazardous Waste Section
Division of Hydrogeology
Bureau of Land and Waste Management

DATE: 28 July 1999

RE: Charleston Naval Base (CNAV)
Charleston County, South Carolina
SC0 170 022 560

Interim Measure Workplan
Zone H, OIAs G07 and G038
Received 23 July 1999, Revision 1

The materials referenced above have been reviewed with respect to the requirements of R.61-79 of the South Carolina Hazardous Waste Management Regulations, The Environmental Protection Agency's (EPA) RCRA Facility Investigation Guidance Document dated May 1989, the EPA Region IV Environmental Compliance Branch Standard Operating Procedures and Quality Assurance Manual (SOP/QAM) dated May 1996 and the CNAV Final Comprehensive Sampling and Analysis Plan dated 30 August 1994.

This Workplan is approvable.

DHEC
PROMOTE PROTECT PROSPER
2600 Bull Street
Columbia, SC 29201-1708

COMMISSIONER:
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Vice Chairman

Roger Leaks, Jr.
Secretary

Mark B. Kent

Cyndi C. Mosteller

Brian K. Smith

Rodney L. Grandy

July 29, 1999

Henry Shepard II, P.E.
Caretaker Site Office
NAVFACENGCOM, Southern Division
P. O. Box 190010
North Charleston, SC 29419-9010

Re: Interim Measures Work Plan for Other Impacted Areas (OIAs) Grid G07 and Grid G038; dated June 29, 1999; Located in Zone H Charleston Naval Complex SCO 170 022 560. Comment Responses and revised pages for the Interim Measures Work Plan received July 23, 1999.

Dear Mr. Shepard:

The South Carolina Department of Health and Environmental Control (Department) has reviewed the above referenced Interim Measures Work Plan (6/29/99) according to applicable State and Federal Regulations, and the Charleston Naval Complex Hazardous Waste Permit, effective September 17, 1999. Based on this review the referenced interim measures work plan is approved as submitted.

Should you have any questions, please contact me at (803) 896-4185 or Mihir Mehta at (803) 896-4088 or Paul Bergstrand at (803) 896-4016.

Sincerely,

David M. Scaturo

David M. Scaturo, P.E., P.G., Manager
Corrective Action Engineering Section
Bureau of Land & Waste Management

Attachment: Memorandum from Paul Bergstrand to Mihir Mehta dated July 28, 1999.

cc: Paul Bergstrand, Hydrogeology
Rick Richter, Trident EQC
David Dodds, SOUTHDIV
Dann Spariosu, EPA Region IV

OAKRIDGE LANDFILL
A WASTE MANAGEMENT COMPANY

SPECIAL WASTE APPROVAL NOTIFICATION

DATE: 18 AUGUST 1999

GENERATOR: ENVIRONMENTAL DETACHMENT CHARLESTON

CONTACT: VIRGINIA THOMAS

CUSTOMER: BUTLERWARE TRUCKING

CONTACT: BOB WELBORN

DESCRIPTION: PCB CONTAMINATED SOIL

The Special Waste Disposal Application you submitted for the Generator referenced above has been approved for a period of 03 months beginning 18 AUGUST 1999 for a volume of 239 TONS .

Your approval number is OR 9908013 . Please ensure this approval number is on all waste manifests and correspondence regarding this waste stream in order to facilitate proper disposal and documentation. **Please sign the manifest and provide a copy to your transporter** to accompany each load sent to the landfill for disposal. Your cooperation is appreciated.

Sincerely,

Oakridge Landfill, Inc./WMI

Ronnie L. Culbreth
Special Waste Administrator

2183 HIGHWAY 78, POB 145 DORCHESTER SC 29437
TEL: 843-563-2607 - FAX: 843-563-4158

Table C-1 GRID G07 DELINEATION SAMPLE SUMMARY

SAMPLE # (SPORT)	SAMPLE # (NBCA)	CONSTITUENT	RESULTS (MG/KG)	REGION III INDUSTRIAL RBC (MG/KG)
99SPORT0134-1	NBCGDOS7SB1-01	PCB	**1.450**	< 1
99SPORT0134-2	NBCGDOS7SB2-01	PCB	0.357	< 1
99SPORT0134-3	NBCGDOS7SB3-01	PCB	0.325	< 1
99SPORT0134-4	NBCGDOS7SB4-01	PCB	0.505	< 1
99SPORT0134-5	NBCGDOS7SB5-01	PCB	**6.440**	< 1
99SPORT0134-6	NBCGDOS7SB6-01	PCB	0.953	< 1
99SPORT0134-7	NBCGDOS7SB7-01	PCB	0.314	< 1

ND = NOT DETECTED **BOLD** = VALUES EXCEEDING THE INDUSTRIAL CLEANUP GOAL AS SPECIFIED IN 40 CFR 761.125

Table C-2 GRID G07 CONFIRMATION SAMPLE SUMMARY

SAMPLE # (SPORT)	SAMPLE # (NBCA)	CONSTITUENT	RESULTS (MG/KG)	REGION III INDUSTRIAL RBC (MG/KG)
99SPORT0260-1	NBCZNHSG0719	PCB	0.218	< 1
99SPORT0260-1	NBCZNHSG0720	PCB	0.120	< 1
99SPORT0260-1	NBCZNHSG0721	PCB	0.206	< 1
99SPORT0260-1	NBCZNHSG0722	PCB	0.031	< 1
99SPORT0260-1	NBCZNHSG0719	PCB	0.162	< 1
99SPORT0260-1	NBCZNHSG0720	PCB	0.197	< 1
99SPORT0260-1	NBCZNHSG0721	PCB	0.105	< 1
99SPORT0260-1	NBCZNHSG0722	PCB	0.280	< 1

ND = NOT DETECTED **BOLD** = VALUES EXCEEDING THE INDUSTRIAL CLEANUP GOAL AS SPECIFIED IN 40 CFR 761.125

NPWC 0019 1

G 04055%

General Engineering Laboratories, Inc
2040 Savage Road
Charleston, South Carolina 407
P.O. Box 30712
Charleston, South Carolina 29417
(803) 556-8171

CHAIN OF CUSTODY RECORD

— 3 DAY TURNAROUND —

Client Name/Facility Name: SPORTENVDETCHASN

Collected by/Company: SPORTENVDETCHASN

SAMPLE ANALYSIS REQUIRED (x) - use remarks area to specify specific compounds or methods

Use F or P in the boxes to indicate whether sample was filtered and/or preserved

CCL# 39407

	SAMPLE ID	DATE	TIME	WELL	SOIL	COMP	GRAB	# OF CONTAINERS	pH, conductivity	TOC/DOC	TOX	Chloride, Fluoride, Sulfide	Nitrite/Nitrate	VOC - Specify Method required	METALS - specify	Pesticide	Herbicide	Total Phenol	Acid Extractables	B/N Extractables	PCB's	Cyanide	Coliform - specify type			Remarks
08	99SPORT0134-1	4/1/99	1050		X		X	1													X					NBCGA057SB1-01
02	99SPORT0134-2	4/1/99	1102		X		X	1													X					NBCGA057SB2-01
03	99SPORT0134-3	4/1/99	1110		X		X	1													X					NBCGA057SB3-01
04	99SPORT0134-4	4/1/99	1115		X		X	1													X					NBCGA057SB4-01
05	99SPORT0134-5	4/1/99	1120		X		X	1													X					NBCGA057SB5-01
06	99SPORT0134-6	4/1/99	1125		X		X	1													X					NBCGA057SB6-01
07	99SPORT0134-7	4/1/99	1130		X		X	1													X					NBCGA057SB7-01

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
[signature]	4/1/99	1400	W.K. Hiers, Jr.	W.K. Hiers, Jr.	4/1/99	1538	[signature]
Relinquished by:	Date:	Time:	Received by lab by:	Date:	Time:	Remarks:	
Stephanie Bethelen	4-1-99	1610					

White = sample collector Yellow = file Pink = with report

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	02934

Client	Supervisor of Ship Building & Conversion SUPSHIP-Portsmouth Detachment-Env 1899 North Hobson Ave North Charleston, South Carolina 29405-2106
Contact	Mr Bill Hiers
Project Description	SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date April 07, 1999

Sample ID	99SPORT0134-1
Lab ID	9904055-01
Matrix	Soil
Date Collected	04/01/99
Date Received	04/01/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Extractable Organics											
PCB analysis - 7 items											
PCB-1016	U	ND	60.8	167	ug/kg	50	JLW	04/05/99	2142	145878	1
PCB-1221	U	ND	141	167	ug/kg	50					
PCB-1232	U	ND	81.4	167	ug/kg	50					
PCB-1242	U	ND	83.4	167	ug/kg	50					
PCB-1248	U	ND	45.3	167	ug/kg	50					
PCB-1254	U	ND	58.1	167	ug/kg	50					
PCB-1260		1450	47.1	167	ug/kg	50					

The following prep procedures were performed:

PCB's RDH 04/02/99 1410 145878 2

Comments:

Fails surrogate recovery due to sample dilution

Surrogate Recovery	Test	Percent %	Acceptable Limits
4CMX	PCB-8082	0.00*	25.3 - 110
Decachlorobiphenyl	PCB-8082	0.00*	46.8 - 131

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9904055-01

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	9120	10582
TN	02934	02934

Client	Supervisor of Ship Building & Conversion SUPSHIP-Portsmouth Detachment-Env 1899 North Hobson Ave North Charleston, South Carolina 29405-2106
Contact:	Mr. Bill Hiers
Project Description	SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date April 07, 1999

Sample ID	99SPORT0134-1

M = Method	Method-Description
M 1	EPA 8082
M 2	EPA 3550

Notes:
The qualifiers in this report are defined as follows
ND indicates that the analyte was not detected at a concentration greater than the detection limit.
J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL)
U indicates that the analyte was not detected at a concentration greater than the detection limit
* indicates that a quality control analyte recovery is outside of specified acceptance criteria

This data report has been prepared and reviewed
in accordance with General Engineering Laboratories
standard operating procedures Please direct
any questions to your Project Manager, Elise Hanson at 843-556-8171

Reviewed By

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9904055-01

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	02934

Client	Supervisor of Ship Building & Conversion SUPSHIP-Portsmouth Detachment-Env 1899 North Hobson Ave North Charleston, South Carolina 29405-2106
Contact	Mr Bill Hiers
Project Description	SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date April 07, 1999

Sample ID	99SPORT0134-2
Lab ID	9904055-02
Matrix	Soil
Date Collected	04/01/99
Date Received	04/01/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Extractable Organics											
PCB analysis - 7 items											
PCB-1016	U	ND	12.2	33.3	ug/kg	10	JLW	04/05/99	2205	145878	1
PCB-1221	U	ND	28.2	33.3	ug/kg	10					
PCB-1232	U	ND	16.3	33.3	ug/kg	10					
PCB-1242	U	ND	16.7	33.3	ug/kg	10					
PCB-1248	U	ND	9.06	33.3	ug/kg	10					
PCB-1254	U	ND	11.6	33.3	ug/kg	10					
PCB-1260		357	9.42	33.3	ug/kg	10					

The following prep procedures were performed:

PCB's RDH 04/02/99 1410 145878 2

Surrogate Recovery	Test	Percent %	Acceptable Limits
4CMX	PCB-8082	70.0	(25.3 - 110.)
Decachlorobiphenyl	PCB-8082	100	(46.8 - 131.)

M = Method	Method-Description
M 1	EPA 8082
M 2	EPA 3550

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	02934

Client	Supervisor of Ship Building & Conversion SUPSHIP-Portsmouth Detachment-Env 1899 North Hobson Ave North Charleston, South Carolina 29405-2106
Contact	Mr Bill Hiers
Project Description	SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date April 07, 1999

Sample ID	99SPORT0134-2
M = Method	**Method-Description**

Notes

The qualifiers in this report are defined as follows

ND indicates that the analyte was not detected at a concentration greater than the detection limit

J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL)

U indicates that the analyte was not detected at a concentration greater than the detection limit.

indicates that a quality control analyte recovery is outside of specified acceptance criteria

This data report has been prepared and reviewed in accordance with General Engineering Laboratories standard operating procedures Please direct any questions to your Project Manager, Elise Hanson at 843-556-8171

Reviewed By

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9904055-02

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	02934

Client	Supervisor of Ship Building & Conversion SUPSHIP-Portsmouth Detachment-Env 1899 North Hobson Ave North Charleston, South Carolina 29405-2106
Contact	Mr Bill Hiers
Project Description	SUPSHIP-Portsmouth Detachment

cc NPWC00197 Report Date April 07, 1999

Sample ID	99SPORT0134-3
Lab ID	9904055-03
Matrix	Soil
Date Collected	04/01/99
Date Received	04/01/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Extractable Organics											
PCB analysis - 7 items											
PCB-1016	U	ND	12.2	33.3	ug/kg	10	JLW	04/06/99	0831	145878	1
PCB-1221	U	ND	28.2	33.3	ug/kg	10					
PCB-1232	U	ND	16.3	33.3	ug/kg	10					
PCB-1242	U	ND	16.7	33.3	ug/kg	10					
PCB-1248	U	ND	9.06	33.3	ug/kg	10					
PCB-1254	U	ND	11.6	33.3	ug/kg	10					
PCB-1260		325	9.42	33.3	ug/kg	10					

The following prep procedures were performed:

PCB's RDH 04/02/99 1410 145878 2

Surrogate Recovery	Test	Percent %	Acceptable Limits
4CMX	PCB-8082	70.0	25.3 - 110.[illegible]
Decachlorobiphenyl	PCB-8082	75.0	46.8 - 131.[illegible]

M = Method	Method-Description
M 1	EPA 8082
M 2	EPA 3550

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9904055-03

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	02934

Client	Supervisor of Ship Building & Conversion SUPSHIP-Portsmouth Detachment-Env 1899 North Hobson Ave North Charleston, South Carolina 29405-2106
Contact	Mr Bill Hiers
Project Description	SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date April 07, 1999

Sample ID 99SPORT0134-3

M = Method	Method-Description

Notes

The qualifiers in this report are defined as follows

ND indicates that the analyte was not detected at a concentration greater than the detection limit

J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL)

U indicates that the analyte was not detected at a concentration greater than the detection limit.

* indicates that a quality control analyte recovery is outside of specified acceptance criteria

This data report has been prepared and reviewed in accordance with General Engineering Laboratories standard operating procedures. Please direct any questions to your Project Manager, Elise Hanson at 843-556-8171

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	02934

Client	Supervisor of Ship Building & Conversion SUPSHIP-Portsmouth Detachment-Env 1899 North Hobson Ave North Charleston, South Carolina 29405-2106
Contact	Mr Bill Hiers
Project Description	SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date April 07, 1999

Sample ID	99SPORT0134-4
Lab ID	9904055-04
Matrix	Soil
Date Collected	04/01/99
Date Received	04/01/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Extractable Organics											
PCB analysis - 7 items											
PCB-1016	U	ND	24.3	66.6	ug/kg	20	JLW	04/05/99	2252	145878	1
PCB-1221	U	ND	56.3	66.6	ug/kg	20					
PCB-1232	U	ND	32.6	66.6	ug/kg	20					
PCB-1242	U	ND	33.4	66.6	ug/kg	20					
PCB-1248	U	ND	18.1	66.6	ug/kg	20					
PCB-1254	U	ND	23.2	66.6	ug/kg	20					
PCB-1260		505	18.8	66.6	ug/kg	20					

The following prep procedures were performed:

PCB's RDH 04/02/99 1410 145878 2

Surrogate Recovery	Test	Percent %	Acceptable Limits
4CMX	PCB-8082	91.2	25.3 - 110
Decachlorobiphenyl	PCB-8082	97.8	46.8 - 131

M = Method	Method-Description
M 1	EPA 8082
M 2	EPA 3550

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	02934

Client	Supervisor of Ship Building & Conversion SUPSHIP-Portsmouth Detachment-Env 1899 North Hobson Ave North Charleston, South Carolina 29405-2106
Contact	Mr Bill Hiers
Project Description	SUPSHIP-Portsmouth Detachment

cc NPWC00197 Report Date April 07, 1999

Sample ID	99SPORT0134-4
M = Method	**Method-Description**

Notes

The qualifiers in this report are defined as follows

ND indicates that the analyte was not detected at a concentration greater than the detection limit

J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL)

U indicates that the analyte was not detected at a concentration greater than the detection limit.

* indicates that a quality control analyte recovery is outside of specified acceptance criteria

This data report has been prepared and reviewed in accordance with General Engineering Laboratories standard operating procedures. Please direct any questions to your Project Manager, Elise Hanson at 843-556-8171

Reviewed By

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9904055-04

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	02934

Client	Supervisor of Ship Building & Conversion SUPSHIP-Portsmouth Detachment-Env 1899 North Hobson Ave North Charleston, South Carolina 29405-2106
Contact	Mr. Bill Hiers
Project Description	SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date April 07, 1999

Sample ID	99SPORT0134-5
Lab ID	9904055-05
Matrix	Soil
Date Collected	04/01/99
Date Received	04/01/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Extractable Organics											
PCB analysis - 7 items											
PCB-1016	U	ND	122	333	ug/kg	100	JLW	04/03/99	1616	145878	1
PCB-1221	U	ND	282	333	ug/kg	100					
PCB-1232	U	ND	163	333	ug/kg	100					
PCB-1242	U	ND	167	333	ug/kg	100					
PCB-1248	U	ND	90.6	333	ug/kg	100					
PCB-1254	U	ND	116	333	ug/kg	100					
PCB-1260		6440	94.2	333	ug/kg	100					

The following prep procedures were performed:

PCB's	RDH	04/02/99	1410	145878 2

Comments:

Fails surrogate recovery due to sample dilution

Surrogate Recovery	Test	Percent%	Acceptable Limits
4CMX	PCB-8082	0.00*	25.3 - 110
Decachlorobiphenyl	PCB-8082	0.00*	46.8 - 131

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9904055-05

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	02934

Client	Supervisor of Ship Building & Conversion SUPSHIP-Portsmouth Detachment-Env 1899 North Hobson Ave North Charleston, South Carolina 29405-2106
Contact	Mr Bill Hiers
Project Description:	SUPSHIP-Portsmouth Detachment

cc NPWC00197 Report Date April 07, 1999

Sample ID	99SPORT0134-5

M = Method	Method-Description
M 1	EPA 8082
M 2	EPA 3550

Notes

The qualifiers in this report are defined as follows

ND indicates that the analyte was not detected at a concentration greater than the detection limit.

J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL)

U indicates that the analyte was not detected at a concentration greater than the detection limit

* indicates that a quality control analyte recovery is outside of specified acceptance criteria

This data report has been prepared and reviewed in accordance with General Engineering Laboratories standard operating procedures Please direct any questions to your Project Manager Elise Hanson at 843-556-8171

E Hanson

Reviewed By

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9904955-05

GENERAL ENGINEERING LABORATORIES

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	02934

Client	Supervisor of Ship Building & Conversion SUPSHIP-Portsmouth Detachment-Env 1899 North Hobson Ave North Charleston, South Carolina 29405-2106
Contact	Mr Bill Hiers
Project Description	SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date April 07, 1999

Sample ID	99SPORT0134-6
Lab ID	9904055-06
Matrix	Soil
Date Collected	04/01/99
Date Received	04/01/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Extractable Organics											
PCB analysis - 7 items											
PCB-1016	U	ND	36.5	99.9	ug/kg	30	JLW	04/05/99	2315	145878	1
PCB-1221	U	ND	84.5	99.9	ug/kg	30					
PCB-1232	U	ND	48.9	99.9	ug/kg	30					
PCB-1242	U	ND	50.0	99.9	ug/kg	30					
PCB-1248	U	ND	27.2	99.9	ug/kg	30					
PCB-1254	U	ND	34.9	99.9	ug/kg	30					
PCB-1260		953	28.3	99.9	ug/kg	30					

The following prep procedures were performed:

PCB's RDH 04/02/99 1410 145878 2

Comments:

Fails surrogate recovery due to sample dilution

Surrogate Recovery	Test	Percent%	Acceptable Limits
4CMX	PCB-8082	0.00*	25.3 - 110.1
Decachlorobiphenyl	PCB-8082	0.00*	46.8 - 131.1

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env
1899 North Hobson Ave
North Charleston, South Carolina 29405-2106

Contact: Mr Bill Hiers

Project Description: SUPSHIP-Portsmouth Detachment

cc NPWC00197 | Report Date April 07 1999 |

Sample ID	99SPORT0134-6

M = Method	Method-Description
M 1	EPA 8082
M 2	EPA 3550

Notes.
The qualifiers in this report are defined as follows
ND indicates that the analyte was not detected at a concentration greater than the detection limit
J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL)
U indicates that the analyte was not detected at a concentration greater than the detection limit.
* indicates that a quality control analyte recovery is outside of specified acceptance criteria

This data report has been prepared and reviewed
in accordance with General Engineering Laboratories
standard operating procedures Please direct
any questions to your Project Manager, Elise Hanson at 843-556-8171

Reviewed By

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9904055-06

GENERAL ENGINEERING LABORATORIES

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	02934

Client	Supervisor of Ship Building & Conversion SUPSHIP-Portsmouth Detachment-Env 1899 North Hobson Ave North Charleston, South Carolina 29405-2106
Contact	Mr Bill Hiers
Project Description	SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date April 07, 1999

Sample ID	99SPORT0134-7
Lab ID	9904055-07
Matrix	Soil
Date Collected	04/01/99
Date Received	04/01/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Extractable Organics											
PCB analysis - 7 items											
PCB-1016	U	ND	12.2	33.3	ug/kg	10	JLW	04/05/99	0855	145878	1
PCB-1221	U	ND	28.2	33.3	ug/kg	10					
PCB-1232	U	ND	16.3	33.3	ug/kg	10					
PCB-1242	U	ND	16.7	33.3	ug/kg	10					
PCB-1248	U	ND	9.06	33.3	ug/kg	10					
PCB-1254	U	ND	11.6	33.3	ug/kg	10					
PCB-1260		314	9.42	33.3	ug/kg	10					

The following prep procedures were performed:

PCB's RDH 04/02/99 1410 145878 2

Surrogate Recovery	Test	Percent %	Acceptable Limits
4CMX	PCB-8082	90.0	(25.3 - 110.)
Decachlorobiphenyl	PCB-8082	90.0	(46.8 - 131.)

M = Method	Method-Description
M 1	EPA 8082
M 2	EPA 3550

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	02934

Client	Supervisor of Ship Building & Conversion SUPSHIP-Portsmouth Detachment-Env. 1899 North Hobson Ave North Charleston, South Carolina 29405-2106
Contact	Mr Bill Hiers
Project Description	SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date April 07, 1999

Sample ID	99SPORT0134-7

M = Method	Method-Description

Notes

The qualifiers in this report are defined as follows.

ND indicates that the analyte was not detected at a concentration greater than the detection limit

J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL)

U indicates that the analyte was not detected at a concentration greater than the detection limit

* indicates that a quality control analyte recovery is outside of specified acceptance criteria

This data report has been prepared and reviewed in accordance with General Engineering Laboratories standard operating procedures Please direct any questions to your Project Manager, Elise Hanson at 843-556-8171

Reviewed By

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QC Summary Report

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Lab. Sample ID: 9904055% Report Date: April 07, 1999

Sample/Parameter	Type	Batch	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Analyst	Date	Time
Extractable Organics													
QC598866	BLANK	145878											
PCB-1260						0.00	ug/kg				JLW	04/03/99	0915
*4CMX							ug/kg		56.0	(25.3 - 110.)			
*Decachlorobiphenyl							ug/kg		100	(46.8 - 131.)			
PCB-1016						0.00	ug/kg						
PCB-1221						0.00	ug/kg						
PCB-1232						0.00	ug/kg						
PCB-1242						0.00	ug/kg						
PCB-1248						0.00	ug/kg						
PCB-1254						0.00	ug/kg						
QC598867	LCS	145878											
PCB-1260			33.3			27.0	ug/kg		81.1	(53.6 - 137.)	JLW	04/03/99	0939
*4CMX			6.67			4.53	ug/kg		68.0	(25.3 - 110.)			
*Decachlorobiphenyl			6.67			6.13	ug/kg		92.0	(46.8 - 131.)			
QC598868	9904054-01MS	145878											
PCB-1260			33.3	3280		2770	ug/kg		-1530**	(31.5 - 159.)	JLW	04/03/99	1002
*4CMX			6.67			0.00	ug/kg		0.00**	(25.3 - 110.)			
*Decachlorobiphenyl			6.67			0.00	ug/kg		0.00**	(46.8 - 131.)			
QC598869	9904054-01MSD	145878											
PCB-1260			33.3	3280		2980	ug/kg	51.8**	-901	(0.00 - 26.2)	JLW	04/03/99	1026
*4CMX			6.67			0.00	ug/kg		0.00**	(25.3 - 110.)			
*Decachlorobiphenyl			6.67			0.00	ug/kg		0.00**	(46.8 - 131.)			

Notes:
The qualifiers in this report are defined as follows:
J indicates presence of analyte < RL (Report Limit)
U indicates presence of analyte < DL (Detect Limit)

n/a indicates that spike recovery limits do not apply when
sample concentration exceeds spike conc by a factor of 4 or more

NPWC00197 9908E04

CHAIN OF CUSTODY RECORD

ZONE H GRID G07 SIDEWALL BOTTOM

Page 1 of 1

General Engineering Laboratories, Inc
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Charleston, South Carolina 29407
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Charleston, South Carolina 29417
(843) 556-8171

Client Name/Facility Name: SPORTENVDETCHASN

Collected by/Company: SPORTENVDETCHASN

SAMPLE ANALYSIS REQUIRED (x) - use remarks area to specify specific compounds or methods

Use F or P in the boxes to indicate whether sample was filtered and/or preserved

Samples preserved to 4°C 42335

	SAMPLE ID	DATE	TIME	WELL	SOIL	COMP	GRAB	# OF CONTAINERS	pH, conductivity	TOC/DOC	TOX	Chloride, Fluoride, Sulfide	Nitrite/Nitrate	VOC - Specify Method required	METALS - specify	Pesticide	Herbicide	Total Phenol	Acid Extractables	B/N Extractables	PCB's	Cyanide	Coliform - specify type			Remarks
1	99SPORTØ260-1	8/27/99	1150		X		X	1													X					SIDEWALL NBCZNHSGØ719-Ø1
2	99SPORTØ260-2	8/27/99	1509		X		X	1													X					SIDEWALL NBCZNHSGØ72Ø-Ø1
3	99SPORTØ260-3	8/27/99	1525		X		X	1													X					SIDEWALL NBCZNHSGØ721-Ø1
4	99SPORTØ260-4	8/27/99	1530		X		X	1													X					SIDEWALL NBCZNHSGØ722-Ø1
5	99SPORTØ260-5	8/27/99	1500		X		X	1													X					BOTTOM NBCZNHSGØ714-Ø1
6	99SPORTØ260-6	8/27/99	1540		X		X	1													X					BOTTOM NBCZNHSGØ72Ø-Ø1
7	99SPORTØ260-7	8/27/99	1545		X		X	1													X					BOTTOM NBCZNHSGØ721-Ø1
8	99SPORTØ260-8	8/27/99	1550		X		X	1													X					BOTTOM NBCZNHSGØ722-Ø1
~~9~~	~~99SPORTØ260-9~~	~~8/27/99~~				~~X~~															~~X~~					~~WASTE NBCZNHSGØ7W-Ø1~~ 8/27/99

1ppm RL

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
[signature]	8/27/99	1610	Vivian Washington	Vivian Washington	8/27/99	1115	

Relinquished by:	Date:	Time:	Received by lab by:	Date:	Time:	Remarks:
			[signature]	8/27	1705	

White = sample collector Yell w = fil Pink = with report

INDUSTRIAL SAMPLE RECEIPT REVIEW

Client NPWC Received by PAD Date 8/27/99

GEL COOLER ✓ GEL POLY COOLER___ CLIENT COOLER___ OTHER___

SAMPLE REVIEW CRITERIA	YES	NO	COMMENTS/QUALIFIERS
Were shipping containers received intact and sealed? Call project Manager if No	✓		
2 Is the shipment identified as RADIOACTIVE and/or from a DOE site or subcontainer (see list in EPI SOP S-007)?		✓	
If YES, was the shipment screened following the radiochemistry survey procedure (EPI SOP S-007)?		✓	
Were the survey results negative? Call Project Manager if No.		✓	
3 Were chain of custody documents included?	✓		
4 Were chain of custody documents completed properly ? (Ink, signed, match containers)	✓		
5 Did all samples container arrive intact? (sealed , unbroken)? Call Project Manager if No	✓		
6. Were all sample containers properly labeled?	✓		
7 Were proper sample containers received?	✓		
8. Preserved samples checked for proper pH?		✓	
9 Were samples preserved properly? If no, list samples & tests		✓	PCB's
10. Shipping container temperature checked?	✓		
11. Was shipping container temperature within specifications (4°±2°C) If no, Call Project Manager	✓		4°C
12. **Were samples received within holding time?** If No, Call Project Manager	✓		
13. **Were VOA vials free of headspace?**	✓		

REVIEW P. Power DATE 8/27/99 SA - SEALS ATTACHED NSA - NO SEALS ATTACHED

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Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106

Contact: Mr. Bill Hiers

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: September 03, 1999

Sample ID	99SPORT0260-1
Lab ID	9908E04-01
Matrix	Soil
Date Collected	08/27/99
Date Received	08/27/99
Priority	Routine
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Extractable Organics											
PCB analysis - 7 items											
PCB-1016	U	ND	12.2	33.3	ug/kg	10.	MM	08/31/99	2024	157252	1
PCB-1221	U	ND	28.2	33.3	ug/kg	10					
PCB-1232	U	ND	16.3	33.3	ug/kg	10.					
PCB-1242	U	ND	16.7	33.3	ug/kg	10.					
PCB-1248	U	ND	9.06	33.3	ug/kg	10					
PCB-1254	U	ND	11.6	33.3	ug/kg	10					
PCB-1260		218	9.42	33.3	ug/kg	10					

The following prep procedures were performed:

PCB's RDH 08/30/99 0800 157252 2

Surrogate Recovery	Test	Percent %	Acceptable Limits
4CMX	PCB	51.0	(25.3 - 110.)

M = Method	Method-Description
M 1	EPA 8082
M 2	EPA 3550

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9908E04-01

GENERAL ENGINEERING LABORATORIES

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Client:	Supervisor of Ship Building & Conversion SUPSHIP-Portsmouth Detachment-Env 1899 North Hobson Ave North Charleston, South Carolina 29405-2106
Contact:	Mr. Bill Hiers
Project Description:	SUPSHIP-Portsmouth Detachment

ce NPWC00197 Report Date: September 03, 1999 **Page 2 of 2**

Sample ID	99SPORT0260-1
M = Method	**Method-Description**

Notes

The qualifiers in this report are defined as follows:

ND indicates that the analyte was not detected at a concentration greater than the detection limit.

J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).

U indicates that the analyte was not detected at a concentration greater than the detection limit.

* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories standard operating procedures Please direct any questions to your Project Manager, Elise Hanson at 843-556-8171

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9908E04-01

GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave
North Charleston, South Carolina 29405-2106

Contact: Mr. Bill Hiers

Project Description: SUPSHIP-Portsmouth Detachment

cc NPWC00197 Report Date. September 03, 1999

Sample ID	99SPORT0260-2
Lab ID	9908E04-02
Matrix	Soil
Date Collected	08/27/99
Date Received	08/27/99
Priority	Routine
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Extractable Organics											
PCB analysis - 7 items											
PCB-1016	U	ND	12.2	33.3	ug/kg	10	MM	08/31/99	2047	157252	1
PCB-1221	U	ND	28.2	33.3	ug/kg	10					
PCB-1232	U	ND	16.3	33.3	ug/kg	10.					
PCB-1242	U	ND	16.7	33.3	ug/kg	10.					
PCB-1248	U	ND	9.06	33.3	ug/kg	10.					
PCB-1254	U	ND	11.6	33.3	ug/kg	10.					
PCB-1260		120	9.42	33.3	ug/kg	10.					

The following prep procedures were performed:

PCB's RDH 08/30/99 0800 157252 2

Surrogate Recovery	Test	Percent%	Acceptable Limits
4CMX	PCB	61.0	(25.3 - 110.)

M = Method	Method-Description
M 1	EPA 8082
M 2	EPA 3550

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9908E04-02

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Client:	Supervisor of Ship Building & Conversion SUPSHIP-Portsmouth Detachment-Env. 1899 North Hobson Ave North Charleston, South Carolina 29405-2106
Contact:	Mr. Bill Hiers
Project Description:	SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: September 03, 1999

Sample ID	99SPORT0260-2
M = Method	**Method-Description**

Notes

The qualifiers in this report are defined as follows:

ND indicates that the analyte was not detected at a concentration greater than the detection limit.

J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL)

U indicates that the analyte was not detected at a concentration greater than the detection limit.

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9908E04-02

GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow

Client:	Supervisor of Ship Building & Conversion SUPSHIP-Portsmouth Detachment-Env. 1899 North Hobson Ave. North Charleston, South Carolina 29405-2106
Contact:	Mr. Bill Hiers
Project Description:	SUPSHIP-Portsmouth Detachment

cc NPWC00197 Report Date: September 03, 1999

Sample ID	99SPORT0260-3
Lab ID	9908E04-03
Matrix	Soil
Date Collected	08/27/99
Date Received	08/27/99
Priority	Routine
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Extractable Organics											
PCB analysis - 7 items											
PCB-1016	U	ND	12.2	33.3	ug/kg	10	MM	08/31/99	2110	157252	1
PCB-1221	U	ND	28.2	33.3	ug/kg	10					
PCB-1232	U	ND	16.3	33.3	ug/kg	10.					
PCB-1242	U	ND	16.7	33.3	ug/kg	10.					
PCB-1248	U	ND	9.06	33.3	ug/kg	10.					
PCB-1254	U	ND	11.6	33.3	ug/kg	10.					
PCB-1260		206	9.42	33.3	ug/kg	10.					

The following prep procedures were performed:

PCB's RDH 08/30/99 0800 157252 2

Surrogate Recovery	Test	Percent%	Acceptable Limits
4CMX	PCB	51.0	(25.3 - 110.)

M = Method	Method-Description
M 1	EPA 8082
M 2	EPA 3550

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9908E04-03

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Meeting today's needs with a vision for tomorrow

Client:	Supervisor of Ship Building & Conversion SUPSHIP-Portsmouth Detachment-Env 1899 North Hobson Ave North Charleston, South Carolina 29405-2106
Contact	Mr Bill Hiers
Project Description:	SUPSHIP-Portsmouth Detachment

cc NPWC00197 Report Date: September 03, 1999 **Page 2 of 2**

Sample ID	99SPORT0260-3

M = Method	**Method-Description**

Notes
The qualifiers in this report are defined as follows
ND indicates that the analyte was not detected at a concentration greater than the detection limit.
J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).
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9908E04-03

GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow

Client	Supervisor of Ship Building & Conversion SUPSHIP-Portsmouth Detachment-Env 1899 North Hobson Ave North Charleston, South Carolina 29405-2106
Contact:	Mr. Bill Hiers
Project Description:	SUPSHIP-Portsmouth Detachment

cc NPWC00197 Report Date: September 03, 1999

Sample ID	99SPORT0260-4
Lab ID	9908E04-04
Matrix	Soil
Date Collected	08/27/99
Date Received	08/27/99
Priority	Routine
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Extractable Organics											
PCB analysis - 7 items											
PCB-1016	U	ND	12.2	33.3	ug/kg	10.	MM	08/31/99	2132	157252	1
PCB-1221	U	ND	28.2	33.3	ug/kg	10					
PCB-1232	U	ND	16.3	33.3	ug/kg	10.					
PCB-1242	U	ND	16.7	33.3	ug/kg	10					
PCB-1248	U	ND	9.06	33.3	ug/kg	10.					
PCB-1254	U	ND	11.6	33.3	ug/kg	10					
PCB-1260	J	31.2	9.42	33.3	ug/kg	10.					

The following prep procedures were performed:

PCB's RDH 08/30/99 0800 157252 2

Surrogate Recovery	Test	Percent%	Acceptable Limits
4CMX	PCB	55.0	(25.3 - 110.)

M = Method	Method-Description
M 1	EPA 8082
M 2	EPA 3550

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9908E04-04

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Client:	Supervisor of Ship Building & Conversion SUPSHIP-Portsmouth Detachment-Env. 1899 North Hobson Ave. North Charleston, South Carolina 29405-2106
Contact.	Mr. Bill Hiers
Project Description:	SUPSHIP-Portsmouth Detachment

cc NPWC00197 Report Date: September 03, 1999 **Page 2 of 2**

Sample ID	99SPORT0260-4

M = Method	Method-Description

Notes

The qualifiers in this report are defined as follows:

ND indicates that the analyte was not detected at a concentration greater than the detection limit.

J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).

U indicates that the analyte was not detected at a concentration greater than the detection limit.

* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

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9908E04-04

GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc NPWC00197 Report Date: September 03, 1999

Sample ID	99SPORT0260-5
Lab ID	9908E04-05
Matrix	Soil
Date Collected	08/27/99
Date Received	08/27/99
Priority	Routine
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Extractable Organics											
PCB analysis - 7 items											
PCB-1016	U	ND	12.2	33.3	ug/kg	10.	MM	09/01/99	1546	157252	1
PCB-1221	U	ND	28.2	33.3	ug/kg	10.					
PCB-1232	U	ND	16.3	33 3	ug/kg	10					
PCB-1242	U	ND	16.7	33 3	ug/kg	10.					
PCB-1248	U	ND	9 06	33.3	ug/kg	10.					
PCB-1254	U	ND	11 6	33.3	ug/kg	10					
PCB-1260		162	9 42	33 3	ug/kg	10					

The following prep procedures were performed:

PCB's RDH 08/30/99 0800 157252 2

Surrogate Recovery	Test	Percent%	Acceptable Limits
4CMX	PCB	63 0	(25 3 - 110.)

M = Method	Method-Description
M 1	EPA 8082
M 2	EPA 3550

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9908E04-05

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Client:	Supervisor of Ship Building & Conversion SUPSHIP-Portsmouth Detachment-Env 1899 North Hobson Ave. North Charleston, South Carolina 29405-2106
Contact:	Mr. Bill Hiers
Project Description:	SUPSHIP-Portsmouth Detachment

cc NPWC00197 Report Date: September 03, 1999

Sample ID	99SPORT0260-5

M = Method	Method-Description

Notes
The qualifiers in this report are defined as follows:
ND indicates that the analyte was not detected at a concentration greater than the detection limit.
J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).
U indicates that the analyte was not detected at a concentration greater than the detection limit.
* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

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Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc NPWC00197 Report Date: September 03, 1999

Sample ID	99SPORT0260-6
Lab ID	9908E04-06
Matrix	Soil
Date Collected	08/27/99
Date Received	08/27/99
Priority	Routine
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Extractable Organics											
PCB analysis - 7 items											
PCB-1016	U	ND	12.2	33 3	ug/kg	10.	MM	09/01/99	1608	157252	1
PCB-1221	U	ND	28.2	33 3	ug/kg	10					
PCB-1232	U	ND	16.3	33 3	ug/kg	10.					
PCB-1242	U	ND	16.7	33.3	ug/kg	10.					
PCB-1248	U	ND	9 06	33 3	ug/kg	10					
PCB-1254	U	ND	11.6	33 3	ug/kg	10					
PCB-1260		197	9 42	33 3	ug/kg	10.					

The following prep procedures were performed:

PCB's RDH 08/30/99 0800 157252 2

Surrogate Recovery	Test	Percent%	Acceptable Limits
4CMX	PCB	55.5	(25.3 - 110.)

M = Method	Method-Description
M 1	EPA 8082
M 2	EPA 3550

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9908E04-06

GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow

Client:	Supervisor of Ship Building & Conversion SUPSHIP-Portsmouth Detachment-Env. 1899 North Hobson Ave. North Charleston, South Carolina 29405-2106
Contact:	Mr. Bill Hiers
Project Description:	SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: September 03, 1999

Sample ID	99SPORT0260-6
M = Method	**Method-Description**

Notes:
The qualifiers in this report are defined as follows:
ND indicates that the analyte was not detected at a concentration greater than the detection limit.
J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).
U indicates that the analyte was not detected at a concentration greater than the detection limit.
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E Hanson

Reviewed By

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9908E04-06

GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106

Contact: Mr. Bill Hiers

Project Description: SUPSHIP-Portsmouth Detachment

cc NPWC00197 Report Date. September 03, 1999

Sample ID	99SPORT0260-7
Lab ID	9908E04-07
Matrix	Soil
Date Collected	08/27/99
Date Received	08/27/99
Priority	Routine
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Extractable Organics											
PCB analysis - 7 items											
PCB-1016	U	ND	12.2	33.3	ug/kg	10	MM	09/01/99	1631	157252	1
PCB-1221	U	ND	28.2	33.3	ug/kg	10.					
PCB-1232	U	ND	16.3	33.3	ug/kg	10.					
PCB-1242	U	ND	16.7	33.3	ug/kg	10					
PCB-1248	U	ND	9.06	33.3	ug/kg	10					
PCB-1254	U	ND	11.6	33.3	ug/kg	10					
PCB-1260		105	9.42	33.3	ug/kg	10					

The following prep procedures were performed:

PCB's RDH 08/30/99 0800 157252 2

Surrogate Recovery	Test	Percent%	Acceptable Limits
4CMX	PCB	60.5	(25.3 - 110.)

M = Method	Method-Description
M 1	EPA 8082
M 2	EPA 3550

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9908E04-07

GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow

Client:	Supervisor of Ship Building & Conversion SUPSHIP-Portsmouth Detachment-Env 1899 North Hobson Ave. North Charleston, South Carolina 29405-2106
Contact:	Mr. Bill Hiers
Project Description:	SUPSHIP-Portsmouth Detachment

cc NPWC00197 Report Date: September 03, 1999

Sample ID	99SPORT0260-7

M = Method	Method-Description

Notes

The qualifiers in this report are defined as follows:

ND indicates that the analyte was not detected at a concentration greater than the detection limit.

J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).

U indicates that the analyte was not detected at a concentration greater than the detection limit.

* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories standard operating procedures. Please direct any questions to your Project Manager, Elise Hanson at 843-556-8171

Reviewed By

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9908E04-07

GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow.

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc NPWC00197 Report Date: September 03, 1999

Sample ID	99SPORT0260-8
Lab ID	9908E04-08
Matrix	Soil
Date Collected	08/27/99
Date Received	08/27/99
Priority	Routine
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Extractable Organics											
PCB analysis - 7 items											
PCB-1016	U	ND	12.2	33.3	ug/kg	10	MM	09/01/99	1654	157252	1
PCB-1221	U	ND	28.2	33.3	ug/kg	10.					
PCB-1232	U	ND	16.3	33.3	ug/kg	10.					
PCB-1242	U	ND	16.7	33.3	ug/kg	10.					
PCB-1248	U	ND	9.06	33.3	ug/kg	10.					
PCB-1254	U	ND	11.6	33.3	ug/kg	10.					
PCB-1260		280	9.42	33.3	ug/kg	10.					

The following prep procedures were performed:

PCB's RDH 08/30/99 0800 157252 2

Surrogate Recovery	Test	Percent%	Acceptable Limits
4CMX	PCB	57.5	(25.3 - 110.)

M = Method	Method-Description
M 1	EPA 8082
M 2	EPA 3550

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9908E04-08

GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow

Client:	Supervisor of Ship Building & Conversion SUPSHIP-Portsmouth Detachment-Env. 1899 North Hobson Ave. North Charleston, South Carolina 29405-2106
Contact:	Mr. Bill Hiers
Project Description:	SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: September 03, 1999 **Page 2 of 2**

Sample ID	99SPORT0260-8

M = Method	Method-Description

Notes

The qualifiers in this report are defined as follows:

ND indicates that the analyte was not detected at a concentration greater than the detection limit.

J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).

U indicates that the analyte was not detected at a concentration greater than the detection limit.

* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories standard operating procedures. Please direct any questions to your Project Manager, Elise Hanson at 843-556-8171.

E Hanson

Reviewed By

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9908E04-08

QC Summary Report

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Lab. Sample ID: 9908E04% Report Date: September 03, 1999

Sample/Parameter	Type	Batch	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Analyst	Date	Time
Extractable Organics													
QC643738	BLANK	157252											
PCB-1260						0.00	ug/kg				MM	08/31/99	1853
*4CMX							ug/kg		60.0	(25.3 - 110.)			
PCB-1016						0.00	ug/kg						
PCB-1221						0.00	ug/kg						
PCB-1232						0.00	ug/kg						
PCB-1242						0.00	ug/kg						
PCB-1248						0.00	ug/kg						
PCB-1254						0.00	ug/kg						
QC643739	LCS	157252											
PCB-1260			33.3			28.6	ug/kg		85.9	(53.6 - 137.)	MM	08/31/99	1916
*4CMX			6.67			4.07	ug/kg		61.0	(25.3 - 110.)			
QC643740	9908991-01MS	157252											
PCB-1260			33.3	0.00		0.00	ug/kg		0.00**	(31.5 - 159.)	MM	09/01/99	1329
*4CMX			6.67			0.00	ug/kg		0.00**	(25.3 - 110.)			
QC643741	9908991-01MSD	157252											
PCB-1260			33.3	0.00		0.00	ug/kg	0.00	0.00	(0.00 - 26.2)	MM	09/01/99	1352
*4CMX			6.67			0.00	ug/kg		0.00**	(25.3 - 110.)			

Notes:
The qualifiers in this report are defined as follows:
J indicates presence of analyte < RL (Report Limit)
U indicates presence of analyte < DL (Detect Limit)

n/a indicates that spike recovery limits do not apply when
sample concentration exceeds spike conc by a factor of 4 or more

Table C-3 GRID G038 DELINEATION SAMPLE SUMMARY

SAMPLE # (SPORT)	SAMPLE # (NBCA)	CONSTITUENT	RESULTS (MG/KG)	REGION III INDUSTRIAL RBC (MG/KG)	REGION III RESIDENTIAL RBC (MG/KG)
99SPORT0136-1	NBCGDS38SB1-01	PCB	**3.280**	< 1	NR
99SPORT0136-2	NBCGDS38SB2-01	PCB	**3.460**	< 1	NR
99SPORT0136-3	NBCGDS38SB3-01	PCB	**1.160**	< 1	NR
99SPORT0136-4	NBCGDS38SB4-01	PCB	**1.370**	< 1	NR
99SPORT0136-5	NBCGDS38SB5-01	PCB	**3.570**	< 1	NR
99SPORT0136-6	NBCGDS38SB6-01	PCB	**3.260**	< 1	NR
99SPORT0136-7	NBCGDS38SB7-01	PCB	**3.080**	< 1	NR
99SPORT0157-1	NBCGRH38S08-01	PCB	**4.330**	< 1	NR
99SPORT0157-2	NBCGRH38S09-01	PCB	**ND**	< 1	NR
99SPORT0157-3	NBCGRH38S10-01	PCB	**1.860**	< 1	NR
99SPORT0157-4	NBCGRH38S11-01	PCB	0.055	< 1	NR
99SPORT0157-1	NBCGRH38S08-01	Benzo(a)anthracene	ND	7.8	0.880
99SPORT0157-2	NBCGRH38S09-01	Benzo(a)anthracene	ND	7.8	0.880
99SPORT0157-3	NBCGRH38S10-01	Benzo(a)anthracene	ND	7.8	0.880
99SPORT0157-4	NBCGRH38S11-01	Benzo(a)anthracene	ND	7.8	0.880
99SPORT0157-1	NBCGRH38S08-01	Benzo(b)fluoranthene	ND	7.8	0.880
99SPORT0157-2	NBCGRH38S09-01	Benzo(b)fluoranthene	ND	7.8	0.880
99SPORT0157-3	NBCGRH38S10-01	Benzo(b)fluoranthene	ND	7.8	0.880
99SPORT0157-4	NBCGRH38S11-01	Benzo(b)fluoranthene	ND	7.8	0.880
99SPORT0157-1	NBCGRH38S08-01	Benzo(a)pyrene	ND	0.78	0.088
99SPORT0157-2	NBCGRH38S09-01	Benzo(a)pyrene	ND	0.78	0.088
99SPORT0157-3	NBCGRH38S10-01	Benzo(a)pyrene	ND	0.78	0.088
99SPORT0157-4	NBCGRH38S11-01	Benzo(a)pyrene	ND	0.78	0.088
99SPORT0157-1	NBCGRH38S08-01	Dibenzo(a,h)anthracene	ND	0.78	0.088
99SPORT0157-2	NBCGRH38S09-01	Dibenzo(a,h)anthracene	ND	0.78	0.088
99SPORT0157-3	NBCGRH38S10-01	Dibenzo(a,h)anthracene	ND	0.78	0.088
99SPORT0157-4	NBCGRH38S11-01	Dibenzo(a,h)anthracene	ND	0.78	0.088

ND = NOT DETECTED **BOLD** = VALUES EXCEEDING THE INDUSTRIAL CLEANUP GOAL AS SPECIFIED IN 40 CFR 761.125 NR = NOT REQUIRED PER THIS INTERIM MEASURE

Table C-4 GRID G038 INITIAL CONFIRMATION SAMPLE SUMMARY

SAMPLE # (SPORT)	SAMPLE # (NBCA)	CONSTITUENT	RESULTS (MG/KG)	REGION III INDUSTRIAL RBC (MG/KG)	REGION III RESIDENTIAL RBC (MG/KG)
99SW002-1	NBCGRHS3801-001	PCB	**1.100**	< 1	NR
99SW002-2	NBCGRHS3802-001	PCB	0.380	< 1	NR
99SW002-3	NBCGRHS3803-001	PCB	**1.600**	< 1	NR
99SW002-4	NBCGRHS3804-001	PCB	0.190	< 1	NR
99SW002-5	NBCGRHS3805-001	PCB	0.110	< 1	NR
99SW002-.6	NBCGRHS3806-001	PCB	**1.800**	< 1	NR
99SW002-7	NBCGRHS3807-001	PCB	**4.000**	< 1	NR
99SW002-8	NBCGRHS3808-001	PCB	0.067	< 1	NR
99SW002-9	NBCGRHS3809-001	PCB	0.300	< 1	NR
99SW002-10	NBCGRHS3810-001	PCB	0.060	< 1	NR
99SW002-11	NBCGRHS3811-001	PCB	0.038	< 1	NR
99SW002-12	NBCGRHS3812-001	PCB	0.036	< 1	NR
99SW002-13	NBCGRHS3813-001	PCB	0.040	< 1	NR
99SW002-14	NBCGRHS3814-001	PCB	0.035	< 1	NR
99SW002-15	NBCGRHS3815-001	PCB	0.038	< 1	NR
99SW002-16	NBCGRHS3816-001	PCB	0.080	< 1	NR
99SW002-17	NBCGRHS3817-001	PCB	0.034	< 1	NR
99SW002-18	NBCGRHS3818-001	PCB	0.034	< 1	NR
99SW002-2	NBCGRHS3802-001	Benzo(a)anthracene	0.350	7.8	0.880
99SW002-7	NBCGRHS3807-001	Benzo(a)anthracene	0.150	7.8	0.880
99SW002-12	NBCGRHS3812-001	Benzo(a)anthracene	0.370	7.8	0.880
99SW002-17	NBCGRHS3817-001	Benzo(a)anthracene	0.350	7.8	0.880

ND = NOT DETECTED **BOLD** = VALUES EXCEEDING THE INDUSTRIAL CLEANUP GOAL AS SPECIFIED IN 40 CFR 761.125 NR = NOT REQUIRED PER THIS INTERIM MEASURE

Table C-4 GRID G038 INITIAL CONFIRMATION SAMPLE SUMMARY (CON'T)

SAMPLE # (SPORT)	SAMPLE # (NBCA)	CONSTITUENT	RESULTS (MG/KG)	REGION III INDUSTRIAL RBC (MG/KG)	REGION III RESIDENTIAL RBC (MG/KG)
99SW002-2	NBCGRHS3802-001	Benzo(b)fluoranthene	0.410	7.8	0.880
99SW002-7	NBCGRHS3807-001	Benzo(b)fluoranthene	0.160	7.8	0.880
99SW002-12	NBCGRHS3812-001	Benzo(b)fluoranthene	0.370	7.8	0.880
99SW002-17	NBCGRHS3817-001	Benzo(b)fluoranthene	0.350	7.8	0.880
99SW002-2	NBCGRHS3802-001	Benzo(a)pyrene	0.360	0.78	0.088
99SW002-7	NBCGRHS3807-001	Benzo(a)pyrene	0.140	0.78	0.088
99SW002-12	NBCGRHS3812-001	Benzo(a)pyrene	0.370	0.78	0.088
99SW002-17	NBCGRHS3817-001	Benzo(a)pyrene	0.350	0.78	0.088
99SW002-2	NBCGRHS3802-001	Dibenzo(a,h)anthracene	0.110	0.78	0.088
99SW002-7	NBCGRHS3807-001	Dibenzo(a,h)anthracene	0.043	0.78	0.088
99SW002-12	NBCGRHS3812-001	Dibenzo(a,h)anthracene	0.370	0.78	0.088
99SW002-17	NBCGRHS3817-001	Dibenzo(a,h)anthracene	0.350	0.78	0.088

ND = NOT REQUIRED **BOLD** = VALUES EXCEEDING THE INDUSTRIAL CLEANUP GOAL AS SPECIFIED IN 40 CFR 761.125

Table C-5 GRID G038 FINAL CONFIRMATION SAMPLE SUMMARY

SAMPLE # (SPORT)	SAMPLE # (NBCA)	CONSTITUENT	RESULTS (MG/KG)	REGION III INDUSTRIAL RBC (MG/KG)	REGION III RESIDENTIAL RBC (MG/KG)
99SW004-1	NBCZNH03801A	PCB	0.810	< 1	NR
99SW004-2	NBCZNH03803A	PCB	0.150	< 1	NR
99SW004-3	NBCZNH03806A	PCB	0.039	< 1	NR
99SW004-4	NBCZNH03807A	PCB	0.110	< 1	NR

NR = NOT REQUIRED **BOLD** = VALUES EXCEEDING THE INDUSTRIAL CLEANUP GOAL AS SPECIFIED IN 40 CFR 761.125

NPWC00197

9904 541

CHAIN OF CUSTODY RECORD

— 3 DAY TURNAROUND —

General Engineering
2040 Savage Road
Charleston, South Carolina
P.O. Box 30712
Charleston, South Carolina 29417
(803) 556-8171

Page 1 of 1

Client Name/Facility Name: SPORT ENVDETCHASN

Collected by/Company: SPORTENVDETCHASN

Use F or P in the boxes to indicate whether sample was filtered and/or preserved

39407

SAMPLE ANALYSIS REQUIRED (x) - use remarks area to specify specific compounds or methods

	SAMPLE ID	DATE	TIME	WELL	SOIL	COMP	GRAB	# OF CONTAINERS	pH, conductivity	TOC/DOC	TOX	Chloride, Fluoride, Sulfide	Nitrite/Nitrate	VOC - Specify Method required	METALS - specify	Pesticide	Herbicide	Total Phenol	Acid Extractables	B/N Extractables	PCB's	Cyanide	Coliform - specify type			Remarks
01	99SPORT0136-1	4/1/99	0935		X		X	1													X					NBCGDS38581-01
02	99SPORT0136-2	4/1/99	0945		X		X	1													X					NBCGDS38582-01
03	99SPORT0136-3	4/1/99	0955		X		X	1													X					NBCGDS38583-01
04	99SPORT0136-4	4/1/99	1000		X		X	1													X					NBCGDS38584-01
05	99SPORT0136-5	4/1/99	1006		X		X	1													X					NBCGDS38585-01
06	99SPORT0136-6	4/1/99	1008		X		X	1													X					NBCGDS38586-01
07	99SPORT0136-7	4/1/99	1015		X		X	1													X					NBCGDS38587-01

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
[signature]	4/1/99	1400	W.R. Hiers, Jr.	W.R. Hiers, Jr.	4/1/99	1538	Stephanie Berkeley

Relinquished by:	Date:	Time:	Received by lab by:	Date:	Time:	Remarks:
Stephanie Berkeley	4-1-99	1610	P. Mauer	4-1-99	16:16	

White = sample collector Yellow = file Pink = with report

GENERAL ENGINEERING LABORATORIES

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	02934

Client	Supervisor of Ship Building & Conversion SUPSHIP-Portsmouth Detachment-Env 1899 North Hobson Ave North Charleston, South Carolina 29405-2106
Contact:	Mr. Bill Hiers
Project Description	SUPSHIP-Portsmouth Detachment

cc. NPWC00197 Report Date: April 07, 1999

Sample ID	99SPORT0136-1
Lab ID	9904054-01
Matrix	Soil
Date Collected	04/01/99
Date Received	04/01/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Extractable Organics											
PCB analysis - 7 items											
PCB-1016	U	ND	122	333	ug/kg	100	JLW	04/03/99	1049	145878	1
PCB-1221	U	ND	282	333	ug/kg	100					
PCB-1232	U	ND	163	333	ug/kg	100					
PCB-1242	U	ND	167	333	ug/kg	100					
PCB-1248	U	ND	90.6	333	ug/kg	100					
PCB-1254	U	ND	116	333	ug/kg	100					
PCB-1260		3280	94.2	333	ug/kg	100					

The following prep procedures were performed:

PCB's RDH 04/02/99 1410 145878 2

Comments:

Fails surrogate recovery due to sample dilution

Surrogate Recovery	Test	Percent %	Acceptable Limits
4CMX	PCB-8082	0.00*	(25.3 - 110.)
Decachlorobiphenyl	PCB-8082	0.00*	(46.8 - 131.)

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9904054-01

GENERAL ENGINEERING LABORATORIES

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	02934

Client:	Supervisor of Ship Building & Conversion SUPSHIP-Portsmouth Detachment-Env 1899 North Hobson Ave North Charleston, South Carolina 29405-2106
Contact	Mr. Bill Hiers
Project Description:	SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 07, 1999

Sample ID	99SPORT0136-1

M = Method	Method-Description
M 1	EPA 8082
M 2	EPA 3550

Notes:
The qualifiers in this report are defined as follows:
ND indicates that the analyte was not detected at a concentration greater than the detection limit
' indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).
U indicates that the analyte was not detected at a concentration greater than the detection limit
* indicates that a quality control analyte recovery is outside of specified acceptance criteria

This data report has been prepared and reviewed
in accordance with General Engineering Laboratories
standard operating procedures. Please direct
any questions to your Project Manager, Elise Hanson at 843-556-8171

Reviewed By

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STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	02934

Client	Supervisor of Ship Building & Conversion SUPSHIP-Portsmouth Detachment-Env 1899 North Hobson Ave North Charleston, South Carolina 29405-2106
Contact	Mr. Bill Hiers
Project Description	SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 07, 1999

Sample ID	99SPORT0136-2
Lab ID	9904054-02
Matrix	Soil
Date Collected	04/01/99
Date Received	04/01/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Extractable Organics											
PCB analysis - 7 items											
PCB-1016	U	ND	122	333	ug/kg	100	JLW	04/03/99	1112	145878	1
PCB-1221	U	ND	282	333	ug/kg	100					
PCB-1232	U	ND	163	333	ug/kg	100					
PCB-1242	U	ND	167	333	ug/kg	100					
PCB-1248	U	ND	90.6	333	ug/kg	100					
PCB-1254	U	ND	116	333	ug/kg	100					
PCB-1260		3460	94.2	333	ug/kg	100					

The following prep procedures were performed:

PCB's RDH 04/02/99 1410 145878 2

Comments:

Fails surrogate recovery due to sample dilution

Surrogate Recovery	Test	Percent %	Acceptable Limits
4CMX	PCB-8082	0.00*	(25.3 - 110.)
Decachlorobiphenyl	PCB-8082	0.00*	(46.8 - 131.)

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9904054-02

GENERAL ENGINEERING LABORATORIES

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106

Contact: Mr Bill Hiers

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date. April 07, 1999

	Sample ID	99SPORT0136-2

M = Method	Method-Description
M 1	EPA 8082
M 2	EPA 3550

Notes:
The qualifiers in this report are defined as follows
ND indicates that the analyte was not detected at a concentration greater than the detection limit
J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL)
U indicates that the analyte was not detected at a concentration greater than the detection limit
* indicates that a quality control analyte recovery is outside of specified acceptance criteria

This data report has been prepared and reviewed
in accordance with General Engineering Laboratories
standard operating procedures Please direct
any questions to your Project Manager, Elise Hanson at 843-556-8171

EHanson

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9904054-02

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	02934

Client	Supervisor of Ship Building & Conversion SUPSHIP-Portsmouth Detachment-Env 1899 North Hobson Ave. North Charleston, South Carolina 29405-2106
Contact	Mr. Bill Hiers
Project Description	SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date. April 07, 1999

Sample ID	99SPORT0136-3
Lab ID	9904054-03
Matrix	Soil
Date Collected	04/01/99
Date Received	04/01/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Extractable Organics											
PCB analysis - 7 items											
PCB-1016	U	ND	36.5	99.9	ug/kg	30.	JLW	04/05/99	2055	145878	1
PCB-1221	U	ND	84.5	99.9	ug/kg	30					
PCB-1232	U	ND	48.9	99.9	ug/kg	30					
PCB-1242	U	ND	50.0	99.9	ug/kg	30.					
PCB-1248	U	ND	27.2	99.9	ug/kg	30					
PCB-1254	U	ND	34.9	99.9	ug/kg	30					
PCB-1260		1160	28.3	99.9	ug/kg	30					

The following prep procedures were performed:

PCB's RDH 04/02/99 1410 145878 2

Comments:

Fails surrogate recovery due to sample dilution

Surrogate Recovery	Test	Percent %	Acceptable Limits
4CMX	PCB-8082	0.00*	(25.3 - 110.)
Decachlorobiphenyl	PCB-8082	0.00*	(46.8 - 131.)

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9904054-03

GENERAL ENGINEERING LABORATORIES

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106

Contact: Mr Bill Hiers

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date April 07, 1999

Sample ID	99SPORT0136-3

M = Method	Method-Description
M 1	EPA 8082
M 2	EPA 3550

Notes:
The qualifiers in this report are defined as follows
ND indicates that the analyte was not detected at a concentration greater than the detection limit
' indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL)
U indicates that the analyte was not detected at a concentration greater than the detection limit.
* indicates that a quality control analyte recovery is outside of specified acceptance criteria

This data report has been prepared and reviewed
in accordance with General Engineering Laboratories
standard operating procedures Please direct
any questions to your Project Manager, Elise Hanson at 843-556-8171

Reviewed By

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9904054-03

GENERAL ENGINEERING LABORATORIES

Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02932	02934

Client	Supervisor of Ship Building & Conversion SUPSHIP-Portsmouth Detachment-Env 1899 North Hobson Ave North Charleston, South Carolina 29405-2106
Contact	Mr Bill Hiers
Project Description	SUPSHIP-Portsmouth Detachment

cc NPWC00197 Report Date April 07, 1999

Sample ID	99SPORT0136-4
Lab ID	9904054-04
Matrix	Soil
Date Collected	04/01/99
Date Received	04/01/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Extractable Organics											
PCB analysis - 7 items											
PCB-1016	U	ND	48.6	133	ug/kg	40	JLW	04/05/99	2119	145878	1
PCB-1221	U	ND	113	133	ug/kg	40					
PCB-1232	U	ND	65.1	133	ug/kg	40					
PCB-1242	U	ND	66.7	133	ug/kg	40					
PCB-1248	U	ND	36.2	133	ug/kg	40					
PCB-1254	U	ND	46.5	133	ug/kg	40					
PCB-1260		1370	37.7	133	ug/kg	40					

The following prep procedures were performed:

PCB's RDH 04/02/99 1410 145878 2

Comments:

Fails surrogate recovery due to sample dilution

Surrogate Recovery	Test	Percent %	Acceptable Limits
4CMX	PCB-8082	0.00*	(25.3 - 110)
Decachlorobiphenyl	PCB-8082	0.00*	(46.8 - 131)

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9904054-04

GENERAL ENGINEERING LABORATORIES

[illegible]

Laboratory Certifications

STATE	GEL	EPI
FL	E87[illegible] 87294	E87472/87458
NC	233	
SC	1012	10582
TN	02967	02934

Client	Supervisor of Ship Building & Conversion SUPSHIP-Portsmouth Detachment-Env 1899 North Hobson Ave North Charleston, South Carolina 29405-2106
Contact	Mr Bill Hiers
Project Description	SUPSHIP-Portsmouth Detachment

cc NPWC00197 Report Date April 07 1999

Sample ID 99SPORT0136-4

M = Method	Method-Description
M 1	EPA 8082
M 2	EPA 3550

Notes:
The qualifiers in this report are defined as follows
ND indicates that the analyte was not detected at a concentration greater than the detection limit
J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL)
U indicates that the analyte was not detected at a concentration greater than the detection limit
* indicates that a quality control analyte recovery is outside of specified acceptance criteria

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in accordance with General Engineering Laboratories
standard operating procedures Please direct
any questions to your Project Manager, Elise Hanson at 843-556-8171

Reviewed By

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*9904054-04

GENERAL ENGINEERING LABORATORIES

Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	253	
SC	10120	10582
TN	02934	02934

Client	Supervisor of Ship Building & Conversion SUPSHIP-Portsmouth Detachment-Env 1899 North Hobson Ave North Charleston, South Carolina 29405-2106
Contact	Mr Bill Hiers
Project Description	SUPSHIP-Portsmouth Detachment

cc NPWC00197 Report Date April 07, 1999

Sample ID	99SPORT0136-5
Lab ID	9904054-05
Matrix	Soil
Date Collected	04/01/99
Date Received	04/01/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Extractable Organics											
PCB analysis - 7 items											
PCB-1016	U	ND	122	333	ug/kg	100	JLW	04/03/99	1333	145878	1
PCB-1221	U	ND	282	333	ug/kg	100					
PCB-1232	U	ND	163	333	ug/kg	100					
PCB-1242	U	ND	167	333	ug/kg	100					
PCB-1248	U	ND	90 6	333	ug/kg	100					
PCB-1254	U	ND	116	333	ug/kg	100					
PCB-1260		3570	94 2	333	ug/kg	100					

The following prep procedures were performed:

PCB's RDH 04/02/99 1410 145878 2

Comments:

Fails surrogate recovery due to sample dilution

Surrogate Recovery	Test	Percent %	Acceptable Limits
4CMX	PCB-8082	0 00*	(25 3 - 110)
Decachlorobiphenyl	PCB-8082	0 00*	(46 8 - 131)

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9904054-05

GENERAL ENGINEERING LABORATORIES

Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	02934

Client	Supervisor of Ship Building & Conversion SUPSHIP-Portsmouth Detachment-Env 1899 North Hobson Ave North Charleston, South Carolina 29405-2106
Contact	Mr Bill Hiers
Project Description	SUPSHIP-Portsmouth Detachment

cc NPWC00197 Report Date April 07 1999

Sample ID 99SPORT0136-5

M = Method	Method-Description
M 1	EPA 8082
M 2	EPA 3550

Notes
The qualifiers in this report are defined as follows
ND indicates that the analyte was not detected at a concentration greater than the detection limit
J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL)
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* indicates that a quality control analyte recovery is outside of specified acceptance criteria

This data report has been prepared and reviewed
in accordance with General Engineering Laboratories
standard operating procedures Please direct
any questions to your Project Manager, Elise Hanson at 843-556-8171

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GENERAL ENGINEERING LABORATORIES

Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	02934

Client	Supervisor of Ship Building & Conversion SUPSHIP-Portsmouth Detachment-Env 1899 North Hobson Ave North Charleston, South Carolina 29405-2106
Contact	Mr Bill Hiers
Project Description	SUPSHIP-Portsmouth Detachment

cc NPWC00197 Report Date April 07, 1999

Sample ID	99SPORT0136-6
Lab ID	9904054-06
Matrix	Soil
Date Collected	04/01/99
Date Received	04/01/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Extractable Organics											
PCB analysis - 7 items											
PCB-1016	U	ND	122	333	ug/kg	100	JLW	04/03/99	1356	145878	1
PCB-1221	U	ND	282	333	ug/kg	100					
PCB-1232	U	ND	163	333	ug/kg	100					
PCB-1242	U	ND	167	333	ug/kg	100					
PCB-1248	U	ND	90.6	333	ug/kg	100					
PCB-1254	U	ND	116	333	ug/kg	100					
PCB-1260		3260	94.2	333	ug/kg	100					

The following prep procedures were performed:

PCB's RDH 04/02/99 1410 145878 2

Comments:

Fails surrogate recovery due to sample dilution

Surrogate Recovery	Test	Percent %	Acceptable Limits
4CMX	PCB-8082	0.00*	(25.3 - 110)
Decachlorobiphenyl	PCB-8082	0.00*	(46.8 - 131)

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9904054-06

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STATE	GEI	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	02934

Client	Supervisor of Ship Building & Conversion SUPSHIP-Portsmouth Detachment-Env 1899 North Hobson Ave North Charleston, South Carolina 29405-2106
Contact	Mr. Bill Hiers
Project Description.	SUPSHIP-Portsmouth Detachment

cc NPWC00197 Report Date April 07 1999

Sample ID 99SPORT0136-6

M = Method	Method-Description
M 1	EPA 8082
M 2	EPA 3550

Notes
The qualifiers in this report are defined as follows
ND indicates that the analyte was not detected at a concentration greater than the detection limit
J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL)
U indicates that the analyte was not detected at a concentration greater than the detection limit
* indicates that a quality control analyte recovery is outside of specified acceptance criteria

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in accordance with General Engineering Laboratories
standard operating procedures. Please direct
any questions to your Project Manager, Elise Hanson at 843-556-8171

Reviewed By

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*9904054-06

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	02934

Client	Supervisor of Ship Building & Conversion SUPSHIP-Portsmouth Detachment-Env 1899 North Hobson Ave North Charleston, South Carolina 29405-2106
Contact	Mr Bill Hiers
Project Description	SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date April 07, 1999

Sample ID	99SPORT0136-7
Lab ID	9904054-07
Matrix	Soil
Date Collected	04/01/99
Date Received	04/01/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Extractable Organics											
PCB analysis - 7 items											
PCB-1016	U	ND	122	333	ug/kg	100	JLW	04/03/99	1419	145878	1
PCB-1221	U	ND	282	333	ug/kg	100					
PCB-1232	U	ND	163	333	ug/kg	100					
PCB-1242	U	ND	167	333	ug/kg	100					
PCB-1248	U	ND	90 6	333	ug/kg	100					
PCB-1254	U	ND	116	333	ug/kg	100					
PCB-1260		3080	94 2	333	ug/kg	100					

The following prep procedures were performed:

PCB's RDH 04/02/99 1410 145878 2

Comments:

Fails surrogate recovery due to sample dilution

Surrogate Recovery	Test	Percent %	Acceptable Limits
4CMX	PCB-8082	0 00*	(25 3 - 110)
Decachlorobiphenyl	PCB-8082	0 00*	(46 8 - 131)

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9904054-07

GENERAL ENGINEERING LABORATORIES

Meeting and Exceeding Vision and Expectations

Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
SC	10120	10582
TN	02934	02934

Client	Supervisor of Ship Building & Conversion SUPSHIP-Portsmouth Detachment-Env 1899 North Hobson Ave North Charleston, South Carolina 29405-2106
Contact	Mr. Bill Hiers
Project Description	SUPSHIP-Portsmouth Detachment

cc NPWC00197 Report Date April 07, 1999

Sample ID 99SPORT0136-7

M = Method	Method-Description
M 1	EPA 8082
M 2	EPA 3550

Notes
The qualifiers in this report are defined as follows
ND indicates that the analyte was not detected at a concentration greater than the detection limit
J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL)
U indicates that the analyte was not detected at a concentration greater than the detection limit
* indicates that a quality control analyte recovery is outside of specified acceptance criteria

This data report has been prepared and reviewed
in accordance with General Engineering Laboratories
standard operating procedures Please direct
any questions to your Project Manager, Elise Hanson at 843-556-8171

Reviewed By

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9904054-07

QC Summary Report

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Lab. Sample ID: 9904054% Report Date: April 07, 1999

Sample/Parameter	Type	Batch	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Analyst	Date	Time
Extractable Organics													
QC598866	BLANK	145878											
PCB-1260						0.00	ug/kg				JLW	04/03/99	0915
*4CMX							ug/kg		56.0	(25.3 - 110.)			
*Decachlorobiphenyl							ug/kg		100	(46.8 - 131.)			
PCB-1016						0.00	ug/kg						
PCB-1221						0.00	ug/kg						
PCB-1232						0.00	ug/kg						
PCB-1242						0.00	ug/kg						
PCB-1248						0.00	ug/kg						
PCB-1254						0.00	ug/kg						
QC598867	LCS	145878											
PCB-1260			33.3			27.0	ug/kg		81.1	(53.6 - 137.)	JLW	04/03/99	0939
*4CMX			6.67			4.53	ug/kg		68.0	(25.3 - 110.)			
*Decachlorobiphenyl			6.67			6.13	ug/kg		92.0	(46.8 - 131.)			
QC598868	9904054-01MS	145878											
PCB-1260			33.3	3280		2770	ug/kg		-1530**	(31.5 - 159.)	JLW	04/05/99	1202
4CMX			6.67			0.00	ug/kg		0.00**	(25.3 - 110.)			
*Decachlorobiphenyl			6.67			0.00	ug/kg		0.00**	(46.8 - 131.)			
QC598869	9904054-01MSD	145878											
PCB-1260			33.3	3280		2980	ug/kg	51.8**	-901	(0.00 - 26.2)	JLW	04/03/99	1026
*4CMX			6.67			0.00	ug/kg		0.00**	(25.3 - 110.)			
*Decachlorobiphenyl			6.67			0.00	ug/kg		0.00**	(46.8 - 131.)			

Notes:
The qualifiers in this report are defined as follows:
J indicates presence of analyte < RL (Report Limit)
U indicates presence of analyte < DL (Detect Limit)

n/a indicates that spike recovery limits do not apply when
sample concentration exceeds spike conc by a factor of 4 or more

NPWC00197

9904 541

CHAIN OF CUSTODY RECORD

— 3 DAY TURNAROUND —

General Engineering
2040 Savage Road
Charleston, South Carolina
P.O. Box 30712
Charleston, South Carolina 29417
(803) 556-8171

Client Name/Facility Name: SPORT ENVDETCHASN

Collected by/Company: SPORTENVDETCHASN

SAMPLE ANALYSIS REQUIRED (x) - use remarks area to specify specific compounds or methods

Use F or P in the boxes to indicate whether sample was filtered and/or preserved

39407

	SAMPLE ID	DATE	TIME	WELL	SOIL	COMP	GRAB	# OF CONTAINERS	pH, conductivity	TOC/DOC	TOX	Chloride, Fluoride, Sulfide	Nitrite/Nitrate	VOC - Specify Method required	METALS - specify	Pesticide	Herbicide	Total Phenol	Acid Extractables	B/N Extractables	PCB's	Cyanide	Coliform - specify type			Remarks
01	99SPORT0136-1	4/1/99	0935		X		X	1													X					NBCGAS38SB1-01
02	99SPORT0136-2	4/1/99	0945		X		X	1													X					NBCGAS38SB2-01
03	99SPORT0136-3	4/1/99	0955		X		X	1													X					NBCGAS38SB3-01
04	99SPORT0136-4	4/1/99	1000		X		X	1													X					NBCGAS38SB4-01
05	99SPORT0136-5	4/1/99	1006		X		X	1													X					NBCGAS38SB5-01
06	99SPORT0136-6	4/1/99	1008		X		X	1													X					NBCGAS38SB6-01
07	99SPORT0136-7	4/1/99	1015		X		X	1													X					NBCGAS38SB7-01

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
[signature]	4/1/99	1400	W.R. Hiers, Jr.	W.R. Hiers, Jr.	4/1/99	1538	Stephanie Berkeley

Relinquished by:	Date:	Time:	Received by lab by:	Date:	Time:	Remarks:
Stephanie Berkeley	4-1-99	1610	P. Mauer	4-1-99	16:16	

White = sample collector Yellow = file Pink = with report

GENERAL ENGINEERING LABORATORIES

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
NJ	79002	79002
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env
1899 North Hobson Ave
North Charleston, South Carolina 29405-2106

Contact: Mr. Bill Hiers

Project Description: SUPSHIP-Portsmouth Detachment

NPWC00197

Report Date: April 30, 1999

Sample ID	99 SPORT0157-1
Lab ID	9904660-01
Matrix	Soil
Date Collected	04/20/99
Date Received	04/21/99
Priority	Rush
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Extractable Organics											
Polynuclear Aromatic Hydrocarbons - 18 items											
1-Methylnaphthalene	U	ND	6.66	33.3	ug/kg	1.0	EH1	04/26/99	1953	147372	1
2-Methylnaphthalene	U	ND	6.66	33.3	ug/kg	1.0					
Acenaphthene	U	ND	6.66	33.3	ug/kg	1.0					
Acenaphthylene	U	ND	6.66	33.3	ug/kg	1.0					
Anthracene	U	ND	6.66	33.3	ug/kg	1.0					
Benzo(a)anthracene	U	ND	6.66	33.3	ug/kg	1.0					
Benzo(a)pyrene	U	ND	6.66	33.3	ug/kg	1.0					
Benzo(b)fluoranthene	U	ND	6.66	33.3	ug/kg	1.0					
Benzo(ghi)perylene	U	ND	6.66	33.3	ug/kg	1.0					
Benzo(k)fluoranthene	U	ND	6.66	33.3	ug/kg	1.0					
Chrysene	U	ND	6.66	33.3	ug/kg	1.0					
Dibenzo(a,h)anthracene	U	ND	26.6	33.3	ug/kg	1.0					
Fluoranthene	U	ND	6.66	33.3	ug/kg	1.0					
Fluorene	U	ND	6.66	33.3	ug/kg	1.0					
Indeno(1,2,3-c,d)pyrene	U	ND	23.3	33.3	ug/kg	1.0					
Naphthalene	U	ND	6.66	33.3	ug/kg	1.0					
Phenanthrene	U	ND	6.66	33.3	ug/kg	1.0					
Pyrene	U	ND	6.66	33.3	ug/kg	1.0					
PCB analysis - 7 items											
PCB-1016	U	ND	122	333	ug/kg	100	JLW	04/24/99	0414	147341	2
PCB-1221	U	ND	282	333	ug/kg	100					
PCB-1232	U	ND	163	333	ug/kg	100					
PCB-1242	U	ND	167	333	ug/kg	100					
PCB-1248	U	ND	90.6	333	ug/kg	100					
PCB-1254	U	ND	116	333	ug/kg	100					
PCB-1260		4330	94.2	333	ug/kg	100					

GENERAL ENGINEERING LABORATORIES

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
NJ	79002	79002
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env
1899 North Hobson Ave
North Charleston, South Carolina 29405-2106
Contact Mr Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 30, 1999

Sample ID 99 SPORT0157-1

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M

The following prep procedures were performed:

GC/MS Base/Neutral Compounds	CPU	04/22/99	1700	147372	3
PCB's	CPU	04/22/99	1700	147341	3

omments:

CB surrogate recovery fails due to sample dilution.

Surrogate Recovery	Test	Percent%	Acceptable Limits
2-Fluorobiphenyl	M610-5972	57 6	(44.7 - 110)
Nitrobenzene-d5	M610-5972	44 2	(42.4 - 107)
p-Terphenyl-d14	M610-5972	83 7	(45.5 - 104.)
4CMX	PCB-8082	0 00*	(25.3 - 110.)
Decachlorobiphenyl	PCB-8082	0.00*	(46.8 - 131.)

M = Method	Method-Description
M 1	EPA 8270
M 2	EPA 8082
M 3	EPA 3550

Notes.
The qualifiers in this report are defined as follows·
ND indicates that the analyte was not detected at a concentration greater than the detection limit.
ndicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).
indicates that the analyte was not detected at a concentration greater than the detection limit.
* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

GENERAL ENGINEERING LABORATORIES

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
NJ	79002	79002
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106

Contact: Mr. Bill Hiers

Project Description: SUPSHIP-Portsmouth Detachment

:c NPWC00197 Report Date April 30, 1999 **Page 3 of 3**

Sample ID 99 SPORT0157-1

M = Method **Method-Description**

This data report has been prepared and reviewed in accordance with General Engineering Laboratories standard operating procedures. Please direct any questions to your Project Manager, Elise Hanson at 843-556-8171.

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GENERAL ENGINEERING LABORATORIES

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
NJ	79002	79002
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env
1899 North Hobson Ave
North Charleston, South Carolina 29405-2106

Contact: Mr Bill Hiers

Project Description: SUPSHIP-Portsmouth Detachment

cc NPWC00197

Report Date April 30, 1999

Sample ID	99 SPORT0157-2
Lab ID	9904660-02
Matrix	Soil
Date Collected	04/20/99
Date Received	04/21/99
Priority	Routine
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Extractable Organics											
Polynuclear Aromatic Hydrocarbons - 18 items											
1-Methylnaphthalene	U	ND	6.66	33.3	ug/kg	1.0	EHI	04/29/99	0718	147372	1
2-Methylnaphthalene	U	ND	6.66	33.3	ug/kg	1.0					
Acenaphthene	U	ND	160	333	ug/kg	1.0					
Acenaphthylene	U	ND	147	333	ug/kg	1.0					
Anthracene	U	ND	86.6	333	ug/kg	1.0					
Benzo(a)anthracene	U	ND	66.6	333	ug/kg	1.0					
Benzo(a)pyrene	U	ND	73.3	333	ug/kg	1.0					
Benzo(b)fluoranthene	U	ND	143	333	ug/kg	1.0					
Benzo(ghi)perylene	U	ND	79.9	333	ug/kg	1.0					
Benzo(k)fluoranthene	U	ND	133	333	ug/kg	1.0					
Chrysene	U	ND	53.3	333	ug/kg	1.0					
Dibenzo(a,h)anthracene	U	ND	83.3	333	ug/kg	1.0					
Fluoranthene	U	ND	66.6	333	ug/kg	1.0					
Fluorene	U	ND	113	333	ug/kg	1.0					
Indeno(1,2,3-c,d)pyrene	U	ND	79.9	333	ug/kg	1.0					
Naphthalene	U	ND	157	333	ug/kg	1.0					
Phenanthrene	U	ND	59.9	333	ug/kg	1.0					
Pyrene	U	ND	73.3	333	ug/kg	1.0					
PCB analysis - 7 items											
PCB-1016	U	ND	6.08	16.7	ug/kg	5.0	JLW	04/26/99	1946	147341	2
PCB-1221	U	ND	14.1	16.7	ug/kg	5.0					
PCB-1232	U	ND	8.14	16.7	ug/kg	5.0					
PCB-1242	U	ND	8.34	16.7	ug/kg	5.0					
PCB-1248	U	ND	4.53	16.7	ug/kg	5.0					
PCB-1254	U	ND	5.81	16.7	ug/kg	5.0					
PCB-1260	U	ND	4.71	16.7	ug/kg	5.0					

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
NJ	79002	79002
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106

Contact: Mr. Bill Hiers

Project Description: SUPSHIP-Portsmouth Detachment

SDG: NPWC00197 Report Date: April 30, 1999

	Sample ID	99 SPORT0157-2									
Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M

The following prep procedures were performed:

GC/MS Base/Neutral Compounds	RDH	04/28/99	1300	147372 3
PCB's	CPU	04/22/99	1700	147341 3

Surrogate Recovery	Test	Percent %	Acceptable Limits
2-Fluorobiphenyl	M610-5972	60.7	(44.7 - 110.)
Nitrobenzene-d5	M610-5972	59.6	(42.4 - 107.)
p-Terphenyl-d14	M610-5972	73.3	(45.5 - 104.)
4CMX	PCB-8082	67.5	(25.3 - 110.)
Decachlorobiphenyl	PCB-8082	72.5	(46.8 - 131.)

M = Method	Method-Description
M 1	EPA 8270
M 2	EPA 8082
M 3	EPA 3550

Notes
The qualifiers in this report are defined as follows:
ND indicates that the analyte was not detected at a concentration greater than the detection limit.
J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).
U indicates that the analyte was not detected at a concentration greater than the detection limit.
indicates that a quality control analyte recovery is outside of specified acceptance criteria.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories standard operating procedures. Please direct any questions to your Project Manager, Elise Hanson at 843-556-8171

Reviewed By

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Laboratory Certifications

STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
NJ	79002	79002
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106

Contact: Mr. Bill Hiers

Project Description: SUPSHIP-Portsmouth Detachment

cc NPWC00197

Report Date: April 30, 1999

Sample ID	99 SPORT0157-3
Lab ID	9904660-03
Matrix	Soil
Date Collected	04/20/99
Date Received	04/21/99
Priority	Routine
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Extractable Organics											
Polynuclear Aromatic Hydrocarbons - 18 items											
1-Methylnaphthalene	U	ND	13.3	66.6	ug/kg	2.0	EH1	04/29/99	0325	147372	1
2-Methylnaphthalene	U	ND	13.3	66.6	ug/kg	2.0					
Acenaphthene	U	ND	320	666	ug/kg	2.0					
Acenaphthylene	U	ND	293	666	ug/kg	2.0					
Anthracene	U	ND	173	666	ug/kg	2.0					
Benzo(a)anthracene	U	ND	133	666	ug/kg	2.0					
Benzo(a)pyrene	U	ND	147	666	ug/kg	2.0					
Benzo(b)fluoranthene	U	ND	286	666	ug/kg	2.0					
Benzo(ghi)perylene	U	ND	160	666	ug/kg	2.0					
Benzo(k)fluoranthene	U	ND	266	666	ug/kg	2.0					
Chrysene	U	ND	107	666	ug/kg	2.0					
Dibenzo(a,h)anthracene	U	ND	167	666	ug/kg	2.0					
Fluoranthene	U	ND	133	666	ug/kg	2.0					
Fluorene	U	ND	226	666	ug/kg	2.0					
Indeno(1,2,3-c,d)pyrene	U	ND	160	666	ug/kg	2.0					
Naphthalene	U	ND	313	666	ug/kg	2.0					
Phenanthrene	U	ND	120	666	ug/kg	2.0					
Pyrene	U	ND	147	666	ug/kg	2.0					
PCB analysis - 7 items											
PCB-1016	U	ND	60.8	167	ug/kg	50.	JLW	04/26/99	2009	147341	2
PCB-1221	U	ND	141	167	ug/kg	50.					
PCB-1232	U	ND	81.4	167	ug/kg	50					
PCB-1242	U	ND	83.4	167	ug/kg	50.					
PCB-1248	U	ND	45.3	167	ug/kg	50.					
PCB-1254	U	ND	58.1	167	ug/kg	50.					
PCB-1260		1860	47.1	167	ug/kg	50.					

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TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106

Contact: Mr. Bill Hiers

Project Description: SUPSHIP-Portsmouth Detachment

c. NPWC00197 Report Date: April 30, 1999

Sample ID 99 SPORT0157-3

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M

The following prep procedures were performed:

GC/MS Base/Neutral Compounds	CPU	04/22/99	1700	147372	3
PCB's	CPU	04/22/99	1700	147341	3

omments:

CB surrogate recovery fails due to sample dilution.

Surrogate Recovery	Test	Percent%	Acceptable Limits
2-Fluorobiphenyl	M610-5972	52.3	(44.7 - 110.)
Nitrobenzene-d5	M610-5972	46.0	(42.4 - 107.)
p-Terphenyl-d14	M610-5972	64.2	(45.5 - 104.)
4CMX	PCB-8082	0.00*	(25.3 - 110.)
Decachlorobiphenyl	PCB-8082	0.00*	(46.8 - 131.)

M = Method	Method-Description
M 1	EPA 8270
M 2	EPA 8082
M 3	EPA 3550

Notes:

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ND indicates that the analyte was not detected at a concentration greater than the detection limit.

ndicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).

indicates that the analyte was not detected at a concentration greater than the detection limit.

* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

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STATE	GEL	EPI
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TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106

Contact: Mr. Bill Hiers

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 30, 1999

Sample ID	99 SPORT0157-3

M = Method	Method-Description

This data report has been prepared and reviewed in accordance with General Engineering Laboratories standard operating procedures. Please direct any questions to your Project Manager, Elise Hanson at 843-556-8171

E Hanson

Reviewed By

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STATE	GEL	EPI
FL	E87156/87294	E87472/87458
NC	233	
NJ	79002	79002
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106

Contact: Mr. Bill Hiers

Project Description: SUPSHIP-Portsmouth Detachment

cc NPWC00197

Report Date: April 30, 1999

Sample ID	99 SPORT0157-4
Lab ID	9904660-04
Matrix	Soil
Date Collected	04/20/99
Date Received	04/21/99
Priority	Routine
Collector	Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
xtractable Organics											
Polynuclear Aromatic Hydrocarbons - 18 items											
1-Methylnaphthalene	U	ND	13.3	66.6	ug/kg	2.0	EH1	04/29/99	0354	147372	1
2-Methylnaphthalene	U	ND	13.3	66.6	ug/kg	2.0					
Acenaphthene	U	ND	320	666	ug/kg	2.0					
Acenaphthylene	U	ND	293	666	ug/kg	2.0					
Anthracene	U	ND	173	666	ug/kg	2.0					
Benzo(a)anthracene	U	ND	133	666	ug/kg	2.0					
Benzo(a)pyrene	U	ND	147	666	ug/kg	2.0					
Benzo(b)fluoranthene	U	ND	286	666	ug/kg	2.0					
Benzo(ghi)perylene	U	ND	160	666	ug/kg	2.0					
Benzo(k)fluoranthene	U	ND	266	666	ug/kg	2.0					
Chrysene	U	ND	107	666	ug/kg	2.0					
Dibenzo(a,h)anthracene	U	ND	167	666	ug/kg	2.0					
Fluoranthene	J	175	133	666	ug/kg	2.0	EH	04/29/99	0354	147372	1
Fluorene	U	ND	226	666	ug/kg	2.0	EH1	04/29/99	0354	147372	1
Indeno(1,2,3-c,d)pyrene	U	ND	160	666	ug/kg	2.0					
Naphthalene	U	ND	313	666	ug/kg	2.0					
Phenanthrene	U	ND	120	666	ug/kg	2.0	EH	04/29/99	0354	147372	1
Pyrene	U	ND	147	666	ug/kg	2.0	EH1	04/29/99	0354	147372	1
PCB analysis - 7 items											
PCB-1016	U	ND	6.08	16.7	ug/kg	5.0	JLW	04/26/99	2032	147341	2
PCB-1221	U	ND	14.1	16.7	ug/kg	5.0					
PCB-1232	U	ND	8.14	16.7	ug/kg	5.0					
PCB-1242	U	ND	8.34	16.7	ug/kg	5.0					
PCB-1248	U	ND	4.53	16.7	ug/kg	5.0					
PCB-1254	U	ND	5.81	16.7	ug/kg	5.0					
PCB-1260		55.3	4.71	16.7	ug/kg	5.0					

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NJ	79002	79002
SC	10120	10582
TN	02934	02934

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Report Date: April 30, 1999

Sample ID 99 SPORT0157-4

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M

The following prep procedures were performed:

GC/MS Base/Neutral Compounds	CPU	04/22/99	1700	147372	3
PCB's	CPU	04/22/99	1700	147341	3

Surrogate Recovery	Test	Percent%	Acceptable Limits
2-Fluorobiphenyl	M610-5972	58.5	(44.7 - 110.)
Nitrobenzene-d5	M610-5972	52.5	(42.4 - 107.)
p-Terphenyl-d14	M610-5972	75.9	(45.5 - 104.)
4CMX	PCB-8082	50.0	(25.3 - 110.)
Decachlorobiphenyl	PCB-8082	80.0	(46.8 - 131.)

M = Method	Method-Description
M 1	EPA 8270
M 2	EPA 8082
M 3	EPA 3550

Notes:
The qualifiers in this report are defined as follows:
ND indicates that the analyte was not detected at a concentration greater than the detection limit.
J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).
U indicates that the analyte was not detected at a concentration greater than the detection limit.
* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

This data report has been prepared and reviewed
in accordance with General Engineering Laboratories
standard operating procedures. Please direct
y questions to your Project Manager, Elise Hanson at 843-556-8171

Reviewed By

QC Summary Report

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Lab. Sample ID: 9904660% Report Date: April 30, 1999

Sample/Parameter	Type	Batch	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Analyst	Date	Time
Extractable Organics													
QC604647	LCS	147372											
1,2,4-Trichlorobenzene			1670			763	ug/kg		45.7	(-)	EH	04/23/99	1446
1,4-Dichlorobenzene			1670			729	ug/kg		43.6	(-)			
2,4-Dinitrotoluene			1670			1250	ug/kg		74.8	(-)			
2-Chlorophenol			3330			1810	ug/kg		54.4	(-)			
4-Nitrophenol			3330			3270	ug/kg		98.2	(-)			
4-chloro-3-methyl phenol			3330			2210	ug/kg		66.2	(-)			
Acenaphthene			1670			973	ug/kg		58.3	(-)			
N-Nitrosodipropylamine			1670			1010	ug/kg		60.6	(-)			
Pentachlorophenol			3330			2550	ug/kg		76.7	(-)			
Phenol			3330			1770	ug/kg		53.2	(-)			
Pyrene			1670			1160	ug/kg		69.7	(-)			
*2,4,6-Tribromophenol			3330			2620	ug/kg		78.6	(-)			
*2-Fluorobiphenyl			1670			944	ug/kg		56.5	(-)			
*2-Fluorophenol			3330			1870	ug/kg		56.1	(-)			
*Nitrobenzene-d5			1670			908	ug/kg		54.3	(-)			
*Phenol-d6			3330			2000	ug/kg		60.1	(-)			
*p-Terphenyl-d14			1670			1180	ug/kg		70.4	(-)			
QC606801	LCS	147372											
1,2,4-Trichlorobenzene			1670			725	ug/kg		43.4	(-)	EH	04/29/99	0550
1,4-Dichlorobenzene			1670			735	ug/kg		44.0	(-)			
2,4-Dinitrotoluene			1670			1140	ug/kg		68.2	(-)			
2-Chlorophenol			3330			2060	ug/kg		61.7	(-)			
4-Nitrophenol			3330			3050	ug/kg		91.7	(-)			
4-chloro-3-methyl phenol			3330			2140	ug/kg		64.3	(-)			
Acenaphthene			1670			1020	ug/kg		60.8	(-)			
N-Nitrosodipropylamine			1670			1070	ug/kg		63.9	(-)			
Pentachlorophenol			3330			2880	ug/kg		86.6	(-)			
Phenol			3330			2100	ug/kg		63.1	(-)			
Pyrene			1670			1070	ug/kg		63.8	(-)			
*2,4,6-Tribromophenol			3330			2780	ug/kg		83.3	(-)			
*2-Fluorobiphenyl			1670			961	ug/kg		57.5	(-)			
*2-Fluorophenol			3330			2150	ug/kg		64.4	(-)			
*Nitrobenzene-d5			1670			872	ug/kg		52.2	(-)			
*Phenol-d6			3330			2290	ug/kg		68.8	(-)			
*p-Terphenyl-d14			1670			1060	ug/kg		63.7	(-)			
QC606800	BLANK	147372											
Acenaphthene						0.00	ug/kg				EH1	04/29/99	0521
Pyrene						0.00	ug/kg						

QC Summary Report

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Lab. Sample ID: 9904660% Report Date: April 30, 1999

Sample/Parameter	Type	Batch	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Analyst	Date	Time
*2-Fluorobiphenyl							ug/kg		58.2	(-)	EH	04/29/99	0521
*Nitrobenzene-d5							ug/kg		58.8	(-)			
*p-Terphenyl-d14							ug/kg		66.8	(-)			
1-Methylnaphthalene						0.00	ug/kg				EH1	04/29/99	0521
2-Methylnaphthalene						0.00	ug/kg						
Acenaphthylene						0.00	ug/kg						
Anthracene						0.00	ug/kg						
Benzo(a)anthracene						0.00	ug/kg						
Benzo(a)pyrene						0.00	ug/kg						
Benzo(b)fluoranthene						0.00	ug/kg						
Benzo(ghi)perylene						0.00	ug/kg						
Benzo(k)fluoranthene						0.00	ug/kg						
Chrysene						0.00	ug/kg						
Dibenzo(a,h)anthracene						0.00	ug/kg						
Fluoranthene						0.00	ug/kg						
Fluorene						0.00	ug/kg						
Indeno(1,2,3-c,d)pyrene						0.00	ug/kg						
Naphthalene						0.00	ug/kg						
Phenanthrene						0.00	ug/kg						
QC606801	LCS	147372											
1,2,4-Trichlorobenzene			1670			725	ug/kg		43.4	(-)	EH	04/29/99	0550
1,4-Dichlorobenzene			1670			735	ug/kg		44.0	(-)			
2,4-Dinitrotoluene			1670			1140	ug/kg		68.2	(-)			
Acenaphthene			1670			1020	ug/kg		60.8	(-)			
N-Nitrosodipropylamine			1670			1070	ug/kg		63.9	(-)			
Pentachlorophenol			3330			2880	ug/kg		86.6	(-)			
Phenol			3330			2100	ug/kg		63.1	(-)			
Pyrene			1670			1070	ug/kg		63.8	(-)			
*2-Fluorobiphenyl			1670			961	ug/kg		57.5	(-)			
*Nitrobenzene-d5			1670			872	ug/kg		52.2	(-)			
*p-Terphenyl-d14			1670			1060	ug/kg		63.7	(-)			
QC604548	BLANK	147341											
PCB-1260						0.00	ug/kg				JLW	04/24/99	0240
*4CMX							ug/kg		55.5	(25.3 - 110.)			
*Decachlorobiphenyl							ug/kg		65.5	(46.8 - 131.)			
PCB-1016						0.00	ug/kg						
PCB-1221						0.00	ug/kg						
PCB-1232						0.00	ug/kg						
PCB-1242						0.00	ug/kg						
PCB-1248						0.00	ug/kg						

QC Summary Report

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197 Lab. Sample ID: 9904660% Report Date: April 30, 1999

Sample/Parameter	Type	Batch	NOM	Sample	Qual	QC	Units	RPD%	REC%	Range	Analyst	Date	Time
PCB-1254						0.00	ug/kg				JLW	04/24/99	0240
QC604549	LCS	147341											
PCB-1260			33.3			23.3	ug/kg		70.0	(53.6 - 137.)	JLW	04/24/99	0304
*4CMX			6.67			4.10	ug/kg		61.5	(25.3 - 110.)			
*Decachlorobiphenyl			6.67			5.13	ug/kg		77.0	(46.8 - 131.)			
QC604550	9904660-01MS	147341											
PCB-1260			33.3	4330		2830	ug/kg		-4500**	(31.5 - 159.)	JLW	04/24/99	0327
*4CMX			6.67			0.00	ug/kg		0.00**	(25.3 - 110.)			
*Decachlorobiphenyl			6.67			0.00	ug/kg		0.00**	(46.8 - 131.)			
QC604551	9904660-01MSD	147341											
PCB-1260			33.3	4330		3430	ug/kg	50.0**	-2700	(0.00 - 26.2)	JLW	04/24/99	0350
*4CMX			6.67			0.00	ug/kg		0.00**	(25.3 - 110.)			
Decachlorobiphenyl			6.67			0.00	ug/kg		0.00**	(46.8 - 131.)			

Notes:
The qualifiers in this report are defined as follows:
J indicates presence of analyte < RL (Report Limit)
U indicates presence of analyte < DL (Detect Limit)

n/a indicates that spike recovery limits do not apply when
sample concentration exceeds spike conc by a factor of 4 or more

NPWC00197

Quote 39773

General Engineering Labo[illegible]ies, Inc
2040 Savage Road
Charleston, South Carolina 29407
PO Box 30712
Charleston, South Carolina 29417
(803) 556-8171

CHAIN OF CUSTODY RECORD

Page 1 of 1

9904660%

Client Name/Facility Name: SPORTENVDETCHASN

Collected by/Company: SPORTENVDETCHASN

Use F or P in the boxes to indicate whether sample was filtered and/or preserved

39773

SAMPLE ANALYSIS REQUIRED (x) - use remarks area to specify specific compounds or methods

	SAMPLE ID	DATE	TIME	WELL	SOIL	COMP	GRAB	# OF CONTAINERS	pH, conductivity	TOC/DOC	TOX	Chloride, Fluoride, Sulfide	Nitrite/Nitrate	VOC - Specify Method required	METALS - specify	Pesticide	Herbicide	Total Phenol	Acid Extractables	B/N Extractables	PCB's	Cyanide	Coliform - specify type	PAH		Remarks	
01	19SPORTØ157-1	4/20/99	1425		X		X	1													X			X		NBCGRH385 0801	.1
02	19SPORTØ157-2	4/20/99	1440		X		X	1													X			X		NBCGRH385 0101	.1
3	19SPORTØ157-3	4/20/99	1450		X		X	1													X			X		NBCGRH385 1001	.1
4	19SPORTØ157-4	4/20/99	1505		X		X	1													X			X		NBCGRH385 1101	.1

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
[illegible]	4/20/99	1530	[illegible] Washington	[illegible] Washington	4/21/99	4/21/99	Stephanie Beebee
Relinquished by:	Date:	Time:	Received by lab by:	Date:	Time:	Remarks:	
Stephanie Beebee	4/21/99	1550	[illegible]	4/21/99	1550		

White = sample collector Yellow = file Pink = with report

SOUTHWEST LABORATORY OF OKLAHOMA
1700 West Albany, Suite A/ Broken Arrow, OK 74012
918-251-2858

SDG NARRATIVE

CLIENT: FISCJAC

PROJECT: CHARLESTON IRP

EPISODE: 40022

FRACTION: PCBs

18 soil samples were extracted by SW846 method 3550 and analyzed for PCBs by SW846 method 8082.

No major problems occurred during the analyses of the samples.

Blanks:	No corrective action required.
Surrogates:	No corrective action required.
Laboratory Control Spike:	No corrective action required.
Matrix Spikes:	No corrective action required.

Drew Cowan
GC Supervisor
Dc

August 26, 1999

CHAIN OF CUSTODY RECORD

SOUTHWEST LABORATORY OF OKLAHOMA, INC
1700 W Albany • Broken Arrow Oklahoma 74012-1421
Office 918 251 2858 • Fax 918 251 2599

ATTN: SANDY GROVENSTEIN

SAMPLING FIRM: SPERTON DECAUSSIN
CLIENT CONTACT: Bill Hicks
PHONE NUMBER: 843 743-6717X 124
P.O. or PROPOSAL NUMBER: N68536-99 M X66
PROJECT NAME: R/A ZONE G
SAMPLER (Signature): Virginia Thomas

ANALYTICAL TESTS REQUESTED: PCB-8082, PAH-8270

SHIPPED ON ICE

SAMPLE ID	DATE	TIME	COMP	GRAB	LOCATION	MATRIX	NUMBER OF CONTAINERS	PCB-8082	PAH-8270	REMARKS
9950 Ø02-1	8/19/99	1225		X		Soil	1	X		NBCGRHS 38Ø1-ØØ1
9950 ØØ2-2	8/19/99	1234		X		Soil	1	X	X	NBCGRHS 38Ø2-ØØ1
9950 Ø02-3	8/19/99	1245		X		Soil	1	X		NBCGRHS 38Ø3-ØØ1
9950 Ø02-4	8/19/99	1254		X		Soil	1	X		NBCGRHS 38Ø4-ØØ1
9950 Ø02-5	8/19/99	13Ø4		X		Soil	1	X		NBCGRHS 38Ø5 ØØ1
9950 Ø02-6	8/19/99	1255		X		Soil	1	X		NBCGRHS 38Ø6 ØØ1
9950 Ø02-7	8/19/99	13Ø2		X		Soil	1	X	X	NBCGRHS 38Ø7-ØØ1
9950 Ø02-8	8/19/99	1314		X		Soil	1	X		NBCGRHS 38Ø8-ØØ1
9950 Ø02-9	8/19/99	13Ø6		X		Soil	1	X		NBCGRHS 38Ø9-ØØ1
9950 Ø02-10	8/19/99	1535		X		Soil	1	X		NBCGRHS 381Ø-ØØ1
9950 Ø02-11	8/19/99	1544		X		Soil	1	X		NBCGRHS 3811-ØØ1
9950 Ø02-12	8/19/99	1545		X		Soil	1	X	X	NBCGRHS 3812-ØØ1
9950 Ø02-13	8/19/99	1555		X		Soil	1	X		NBCGRHS 3813-ØØ1
9950 Ø02-14	8/19/99	16ØØ		X		Soil	1	X		NBCGRHS 3814-ØØ1
9950 Ø02-15	8/19/99	16Ø5		X		Soil	1	X		NBCGRHS 3815-ØØ1
9950 Ø02-16	8/19/99	1615		X		Soil	1	X		NBCGRHS 3816-ØØ1

RELINQUISHED BY (Signature)	DATE	TIME	RECEIVED BY (Signature)
Virginia Thomas	8/20/99	0753	William R. Hicks Jr.
William R. Hicks Jr.	8/22/99	1430	

RELINQUISHED BY (Signature)	DATE	TIME	RECEIVED BY (Signature)
	8/21/99	10:00	RECEIVED FOR LABORATORY BY (Signature): [illegible]

REMARKS: 3°C

[SROF-1PP-04]

CHAIN OF CUSTODY RECORD

SOUTHWEST LABORATORY OF OKLAHOMA, INC
1700 W Albany • Broken Arrow Oklahoma 74012-1421
Office 918 251-2858 • Fax 918 251-2599

ATTN: SANDY GROVENSTEIN

SAMPLING FIRM: STERTEN PRODUCTION
COLLECTOR: BILL HIERS
PHONE NUMBER: 843 743 6111 X 124
P.O. or PROPOSAL NUMBER: N68536-99-M-X061
PROJECT NAME: K/H ZONE G

SAMPLER (Signature):

ANALYTICAL TESTS REQUESTED: PCB-8082, PAH-8270

SHIPPED ON ICE

SAMPLE ID	DATE	TIME	COMP	GRAB	LOCATION	MATRIX	NUMBER OF CONTAINERS	PCB-8082	PAH-8270							REMARKS
995W ØØ2-17	8/19/99	1624		X		Soil	1	X	X							NBCGRHS3817-ØØ1
995W ØØ2-18	8/19/99	1625		X		Soil	1	X								NBCGRHS3818-ØØ1

RELINQUISHED BY (Signature)	DATE	TIME	RECEIVED BY (Signature)
	8/20/99	0955	William R. Hiers, Jr.
William R. Hiers, Jr.	8/20/99	1430	

RELINQUISHED BY (Signature)	DATE	TIME	RECEIVED BY (Signature)
	8/31/99	10:00	RECEIVED FOR LABORATORY BY (Signature)

RELINQUISHED BY (Signature)	DATE	TIME	RECEIVED BY (Signature)

REMARKS: 3°C

[SR012 1192 03]

SOUTHWEST LABORATORY OF OKLAHOMA
1700 West Albany, Suite A/ Broken Arrow, OK 74012
918-251-2858

SDG NARRATIVE
September 3, 1999

CONTRACT: FISCJAC

PROJECT: CHARLESTON IRP

SDG NO: 40022

SEMIVOLATILE FRACTION

Four soil samples were submitted for Semivolatile Organic analyses. The samples were analyzed by GC/MS following SW846-8270C.

SWLO uses a 2uL injection for method SW846-8270C as allowed by the method and has added two extra "advisory surrogates (one acid and one base/neutral)" to the surrogate spiking mix. These surrogates are 1,2-dichlorobenzene-d4 and 2-chlorophenol-d4 and have advisory control limits. The surrogates, laboratory control spikes and matrix spikes are spiked at 75 ug/L (waters) and 2500ug/Kg (soils) for the acid surrogates and 50 ug/L (waters) and 1700 (actual 1667) ug/Kg (soils) for base/neutral surrogates. The instrument calibration range is from 10 ug/L to 80 ug/L for waters and 330 ug/Kg to 2700 ug/Kg for soils, which relates to 20 ng on column (low cal. std.) up to 160 ng on column (high cal. std.).

One minor problem occurred during the extraction and analyses of these samples. The original extracts had extremely high recoveries for the surrogates. These samples were re-extracted within extract hold time and the re-extracts had slightly high recovery for one or two of the base/neutral surrogates. Since the re-extracts had recoveries just slightly out this data was put on forms in the data package the original analyses had been put in the misc. section of the data package.

Blanks: No target compounds were found in the extraction blanks.

Surrogates: SBLK1, LCSD1 and 99SW-002-2 had slightly high spike recovery for terphenyl-d14 at 138%, 145% and 140%, respectively with a upper control limit of 140%. LCS1, LCSD1, 99SW-002-2, 99-SW-002-2MS and 99-SW-002-2MSD had slightly high recovery for 2-fluorobiphenyl at 118%, 121%, 126%, 117% and 122%, respectively with a upper control limit of 115%. No corrective action was taken since these surrogates were outside of limits slightly high.

Matrix Spikes: 99SW-002-02MS/MSD had all spike compounds within QC limits.

Laboratory Control Spikes: LCS1/LCSD1 had slightly high spike recoveries for acenaphthene at 100% with a upper limit of 99% and pyrene at 118% with an upper limit of 95%. No corrective action was taken since MS/MSD had all spike compounds within QC limits.

Internal Standards: All internal standards were within QC limits.

Harry M. Borg
Harry M. Borg
Organic Program Manager

September 3, 1999

COOLER RECEIPT / SAMPLE LOG-IN SHEET

COOLER RECEIPT / SAMPLE LOG-IN SHEET (115-ATT2 WB1) / SWL-GA-115 REV 5 0 / GA-115-CRLOGIN-F

LAB NAME: SOUTHWEST LABORATORY OF OKLAHOMA

PAGE 1 OF 1

RECEIVED BY (PRINT NAME): DON WILLIS

RECEIVED BY (SIGNATURE).

LOGGED IN BY (SIGNATURE):

REC'D DATE 08/21/99

TIME REC'D 10:00

LOG-IN DATE 1999-08-21 11:16

PROJECT CHARLESTON IRP

EPISODE 40022

SAMPLE DELIVERY GROUP 40022

Remarks

1 CUSTODY SEAL(S): Present/Absent
Intact/ Broken

2 CUSTODY SEALS NOS..
NA

3 CHAIN-OF CUSTODY Present/Absent
Sealed In Plastic? Yes/ No
Taped To Lid? Yes/ No
Properly Filled Out
Ink, Signed, ETC)? Yes/ No

4 AIRBILL AirBill/ Sticker
Present/Absent

5 AIRBILL NO
810840331005

6 COOLER CONDITIONS
Enough Ice? Yes/ No
Type of Ice? WET
Type of Packing? BUB

7 SAMPLE TAGS Present/Absent

8 SAMPLE CONDITION: Intact/ Broken*/ Leaking
Bottles Sealed In Separate Plastic Bags? Yes/ No
Correct Containers Used For Tests Indicated? Yes/ No
Correct Preservative? Yes/ No
Sufficient Sample? Yes/ No
Labels Complete (I.D., Date, Time, Signature, Preservative? Yes/ No
VOA Samples Without Bubbles? Yes/ No~

9 Does Information on Custody Records, Labels, Tags Agree? Yes/ No*

10 RAD SCREEN WITH GIEGER COUNTER? Yes/ No

11 P O Called? Yes/ No

Client Sample #	Sample Fraction @	Assigned LAB#	Cooler I D	pH Check	ACID/ BASE LOT#	REMARKS: CONDITION OF SAMPLE SHIPMENT, ETC.
99SW-002-1	GC	40022.01	08/21/99-1	N		3.0 C
99SW-002-2	GC, B	40022.02		N		
99SW-002-3	GC	40022.03		N		
99SW-002-4		40022.04		N		
99SW-002-5		40022.05		N		
99SW-002-6		40022.06		N		
99SW-002-7	GC, B	40022.07		N		
99SW-002-8	GC	40022.08		N		
99SW-002-9		40022.09		N		
99SW-002-10		40022.10		N		
99SW-002-11		40022.11		N		
99SW-002-12	GC, B	40022.12		N		
99SW-002-13	GC	40022.13		N		
99SW-002-14		40022.14		N		
99SW-002-15		40022.15		N		
99SW-002-16		40022.16		N		
99SW-002-17	GC, B	40022.17		N		
99SW-002-18	GC	40022.18		N		

* Contact PO and attach record of resolution

@ Sample Fractions: B=SV GC/MS, V= VOA GC/MS or GC, P=Pesticide, H=Herbicide, D=Dioxin, A=Air I=Inorganics, C=Cyanide, M=Metals, R=Radiochemistry

~ Note samples with bubbles under remarks section

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BL0821SC

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: FISCJ SDG No.: 40022

Matrix: (soil/water) SOIL Lab Sample ID: BL0821SC

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: _____ decanted: (Y/N) ___ Date Received: _____

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/21/99

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/23/99

Injection Volume: 0.5(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2------	Aroclor-1016	33	U
11104-28-2------	Aroclor-1221	33	U
11141-16-5------	Aroclor-1232	33	U
53469-21-9------	Aroclor-1242	33	U
12672-29-6------	Aroclor-1248	33	U
11097-69-1------	Aroclor-1254	33	U
11096-82-5------	Aroclor-1260	33	U
Surrogate amount spiked		6.67	

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

LC0821SC

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: FISCJ SDG No.: 40022

Matrix: soil/water) SOIL Lab Sample ID: LC0821SC

Sample wt/vol: 30.0 (g/mL) G Lab File ID:_____

% Moisture: 0 decanted: Y/N) __ Date Received:

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:08/21/99

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/23/99

Injection Volume: 0.5(uL) Dilution Factor: 1.0

GPC Cleanup: Y/N) N pH: 7.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2------	Aroclor-1016	230	
11104-28-2------	Aroclor-1221	33	U
11141-16-5------	Aroclor-1232	33	U
53469-21-9------	Aroclor-1242	33	U
12672-29-6------	Aroclor-1248	33	U
11097-69-1------	Aroclor-1254	33	U
11096-82-5------	Aroclor-1260	250	
Surrogate amount spiked		6.67	

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

LD0821SC

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: FISCJ SDG No.: 40022

Matrix: soil/water) SOIL Lab Sample ID: LD0821SC

Sample wt/vol: 30.0 (g/mL) G Lab File ID:_____

% Moisture: 0 decanted: (Y/N) __ Date Received:

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:08/21/99

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/23/99

Injection Volume: 0.5(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L or ug/Kg) UG/KG	Q
12674-11-2------	Aroclor-1016	250	
11104-28-2------	Aroclor-1221	33	U
11141-16-5------	Aroclor-1232	33	U
53469-21-9------	Aroclor-1242	33	U
12672-29-6------	Aroclor-1248	33	U
11097-69-1------	Aroclor-1254	33	U
11096-82-5------	Aroclor-1260	250	
Surrogate amount spiked		6.67	

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

99SW-002-1

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: FISCJ SDG No.: 40022

Matrix: soil/water) SOIL Lab Sample ID: 40022.01

Sample wt/vol: 30.0 g/mL) G Lab File ID:_____

% Moisture: 4 decanted: (Y/N) __ Date Received: 08/21/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:08/21/99

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/23/99

Injection Volume: 0.5(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.9 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2------	Aroclor-1016	34	U
11104-28-2------	Aroclor-1221	34	U
11141-16-5------	Aroclor-1232	34	U
53469-21-9------	Aroclor-1242	34	U
12672-29-6------	Aroclor-1248	34	U
11097-69-1------	Aroclor-1254	34	U
11096-82-5------	Aroclor-1260	1000	U
Surrogate amount spiked		6.94	

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

99SW-002-1DL

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: FISCJ SDG No.: 40022

Matrix: (soil/water) SOIL Lab Sample ID: 40022.01DL

Sample wt/vol: 30.0 (g/mL) G Lab File ID:_____

% Moisture: 4 decanted: Y/N) __ Date Received: 08/21/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:08/21/99

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/24/99

Injection Volume: 0.5(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: 7.9 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2------	Aroclor-1016	170	U
11104-28-2------	Aroclor-1221	170	U
11141-16-5------	Aroclor-1232	170	U
53469-21-9------	Aroclor-1242	170	U
12672-29-6------	Aroclor-1248	170	U
11097-69-1------	Aroclor-1254	170	U
11096-82-5------	Aroclor-1260	1100	D
Surrogate amount spiked		6.94	

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

99SW-002-2

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: FISCJ SDG No.: 40022

Matrix: (soil/water) SOIL Lab Sample ID: 40022.02

Sample wt/vol: 30.1 (g/mL) G Lab File ID:_____

% Moisture: 18 decanted: (Y/N) __ Date Received: 08/21/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/21/99

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/24/99

Injection Volume: 0.5(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.6 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	40	U
11104-28-2	Aroclor-1221	40	U
11141-16-5	Aroclor-1232	40	U
53469-21-9	Aroclor-1242	40	U
12672-29-6	Aroclor-1248	40	U
11097-69-1	Aroclor-1254	40	U
11096-82-5	Aroclor-1260	380	
Surrogate amount spiked		8.10	

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

99SW-002-3

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: FISCJ SDG No.: 40022

Matrix: soil/water) SOIL Lab Sample ID: 40022.03

Sample wt/vol: 30.1 (g/mL) G Lab File ID:_____

% Moisture: 18 decanted: (Y/N) __ Date Received: 08/21/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:08/21/99

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/24/99

Injection Volume: 0.5(uL) Dilution Factor: 1.0

GPC Cleanup: Y/N) N pH: 7.4 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2------	Aroclor-1016	40	U
11104-28-2------	Aroclor-1221	40	U
11141-16-5------	Aroclor-1232	40	U
53469-21-9------	Aroclor-1242	40	U
12672-29-6------	Aroclor-1248	40	U
11097-69-1------	Aroclor-1254	40	U
11096-82-5------	Aroclor-1260	1500	U
Surrogate amount spiked		8.10	

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

99SW-002-3DL

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: FISCJ SDG No.: 40022

Matrix: soil/water) SOIL Lab Sample ID: 40022.03DL

Sample wt/vol: 30.1 g/mL) G Lab File ID:_____

% Moisture: 18 decanted: (Y/N) __ Date Received: 08/21/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:08/21/99

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/24/99

Injection Volume: 0.5(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: 7.4 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2------	Aroclor-1016	200	U
11104-28-2------	Aroclor-1221	200	U
11141-16-5------	Aroclor-1232	200	U
53469-21-9------	Aroclor-1242	200	U
12672-29-6------	Aroclor-1248	200	U
11097-69-1------	Aroclor-1254	200	U
11096-82-5------	Aroclor-1260	1600	D
Surrogate amount spiked		8.10	

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

99SW-002-4

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: FISCJ SDG No.: 40022

Matrix: (soil/water) SOIL Lab Sample ID: 40022.04

Sample wt/vol: 30.0 (g/mL) G Lab File ID:_____

Moisture: 8 decanted: (Y/N) __ Date Received: 08/21/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/21/99

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/24/99

Injection Volume: 0.5(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 8.1 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2------	Aroclor-1016	36	U
11104-28-2------	Aroclor-1221	36	U
11141-16-5------	Aroclor-1232	36	U
53469-21-9------	Aroclor-1242	36	U
12672-29-6------	Aroclor-1248	36	U
11097-69-1------	Aroclor-1254	36	U
11096-82-5------	Aroclor-1260	190	
Surrogate amount spiked		7.25	

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

99SW-002-5

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: FISCO SDG No.: 40022

Matrix: soil/water) SOIL Lab Sample ID: 40022.05

Sample wt/vol: 30.1 (g/mL) G Lab File ID: _____

% Moisture: 15 decanted: (Y/N) __ Date Received: 08/21/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/21/99

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/24/99

Injection Volume: 0.5(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.8 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	39	U
11104-28-2	Aroclor-1221	39	U
11141-16-5	Aroclor-1232	39	U
53469-21-9	Aroclor-1242	39	U
12672-29-6	Aroclor-1248	39	U
11097-69-1	Aroclor-1254	39	U
11096-82-5	Aroclor-1260	110	
Surrogate amount spiked		7.82	

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

99SW-002-6

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: FISCJ SDG No.: 40022

Matrix: soil/water) SOIL Lab Sample ID: 40022.06

Sample wt/vol: 30.1 (g/mL) G Lab File ID:_____

% Moisture: 19 decanted: (Y/N) __ Date Received: 08/21/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:08/21/99

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/24/99

Injection Volume: 0.5(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.4 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2------	Aroclor-1016	41	U
11104-28-2------	Aroclor-1221	41	U
11141-16-5------	Aroclor-1232	41	U
53469-21-9------	Aroclor-1242	41	U
12672-29-6------	Aroclor-1248	41	U
11097-69-1------	Aroclor-1254	41	U
11096-82-5------	Aroclor-1260	1800	E
Surrogate amount spiked		8.20	

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

99SW-002-6DL

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: FISCJ SDG No.: 40022

Matrix: (soil/water) SOIL Lab Sample ID: 40022.06DL

Sample wt/vol: 30.1 (g/mL) G Lab File ID:_____

% Moisture: 19 decanted: (Y/N) __ Date Received: 08/21/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:08/21/99

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/24/99

Injection Volume: 0.5(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: 7.4 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	200	U
11104-28-2	Aroclor-1221	200	U
11141-16-5	Aroclor-1232	200	U
53469-21-9	Aroclor-1242	200	U
12672-29-6	Aroclor-1248	200	U
11097-69-1	Aroclor-1254	200	U
11096-82-5	Aroclor-1260	1800	D
Surrogate amount spiked		8.20	

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

99SW-002-12

Lab Name: SWL-TULSA Contract: CHARLESTON

Lab Code: SWOK Case No.: FISCJ SAS No.: SDG No.: 40022

Matrix: (soil/water) SOIL Lab Sample ID: 40022.12

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A9082517.D

Level: (low/med) LOW Date Received: 08/21/99

% Moisture: 9 decanted: (Y/N) N Date Extracted: 08/24/99

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 08/25/99

Injection Volume: 2 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: 6.8

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
91-20-3	Naphthalene	370	U
91-57-6	2-Methylnaphthalene	370	U
91-58-7	2-Chloronaphthalene	370	U
208-96-8	Acenaphthylene	370	U
83-32-9	Acenaphthene	370	U
86-73-7	Fluorene	370	U
85-01-8	Phenanthrene	370	U
120-12-7	Anthracene	370	U
206-44-0	Fluoranthene	370	U
129-00-0	Pyrene	370	U
56-55-3	Benzo(a)anthracene	370	U
218-01-9	Chrysene	370	U
205-99-2	Benzo(b)fluoranthene	370	U
207-08-9	Benzo(k)fluoranthene	370	U
50-32-8	Benzo(a)pyrene	370	U
193-39-5	Indeno(1,2,3-cd)pyrene	370	U
53-70-3	Dibenz(a,h)anthracene	370	U
191-24-2	Benzo(g,h,i)perylene	370	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

99SW-002-17

Lab Name: SWL-TULSA Contract: CHARLESTON

Lab Code: SWOK Case No.: FISCJ SAS No.: SDG No.: 40022

Matrix: (soil/water) SOIL Lab Sample ID: 40022.17

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A9082516.D

Level: (low/med) LOW Date Received: 08/21/99

% Moisture: 4 decanted: (Y/N) N Date Extracted: 08/24/99

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 08/25/99

Injection Volume: 2 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: 7.8

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
91-20-3	Naphthalene	350	U
91-57-6	2-Methylnaphthalene	350	U
91-58-7	2-Chloronaphthalene	350	U
208-96-8	Acenaphthylene	350	U
83-32-9	Acenaphthene	350	U
86-73-7	Fluorene	350	U
85-01-8	Phenanthrene	350	U
120-12-7	Anthracene	350	U
206-44-0	Fluoranthene	350	U
129-00-0	Pyrene	350	U
56-55-3	Benzo(a)anthracene	350	U
218-01-9	Chrysene	350	U
205-99-2	Benzo(b)fluoranthene	350	U
207-08-9	Benzo(k)fluoranthene	350	U
50-32-8	Benzo(a)pyrene	350	U
193-39-5	Indeno(1,2,3-cd)pyrene	350	U
53-70-3	Dibenz(a,h)anthracene	350	U
191-24-2	Benzo(g,h,i)perylene	350	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

99SW-002-2MS

Lab Name: SWL-TULSA Contract: CHARLESTON

Lab Code: SWOK Case No.: FISCJ SAS No.: SDG No.: 40022

Matrix: (soil/water) SOIL Lab Sample ID: 40022.02MS

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A9082614.D

Level: (low/med) LOW Date Received: 08/21/99

% Moisture: 18 decanted: (Y/N) N Date Extracted: 08/24/99

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 08/26/99

Injection Volume: 2 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: 7.6

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
91-20-3	Naphthalene	410	U
91-57-6	2-Methylnaphthalene	410	U
91-58-7	2-Chloronaphthalene	410	U
208-96-8	Acenaphthylene	32	J
83-32-9	Acenaphthene	2200	
86-73-7	Fluorene	410	U
85-01-8	Phenanthrene	280	J
120-12-7	Anthracene	410	U
206-44-0	Fluoranthene	630	
129-00-0	Pyrene	2600	
56-55-3	Benzo(a)anthracene	270	J
218-01-9	Chrysene	340	J
205-99-2	Benzo(b)fluoranthene	240	J
207-08-9	Benzo(k)fluoranthene	300	J
50-32-8	Benzo(a)pyrene	320	J
193-39-5	Indeno(1,2,3-cd)pyrene	210	J
53-70-3	Dibenz(a,h)anthracene	100	J
191-24-2	Benzo(g,h,i)perylene	220	J

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

99SW-002-2MSD

Lab Name: SWL-TULSA Contract: CHARLESTON

Lab Code: SWOK Case No.: FISCJ SAS No.: SDG No.: 40022

Matrix: (soil/water) SOIL Lab Sample ID: 40022.02MSD

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A9082615.D

Level: (low/med) LOW Date Received: 08/21/99

% Moisture: 18 decanted: (Y/N) N Date Extracted: 08/24/99

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 08/26/99

Injection Volume: 2 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: 7.6

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
91-20-3	Naphthalene	410	U
91-57-6	2-Methylnaphthalene	410	U
91-58-7	2-Chloronaphthalene	410	U
208-96-8	Acenaphthylene	52	J
83-32-9	Acenaphthene	2400	
86-73-7	Fluorene	410	U
85-01-8	Phenanthrene	310	J
120-12-7	Anthracene	410	U
206-44-0	Fluoranthene	760	
129-00-0	Pyrene	3000	
56-55-3	Benzo(a)anthracene	350	J
218-01-9	Chrysene	460	
205-99-2	Benzo(b)fluoranthene	380	J
207-08-9	Benzo(k)fluoranthene	330	J
50-32-8	Benzo(a)pyrene	390	J
193-39-5	Indeno(1,2,3-cd)pyrene	260	J
53-70-3	Dibenz(a,h)anthracene	140	J
191-24-2	Benzo(g,h,i)perylene	290	J

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

SBLK1

Lab Name: SWL-TULSA Contract: CHARLESTON

Lab Code: SWOK Case No.: FISCJ SAS No.: SDG No.: 40022

Matrix: (soil/water) SOIL Lab Sample ID: BL0824SA

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A9082509.D

Level: (low/med) LOW Date Received: _____

% Moisture: _____ decanted: (Y/N) N Date Extracted: 08/24/99

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 08/25/99

Injection Volume: 2 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
91-20-3	Naphthalene	330	U
91-57-6	2-Methylnaphthalene	330	U
91-58-7	2-Chloronaphthalene	330	U
208-96-8	Acenaphthylene	330	U
83-32-9	Acenaphthene	330	U
86-73-7	Fluorene	330	U
85-01-8	Phenanthrene	330	U
120-12-7	Anthracene	330	U
206-44-0	Fluoranthene	330	U
129-00-0	Pyrene	330	U
56-55-3	Benzo(a)anthracene	330	U
218-01-9	Chrysene	330	U
205-99-2	Benzo(b)fluoranthene	330	U
207-08-9	Benzo(k)fluoranthene	330	U
50-32-8	Benzo(a)pyrene	330	U
193-39-5	Indeno(1,2,3-cd)pyrene	330	U
53-70-3	Dibenz(a,h)anthracene	330	U
191-24-2	Benzo(g,h,i)perylene	330	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

LCS1

Lab Name: SWL-TULSA Contract: CHARLESTON

Lab Code: SWOK Case No.: FISCJ SAS No.: SDG No.: 40022

Matrix: (soil/water) SOIL Lab Sample ID: LC0824SA

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A9082513.D

Level: (low/med) LOW Date Received: 08/21/99

% Moisture: 0 decanted: (Y/N) N Date Extracted: 08/24/99

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 08/25/99

Injection Volume: 2 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
91-20-3	Naphthalene	330	U
91-57-6	2-Methylnaphthalene	330	U
91-58-7	2-Chloronaphthalene	330	U
208-96-8	Acenaphthylene	330	U
83-32-9	Acenaphthene	1700	
86-73-7	Fluorene	330	U
85-01-8	Phenanthrene	330	U
120-12-7	Anthracene	330	U
206-44-0	Fluoranthene	330	U
129-00-0	Pyrene	2000	
56-55-3	Benzo(a)anthracene	330	U
218-01-9	Chrysene	330	U
205-99-2	Benzo(b)fluoranthene	330	U
207-08-9	Benzo(k)fluoranthene	330	U
50-32-8	Benzo(a)pyrene	330	U
193-39-5	Indeno(1,2,3-cd)pyrene	330	U
53-70-3	Dibenz(a,h)anthracene	330	U
191-24-2	Benzo(g,h,i)perylene	330	U

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

LCSD1

Lab Name: SWL-TULSA Contract: CHARLESTON

Lab Code: SWOK Case No.: FISCJ SAS No.: SDG No.: 40022

Matrix: (soil/water) SOIL Lab Sample ID: LD0824SA

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A9082514.D

Level: (low/med) LOW Date Received: 08/21/99

% Moisture: 0 decanted: (Y/N) N Date Extracted: 08/24/99

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 08/25/99

Injection Volume: 2 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
91-20-3	Naphthalene	330	U
91-57-6	2-Methylnaphthalene	330	U
91-58-7	2-Chloronaphthalene	330	U
208-96-8	Acenaphthylene	330	U
83-32-9	Acenaphthene	1700	
86-73-7	Fluorene	330	U
85-01-8	Phenanthrene	330	U
120-12-7	Anthracene	330	U
206-44-0	Fluoranthene	330	U
129-00-0	Pyrene	2000	
56-55-3	Benzo(a)anthracene	330	U
218-01-9	Chrysene	330	U
205-99-2	Benzo(b)fluoranthene	330	U
207-08-9	Benzo(k)fluoranthene	330	U
50-32-8	Benzo(a)pyrene	330	U
193-39-5	Indeno(1,2,3-cd)pyrene	330	U
53-70-3	Dibenz(a,h)anthracene	330	U
191-24-2	Benzo(g,h,i)perylene	330	U

2D
SOIL SEMIVOLATILE SURROGATE RECOVERY

Lab Name: SWL-TULSA Contract: CHARLESTON

Lab Code: SWOK Case No.: FISCJ SAS No.: SDG No.: 40022

Level: (low/med) LOW

	CLIENT SAMPLE NO.	S1 (NBZ) #	S2 (FBP) #	S3 (TPH) #	S4 (DCB) #	TOT OUT
01	SBLK1	104	114	138 *	94	1
02	LCS1	103	118 *	136	101	1
03	LCSD1	100	121 *	145 *	96	2
04	99SW-002-17	88	99	115	78	0
05	99SW-002-12	89	100	123	76	0
06	99SW-002-7	90	102	124	74	0
07	99SW-002-2	111	126 *	140 *	93	2
08	99SW-002-2MS	113	117 *	119	95	1
09	99SW-002-2MSD	115	122 *	134	98	1
10						
11						
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		QC LIMITS
S1 (NBZ)	= Nitrobenzene-d5	(23-120)
S2 (FBP)	= 2-Fluorobiphenyl	(30-115)
S3 (TPH)	= Terphenyl-d14	(18-137)
S4 (DCB)	= 1,2-Dichlorobenzene-d4	(20-130)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out

FORM II SV-2

SOIL SEMIVOLATILE SEMIVOLATILE LABORATORY CONTROL SPIKE/DUPLICATE RECOVERY

Lab Name: SWL-TULSA Contract: CHARLESTON

Lab Code: SWOK Case No.: FISCJ SAS No.: SDG No.: 40022

LCS Sample NO.: LCS1 Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC. LIMITS REC.
Acenaphthene	1700	1700	100 *	49- 99
Pyrene	1700	2000	118 *	37- 95

COMPOUND	SPIKE ADDED (ug/Kg)	LCSD CONCENTRATION (ug/Kg)	LCSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Acenaphthene	1700	1700	100 *	0	16	49- 9
Pyrene	1700	2000	118 *	0	14	37- 9

Column to be used to flag recovery values

* Values outside of QC limits

RPD: 0 out of 2 outside limits
Spike Recovery: 4 out of 4 outside limits

Comments:

FORM III

3D

SOIL SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: SWL-TULSA Contract: CHARLESTON

Lab Code: SWOK Case No.: FISCJ SAS No.: SDG No.: 40022

Matrix Spike - Client Sample NO.: 99SW-002-2 Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
Acenaphthene	2000	0	2200	110	31-137
Pyrene	2000	630	2600	98	35-142

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Acenaphthene	2000	2400	120	9	19	31-137
Pyrene	2000	3000	118	14	36	35-142

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 2 outside limits
Spike Recovery: 0 out of 4 outside limits

Comments:

4B
SEMIVOLATILE METHOD BLANK SUMMARY

BLANK SAMPLE NO.

SBLK1

Lab Name: SWL-TULSA Contract: CHARLESTON

Lab Code: SWOK Case No.: FISCJ SAS No.: SDG No.: 40022

Lab File ID: A9082509 Lab Sample ID: BL0824SA

Instrument ID: HP70A Date Extracted: 08/24/99

Matrix: (soil/water) SOIL Date Analyzed: 08/25/99

Level: (low/med) LOW Time Analyzed: 1435

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	LCS1	LC0824SA	A9082513	08/25/99
02	LCSD1	LD0824SA	A9082514	08/25/99
03	99SW-002-17	40022.17	A9082516	08/25/99
04	99SW-002-12	40022.12	A9082517	08/25/99
05	99SW-002-7	40022.07	A9082518	08/25/99
06	99SW-002-2	40022.02	A9082613	08/26/99
07	99SW-002-2MS	40022.02MS	A9082614	08/26/99
08	99SW-002-2MSD	40022.02MSD	A9082615	08/26/99
09				
10				
11				
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Comments:

5B
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: SWL-TULSA Contract: CHARLESTON

Lab Code: SWOK Case No.: FISCJ SAS No.: SDG No.: 40022

Lab File ID: A9082501.D DFTPP Injection Date: 08/25/99

Instrument ID: HP70A DFTPP Injection Time: 0909

m/e	ION ABUNCANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	49.6
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	49.0
70	Less than 2.0% of mass 69	0.4 (0.9)1
127	40.0 - 60.0% of mass 198	40.6
197	Less than 1.0% of mass 198	0.0
198	Base peak, 100% relative abundance	100.0
199	5.0 - 9.0% of mass 198	7.5
275	10.0 - 30.0% of mass 198	24.4
365	Greater than 1.00% of mass 198	2.0
441	Present, but less than mass 443	16.6
442	Greater than 40.0% of mass 198	106.6
443	17.0 - 23.0% of mass 442	22.6 (21.2)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD080	SSTD080	A9082503.D	08/25/99	1002
02	SSTD160	SSTD160	A9082504.D	08/25/99	1044
03	SSTD020	SSTD020	A9082505.D	08/25/99	1121
04	SSTD120	SSTD120	A9082506.D	08/25/99	1158
05	SSTD050	SSTD050	A9082508.D	08/25/99	1314
06	SBLK1	BL0824SA	A9082509.D	08/25/99	1435
07	LCS1	LC0824SA	A9082513.D	08/25/99	1708
08	LCSD1	LD0824SA	A9082514.D	08/25/99	1747
09	99SW-002-17	40022.17	A9082516.D	08/25/99	1903
10	99SW-002-12	40022.12	A9082517.D	08/25/99	1941
11	99SW-002-7	40022.07	A9082518.D	08/25/99	2018
12					
13					
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15					
16					
17					
18					
19					
20					
21					
22					

FORM V SV

5B
SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: SWL-TULSA Contract: CHARLESTON

Lab Code: SWOK Case No.: FISCJ SAS No.: SDG No.: 40022

Lab File ID: A9082601.D DFTPP Injection Date: 08/26/99

Instrument ID: HP70A DFTPP Injection Time: 1100

m/e	ION ABUNCANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	53.0
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	53.0
70	Less than 2.0% of mass 69	0.0 (0.0)1
127	40.0 - 60.0% of mass 198	44.1
197	Less than 1.0% of mass 198	0.0
198	Base peak, 100% relative abundance	100.0
199	5.0 - 9.0% of mass 198	7.0
275	10.0 - 30.0% of mass 198	24.5
365	Greater than 1.00% of mass 198	1.2
441	Present, but less than mass 443	13.7
442	Greater than 40.0% of mass 198	73.5
443	17.0 - 23.0% of mass 442	15.4 (20.9)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD160	SSTD160	A9082603.D	08/26/99	1157
02	SSTD050	SSTD050	A9082604.D	08/26/99	1234
03	SSTD120	SSTD120	A9082605.D	08/26/99	1311
04	SSTD020	SSTD020	A9082606.D	08/26/99	1349
05	SSTD080	SSTD080	A9082607.D	08/26/99	1427
06	99SW-002-2	40022.02	A9082613.D	08/26/99	1751
07	99SW-002-2MS	40022.02MS	A9082614.D	08/26/99	1828
08	99SW-002-2MSD	40022.02MSD	A9082615.D	08/26/99	1906
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6B

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: SWL-TULSA Contract: CHARLESTON

Lab Code: SWOK Case No.: FISCJ SAS No.: SDG No.: 40022

Instrument ID: HP70A Calibration Date(s): 08/25/99

Calibration Times: 1002 1314

LAB FILE ID: RRF20 = A9082505.D RRF50 = A9082508.D
RRF80 = A9082503.D RRF120= A9082506.D RRF160= A9082504.D

COMPOUND	RRF20	RRF50	RRF80	RRF120	RRF160	$\overline{RRF}$	% RSD
Phenol	1.610	1.353	1.566	1.465	1.551	**1.509**	6.7
bis(2-Chloroethyl)ether	1.218	1.057	1.141	1.081	1.148	**1.129**	5.6
2-Chlorophenol	1.048	1.022	1.037	1.015	1.052	**1.035**	1.6
1,3-Dichlorobenzene	1.262	1.153	1.121	1.099	1.102	**1.147**	5.9
1,4-Dichlorobenzene	1.298	1.195	1.124	1.126	1.153	**1.179**	6.1
Benzyl Alcohol	1.096	0.878	1.064	0.975	1.102	**1.023**	9.3
1,2-Dichlorobenzene	1.180	1.127	1.102	1.099	1.084	**1.118**	3.4
2-Methylphenol	0.960	0.839	0.932	0.920	0.938	**0.918**	5.0
bis(2-Chloroisopropyl)ether	1.932	1.428	1.810	1.646	1.846	**1.732**	11.5
4-Methylphenol	1.024	0.900	1.015	0.947	1.034	**0.984**	5.9
N-Nitroso-di-n-propylamine	1.021	0.855	1.002	0.972	1.014	**0.973**	7.0
Hexachloroethane	0.564	0.500	0.477	0.491	0.474	**0.501**	7.3
Nitrobenzene	0.355	0.335	0.337	0.364	0.343	**0.347**	3.6
Isophorone	0.645	0.616	0.644	0.671	0.652	**0.646**	3.1
2-Nitrophenol	0.126	0.129	0.137	0.152	0.148	**0.138**	8.3
2,4-Dimethylphenol	0.295	0.275	0.289	0.295	0.295	**0.290**	3.0
Benzoic Acid	0.183	0.214	0.303	0.330	0.362	**0.278**	27.6
bis(2-Chloroethoxy)methane	0.395	0.368	0.379	0.394	0.385	**0.384**	2.9
2,4-Dichlorophenol	0.215	0.234	0.243	0.254	0.244	**0.238**	6.2
1,2,4-Trichlorobenzene	0.298	0.289	0.283	0.287	0.267	**0.285**	4.0
Naphthalene	0.933	0.864	0.847	0.879	0.830	**0.871**	4.5
4-Chloroaniline	0.393	0.352	0.374	0.384	0.381	**0.377**	4.1
Hexachlorobutadiene	0.178	0.172	0.156	0.154	0.147	**0.161**	8.1
4-Chloro-3-methylphenol	0.291	0.284	0.311	0.319	0.304	**0.302**	4.7
2-Methylnaphthalene	0.584	0.552	0.569	0.564	0.564	**0.567**	2.0
Hexachlorocyclopentadiene	0.184	0.203	0.213	0.233	0.273	**0.221**	15.4#
2,4,6-Trichlorophenol	0.296	0.289	0.302	0.306	0.297	**0.298**	2.2
2,4,5-Trichlorophenol	0.281	0.305	0.324	0.333	0.316	**0.312**	6.4
2-Chloronaphthalene	0.913	0.864	0.850	0.835	0.816	**0.856**	4.3
2-Nitroaniline	0.222	0.222	0.278	0.327	0.312	**0.272**	18.1
Dimethylphthalate	1.066	1.039	1.022	1.056	1.007	**1.038**	2.3
Acenaphthylene	1.512	1.391	1.452	1.465	1.415	**1.447**	3.2
2,6-Dinitrotoluene	0.154	0.169	0.195	0.221	0.209	**0.190**	14.6
3-Nitroaniline	0.183	0.199	0.228	0.243	0.245	**0.220**	12.5
Acenaphthene	0.980	0.927	0.931	0.929	0.894	**0.932**	3.3*
2,4-Dinitrophenol	0.069	0.073	0.104	0.115	0.121	**0.096**	25.0#
4-Nitrophenol	0.119	0.147	0.148	0.164	0.152	**0.146**	11.3#

* = CCC Compound, must have % RSD < 30.0 # = SPCC Compound
All non-SPCC compounds must meet a minimum RRF of 0.01.
Compounds with % RSD values > 15.0 must be analyzed by linear regression

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: SWL-TULSA Contract: CHARLESTON

Lab Code: SWOK Case No.: FISCJ SAS No.: SDG No.: 40022

Instrument ID: HP70A Calibration Date(s): 08/25/99

Calibration Times: 1002 1314

LAB FILE ID: RRF20 = A9082505.D RRF50 = A9082508.D
RRF80 = A9082503.D RRF120= A9082506.D RRF160= A9082504.D

COMPOUND	RRF20	RRF50	RRF80	RRF120	RRF160	$\overline{RRF}$	% RSD
Dibenzofuran	1.372	1.306	1.256	1.220	1.198	**1.270**	5.5
2,4-Dinitrotoluene	0.224	0.272	0.296	0.331	0.320	**0.289**	14.8
Diethylphthalate	1.144	1.073	1.052	1.115	1.071	**1.091**	3.4
4-Chlorophenyl-phenylether	0.638	0.592	0.581	0.568	0.557	**0.587**	5.3
Fluorene	1.151	1.073	1.075	1.061	1.022	**1.076**	4.4
4-Nitroaniline	0.193	0.213	0.246	0.257	0.264	**0.235**	12.9
4,6-Dinitro-2-methylphenol	0.063	0.076	0.090	0.102	0.100	**0.086**	19.2
N-Nitrosodiphenylamine (1)	0.382	0.376	0.371	0.374	0.366	**0.374**	1.6
4-Bromophenyl-phenylether	0.206	0.208	0.201	0.198	0.190	**0.201**	3.6
Hexachlorobenzene	0.278	0.277	0.271	0.266	0.254	**0.269**	3.6
Pentachlorophenol	0.100	0.114	0.119	0.123	0.133	**0.118**	10.3
Phenanthrene	0.899	0.864	0.840	0.842	0.817	**0.852**	3.6
Anthracene	0.853	0.824	0.810	0.818	0.790	**0.819**	2.8
Carbazole	0.749	0.730	0.722	0.757	0.717	**0.735**	2.4
Di-n-butylphthalate	0.860	0.864	0.931	0.991	0.972	**0.924**	6.5
Fluoranthene	1.006	0.990	0.997	0.998	0.974	**0.993**	1.2
Pyrene	1.019	1.030	1.050	0.950	0.984	**1.007**	3.9
Butylbenzylphthalate	0.284	0.258	0.353	0.328	0.366	**0.318**	14.4
3,3'-Dichlorobenzidine	0.256	0.216	0.362	0.300	0.347	**0.296**	20.7
Benzo(a)anthracene	0.882	0.836	0.996	0.794	0.850	**0.872**	8.8
Chrysene	0.907	0.872	0.992	0.822	0.865	**0.892**	7.1
bis(2-Ethylhexyl)phthalate	0.401	0.386	0.519	0.496	0.534	**0.467**	14.7
Di-n-octylphthalate	0.610	0.571	0.734	0.799	0.812	**0.705**	15.6*
Benzo(b)fluoranthene	1.131	1.017	0.984	1.267	1.022	**1.084**	10.7
Benzo(k)fluoranthene	0.813	1.044	1.016	0.836	0.898	**0.921**	11.3
Benzo(a)pyrene	0.847	0.860	0.887	0.976	0.861	**0.886**	5.9*
Indeno(1,2,3-cd)pyrene	1.309	1.166	1.261	1.305	1.154	**1.239**	6.0
Dibenz(a,h)anthracene	0.979	0.973	1.010	1.102	0.878	**0.988**	8.1
Benzo(g,h,i)perylene	1.062	1.003	1.028	1.134	0.952	**1.036**	6.6
Pyridine	0.979	0.866	0.886	0.862	0.991	**0.917**	6.9
Nitrobenzene-d5	0.318	0.315	0.312	0.355	0.330	**0.326**	5.4
2-Fluorobiphenyl	1.030	0.958	0.951	0.967	0.901	**0.961**	4.8
Terphenyl-d14	0.806	0.844	0.903	0.794	0.820	**0.833**	5.2
Phenol-d5	1.369	1.218	1.318	1.277	1.322	**1.301**	4.4
2-Fluorophenol	0.936	0.853	0.899	0.870	0.892	**0.890**	3.5
2,4,6-Tribromophenol	0.112	0.120	0.134	0.134	0.124	**0.125**	7.6

(1) Cannot be seperated from Diphenylamine
* = CCC Compound, must have % RSD < 30.0 # = SPCC Compound
All non-SPCC compounds must meet a minimum RRF of 0.01.
Compounds with % RSD values > 15.0 must be analyzed by linear regression

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: SWL-TULSA Contract: CHARLESTON

Lab Code: SWOK Case No.: FISCJ SAS No.: SDG No.: 40022

Instrument ID: HP70A Calibration Date(s): 08/25/99

Calibration Times: 1002 1314

LAB FILE ID: RRF20 = A9082505.D RRF50 = A9082508.D
RRF80 = A9082503.D RRF120= A9082506.D RRF160= A9082504.D

COMPOUND	RRF20	RRF50	RRF80	RRF120	RRF160	$\overline{RRF}$	% RSD
2-Chlorophenol-d4	1.061	0.969	0.986	0.984	0.994	0.999	3.6
1,2-Dichlorobenzene-d4	0.818	0.758	0.733	0.734	0.724	0.753	5.1

* = CCC Compound, must have % RSD < 30.0 # = SPCC Compound
All non-SPCC compounds must meet a minimum RRF of 0.01.
Compounds with % RSD values > 15.0 must be analyzed by linear regression

SEMIVOLATILE INITIAL CALIBRATION : LINEAR REGRESSION SUMMARY

Lab Name: SWL-TULSA Contract: CHARLESTON

Lab Code: SWOK Case No.: FISCJ SAS No.: SDG No.: 40022

Instrument ID: HP70A Calibration Date(s): 08/25/99

Calibration Times: 1002 1314

SSTD020 = A9082505.D SSTD050 = A9082508.D SSTD080 = A9082503.D
SSTD120 = A9082506.D SSTD160 = A9082504.D

COMPOUND	SLOPE	INTERCEPT	R2	#
Benzoic Acid	0.394881	-0.168006	0.992	
Hexachlorocyclopentadiene	0.281542	-0.092940	0.984	*
2-Nitroaniline	0.341020	-0.098926	0.991	
2,4-Dinitrophenol	0.131987	-0.051230	0.993	
4,6-Dinitro-2-methylphenol	0.108936	-0.031337	0.996	
3,3'-Dichlorobenzidine	0.360015	-0.092013	0.972	*
Di-n-octylphthalate	0.867891	-0.239390	0.995	

= Column used to flag R2 values that fail. * = R2 value < 0.99

6B

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: SWL-TULSA Contract: CHARLESTON

Lab Code: SWOK Case No.: FISCJ SAS No.: SDG No.: 40022

Instrument ID: HP70A Calibration Date(s): 08/26/99

Calibration Times: 1157 1427

LAB FILE ID: RRF20 = A9082606.D RRF50 = A9082604.D
RRF80 = A9082607.D RRF120= A9082605.D RRF160= A9082603.D

COMPOUND	RRF20	RRF50	RRF80	RRF120	RRF160	$\overline{RRF}$	% RSD
Phenol	1.380	1.226	1.372	1.314	1.251	1.309	5.3*
bis(2-Chloroethyl)ether	1.070	0.978	1.018	0.995	0.974	1.007	3.9
2-Chlorophenol	1.054	0.971	1.014	0.986	0.948	0.995	4.1
1,3-Dichlorobenzene	1.207	1.130	1.116	1.104	1.059	1.123	4.8
1,4-Dichlorobenzene	1.272	1.156	1.153	1.130	1.091	1.160	5.8*
Benzyl Alcohol	0.772	0.703	0.757	0.792	0.689	0.743	6.0
1,2-Dichlorobenzene	1.193	1.090	1.093	1.080	1.032	1.098	5.3
2-Methylphenol	0.832	0.814	0.848	0.838	0.812	0.829	1.9
bis(2-Chloroisopropyl)ether	1.674	1.517	1.566	1.512	1.404	1.535	6.4
4-Methylphenol	0.891	0.869	0.897	0.887	0.857	0.880	1.9
N-Nitroso-di-n-propylamine	0.670	0.584	0.741	0.717	0.617	0.666	9.9#
Hexachloroethane	0.511	0.449	0.456	0.464	0.459	0.468	5.3
Nitrobenzene	0.294	0.298	0.302	0.309	0.306	0.302	2.0
Isophorone	0.571	0.510	0.551	0.550	0.523	0.541	4.5
2-Nitrophenol	0.130	0.139	0.139	0.145	0.142	0.139	4.0*
2,4-Dimethylphenol	0.250	0.246	0.252	0.265	0.249	0.252	2.9
Benzoic Acid	0.148	0.170	0.211	0.230	0.211	0.194	17.4
bis(2-Chloroethoxy)methane	0.382	0.364	0.363	0.367	0.356	0.366	2.6
2,4-Dichlorophenol	0.267	0.265	0.268	0.271	0.266	0.267	0.9*
1,2,4-Trichlorobenzene	0.350	0.330	0.308	0.314	0.316	0.324	5.2
Naphthalene	0.919	0.861	0.840	0.820	0.801	0.848	5.4
4-Chloroaniline	0.355	0.348	0.353	0.355	0.339	0.350	1.9
Hexachlorobutadiene	0.217	0.200	0.194	0.185	0.180	0.195	7.4*
4-Chloro-3-methylphenol	0.270	0.266	0.274	0.269	0.265	0.269	1.3*
2-Methylnaphthalene	0.593	0.595	0.567	0.571	0.563	0.578	2.6
Hexachlorocyclopentadiene	0.273	0.260	0.265	0.278	0.297	0.275	5.2#
2,4,6-Trichlorophenol	0.322	0.314	0.334	0.324	0.327	0.324	2.2*
2,4,5-Trichlorophenol	0.324	0.341	0.355	0.352	0.341	0.343	3.6
2-Chloronaphthalene	0.868	0.839	0.837	0.847	0.815	0.841	2.3
2-Nitroaniline	0.154	0.167	0.207	0.214	0.209	0.190	14.5
Dimethylphthalate	0.895	0.896	0.951	0.958	0.935	0.927	3.2
Acenaphthylene	1.405	1.344	1.412	1.370	1.353	1.377	2.2
2,6-Dinitrotoluene	0.143	0.179	0.203	0.218	0.219	0.192	16.7
3-Nitroaniline	0.158	0.186	0.218	0.228	0.223	0.203	14.7
Acenaphthene	0.961	0.910	0.934	0.904	0.886	0.919	3.2*
2,4-Dinitrophenol	0.076	0.112	0.129	0.152	0.166	0.127	27.8#
4-Nitrophenol	0.101	0.114	0.124	0.129	0.128	0.119	9.9#

* = CCC Compound, must have % RSD < 30.0 # = SPCC Compound
All non-SPCC compounds must meet a minimum RRF of 0.01.
Compounds with % RSD values > 15.0 must be analyzed by linear regression

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: SWL-TULSA Contract: CHARLESTON

Lab Code: SWOK Case No.: FISCJ SAS No.: SDG No.: 40022

Instrument ID: HP70A Calibration Date(s): 08/26/99

Calibration Times: 1157 1427

LAB FILE ID: RRF20 = A9082606.D RRF50 = A9082604.D
RRF80 = A9082607.D RRF120= A9082605.D RRF160= A9082603.D

COMPOUND	RRF20	RRF50	RRF80	RRF120	RRF160	$\overline{RRF}$	% RSD
Dibenzofuran	1.376	1.314	1.293	1.266	1.224	**1.295**	4.4
2,4-Dinitrotoluene	0.235	0.287	0.318	0.330	0.334	**0.301**	13.7
Diethylphthalate	0.771	0.720	0.839	0.832	0.760	**0.784**	6.4
4-Chlorophenyl-phenylether	0.661	0.623	0.649	0.619	0.596	**0.630**	4.1
Fluorene	1.123	1.066	1.090	1.070	1.042	**1.078**	2.8
4-Nitroaniline	0.161	0.178	0.221	0.234	0.227	**0.204**	16.0
4,6-Dinitro-2-methylphenol	0.077	0.095	0.106	0.115	0.119	**0.102**	16.6
N-Nitrosodiphenylamine (1)	0.337	0.308	0.352	0.336	0.315	**0.330**	5.4*
4-Bromophenyl-phenylether	0.219	0.207	0.215	0.215	0.208	**0.213**	2.4
Hexachlorobenzene	0.304	0.279	0.285	0.285	0.267	**0.284**	4.7
Pentachlorophenol	0.128	0.129	0.140	0.132	0.141	**0.134**	4.6*
Phenanthrene	0.900	0.824	0.836	0.842	0.808	**0.842**	4.1
Anthracene	0.805	0.758	0.784	0.791	0.764	**0.780**	2.5
Carbazole	0.712	0.677	0.728	0.718	0.685	**0.704**	3.1
Di-n-butylphthalate	0.506	0.468	0.576	0.569	0.501	**0.524**	8.9
Fluoranthene	1.016	0.953	0.998	1.005	0.963	**0.987**	2.8
Pyrene	0.986	0.962	1.033	1.004	1.086	**1.014**	4.7
Butylbenzylphthalate	0.123	0.117	0.164	0.143	0.131	**0.136**	13.7
3,3'-Dichlorobenzidine	0.171	0.152	0.215	0.199	0.181	**0.184**	13.3
Benzo(a)anthracene	0.835	0.804	0.933	0.897	0.957	**0.885**	7.3
Chrysene	0.933	0.919	0.971	0.870	0.946	**0.928**	4.0
bis(2-Ethylhexyl)phthalate	0.198	0.183	0.258	0.241	0.200	**0.216**	14.7
Di-n-octylphthalate	0.377	0.374	0.470	0.464	0.442	**0.425**	11.0*
Benzo(b)fluoranthene	1.138	1.087	1.007	1.143	1.190	**1.113**	6.2
Benzo(k)fluoranthene	0.987	1.040	1.080	1.046	1.222	**1.075**	8.2
Benzo(a)pyrene	0.856	0.907	0.910	1.004	1.087	**0.953**	9.7*
Indeno(1,2,3-cd)pyrene	1.127	1.304	1.146	1.234	1.396	**1.241**	9.0
Dibenz(a,h)anthracene	1.042	1.064	1.000	1.054	1.171	**1.066**	6.0
Benzo(g,h,i)perylene	1.000	1.075	1.044	1.083	1.233	**1.087**	8.1
Pyridine	0.888	0.810	0.813	0.793	0.724	**0.806**	7.2
Nitrobenzene-d5	0.275	0.288	0.295	0.303	0.307	**0.294**	4.3
2-Fluorobiphenyl	1.034	0.961	0.987	0.950	0.949	**0.976**	3.7
Terphenyl-d14	0.830	0.815	0.883	0.863	0.895	**0.857**	4.0
Phenol-d5	1.173	1.107	1.148	1.134	1.089	**1.130**	2.9
2-Fluorophenol	0.865	0.815	0.837	0.811	0.794	**0.824**	3.3
2,4,6-Tribromophenol	0.129	0.107	0.130	0.135	0.121	**0.124**	8.8

(1) Cannot be seperated from Diphenylamine
* = CCC Compound, must have % RSD < 30.0 # = SPCC Compound
All non-SPCC compounds must meet a minimum RRF of 0.01.
Compounds with % RSD values > 15.0 must be analyzed by linear regression

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: SWL-TULSA Contract: CHARLESTON

Lab Code: SWOK Case No.: FISCJ SAS No.: SDG No.: 40022

Instrument ID: HP70A Calibration Date(s): 08/26/99

Calibration Times: 1157 1427

LAB FILE ID: RRF20 = A9082606.D RRF50 = A9082604.D
RRF80 = A9082607.D RRF120= A9082605.D RRF160= A9082603.D

COMPOUND	RRF20	RRF50	RRF80	RRF120	RRF160	$\overline{RRF}$	% RSD
2-Chlorophenol-d4	0.948	0.899	0.922	0.926	0.886	0.916	2.6
1,2-Dichlorobenzene-d4	0.827	0.770	0.753	0.729	0.714	0.759	5.8

* = CCC Compound, must have % RSD < 30.0 # = SPCC Compound
All non-SPCC compounds must meet a minimum RRF of 0.01.
Compounds with % RSD values > 15.0 must be analyzed by linear regression

SEMIVOLATILE INITIAL CALIBRATION : LINEAR REGRESSION SUMMARY

Lab Name: SWL-TULSA Contract: CHARLESTON

Lab Code: SWOK Case No.: FISCJ SAS No.: SDG No.: 40022

Instrument ID: HP70A Calibration Date(s): 08/26/99

Calibration Times: 1157 1427

SSTD020 = A9082606.D SSTD050 = A9082604.D SSTD080 = A9082607.D
SSTD120 = A9082605.D SSTD160 = A9082603.D

COMPOUND	SLOPE	INTERCEPT	R2 #
Benzoic Acid	0.230520	-0.046889	0.990
2,6-Dinitrotoluene	0.233424	-0.055237	0.999
2,4-Dinitrophenol	0.180781	-0.077092	0.993
4-Nitroaniline	0.244035	-0.053133	0.996
4,6-Dinitro-2-methylphenol	0.126035	-0.033294	0.999

= Column used to flag R2 values that fail. * = R2 value < 0.99

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: SWL-TULSA Contract: CHARLESTON

Lab Code: SWOK Case No.: FISCJ SAS No.: SDG No.: 40022

Lab File ID (Standard): A9082503 Date Analyzed: 08/25/99

Instrument ID: HP70A Time Analyzed: 1002

		IS1(DCB) AREA #	RT #	IS2(NPT) AREA #	RT #	IS3(ANT) AREA #	RT #
	12 HOUR STD	186828	5.67	730210	7.98	514007	11.37
	UPPER LIMIT	373656	6.17	1460420	8.48	1028014	11.87
	LOWER LIMIT	93414	5.17	365105	7.48	257004	10.87
	CLIENT SAMPLE NO.						
01	SBLK1	195843	5.67	695748	7.98	457558	11.38
02	LCS1	218195	5.68	782939	7.98	510379	11.38
03	LCSD1	218734	5.68	773315	7.98	491591	11.37
04	99SW-002-17	222912	5.68	811724	7.98	545872	11.37
05	99SW-002-12	219511	5.67	820997	7.98	540705	11.38
06	99SW-002-7	209110	5.67	757266	7.98	512052	11.38
07							
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IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM VIII SV-1

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: SWL-TULSA Contract: CHARLESTON

Lab Code: SWOK Case No.: FISCJ SAS No.: SDG No.: 40022

Lab File ID (Standard): A9082503 Date Analyzed: 08/25/99

Instrument ID: HP70A Time Analyzed: 1002

		IS4(PHN) AREA #	RT #	IS5(CRY) AREA #	RT #	IS6(PRY) AREA #	RT #
	12 HOUR STD	1022826	14.12	1019879	19.03	1127765	21.47
	UPPER LIMIT	2045652	14.62	2039758	19.53	2255530	21.97
	LOWER LIMIT	511413	13.62	509940	18.53	563883	20.97
	CLIENT SAMPLE NO.						
01	SBLK1	873069	14.12	839468	19.03	913451	21.48
02	LCS1	975647	14.12	933345	19.03	880888	21.48
03	LCSD1	948690	14.12	854195	19.04	950408	21.48
04	99SW-002-17	1061871	14.13	1064680	19.03	1151875	21.48
05	99SW-002-12	1052829	14.12	1044773	19.02	1090591	21.48
06	99SW-002-7	999921	14.12	1037506	19.03	1162237	21.47
07							
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18							
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20							
21							
22							

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

FORM VIII SV-2

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: SWL-TULSA Contract: CHARLESTON

Lab Code: SWOK Case No.: FISCJ SAS No.: SDG No.: 40022

Lab File ID (Standard): A9082607 Date Analyzed: 08/26/99

Instrument ID: HP70A Time Analyzed: 1427

		IS1(DCB) AREA #	RT #	IS2(NPT) AREA #	RT #	IS3(ANT) AREA #	RT #
	12 HOUR STD	88027	5.62	320202	7.93	230517	11.32
	UPPER LIMIT	176054	6.12	640404	8.43	461034	11.82
	LOWER LIMIT	44014	5.12	160101	7.43	115259	10.82
	CLIENT SAMPLE NO.						
01	99SW-002-2	70679	5.62	241336	7.93	168122	11.32
02	99SW-002-2MS	72576	5.62	253615	7.93	187120	11.32
03	99SW-002-2MSD	89652	5.62	313265	7.93	217516	11.32
04							
05							
06							
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18							
19							
20							
21							
22							

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: SWL-TULSA Contract: CHARLESTON

Lab Code: SWOK Case No.: FISCJ SAS No.: SDG No.: 40022

Lab File ID (Standard): A9082607 Date Analyzed: 08/26/99

Instrument ID: HP70A Time Analyzed: 1427

		IS4(PHN) AREA #	RT #	IS5(CRY) AREA #	RT #	IS6(PRY) AREA #	RT #
	12 HOUR STD	468427	14.07	484673	18.97	465809	21.42
	UPPER LIMIT	936854	14.57	969346	19.47	931618	21.92
	LOWER LIMIT	234214	13.57	242337	18.47	232905	20.92
	CLIENT SAMPLE NO.						
01	99SW-002-2	328267	14.06	328038	18.97	347357	21.42
02	99SW-002-2MS	365488	14.06	394211	18.97	387237	21.42
03	99SW-002-2MSD	426002	14.07	440541	18.98	448671	21.42
04							
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19							
20							
21							
22							

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

CHAIN OF CUSTODY RECORD

SOUTHWEST LABORATORY OF OKLAHOMA, INC.
1700 W Albany • Broken Arrow Oklahoma 74012 1421
Office 918 251-2858 • Fax 918 251 2599

ATTN: SANDY GROVENSTEIN

SAMPLER (Signature): Vivian Washington

SAMPLING FIRM: SPORTENVDETCHASN | CLIENT CONTACT: Bill Hiers | PHONE NUMBER: 843-743-6777X124

P.O. or PROPOSAL NUMBER: N68836-99-M-X061 | PROJECT NAME:

ANALYTICAL TESTS REQUESTED

PRESERVED/SHIPPED ON ICE. 5°C

SAMPLE ID	DATE	TIME	COMP	GRAB	LOCATION	MATRIX	NUMBER OF CONTAINERS	PCB-8082	REMARKS
99SW ~~Ø04-1~~	8/27/99	~~1355~~ 8/27/99		✓	NBCZNH038014	SOIL	1	✓	SIDEWALL
99SW Ø04-2	8/27/99	1400		✓	NBCZNH038030A	SOIL	1	✓	SIDEWALL
99SW Ø04-3	8/27/99	1405		✓	NBCZNH038060A	SOIL	1	✓	SIDEWALL
99SW Ø04-4	8/27/99	1415		✓	NBCZNH038070A	SOIL	1	✓	SIDEWALL

RELINQUISHED BY (Signature)	DATE	TIME	RECEIVED BY (Signature)
Vivian Washington	8/27/99	1500	W.R. Hiers Jr.
—	—	—	—
—	—	—	—

RELINQUISHED BY (Signature)	DATE	TIME	RECEIVED BY (Signature)
—	—	—	—
—	—	—	—
—	—	—	—

RELINQUISHED BY (Signature)	DATE	TIME	RECEIVED FOR LABORATORY BY (Signature)
—	—	—	—
W.R. Hiers Jr.	8/27/99	1545	[signature] 8-27-99 09:00
—	—	—	—

REMARKS: FEDEX USA AIRBILL # 810843332056

|SR012 1192 03|

SOUTHWEST LABORATORY OF OKLAHOMA
1700 West Albany, Suite A/ Broken Arrow, OK 74012
918-251-2858

SDG NARRATIVE

CLIENT: FISCJAC

PROJECT: CHARLESTON IRP

EPISODE: 40133

FRACTION: PCBs

4 soil samples were extracted by SW846 method 3550 and analyzed for PCBs by SW846 method 8082.

No major problems occurred during the analyses of the samples.

Blanks:	No corrective action required.
Surrogates:	No corrective action required.
Laboratory Control Spike:	No corrective action required.
Matrix Spikes:	No corrective action required.

Drew Cowan
GC Supervisor
Dc

September 1, 1999

COOLER RECEIPT / SAMPLE LOG-IN SHEET

COOLER RECEIPT / SAMPLE LOG-IN SHEET (115-ATT2 WB1) / SWL-GA-115 REV 5 0 / GA-115-CRLOGIN-F

LAB NAME: SOUTHWEST LABORATORY OF OKLAHOMA

PAGE 1 OF 1

RECEIVED BY (PRINT NAME): JASON SPRIGGS

RECEIVED BY (SIGNATURE):

LOGGED IN BY (SIGNATURE): S Hedden.

REC'D DATE 08/28/99

TIME REC'D 09:00

LOG-IN DATE 1999-08-28 10:30

PROJECT: CHARLESTON IRP

EPISODE: 40133

SAMPLE DELIVERY GROUP: 40133

Client Sample #	Sample Fraction @	Assigned LAB#	Cooler I.D.	pH Check	ACID/ BASE LOT#	REMARKS: CONDITION OF SAMPLE SHIPMENT, ETC.
99SW-004-1	GC	40133.01	08/28/99-1	N		5.0 C
99SW-004-2		40133.02	08/28/99-1	N		5.0 C
99SW-004-3		40133.03	08/28/99-1	N		5.0 C
99SW-004-4		40133.04	08/28/99-1	N		5.0 C

Remarks

1 CUSTODY SEAL(S): Present/Absent
Intact/ Broken

2. CUSTODY SEALS NOS.:

3. CHAIN-OF CUSTODY. Present/Absent
Sealed In Plastic? Yes/ No
Taped To Lid? Yes/ No
Properly Fill d Out
(Ink, Signed, ETC.)? Yes/ No

4 AIRBILL AirBill/ Sticker
Present/Absent

5. AIRBILL NO:
810843332056

6. COOLER CONDITIONS
Enough Ice? Yes/ No
Type of Ice? WET
Type of Packing? BUB

7. SAMPLE TAGS Present/Absent

8. SAMPLE CONDITION: Intact/ Broken*/ Leaking
Bottles Sealed In Separate Plastic Bags? Yes/ No
Correct Containers Used For Tests Indicated? Yes/ No
Correct Preservative? Yes/ No
Sufficient Sample? Yes/ No
Labels Complete (I.D., Date, Time, Signature, Preservative? Yes/ No
VOA Samples Without Bubbles? Yes/ No~

9. Does Information on Custody Records, Labels, Tags Agree? Yes/ No*

10. RAD SCREEN WITH GIEGER COUNTER? Yes/ No

11. P.O. Called? Yes/ No

* Contact PO and attach record of resolution

@ Sample Fractions: B=SV GC/MS, V= VOA GC/MS or GC, P=Pesticide, H=Herbicide, D=Dioxin A=Air, I=Inorganics C=Cyanide, M=Metals, R=Radiochemistry

~ Note samples with bubbles under remarks section

SWLO Qualifier Flags

METHODOLOGY

SM	=	Standard Methods, 18th Edition, 1992
EPA	=	#EPA600 / 4-79-020, March 1985
SW	=	EPA Methodology, "#SW846", Final Update III, June, 1997

GENERAL QUALIFIER FLAGS

B	=	Analyte is detected in blank as well as sample
J	=	Estimated value: concentration is below limit of quantitation
T	=	Trace amount
U	=	Not detected
>	=	Concentration greater than value reported
E	=	Compound exceeds calibration range
D	=	Sample dilution run or surrogates diluted out Sample run at secondary dilution
I	=	Not quantifiable due to matrix interference
*	=	Surrogate outside of QC limits on both original and re-analysis
P	=	Pesticide Aroclor Flag used when >25% difference between two GC columns. The lower of the two values is reported.

TPH 8015

1	=	Analysis shows miscellaneous peaks, which cannot be identified as any specific pattern. Response factor for nearest eluting hydrocarbon standard was used to calculate concentration.
2	=	Pattern is similar to, but not identical to standard.
3	=	May be a weathered gasoline.

APPENDIX IX SEMIVOLATILES

1	=	Detected as Diphenylamine
2	=	Coelute on GC Column

TCLP SEMIVOLATILES

1	=	1-methyl phenol
2	=	Compounds Co-elute (3 & 4-methylphenol)
3	=	Combination of O, M, & P Cresols

DIOXINS

X	=	EMPC (Estimated Maximum Possible Concentration)
I *	=	EMPC – ether interference

2F
SOIL PESTICIDE SURROGATE RECOVERY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: FISCJ SDG No.: 40133

GC Column(1) : DB-1701 ID: 0.32(mm) GC Column(2): DB-17 ID: 0.32(mm)

	CLIENT SAMPLE NO.	TCX 1 %REC #	TCX 2 %REC #	DCB 1 %REC #	DCB 2 %REC #	OTHER (1)	OTHER (2)	TOT OUT
01	BL0828SD	81	85	78	87			0
02	LC0828SD	79	82	76	83			0
03	LD0828SD	81	85	80	85			0
04	99SW-004-1	76	79	93	105			0
05	99SW-004-2	72	73	68	73			0
06	99SW-004-3	60	76	70	68			0
07	99SW-004-4	81	86	81	75			0
08	99SW-004-4MS	77	82	74	84			0
09	99SW-004-4MSD	80	81	87	87			0
10	99SW-004-1DL	76	68	94	86			0
11								
12								
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29								
30								

	ADVISORY QC LIMITS
TCX = Tetrachloro-m-xylene	(49-109)
DCB = Decachlorobiphenyl	(55-125)

\# Column to be used to flag recovery values
* Values outside of QC limits
D Surrogate diluted out

FORM II PEST-2

3F

SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: FISCJAC SDG No.: 40133

Matrix Spike - Client Sample NO.: 39SW-004-4

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
Aroclor-1016	349	0	292	84	53-100
Aroclor-1260	349	110	347	68	50-107

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Aroclor-1016	347	310	89	6	23	53-100
Aroclor-1260	347	371	75	7	24	50-107

Column to be used to flag recovery values

* Values outside of QC limits

RPD: 0 out of 2 outside limits
Spike Recovery: 0 out of 4 outside limits

Comments:

3H

SOIL PESTICIDE LABORATORY CONTROL SPIKE/ DUPLICATE RECOVERY

Lab Name: SWL-TULSA Case No.: FISCJ SDG No.: 40133

LCS Sample NO.: LC0828SD

COMPOUND	SPIKE ADDED (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC. LIMITS REC.
Aroclor-1016	300	255	85	53-100
Aroclor-1260	300	211	70	50-107

COMPOUND	SPIKE ADDED (ug/Kg)	LCSD CONCENTRATION (ug/Kg)	LCSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Aroclor-1016	300	257	86	1	23	53-100
Aroclor-1260	300	215	72	2	24	50-107

= Column to be used to flag recovery values

+ Values outside of QC limits

RPD: 0 out of 2 outside limits
Spike Recovery: 0 out of 4 outside limits

Comments:

4C
PESTICIDE METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

BL0828SD

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: FISCJ SDG No.: 40133

Lab Sample ID: BL0828SD Lab File ID: 1_20336

Matrix: (soil/water) SOIL Extraction: (SepF/Cont/Sonc) SONC

Sulfur Cleanup: (Y/N) N Date Extracted: 08/28/99

Date Analyzed (1): 08/30/99 Date Analyzed (2): 08/30/99

Time Analyzed (1): 1456 Time Analyzed (2): 1456

Instrument ID (1): HP_01A Instrument ID (2): HP_01B

GC Column (1): DB-1701 ID: 0.32(mm) GC Column (2): DB-17 ID: 0.32(mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, LCS, LCSD, MS AND MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
01	LC0828SD	LC0828SD	08/30/99	08/30/99
02	LD0828SD	LD0828SD	08/30/99	08/30/99
03	99SW-004-1	40133.01	08/30/99	08/30/99
04	99SW-004-2	40133.02	08/30/99	08/30/99
05	99SW-004-3	40133.03	08/30/99	08/30/99
06	99SW-004-4	40133.04	08/30/99	08/30/99
07	99SW-004-4MS	40133.04MS	08/30/99	08/30/99
08	99SW-004-4MSD	40133.04MSD	08/30/99	08/30/99
09	99SW-004-1DL	40133.01DL	08/31/99	08/31/99
10				
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22				
23				
24				
25				
26				

Comments:

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BL0828SD

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: FISCJ SDG No.: 40133

Matrix: (soil/water) SOIL Lab Sample ID: BL0828SD

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: _____ decanted: (Y/N) ___ Date Received: _____

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/28/99

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 08/30/99

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	33	U
11104-28-2	Aroclor-1221	33	U
11141-16-5	Aroclor-1232	33	U
53469-21-9	Aroclor-1242	33	U
12672-29-6	Aroclor-1248	33	U
11097-69-1	Aroclor-1254	33	U
11096-82-5	Aroclor-1260	33	U
Surrogate amount spiked		6.67	

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

LC0828SD

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: FISCU SDG No.: 40133

Matrix: (soil/water) SOIL Lab Sample ID: LC0828SD

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 0 decanted: (Y/N) __ Date Received:

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/28/99

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/30/99

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	260	
11104-28-2	Aroclor-1221	33	U
11141-16-5	Aroclor-1232	33	U
53469-21-9	Aroclor-1242	33	U
12672-29-6	Aroclor-1248	33	U
11097-69-1	Aroclor-1254	33	U
11096-82-5	Aroclor-1260	210	
Surrogate amount spiked		6.67	

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

LD0828SD

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: FISCJ SDG No.: 40133

Matrix: (soil/water) SOIL Lab Sample ID: LD0828SD

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

Moisture: 0 decanted: (Y/N) __ Date Received:

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/28/99

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/30/99

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	260	
11104-28-2	Aroclor-1221	33	U
11141-16-5	Aroclor-1232	33	U
53469-21-9	Aroclor-1242	33	U
12672-29-6	Aroclor-1248	33	U
11097-69-1	Aroclor-1254	33	U
11096-82-5	Aroclor-1260	220	
Surrogate amount spiked		6.67	

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

99SW-004-1

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: FISCJ SDG No.: 40133

Matrix: (soil/water) SOIL Lab Sample ID: 40133.01

Sample wt/vol: 30.3 (g/mL) G Lab File ID:_____

Moisture: 10 decanted: (Y/N) __ Date Received: 08/28/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:08/28/99

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/30/99

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 8.9 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	36	U
11104-28-2	Aroclor-1221	36	U
11141-16-5	Aroclor-1232	36	U
53469-21-9	Aroclor-1242	36	U
12672-29-6	Aroclor-1248	36	U
11097-69-1	Aroclor-1254	36	U
11096-82-5	Aroclor-1260	650	E
Surrogate amount spiked		7.33	

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

99SW-004-1DL

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: FISCJ SDG No.: 40133

Matrix: (soil/water) SOIL Lab Sample ID: 40133.01DL

Sample wt/vol: 30.3 (g/mL) G Lab File ID: _____

Moisture: 10 decanted: (Y/N) __ Date Received: 08/28/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/28/99

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/31/99

Injection Volume: 1.0(uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) N pH: 8.9 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2------	Aroclor-1016	73	U
11104-28-2------	Aroclor-1221	73	U
11141-16-5------	Aroclor-1232	73	U
53469-21-9------	Aroclor-1242	73	U
12672-29-6------	Aroclor-1248	73	U
11097-69-1------	Aroclor-1254	73	U
11096-82-5------	Aroclor-1260	810	D
Surrogate amount spiked		7.33	

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

99SW-004-2

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: FISCJ SDG No.: 40133

Matrix: soil/water) SOIL Lab Sample ID: 40133.02

Sample wt/vol: 31.0 (g/mL) G Lab File ID:_____

Moisture: 24 decanted: Y/N) __ Date Received: 08/28/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:08/28/99

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/30/99

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: Y/N) N pH: 8.7 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2------	Aroclor-1016	42	U
11104-28-2------	Aroclor-1221	42	U
11141-16-5------	Aroclor-1232	42	U
53469-21-9------	Aroclor-1242	42	U
12672-29-6------	Aroclor-1248	42	U
11097-69-1------	Aroclor-1254	42	U
11096-82-5------	Aroclor-1260	150	
Surrogate amount spiked		8.49	

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

99SW-004-3

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: FISCU SDG No.: 40133

Matrix: (soil/water) SOIL Lab Sample ID: 40133.03

Sample wt/vol: 32.6 (g/mL) G Lab File ID: _____

Moisture: 23 decanted: (Y/N) __ Date Received: 08/28/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/28/99

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 08/30/99

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 8.4 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	39	U
11104-28-2	Aroclor-1221	39	U
11141-16-5	Aroclor-1232	39	U
53469-21-9	Aroclor-1242	39	U
12672-29-6	Aroclor-1248	39	U
11097-69-1	Aroclor-1254	39	U
11096-82-5	Aroclor-1260	39	U
Surrogate amount spiked		7.97	

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

99SW-004-4

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: FISCJ SDG No.: 40133

Matrix: (soil/water) SOIL Lab Sample ID: 40133.04

Sample wt/vol: 31.6 (g/mL) G Lab File ID: _____

Moisture: 15 decanted: (Y/N) __ Date Received: 08/28/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/28/99

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/30/99

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 8.5 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	37	U
11104-28-2	Aroclor-1221	37	U
11141-16-5	Aroclor-1232	37	U
53469-21-9	Aroclor-1242	37	U
12672-29-6	Aroclor-1248	37	U
11097-69-1	Aroclor-1254	37	U
11096-82-5	Aroclor-1260	110	
Surrogate amount spiked		7.45	

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

39SW-004-4MS

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: FISCJ SDG No.: 40133

Matrix: (soil/water) SOIL Lab Sample ID: 40133.04MS

Sample wt vol: 30.3 (g/mL) G Lab File ID: _____

Moisture: 15 decanted: (Y/N) __ Date Received: 08/28/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/28/99

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/30/99

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 8.5 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2------	Aroclor-1016	290	
11104-28-2------	Aroclor-1221	38	U
11141-16-5------	Aroclor-1232	38	U
53469-21-9------	Aroclor-1242	38	U
12672-29-6------	Aroclor-1248	38	U
11097-69-1------	Aroclor-1254	38	U
11096-82-5------	Aroclor-1260	350	
Surrogate amount spiked		7.77	

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

99SW-004-4MSD

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: FISCJ SDG No.: 40133

Matrix: (soil/water) SOIL Lab Sample ID: 40133.04MSD

Sample wt/vol: 30.5 (g/mL) G Lab File ID: _____

Moisture: 15 decanted: (Y/N) __ Date Received: 08/28/99

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/28/99

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 08/30/99

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 8.5 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	310	
11104-28-2	Aroclor-1221	38	U
11141-16-5	Aroclor-1232	38	U
53469-21-9	Aroclor-1242	38	U
12672-29-6	Aroclor-1248	38	U
11097-69-1	Aroclor-1254	38	U
11096-82-5	Aroclor-1260	370	
Surrogate amount spiked		7.71	

6F

PESTICIDE INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: FISCJAC SDG No.: 40133

Instrument ID: HP_01A Date(s) Analyzed: 08/27/99 08/27/99

Level (x Level 1): L1: 1.0 L2: 2.0 L3: 4.0 L4: 8.0 L5: 16.0

GC Column: DB-1701 ID: 0.32(mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	CALIBRATION FACTOR	CALIB TYPE
Aroclor 1016 L1	0.10	1	7.67	489050	MEAN
		2	8.41	1008730	
		3	9.22	1708360	
		4	9.47	885240	
		5	10.27	835400	
Aroclor 1016 L2	0.20	1	7.67	444710	MEAN
		2	8.41	887765	
		3	9.21	1565360	
		4	9.46	808225	
		5	10.27	768505	
Aroclor 1016 L3	0.40	1	7.67	397493	MEAN
		2	8.41	774890	
		3	9.21	1404755	
		4	9.46	725290	
		5	10.27	689608	
Aroclor 1016 L4	0.80	1	7.67	349724	MEAN
		2	8.41	668291	
		3	9.21	1262524	
		4	9.46	649988	
		5	10.27	616023	
Aroclor 1016 L5	1.60	1	7.67	306228	MEAN
		2	8.41	574254	
		3	9.21	1105236	
		4	9.46	568479	
		5	10.27	536544	

COMPOUND	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	MEAN CALIB. FACTOR	% RSD
Aroclor 1016 MEAN	1	7.67	7.60	7.74	397441	18.3
	2	8.41	8.34	8.48	782786	22.0
	3	9.21	9.14	9.28	1409247	16.9
	4	9.46	9.39	9.53	727444	17.2
	5	10.27	10.20	10.34	689216	17.2

6F

PESTICIDE INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: FISCJAC SDG No.: 40133

Instrument ID: HP_01A Date(s) Analyzed: 08/27/99 08/27/99

Level (x Level 1): L1: 1.0 L2: 2.0 L3: 4.0 L4: 8.0 L5: 16.0

GC Column: DB-1701 ID: 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	CALIBRATION FACTOR	CALIB TYPE
Aroclor 1260 L1	0.10	1	12.07	702460	MEAN
		2	12.30	1059090	
		3	12.66	1241070	
		4	13.23	1629950	
		5	14.30	1797700	
Aroclor 1260 L2	0.20	1	12.07	743070	MEAN
		2	12.30	979380	
		3	12.66	1152850	
		4	13.23	1542085	
		5	14.30	1694130	
Aroclor 1260 L3	0.40	1	12.07	616305	MEAN
		2	12.30	865690	
		3	12.66	1015875	
		4	13.23	1392015	
		5	14.30	1528643	
Aroclor 1260 L4	0.80	1	12.06	555580	MEAN
		2	12.30	762031	
		3	12.66	901016	
		4	13.22	1256459	
		5	14.30	1386315	
Aroclor 1260 L5	1.60	1	12.06	483293	MEAN
		2	12.30	655798	
		3	12.65	768998	
		4	13.22	1090010	
		5	14.30	1206073	

COMPOUND	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	MEAN CALIB. FACTOR	% RSD
Aroclor 1260 MEAN	1	12.06	11.99	12.13	620142	17.1
	2	12.30	12.23	12.37	864398	18.8
	3	12.66	12.59	12.73	1015962	18.7
	4	13.23	13.16	13.30	1382104	15.7
	5	14.30	14.23	14.37	1522572	15.5

6F

PESTICIDE INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: FISCJAC SDG No.: 40133

Instrument ID: HP_01B Date(s) Analyzed: 08/27/99 08/27/99

Level (x Level 1): L1: 1.0 L2: 2.0 L3: 4.0 L4: 8.0 L5: 16.0

GC Column: DB-17 ID: 0.32(mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	CALIBRATION FACTOR	CALIB TYPE
Aroclor 1016 L1	0.10	1	8.11	255300	MEAN
		2	8.91	655420	
		3	9.60	1101350	
		4	9.90	412900	
		5	11.58	297320	
Aroclor 1016 L2	0.20	1	8.10	246330	MEAN
		2	8.91	614505	
		3	9.60	1055765	
		4	9.90	397790	
		5	11.58	280650	
Aroclor 1016 L3	0.40	1	8.10	227360	MEAN
		2	8.91	563605	
		3	9.60	993603	
		4	9.90	373340	
		5	11.58	276773	
Aroclor 1016 L4	0.80	1	8.10	218730	MEAN
		2	8.91	513461	
		3	9.60	942813	
		4	9.90	354003	
		5	11.58	258770	
Aroclor 1016 L5	1.60	1	8.10	197856	MEAN
		2	8.91	458193	
		3	9.60	853022	
		4	9.90	321404	
		5	11.58	232453	

COMPOUND	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	MEAN CALIB. FACTOR	% RSD
Aroclor 1016 MEAN	1	8.10	8.03	8.17	229115	9.9
	2	8.91	8.84	8.98	561037	14.0
	3	9.60	9.53	9.67	989310	9.8
	4	9.90	9.83	9.97	371887	9.7
	5	11.58	11.51	11.65	269193	9.2

6F

PESTICIDE INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: FISCJAC SDG No.: 40133

Instrument ID: HP_01B Date(s) Analyzed: 08/27/99 08/27/99

Level (x Level 1): L1: 1.0 L2: 2.0 L3: 4.0 L4: 8.0 L5: 16.0

GC Column: DB-17 ID: 0.32(mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	CALIBRATION FACTOR	CALIB TYPE
Aroclor 1260 L1	0.10	1	12.80	841380	MEAN
		2	12.93	920660	
		3	13.69	755180	
		4	14.40	534840	
		5	14.64	1313950	
Aroclor 1260 L2	0.20	1	12.80	794220	MEAN
		2	12.93	873115	
		3	13.69	722720	
		4	14.40	513115	
		5	14.64	1267245	
Aroclor 1260 L3	0.40	1	12.80	730865	MEAN
		2	12.93	806760	
		3	13.68	678035	
		4	14.40	499063	
		5	14.64	1229940	
Aroclor 1260 L4	0.80	1	12.80	669358	MEAN
		2	12.93	747916	
		3	13.68	647124	
		4	14.40	471731	
		5	14.64	1167493	
Aroclor 1260 L5	1.60	1	12.80	603027	MEAN
		2	12.93	670705	
		3	13.68	588936	
		4	14.40	439193	
		5	14.64	1083844	

COMPOUND	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	MEAN CALIB. FACTOR	% RSD
Aroclor 1260 MEAN	1	12.80	12.73	12.87	727770	13.1
	2	12.93	12.86	13.00	803831	12.3
	3	13.68	13.61	13.75	678399	9.6
	4	14.40	14.33	14.47	491588	7.6
	5	14.64	14.57	14.71	1212494	7.4

PESTICIDE INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: FISCJAC SDG No.: 40133

Instrument ID: HP_01A Date(s) Analyzed: 08/31/99 08/31/99

Level (x Level 1): L1: 1.0 L2: 2.0 L3: 4.0 L4: 8.0 L5: 16.0

GC Column: DB-1701 ID: 0.32(mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	CALIBRATION FACTOR	CALIB TYPE
Aroclor 1016 L1	0.10	1	7.67	491830	MEAN
		2	8.41	1016980	
		3	9.21	1708520	
		4	9.46	914550	
		5	10.27	778090	
Aroclor 1016 L2	0.20	1	7.67	448515	MEAN
		2	8.41	898015	
		3	9.21	1555390	
		4	9.46	784590	
		5	10.27	742975	
Aroclor 1016 L3	0.40	1	7.67	408985	MEAN
		2	8.41	793148	
		3	9.21	1427228	
		4	9.46	724375	
		5	10.27	680660	
Aroclor 1016 L4	0.80	1	7.67	355264	MEAN
		2	8.40	679263	
		3	9.21	1278905	
		4	9.46	650235	
		5	10.26	612115	
Aroclor 1016 L5	1.60	1	7.67	307788	MEAN
		2	8.40	581739	
		3	9.21	1120638	
		4	9.46	572814	
		5	10.26	537896	

COMPOUND	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	MEAN CALIB. FACTOR	% RSD
Aroclor 1016 MEAN	1	7.67	7.60	7.74	402476	18.1
	2	8.41	8.34	8.48	793829	21.7
	3	9.21	9.14	9.28	1418136	16.2
	4	9.46	9.39	9.53	729313	17.9
	5	10.27	10.20	10.34	670347	14.5

6F

PESTICIDE INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: FISCCAC SDG No.: 40133

Instrument ID: HP_01A Date(s) Analyzed: 08/31/99 08/31/99

Level (x Level 1): L1: 1.0 L2: 2.0 L3: 4.0 L4: 8.0 L5: 16.0

GC Column: DB-1701 ID: 0.32(mm)

COMPOUND	AMOUNT ng)	PEAK	RT	CALIBRATION FACTOR	CALIB TYPE
Aroclor 1260 L1	0.10	1	12.06	620320	MEAN
		2	12.30	938470	
		3	12.65	1092590	
		4	13.22	1481190	
		5	14.29	1403320	
Aroclor 1260 L2	0.20	1	12.06	593670	MEAN
		2	12.30	877435	
		3	12.65	1031665	
		4	13.22	1400530	
		5	14.29	1315640	
Aroclor 1260 L3	0.40	1	12.06	563010	MEAN
		2	12.30	802865	
		3	12.65	935080	
		4	13.22	1256220	
		5	14.29	1374918	
Aroclor 1260 L4	0.80	1	12.06	527505	MEAN
		2	12.29	730723	
		3	12.65	858756	
		4	13.22	1200096	
		5	14.29	1308870	
Aroclor 1260 L5	1.60	1	12.06	473209	MEAN
		2	12.29	641393	
		3	12.65	755941	
		4	13.22	1073921	
		5	14.29	1176781	

COMPOUND	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	MEAN CALIB. FACTOR	% RSD
Aroclor 1260 MEAN	1	12.06	11.99	12.13	555543	10.4
	2	12.30	12.23	12.37	798177	14.7
	3	12.65	12.58	12.72	934806	14.4
	4	13.22	13.15	13.29	1282391	12.6
	5	14.29	14.22	14.36	1315906	6.6

6F

PESTICIDE INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: FISCUAC SDG No.: 40133

Instrument ID: HP_11B Date(s) Analyzed: 08/31/99 08/31/99

Level (x Level 1): L1: 1.0 L2: 2.0 L3: 4.0 L4: 8.0 L5: 16.0

GC Column: DB-17 ID: 0.32 (mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	CALIBRATION FACTOR	CALIB TYPE
Aroclor 1016 L1	0.10	1	8.10	295670	MEAN
		2	8.91	784270	
		3	9.59	1242820	
		4	9.89	458210	
		5	11.58	325640	
Aroclor 1016 L2	0.20	1	8.10	299945	MEAN
		2	8.91	698025	
		3	9.59	1200350	
		4	9.89	451025	
		5	11.58	306350	
Aroclor 1016 L3	0.40	1	8.10	274210	MEAN
		2	8.91	646043	
		3	9.59	1134685	
		4	9.89	423470	
		5	11.58	299455	
Aroclor 1016 L4	0.80	1	8.10	250078	MEAN
		2	8.91	581488	
		3	9.59	1061614	
		4	9.89	395998	
		5	11.58	281158	
Aroclor 1016 L5	1.60	1	8.10	224845	MEAN
		2	8.91	516865	
		3	9.59	963787	
		4	9.89	363538	
		5	11.58	248057	

COMPOUND	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	MEAN CALIB. FACTOR	% RSD
Aroclor 1016 MEAN	1	8.10	8.03	8.17	268950	11.8
	2	8.91	8.84	8.98	645338	16.0
	3	9.59	9.52	9.66	1120651	9.9
	4	9.89	9.82	9.96	418448	9.4
	5	11.58	11.51	11.65	292132	10.0

6F

PESTICIDE INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: FISCJAC SDG No.: 40133

Instrument ID: HP_01B Date(s) Analyzed: 08/31/99 08/31/99

Level (x Level 1): L1: 1.0 L2: 2.0 L3: 4.0 L4: 8.0 L5: 16.0

GC Column: DB-17 ID: 0.32(mm)

COMPOUND	AMOUNT (ng)	PEAK	RT	CALIBRATION FACTOR	CALIB TYPE
Aroclor 1260 L1	0.10	1	12.80	822320	MEAN
		2	12.93	858390	
		3	13.68	750970	
		4	14.40	534210	
		5	14.64	1168930	
Aroclor 1260 L2	0.20	1	12.80	795710	MEAN
		2	12.93	830685	
		3	13.68	701260	
		4	14.39	473770	
		5	14.64	1170245	
Aroclor 1260 L3	0.40	1	12.80	770650	MEAN
		2	12.93	852850	
		3	13.68	692448	
		4	14.39	548883	
		5	14.64	1261070	
Aroclor 1260 L4	0.80	1	12.79	712158	MEAN
		2	12.93	740041	
		3	13.68	662600	
		4	14.39	505164	
		5	14.64	1221010	
Aroclor 1260 L5	1.60	1	12.79	648882	MEAN
		2	12.93	730256	
		3	13.68	611856	
		4	14.39	481140	
		5	14.64	1171728	

COMPOUND	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	MEAN CALIB. FACTOR	% RSD
Aroclor 1260 MEAN	1	12.79	12.72	12.86	749944	9.3
	2	12.93	12.86	13.00	802444	7.8
	3	13.68	13.61	13.75	683827	7.5
	4	14.39	14.32	14.46	508633	6.4
	5	14.64	14.57	14.71	1198597	3.4

7F

MULTI-COMPONENT CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: FISCJ SDG No.: 40133

GC Column: DB-1701 ID: 0.32(mm) Init. Calib Date(s): 08/27/99 08/27/99

Client Sample No.(PIBLK): PIBLK1T Date Analyzed : 08/30/99

Lab Sample ID (PIBLK): 5-466-3 Time Analyzed : 1407

Client Sample No.: AR1660L31T Date Analyzed : 08/30/99

Lab Sample ID : 5-292-3 Time Analyzed : 1432

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALIB. FACTOR	MEAN CALIB. FACTOR	%D #
Aroclor 1016 #1	7.67	7.60	7.74	381275	397441	4.1
Aroclor 1016 #2	8.41	8.34	8.48	748875	782786	4.3
Aroclor 1016 #3	9.21	9.14	9.28	1361128	1409250	3.4
Aroclor 1016 #4	9.46	9.39	9.53	702363	727444	3.5
Aroclor 1016 #5	10.27	10.20	10.34	665665	689216	3.4
Aroclor 1260 #1	12.06	11.99	12.13	597845	620142	3.6
Aroclor 1260 #2	12.30	12.23	12.37	848433	864398	1.9
Aroclor 1260 #3	12.66	12.59	12.73	998753	1015960	1.7
Aroclor 1260 #4	13.22	13.16	13.30	1360890	1382100	1.5
Aroclor 1260 #5	14.30	14.23	14.37	1517500	1522570	0.3

QC LIMITS: RPD of amounts of the Multi-Components must be less than or equal to 15.0%.

7F

MULTI-COMPONENT CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: FISCJ SDG No.: 40133

GC Column: DB-17 ID: 0.32(mm) Init. Calib Date(s): 08/27/99 08/27/99

Client Sample No. (PIBLK): PIBLK1T Date Analyzed : 08/30/99

Lab Sample ID (PIBLK): 5-466-3 Time Analyzed : 1407

Client Sample No.: AR1660L31T Date Analyzed : 08/30/99

Lab Sample ID : 5-292-3 Time Analyzed : 1432

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALIB. FACTOR	MEAN CALIB. FACTOR	%D #
Aroclor 1016 #1	8.10	8.03	8.17	246110	229115	7.4
Aroclor 1016 #2	8.91	8.84	8.98	581695	561037	3.7
Aroclor 1016 #3	9.59	9.53	9.67	1031393	989310	4.3
Aroclor 1016 #4	9.90	9.83	9.97	387758	371887	4.3
Aroclor 1016 #5	11.58	11.51	11.65	287943	269193	7.0
Aroclor 1260 #1	12.80	12.73	12.87	761773	727770	4.7
Aroclor 1260 #2	12.93	12.86	13.00	837945	803831	4.2
Aroclor 1260 #3	13.68	13.61	13.75	698700	678399	3.0
Aroclor 1260 #4	14.40	14.33	14.47	492003	491588	0.1
Aroclor 1260 #5	14.64	14.57	14.71	1165500	1212490	3.9

QC LIMITS: RPD of amounts of the Multi-Components must be less than or equal to 15.0%.

7F

MULTI-COMPONENT CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: FISCJ SDG No.: 40133

GC Column: DB-1701 ID: 0.32 (mm) Init. Calib Date(s): 08/27/99 08/27/99

Client Sample No. PIBLK): PIBLK1U Date Analyzed : 08/30/99

Lab Sample ID PIBLK): 5-466-3 Time Analyzed : 2147

Client Sample No.: AR1660L31U Date Analyzed : 08/30/99

Lab Sample ID : 5-292-3 Time Analyzed : 2211

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALIB. FACTOR	MEAN CALIB. FACTOR	%D #
Aroclor 1016 #1	7.67	7.60	7.74	376733	397441	5.2
Aroclor 1016 #2	8.41	8.34	8.48	725550	782786	7.3
Aroclor 1016 #3	9.21	9.14	9.28	1297793	1409250	7.9
Aroclor 1016 #4	9.46	9.39	9.53	642748	727444	11.6
Aroclor 1016 #5	10.27	10.20	10.34	586175	689216	15.0
Aroclor 1260 #1	12.07	11.99	12.13	496860	620142	19.9*
Aroclor 1260 #2	12.30	12.23	12.37	728768	864398	15.7*
Aroclor 1260 #3	12.66	12.59	12.73	882418	1015960	13.1
Aroclor 1260 #4	13.23	13.16	13.30	1195258	1382100	13.5
Aroclor 1260 #5	14.30	14.23	14.37	1187580	1522570	22.0*

QC LIMITS: RPD of amounts of the Multi-Components must be less than or equal to 15.0%.

MULTI-COMPONENT CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: FISCJ SDG No.: 40133

GC Column: DB-17 ID: 0.32(mm) Init. Calib Date(s): 08/27/99 08/27/99

Client Sample No. (PIBLK): PIBLK1U Date Analyzed : 08/30/99

Lab Sample ID (PIBLK): 5-466-3 Time Analyzed : 2147

Client Sample No.: AR1660L31U Date Analyzed : 08/30/99

Lab Sample ID : 5-292-3 Time Analyzed : 2211

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALIB. FACTOR	MEAN CALIB. FACTOR	%D #
Aroclor 1016 #1	8.10	8.03	8.17	240165	229115	4.8
Aroclor 1016 #2	8.92	8.84	8.98	559515	561037	0.3
Aroclor 1016 #3	9.60	9.53	9.67	961213	989310	2.8
Aroclor 1016 #4	9.90	9.83	9.97	350800	371887	5.7
Aroclor 1016 #5	11.58	11.51	11.65	238160	269193	11.5
Aroclor 1260 #1	12.80	12.73	12.87	659495	727770	9.4
Aroclor 1260 #2	12.94	12.86	13.00	682728	803831	15.1*
Aroclor 1260 #3	13.69	13.61	13.75	600278	678399	11.5
Aroclor 1260 #4	14.40	14.33	14.47	565290	491588	15.0
Aroclor 1260 #5	14.64	14.57	14.71	1091125	1212490	10.0

QC LIMITS: RPD of amounts of the Multi-Components must be less than or equal to 15.0%.

7F

MULTI-COMPONENT CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: FISCJ SDG No.: 40133

GC Column: DB-1701 ID: 0.32(mm) Init. Calib Date(s): 08/31/99 08/31/99

Client Sample No.(PIBLK): PIBLK1W Date Analyzed : 09/01/99

Lab Sample ID (PIBLK): 5-466-3 Time Analyzed : 0030

Client Sample No.: AR1660L31W Date Analyzed : 09/01/99

Lab Sample ID : 5-292-3 Time Analyzed : 0055

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALIB. FACTOR	MEAN CALIB. FACTOR	%D #
Aroclor 1016 #1	7.67	7.60	7.74	403213	402476	0.2
Aroclor 1016 #2	8.41	8.34	8.48	791600	793829	0.3
Aroclor 1016 #3	9.22	9.14	9.28	1450308	1418140	2.3
Aroclor 1016 #4	9.47	9.39	9.53	730515	729313	0.2
Aroclor 1016 #5	10.27	10.20	10.34	675778	670347	0.8
Aroclor 1260 #1	12.07	11.99	12.13	576425	555543	3.8
Aroclor 1260 #2	12.30	12.23	12.37	811813	798177	1.7
Aroclor 1260 #3	12.66	12.58	12.72	951778	934806	1.8
Aroclor 1260 #4	13.23	13.15	13.29	1303908	1282390	1.7
Aroclor 1260 #5	14.30	14.22	14.36	1247673	1315910	5.2

QC LIMITS: RPD of amounts of the Multi-Components must be less than or equal to 15.0%.

7F

MULTI-COMPONENT CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: FISCJ SDG No.: 40133

GC Column: DB-17 ID: 0.32(mm) Init. Calib Date(s): 08/31/99 08/31/99

Client Sample No. PIBLK): PIBLK1W Date Analyzed : 09/01/99

Lab Sample ID PIBLK): 5-466-3 Time Analyzed : 0030

Client Sample No.: AR1660L31W Date Analyzed : 09/01/99

Lab Sample ID : 5-292-3 Time Analyzed : 0055

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CALIB. FACTOR	MEAN CALIB. FACTOR	%D #
Aroclor 1016 #1	8.11	8.03	8.17	265633	268950	1.2
Aroclor 1016 #2	8.92	8.84	8.98	625858	645338	3.0
Aroclor 1016 #3	8.60	8.52	8.66	1101605	1120650	1.7
Aroclor 1016 #4	8.90	8.82	8.96	406705	418448	2.8
Aroclor 1016 #5	11.59	11.51	11.65	278723	292132	4.6
Aroclor 1260 #1	12.80	12.72	12.86	759570	749944	1.3
Aroclor 1260 #2	12.94	12.86	13.00	788120	802444	1.8
Aroclor 1260 #3	13.69	13.61	13.75	678005	683827	0.9
Aroclor 1260 #4	14.40	14.32	14.46	516860	508633	1.6
Aroclor 1260 #5	14.64	14.57	14.71	1261250	1198600	5.2

QC LIMITS: RPD of amounts of the Multi-Components must be less than or equal to 15.0%.

8D
PESTICIDE ANALYTICAL SEQUENCE

Lab Name: SWL-TULSA Contract: PCB

Lab Code: SWOK Case No.: FISCJ SAS No.: SDG No.: 40133

GC Column: DB-1701 ID: 0.32 (mm) Init. Calib. Date(s):

Instrument ID: HP_01A

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TCX RT #	DCB RT #
1	RESC1F	5-489-3	08/27/99	1932	6.59	17.51
2	AR1221L11R	5-135-3	08/27/99	1956	6.59	17.52
3	AR1232L11R	5-140-3	08/27/99	2020	6.59	17.52
4	AR1242L11R	5-265-3	08/27/99	2044	6.59	17.52
5	AR1248L11R	5-145-3	08/27/99	2108	6.60	17.52
6	AR1254L11R	5-275-3	08/27/99	2132	6.60	17.52
7	AR1660L11R	5-294-3	08/27/99	2156	6.60	17.52
8	AR1660L21R	5-293-3	08/27/99	2221	6.59	17.52
9	AR1660L31R	5-292-3	08/27/99	2245	6.59	17.52
10	AR1660L41R	5-291-3	08/27/99	2309	6.59	17.52
11	AR1660L51R	5-290-3	08/27/99	2333	6.59	17.52
12	PIBLK1T	5-466-3	08/30/99	1407	6.59	17.51
13	AR1660L31T	5-292-3	08/30/99	1432	6.59	17.51
14	BL0828SD	BL0828SD	08/30/99	1456	6.59	17.51
15	LC0828SD	LC0828SD	08/30/99	1544	6.59	17.51
16	LD0828SD	LD0828SD	08/30/99	1608	6.59	17.51
17	99SW-004-1	40133.01	08/30/99	1858	6.59	17.51
18	99SW-004-2	40133.02	08/30/99	1922	6.59	17.51
19	99SW-004-3	40133.03	08/30/99	1946	6.59	17.51
20	99SW-004-4	40133.04	08/30/99	2010	6.59	17.52
21	99SW-004-4MS	40133.04MS	08/30/99	2034	6.59	17.52
22	99SW-004-4MSD	40133.04MSD	08/30/99	2058	6.59	17.52
23	PIBLK1U	5-466-3	08/30/99	2147	6.59	17.52
24	AR1660L31U	5-292-3	08/30/99	2211	6.59	17.52
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34						
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TCX = Tetrachloro-m-xylene (+/- 0.05 MINUTES)
DCB = Decachlorobiphenyl (+/- 0.10 MINUTES)

FORM VIII PEST

8D
PESTICIDE ANALYTICAL SEQUENCE

Lab Name: SWL-TULSA Contract: PCB

Lab Code: SWOK Case No.: FISCJ SAS No.: SDG No.: 40133

GC Column: DB-17 ID: 0.32 mm) Init. Calib. Date(s):

Instrument ID: HP_01B

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TCX RT #	DCB RT #
1	RESC1F	5-489-3	08/27/99	1932	6.76	19.12
2	AR1221L11R	5-135-3	08/27/99	1956	6.76	19.12
3	AR1232L11R	5-140-3	08/27/99	2020	6.76	19.12
4	AR1242L11R	5-265-3	08/27/99	2044	6.76	19.12
5	AR1248L11R	5-145-3	08/27/99	2108	6.76	19.12
6	AR1254L11R	5-275-3	08/27/99	2132	6.76	19.12
7	AR1660L11R	5-294-3	08/27/99	2156	6.76	19.12
8	AR1660L21R	5-293-3	08/27/99	2221	6.76	19.12
9	AR1660L31R	5-292-3	08/27/99	2245	6.76	19.12
10	AR1660L41R	5-291-3	08/27/99	2309	6.76	19.12
11	AR1660L51R	5-290-3	08/27/99	2333	6.76	19.12
12	PIBLK1T	5-466-3	08/30/99	1407	6.76	19.12
13	AR1660L31T	5-292-3	08/30/99	1432	6.76	19.12
14	BL0828SD	BL0828SD	08/30/99	1456	6.76	19.12
15	LC0828SD	LC0828SD	08/30/99	1544	6.76	19.12
16	LD0828SD	LD0828SD	08/30/99	1608	6.76	19.12
17	99SW-004-1	40133.01	08/30/99	1858	6.76	19.12
18	99SW-004-2	40133.02	08/30/99	1922	6.76	19.12
19	99SW-004-3	40133.03	08/30/99	1946	6.76	19.13
20	99SW-004-4	40133.04	08/30/99	2010	6.76	19.13
21	99SW-004-4MS	40133.04MS	08/30/99	2034	6.76	19.13
22	99SW-004-4MSD	40133.04MSD	08/30/99	2058	6.76	19.13
23	PIBLK1U	5-466-3	08/30/99	2147	6.76	19.13
24	AR1660L31U	5-292-3	08/30/99	2211	6.76	19.13
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TCX = Tetrachloro-m-xylene (+/- 0.05 MINUTES)
DCB = Decachlorobiphenyl (+/- 0.10 MINUTES)

FORM VIII PEST

8D
PESTICIDE ANALYTICAL SEQUENCE

Lab Name: SWL-TULSA Contract: PCB

Lab Code: SWOK Case No.: FISCO SAS No.: SDG No.: 40133

GC Column: DB-1701 ID: 0.32(mm) Init. Calib. Date(s):

Instrument ID: HP_01A

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TCX RT #	DCB RT #
01	RESC1G	5-489-3	08/31/99	1250	6.59	17.51
02	AR1221L11S	5-135-3	08/31/99	1314	6.59	17.51
03	AR1232L11S	5-140-3	08/31/99	1338	6.59	17.51
04	AR1242L11S	5-265-3	08/31/99	1402	6.59	17.51
05	AR1248L11S	5-145-3	08/31/99	1426	6.59	17.51
06	AR1254L11S	5-275-3	08/31/99	1451	6.59	17.51
07	AR1660L11S	5-294-3	08/31/99	1515	6.59	17.51
08	AR1660L21S	5-293-3	08/31/99	1539	6.59	17.51
09	AR1660L31V	5-292-3	08/31/99	1603	6.59	17.51
10	AR1660L41S	5-291-3	08/31/99	1627	6.59	17.51
11	AR1660L51S	5-290-3	08/31/99	1652	6.59	17.50
12	99SW-004-1DL	40133.01DL	08/31/99	2029	6.59	17.52
13	PIBLK1W	5-466-3	09/01/99	0030	6.59	17.52
14	AR1660L31W	5-292-3	09/01/99	0055	6.60	17.52
15						
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17						
18						
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31						
32						
33						
34						
35						

TCX = Tetrachloro-m-xylene (+/- 0.05 MINUTES)
DCB = Decachlorobiphenyl (+/- 0.10 MINUTES)

FORM VIII PEST

8D
PESTICIDE ANALYTICAL SEQUENCE

Lab Name: SWL-TULSA Contract: PCB

Lab Code: SWOK Case No.: FISCU SAS No.: SDG No.: 40133

GC Column: DB-17 ID: 0.32 (mm) Init. Calib. Date(s):

Instrument ID: HP_01B

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TCX RT #	DCB RT #
1	RESC1G	5-489-3	08/31/99	1250	6.76	19.12
2	AR1221L11S	5-135-3	08/31/99	1314	6.76	19.12
3	AR1232L11S	5-140-3	08/31/99	1338	6.76	19.12
4	AR1242L11S	5-265-3	08/31/99	1402	6.76	19.12
5	AR1248L11S	5-145-3	08/31/99	1426	6.76	19.12
6	AR1254L11S	5-275-3	08/31/99	1451	6.76	19.12
7	AR1260L11S	5-294-3	08/31/99	1515	6.76	19.12
8	AR1260L21S	5-293-3	08/31/99	1539	6.76	19.12
9	AR1260L31V	5-292-3	08/31/99	1603	6.76	19.12
10	AR1260L41S	5-291-3	08/31/99	1627	6.76	19.12
11	AR1260L51S	5-290-3	08/31/99	1652	6.76	19.12
12	99SW-004-1DL	40133.01DL	08/31/99	2029	6.76	19.12
13	PIBLK1W	5-466-3	09/01/99	0030	6.77	19.13
14	AR1660L31W	5-292-3	09/01/99	0055	6.77	19.13
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TCX = Tetrachloro-m-xylene (+/- 0.05 MINUTES)
DCB = Decachlorobiphenyl (+/- 0.10 MINUTES)

FORM VIII PEST

10B
PESTICIDE IDENTIFICATION SUMMARY
FOR MULTICOMPONENT ANALYTES

CLIENT SAMPLE NO.

LC0828SD

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: FISCJ SDG No.: 40133

Lab Sample ID: LC0828SD Date(s) Analyzed: 08/30/99 08/30/99

Instrument ID (1): HP_01A Instrument ID (2): HP_01B

GC Column (1): DB-1701 ID: 0.32(mm) GC Column (2): DB-17 ID: 0.32(mm)

ANALYTE	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	MEAN CONCENTRATION	%D
Aroclor-1016 COLUMN 1	1	7.67	7.60	7.74	210		
	2	8.41	8.34	8.48	210		
	3	9.21	9.14	9.28	210		
	4	9.46	9.39	9.53	200		
	5	10.27	10.20	10.34	210	210	
COLUMN 2	1	8.10	8.03	8.17	250		
	2	8.91	8.84	8.98	230		
	3	9.59	9.53	9.67	250		
	4	9.89	9.83	9.97	250		
	5	11.58	11.51	11.65	290	250	19.0
Aroclor-1260 COLUMN 1	1	12.06	11.99	12.13	210		
	2	12.30	12.23	12.37	210		
	3	12.65	12.59	12.73	190		
	4	13.22	13.16	13.30	220		
	5	14.29	14.23	14.37	220	210	
COLUMN 2	1	12.80	12.73	12.87	240		
	2	12.93	12.86	13.00	230		
	3	13.68	13.61	13.75	230		
	4	14.39	14.33	14.47	240		
	5	14.64	14.57	14.71	250	240	14.3
COLUMN 1	1						
	2						
	3						
	4						
	5						
COLUMN 2	1						
	2						
	3						
	4						
	5						

At least 3 peaks are required for identification of multicomponent analytes

FORM X PEST-2

10B
PESTICIDE IDENTIFICATION SUMMARY
FOR MULTICOMPONENT ANALYTES

CLIENT SAMPLE NO.

LD0828SD

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: FISCJ SDG No.: 40133

Lab Sample ID: LD0828SD Date(s) Analyzed: 08/30/99 08/30/99

Instrument ID (1): HP_01A Instrument ID (2): HP_01B

GC Column (1): DB-1701 ID: 0.32(mm) GC Column (2): DB-17 ID: 0.32(mm)

ANALYTE	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	MEAN CONCENTRATION	%D
Aroclor-1016 COLUMN 1	1	7.67	7.60	7.74	210		
	2	8.41	8.34	8.48	210		
	3	9.21	9.14	9.28	210		
	4	9.46	9.39	9.53	210		
	5	10.27	10.20	10.34	210	210	
COLUMN 2	1	8.10	8.03	8.17	250		
	2	8.91	8.84	8.98	230		
	3	9.59	9.53	9.67	250		
	4	9.90	9.83	9.97	260		
	5	11.58	11.51	11.65	290	260	23.8
Aroclor-1260 COLUMN 1	1	12.06	11.99	12.13	220		
	2	12.30	12.23	12.37	220		
	3	12.65	12.59	12.73	200		
	4	13.22	13.16	13.30	220		
	5	14.29	14.23	14.37	220	220	
COLUMN 2	1	12.80	12.73	12.87	250		
	2	12.93	12.86	13.00	240		
	3	13.68	13.61	13.75	240		
	4	14.39	14.33	14.47	230		
	5	14.64	14.57	14.71	250	240	9.1
COLUMN 1	1						
	2						
	3						
	4						
	5						
COLUMN 2	1						
	2						
	3						
	4						
	5						

At least 3 peaks are required for identification of multicomponent analytes

FORM X PEST-2

10B
PESTICIDE IDENTIFICATION SUMMARY
FOR MULTICOMPONENT ANALYTES

CLIENT SAMPLE NO.

99SW-004-1

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: FISCJ SDG No.: 40133

Lab Sample ID: 40133.01 Date(s) Analyzed: 08/30/99 08/30/99

Instrument ID (1): HP_01A Instrument ID (2): HP_01B

GC Column (1): DB-1701 ID: 0.32(mm) GC Column (2): DB-17 ID: 0.32(mm)

ANALYTE	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	MEAN CONCENTRATION	%D
Aroclor-1260 COLUMN 1	1	12.06	11.99	12.13	570		
	2	12.30	12.23	12.37	590		
	3	12.65	12.59	12.73	680		
	4	13.22	13.16	13.30	680		
	5	14.29	14.23	14.37	740	650	
COLUMN 2	1	12.80	12.73	12.87	680		
	2	12.93	12.86	13.00	770		
	3	13.68	13.61	13.75	660		
	4	14.40	14.33	14.47	1000		
	5	14.64	14.57	14.71	960	810	24.6
COLUMN 1	1						
	2						
	3						
	4						
	5						
COLUMN 2	1						
	2						
	3						
	4						
	5						
COLUMN 1	1						
	2						
	3						
	4						
	5						
COLUMN 2	1						
	2						
	3						
	4						
	5						

At least 3 peaks are required for identification of multicomponent analytes

FORM X PEST-2

10B
PESTICIDE IDENTIFICATION SUMMARY
FOR MULTICOMPONENT ANALYTES

CLIENT SAMPLE NO.

99SW-004-1DL

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: FISCJ SDG No.: 40133

Lab Sample ID: 40133.01DL Date(s) Analyzed: 08/31/99 08/31/99

Instrument ID (1): HP_01A Instrument ID (2): HP_01B

GC Column (1): DB-1701 ID: 0.32(mm) GC Column (2): DB-17 ID: 0.32(mm)

ANALYTE	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	MEAN CONCENTRATION	%D
Aroclor-1260 COLUMN 1	1	12.06	11.99	12.13	670		
	2	12.30	12.23	12.37	680		
	3	12.65	12.58	12.72	820		
	4	13.22	13.15	13.29	790		
	5	14.30	14.22	14.36	1100	810	
COLUMN 2	1	12.80	12.72	12.86	670		
	2	12.93	12.86	13.00	820		
	3	13.68	13.61	13.75	680		
	4	14.40	14.32	14.46	940		
	5	14.64	14.57	14.71	960	810	0.0
_____ COLUMN 1	1						
	2						
	3						
	4						
	5						
COLUMN 2	1						
	2						
	3						
	4						
	5						
_____ COLUMN 1	1						
	2						
	3						
	4						
	5						
COLUMN 2	1						
	2						
	3						
	4						
	5						

At least 3 peaks are required for identification of multicomponent analytes

FORM X PEST-2

10B
PESTICIDE IDENTIFICATION SUMMARY
FOR MULTICOMPONENT ANALYTES

CLIENT SAMPLE NO.

99SW-004-2

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: FISCJ SDG No.: 40133

Lab Sample ID: 40133.02 Date(s) Analyzed: 08/30/99 08/30/99

Instrument ID (1): HP_01A Instrument ID (2): HP_01B

GC Column (1): DB-1701 ID: 0.32(mm) GC Column (2): DB-17 ID: 0.32(mm)

ANALYTE	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	MEAN CONCENTRATION	%D
	1	12.06	11.99	12.13	110		
Aroclor-1260	2	12.30	12.23	12.37	120		
	3	12.65	12.59	12.73	120		
COLUMN 1	4	13.22	13.16	13.30	150		
	5	14.30	14.23	14.37	250	150	
	1	12.80	12.73	12.87	120		
	2	12.93	12.86	13.00	130		
	3	13.68	13.61	13.75	150		
COLUMN 2	4	14.40	14.33	14.47	160		
	5	14.64	14.57	14.71	170	150	0.0
	1						
	2						
	3						
COLUMN 1	4						
	5						
	1						
	2						
	3						
COLUMN 2	4						
	5						
	1						
	2						
	3						
COLUMN 1	4						
	5						
	1						
	2						
	3						
COLUMN 2	4						
	5						

At least 3 peaks are required for identification of multicomponent analytes

FORM X PEST-2

10B
PESTICIDE IDENTIFICATION SUMMARY
FOR MULTICOMPONENT ANALYTES

CLIENT SAMPLE NO.

99SW-004-4

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: FISCJ SDG No.: 40133

Lab Sample ID: 40133.04 Date(s) Analyzed: 08/30/99 08/30/99

Instrument ID (1): HP_01A Instrument ID (2): HP_01B

GC Column (1): DB-1701 ID: 0.32(mm) GC Column (2): DB-17 ID: 0.32(mm)

ANALYTE	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	MEAN CONCENTRATION	%D
Aroclor-1260 COLUMN 1	1	12.06	11.99	12.13	110		
	2	12.30	12.23	12.37	74.0		
	3	12.65	12.59	12.73	130		
	4	13.22	13.16	13.30	100		
	5	14.30	14.23	14.37	190	120	
COLUMN 2	1	12.80	12.73	12.87	79.0		
	2	12.93	12.86	13.00	87.0		
	3	13.69	13.61	13.75	190		
	4	14.40	14.33	14.47	94.0		
	5	14.64	14.57	14.71	98.0	110	9.1
COLUMN 1	1						
	2						
	3						
	4						
	5						
COLUMN 2	1						
	2						
	3						
	4						
	5						
COLUMN 1	1						
	2						
	3						
	4						
	5						
COLUMN 2	1						
	2						
	3						
	4						
	5						

At least 3 peaks are required for identification of multicomponent analytes

10B
PESTICIDE IDENTIFICATION SUMMARY
FOR MULTICOMPONENT ANALYTES

CLIENT SAMPLE NO.

99SW-004-4MS

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: FISCJ SDG No.: 40133

Lab Sample ID: 40133.04MS Date(s) Analyzed: 08/30/99 08/30/99

Instrument ID (1): HP_01A Instrument ID (2): HP_01B

GC Column (1): DB-1701 ID: 0.32(mm) GC Column (2): DB-17 ID: 0.32(mm)

ANALYTE	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	MEAN CONCENTRATION	%D
Aroclor-1016 COLUMN 1	1	7.67	7.60	7.74	240		
	2	8.41	8.34	8.48	240		
	3	9.21	9.14	9.28	250		
	4	9.46	9.39	9.53	240		
	5	10.27	10.20	10.34	240	240	
COLUMN 2	1	8.10	8.03	8.17	280		
	2	8.91	8.84	8.98	260		
	3	9.60	9.53	9.67	290		
	4	9.90	9.83	9.97	280		
	5	11.58	11.51	11.65	350	290	20.8
Aroclor-1260 COLUMN 1	1	12.06	11.99	12.13	320		
	2	12.30	12.23	12.37	310		
	3	12.65	12.59	12.73	350		
	4	13.22	13.16	13.30	320		
	5	14.30	14.23	14.37	430	350	
COLUMN 2	1	12.80	12.73	12.87	330		
	2	12.93	12.86	13.00	320		
	3	13.68	13.61	13.75	440		
	4	14.40	14.33	14.47	380		
	5	14.64	14.57	14.71	400	370	5.7
COLUMN 1	1						
	2						
	3						
	4						
	5						
COLUMN 2	1						
	2						
	3						
	4						
	5						

At least 3 peaks are required for identification of multicomponent analytes

FORM X PEST-2

10B
PESTICIDE IDENTIFICATION SUMMARY
FOR MULTICOMPONENT ANALYTES

CLIENT SAMPLE NO.

99SW-004-4MSD

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: FISCJ SDG No.: 40133

Lab Sample ID: 40133.04MSD Date(s) Analyzed: 08/30/99 08/30/99

Instrument ID (1): HP_01A Instrument ID (2): HP_01B

GC Column (1): DB-1701 ID: 0.32(mm) GC Column (2): DB-17 ID: 0.32(mm)

ANALYTE	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	MEAN CONCENTRATION	%D
Aroclor-1016 COLUMN 1	1	7.67	7.60	7.74	250		
	2	8.41	8.34	8.48	250		
	3	9.21	9.14	9.28	260		
	4	9.46	9.39	9.53	240		
	5	10.27	10.20	10.34	250	250	
COLUMN 2	1	8.10	8.03	8.17	290		
	2	8.91	8.84	8.98	290		
	3	9.60	9.53	9.67	300		
	4	9.90	9.83	9.97	290		
	5	11.58	11.51	11.65	380	310	24.0
Aroclor-1260 COLUMN 1	1	12.06	11.99	12.13	350		
	2	12.30	12.23	12.37	340		
	3	12.66	12.59	12.73	380		
	4	13.22	13.16	13.30	350		
	5	14.30	14.23	14.37	430	370	
COLUMN 2	1	12.80	12.73	12.87	360		
	2	12.93	12.86	13.00	350		
	3	13.69	13.61	13.75	540		
	4	14.40	14.33	14.47	410		
	5	14.64	14.57	14.71	420	420	13.5
_____ COLUMN 1	1						
	2						
	3						
	4						
	5						
COLUMN 2	1						
	2						
	3						
	4						
	5						

At least 3 peaks are required for identification of multicomponent analytes

FORM X PEST-2

Waste characterization utilized RFI sampling data along with the sampling analyses that was performed during the delineation of grids G08 and G038. RFI and delineation sampling data was provided to Oakridge Landfill Waste Management Company for approval and acceptance. Tables C-1 & C-3 of Appendix A show delineation sample results of PCB concentrations were all <10 ppm.

CHARLESTON - ZONE H
NAVAL BASE CHARLESTON ZONE H (NBCH)
Soil Data for Area GDHSB007 and GDHSB038

APX9-METAL

SAMPLE ID ------->	GDH-C-B007-01
ORIGINAL ID ----->	GDHCB00701
LAB SAMPLE ID --->	41668-001
ID FROM REPORT -->	092801
SAMPLE DATE ----->	09/22/94
DATE EXTRACTED -->	10/05/94
DATE ANALYZED --->	10/06/94
MATRIX ---------->	Soil
UNITS ---------->	MG/KG

CAS #	Parameter	APX06	VAL
7439-92-1	Lead	83.3	J
7439-97-6	Mercury	0.18	
7440-02-0	Nickel	6.6	
7440-22-4	Silver	0.33	U
7440-31-5	Tin	1.7	U
7440-36-0	Antimony	1.5	UJ
7440-38-2	Arsenic	6.	
7440-39-3	Barium	22.7	U
7440-41-7	Beryllium	0.45	J
7440-43-9	Cadmium	0.2	U
7440-47-3	Chromium	25.9	
7440-48-4	Cobalt	2.9	J
7440-50-8	Copper	19.3	U
7440-62-2	Vanadium	26.9	
7440-66-6	Zinc	85.2	UJ
7782-49-2	Selenium	0.14	J
7440-28-0	Thallium	0.38	J

*** Validation Complete ***

CHARLESTON - ZONE H
NAVAL BASE CHARLESTON ZONE H (NBCH)
Soil Data for Area GDHSB007 and GDHSB038

SW846-META

SAMPLE ID ------->	GDH-S-B007-01		GDH-S-B007-02		GDH-S-B038-01		GDH-S-B038-02		
ORIGINAL ID ----->	GDHSB00701		GDHSB00702		GDHSB03801		GDHSB03802		
LAB SAMPLE ID --->	41665-051		41665-052		41742-039		41742-040		
ID FROM REPORT -->	092818		092819		GDHSB03801		GDHSB03802		
SAMPLE DATE ----->	09/27/94		09/27/94		10/05/94		10/05/94		
DATE EXTRACTED -->	10/05/94		10/05/94		10/11/94		10/11/94		
DATE ANALYZED --->	10/06/94		10/06/94		10/17/94		10/18/94		
MATRIX ---------->	Soil		Soil		Soil		Soil		
UNITS ---------->	MG/KG		MG/KG		MG/KG		MG/KG		
CAS # Parameter	CHS15	VAL	CHS15	VAL	CHS18	VAL	CHS18	VAL	
7429-90-5 Aluminum	8510.	J	6140.	J	5640.		13500.		
7439-89-6 Iron	10600.		12100.		5630.		12000.		
7439-92-1 Lead	74.		37.2		36.2		16.		
7440-02-0 Nickel	7.9		5.2		4.3		7.7		
7440-09-7 Potassium	769.		563.		333.	J	828.		
7440-22-4 Silver	0.29	UJ	0.21	UJ	0.74	J	0.34	UJ	
7440-23-5 Sodium	136.	J	161.	J	90.7	J	144.		
7440-28-0 Thallium	0.33	U	0.24	U	0.3	UJ	0.46	J	
7440-36-0 Antimony	1.4	U	1.5	J	1.3	U	1.7	U	
7440-38-2 Arsenic	6.3		7.3		11.8		9.6		
7440-39-3 Barium	17.		11.2		14.		19.3		
7440-41-7 Beryllium	0.45	J	0.41		0.26	J	0.58	J	
7440-43-9 Cadmium	0.17	U	0.88		0.19	J	0.2	U	
7440-48-4 Cobalt	2.7	J	2.3		1.4	J	3.	J	
7440-50-8 Copper	19.		23.5		8.2		8.4		
7440-62-2 Vanadium	25.1		18.		14.3		27.9		
7440-66-6 Zinc	92.2		233.		202.		50.		
7782-49-2 Selenium	0.33	U	0.24	U	0.3	U	0.4	U	
7439-97-6 Mercury	0.83	J	1.1	J	0.06	J	0.11	J	
7439-95-4 Magnesium	1790.		1180.		888.		1780.		
7439-96-5 Manganese	239.		153.		82.		124.		
7440-70-2 Calcium	63400.		11800.		32700.		15600.		
7440-47-3 Chromium	27.1		19.6		15.		21.8		

*** Validation Complete ***

CHARLESTON - ZONE H
NAVAL BASE CHARLESTON ZONE H (NBCH)
Soil Data for Area GDHSB007 and GDHSB038

SW846-PEST

	SAMPLE ID ------->	G38-S-B002-01		G38-S-B002-02		G38-S-B003-01		G38-S-B003-02		GDH-S-B007-01		GDH-S-B007-02	
	ORIGINAL ID ----->	GDHSB09401		GDHSB09402		GDHSB09601		GDHSB09602		GDHSB00701		GDHSB00702	
	LAB SAMPLE ID --->	42980-001		42980-002		42968-003		42968-004		41665-032		41665-033	
	ID FROM REPORT -->	GDHSB09401		GDHSB09402		GDHSB09601		GDHSB09602		092818		092819	
	SAMPLE DATE ---->	02/03/95		02/03/95		02/02/95		02/02/95		09/27/94		09/27/94	
	DATE EXTRACTED -->	02/08/95		02/08/95		02/08/95		02/08/95		10/05/94		10/05/94	
	DATE ANALYZED --->	02/09/95		02/17/95		02/09/95		02/09/95		10/19/94		10/19/94	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	UG/KG		UG/KG		UG/KG		UG/KG		UG/KG		UG/KG	
CAS #	Parameter	CHS34	VAL	CHS34	VAL	CHS33	VAL	CHS33	VAL	CHS15	VAL	CHS15	VAL
11097-69-1	Aroclor-1254	50.	U	60.	U	200.	U	60.	U	200.	U	40.	U
11104-28-2	Aroclor-1221	50.	U	60.	U	200.	U	60.	U	200.	U	40.	U
11141-16-5	Aroclor-1232	50.	U	60.	U	200.	U	60.	U	200.	U	40.	U
12672-29-6	Aroclor-1248	50.	U	60.	U	200.	U	60.	U	200.	U	40.	U
11096-82-5	Aroclor-1260	50.	U	60.	U	1100.		60.	U	2600.		40.	U
12674-11-2	Aroclor-1016	50.	U	60.	U	200.	U	60.	U	200.	U	40.	U
53469-21-9	Aroclor-1242	50.	U	60.	U	200.	U	60.	U	200.	U	40.	U
1024-57-3	Heptachlor epoxide	NR		600.	U	NR		NR		20.	U	4.	U
1031-07-8	Endosulfan sulfate	NR		1000.	U	NR		NR		40.	U	9.	U
309-00-2	Aldrin	NR		600.	U	NR		NR		20.	U	4.	U
319-84-6	alpha-BHC	NR		600.	U	NR		NR		20.	U	4.	U
319-85-7	beta-BHC	NR		600.	U	NR		NR		20.	U	4.	U
319-86-8	delta-BHC	NR		600.	U	NR		NR		20.	U	4.	U
33213-65-9	Endosulfan II	NR		1000.	U	NR		NR		40.	U	9.	U
50-29-3	4,4'-DDT	NR		1000.	U	NR		NR		140.	J	9.	U
5103-71-9	alpha-Chlordane	NR		600.	U	NR		NR		20.	U	4.	U
5103-74-2	gamma-Chlordane	NR		600.	U	NR		NR		20.	U	4.	U
53494-70-5	Endrin ketone	NR		1000.	U	NR		NR		40.	U	9.	U
58-89-9	gamma-BHC (Lindane)	NR		600.	U	NR		NR		20.	U	4.	U
60-57-1	Dieldrin	NR		600.	U	NR		NR		20.	U	4.	U
72-20-8	Endrin	NR		600.	U	NR		NR		20.	U	4.	U
72-43-5	Methoxychlor	NR		6000.	U	NR		NR		200.	U	40.	U
72-54-8	4,4'-DDD	NR		3600.		NR		NR		40.	U	9.	U
72-55-9	4,4'-DDE	NR		5700.		NR		NR		20.	U	4.	U
7421-93-4	Endrin aldehyde	NR		1000.	U	NR		NR		100.		9.	U
76-44-8	Heptachlor	NR		600.	U	NR		NR		20.	U	4.	U
8001-35-2	Toxaphene	NR		30000.	U	NR		NR		800.	U	200.	U
959-98-8	Endosulfan I	NR		600.	U	NR		NR		20.	U	4.	U
57-74-9	Chlordane	NR		NR		NR		NR		NR		NR	

*** Validation complete ***

CHARLESTON - ZONE H
NAVAL BASE CHARLESTON ZONE H (NBCH)
Soil Data for Area GDHSB007 and GDHSB038

SW846-PEST

SAMPLE ID ------->	GDH-S-B038-01		GDH-S-B038-02					
ORIGINAL ID ----->	GDHSB03801		GDHSB03802					
LAB SAMPLE ID --->	41742-021		41742-022					
ID FROM REPORT -->	GDHSB03801		GDHSB03802					
SAMPLE DATE ----->	10/05/94		10/05/94					
DATE EXTRACTED -->	10/14/94		10/14/94					
DATE ANALYZED --->	11/01/94		11/01/94					
MATRIX ---------->	Soil		Soil					
UNITS ---------->	UG/KG		UG/KG					
CAS # Parameter	CHS18	VAL	CHS18	VAL				
11097-69-1 Aroclor-1254	400.	U	50.	U				
11104-28-2 Aroclor-1221	400.	U	50.	U				
11141-16-5 Aroclor-1232	400.	U	50.	U				
12672-29-6 Aroclor-1248	400.	U	50.	U				
11096-82-5 Aroclor-1260	4000.		290.					
12674-11-2 Aroclor-1016	400.	U	50.	U				
53469-21-9 Aroclor-1242	400.	U	50.	U				
1024-57-3 Heptachlor epoxide	40.	U	5.	U				
1031-07-8 Endosulfan sulfate	80.	U	10.	U				
309-00-2 Aldrin	40.	U	5.	U				
319-84-6 alpha-BHC	40.	U	5.	U				
319-85-7 beta-BHC	40.	U	5.	U				
319-86-8 delta-BHC	40.	U	5.	U				
33213-65-9 Endosulfan II	80.	U	10.	U				
50-29-3 4,4'-DDT	180.		21.					
5103-71-9 alpha-Chlordane	40.	U	5.	U				
5103-74-2 gamma-Chlordane	40.	U	5.	U				
53494-70-5 Endrin ketone	80.	U	10.	U				
58-89-9 gamma-BHC (Lindane)	40.	U	5.	U				
60-57-1 Dieldrin	40.	U	5.	U				
72-20-8 Endrin	40.	U	5.	U				
72-43-5 Methoxychlor	400.	U	50.	U				
72-54-8 4,4'-DDD	80.	U	10.	U				
72-55-9 4,4'-DDE	40.	U	19.					
7421-93-4 Endrin aldehyde	80.	U	10.	U				
76-44-8 Heptachlor	40.	U	5.	U				
8001-35-2 Toxaphene	2000.	U	200.	U				
959-98-8 Endosulfan I	40.	U	5.	U				
57-74-9 Chlordane	NR		NR					

*** Validation Complete ***

CHARLESTON - ZONE H
NAVAL BASE CHARLESTON ZONE H (NBCH)
Grid-Based Soil Sample Analytical Data

SW846-PEST

	SAMPLE ID ------->	GDH-S-B004-01		GDH-S-B004-02		GDH-S-B005-01		GDH-S-B006-01		GDH-S-B006-02		GDH-S-B007-01	
	ORIGINAL ID ----->	GDHSB00401		GDHSB00402		GDHSB00501		GDHSB00601		GDHSB00602		GDHSB00701	
	LAB SAMPLE ID --->	41665-026		41665-027		41665-028		41665-030		41665-031		41665-032	
	ID FROM REPORT -->	092812		092813		092814		092816		092817		092818	
	SAMPLE DATE ----->	09/27/94		09/27/94		09/27/94		09/27/94		09/27/94		09/27/94	
	DATE EXTRACTED -->	10/05/94		10/05/94		10/05/94		10/05/94		10/05/94		10/05/94	
	DATE ANALYZED --->	10/17/94		10/17/94		10/17/94		10/17/94		10/17/94		10/19/94	
	MATRIX ---------->	Soil		Soil		Soil		Soil		Soil		Soil	
	UNITS ---------->	UG/KG		UG/KG		UG/KG		UG/KG		UG/KG		UG/KG	
CAS #	Parameter	CHS15	VAL	CHS15	VAL	CHS15	VAL	CHS15	VAL	CHS15	VAL	CHS15	VAL
11097-69-1	Aroclor-1254	40.	U	50.	U	35.	J	40.	U	40.	U	200.	U
11104-28-2	Aroclor-1221	40.	U	50.	U	40.	U	40.	U	40.	U	200.	U
11141-16-5	Aroclor-1232	40.	U	50.	U	40.	U	40.	U	40.	U	200.	U
12672-29-6	Aroclor-1248	40.	U	50.	U	40.	U	40.	U	40.	U	200.	U
11096-82-5	Aroclor-1260	40.	U	50.	U	40.	U	40.	U	40.	U	200.	U
12674-11-2	Aroclor-1016	40.	U	50.	U	40.	U	40.	U	40.	U	2600.	
53469-21-9	Aroclor-1242	40.	U	50.	U	40.	U	40.	U	40.	U	200.	U
1024-57-3	Heptachlor epoxide	4.	U	5.	U	4.	U	4.	U	4.	U	20.	U
1031-07-8	Endosulfan sulfate	9.	U	9.	U	8.	U	7.	U	7.	U	40.	U
309-00-2	Aldrin	4.	U	5.	U	4.	U	4.	U	4.	U	20.	U
319-84-6	alpha-BHC	4.	U	5.	U	4.	U	4.	U	4.	U	20.	U
319-85-7	beta-BHC	4.	U	5.	U	4.	U	4.	U	4.	U	20.	U
319-86-8	delta-BHC	4.	U	5.	U	4.	U	4.	U	4.	U	20.	U
33213-65-9	Endosulfan II	9.	U	9.	U	8.	U	7.	U	7.	U	40.	U
50-29-3	4,4'-DDT	9.	U	9.	U	8.	U	7.	U	7.	U	140.	J
5103-71-9	alpha-Chlordane	4.	U	5.	U	4.	U	4.	U	4.	U	20.	U
5103-74-2	gamma-Chlordane	4.	U	5.	U	4.	U	4.	U	4.	U	20.	U
53494-70-5	Endrin ketone	9.	U	9.	U	8.	U	7.	U	7.	U	40.	U
58-89-9	gamma-BHC (Lindane)	4.	U	5.	U	4.	U	4.	U	4.	U	20.	U
60-57-1	Dieldrin	4.	U	5.	U	4.	U	4.	U	4.	U	20.	U
72-20-8	Endrin	4.	U	5.	U	4.	U	4.	U	4.	U	20.	U
72-43-5	Methoxychlor	40.	U	50.	U	40.	U	40.	U	40.	U	200.	U
72-54-8	4,4'-DDD	9.	U	9.	U	8.	U	7.	U	7.	U	40.	U
72-55-9	4,4'-DDE	4.	U	5.	U	8.		4.	U	4.	U	20.	U
7421-93-4	Endrin aldehyde	9.	U	9.	U	8.	U	7.	U	7.	U	100.	
76-44-8	Heptachlor	4.	U	5.	U	4.	U	4.	U	4.	U	20.	U
8001-35-2	Toxaphene	200.	U	200.	U	200.	U	100.	U	100.	U	800.	U
959-98-8	Endosulfan I	4.	U	5.	U	4.	U	4.	U	4.	U	20.	U
57-74-9	Chlordane	NR		NR		NR		NR		NR		NR	

*** Validatic Complete ***

GRID G07 PICTURES

(In order of appearance in report document)

GRID G07

1. Northwest view of site prior to removal activities.
2. View of excavation, utilities and Building 644 Annex in background.
3. Another view of excavation and Building 644 Annex in background.
4. View of end of excavation with water piping, sewage manholes and trailer protrusions in the background.
5. View of site following removal and restoration activities.

GRID G038

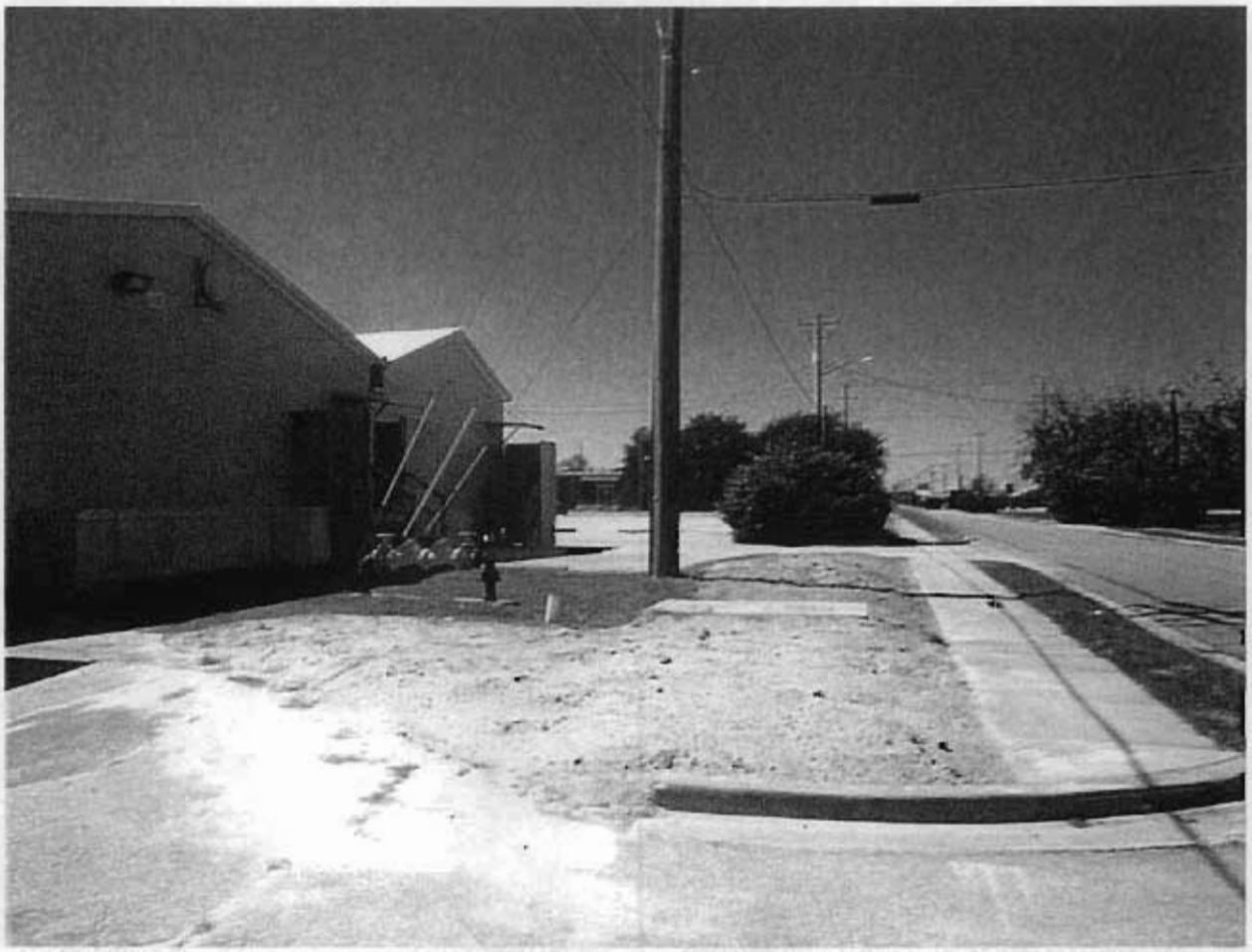
1. View of site prior to excavation, southeast of Building 1135 (formerly Building NS 84).
2. View of site during excavation activities looking northeast.
3. Sidewall of excavation with some asphalt removed.
4. Final view of site following restoration.

Northwest view of G07 site prior to removal activities

View of G07 excavation, utilities with Building 644 Annex in background.

Another view of G07 excavation site.

View of G07 excavation with sewer system manholes in background.



View of G07 site following removal activities.

View of G038 site southeast of Building 1135 (formerly NS 84), prior to excavation

View of G038 excavation in progress with the disposal truck staged on plastic.

View of sidewall of G038 excavation with some asphalt removed.

Final view of G038 after grading and seeding.

OAKRIDGE LANDFILL
a WASTE MANAGEMENT COMPANY

SPECIAL WASTE MANIFEST

Approval # OR 9908013
Expiration 11/18/99

Generator: ENVIRONMENTAL DETACHMENT CHARLESTON

Account Number: 490-189

Location/Address: GRID GO7& GO8, ZONE H (GO38) (VT) CHARLESTON SC (10)

Tele Number: 843-743-6777 **Contact:** VIRGINIA THOMAS

Generator Signature: Virginia Thomas

********** TO BE COMPLETED BY TRANSPORTER **********

Transporter of Waste: BUTLERWARE TRUCKING

Date: 8-19-99 **Truck #** 27

Driver's Signature: Jimmy Moody

********** TO BE COMPLETED BY OAKRIDGE LANDFILL **********

Disposal Site: Oakridge Landfill DWP 130

Description of Waste: SOL / PCB CONTAMINATED SOIL

Ticket Number: 109811 **Tonnage:** 28.02

Received By: [illegible] **Date:** 8/19/99

2185 HWY 78, (POB 145), DORCHESTER, SC 29437
TEL: 843-563-2007, FAX: 843-563-4150

OAKRIDGE LANDFILL
a WASTE MANAGEMENT COMPANY

SPECIAL WASTE MANIFEST

Approval # OR 9908013
Expiration 11/18/99

Generator: ENVIRONMENTAL DETACHMENT CHARLESTON

Account Number: 490-189

Location/Address: GRID GO7& ~~G08~~ G038, ZONE H CHARLESTON SC (10)

Tele Number: 843-743-6777 **Contact:** VIRGINIA THOMAS VT

Generator Signature: Virginia Thomas

********** TO BE COMPLETED BY TRANSPORTER **********

Transporter of Waste: BUTLERWARE TRUCKING

Date: 8-19-99 **Truck #** 19

Driver's Signature: Leroy

********** TO BE COMPLETED BY OAKRIDGE LANDFILL **********

Disposal Site: Oakridge Landfill DWP 130

Description of Waste: SOL / PCB CONTAMINATED SOIL

Ticket Number: 109919 **Tonnage:** 28.08

Received By: J Carter **Date:** 8/19/99

2183 HWY 78, (POB 145), DORCHESTER, SC. 29437
TEL: 843-563-2607, FAX: 843-563-4158

OAKRIDGE LANDFILL
a WASTE MANAGEMENT COMPANY

SPECIAL WASTE MANIFEST

Approval # OR 9908013
Expiration 11/18/99

Generator: ENVIRONMENTAL DETACHMENT CHARLESTON

Account Number: 490-189

Location/Address: GRID GO7& ~~608~~ 6038, ZONE H CHARLESTON SC (10)

Tele Number: 843-743-6777 **Contact:** VIRGINIA THOMAS VT

Generator Signature: Virginia Thomas

********** TO BE COMPLETED BY TRANSPORTER **********

Transporter of Waste: BUTLERWARE TRUCKING

Date: 8-19-98 **Truck #** 27

Driver's Signature: [illegible]

********** TO BE COMPLETED BY OAKRIDGE LANDFILL **********

Disposal Site: Oakridge Landfill DWP 130

Description of Waste: SOIL / PCB CONTAMINATED SOIL

Ticket Number: 165944 **Tonnage:** 25.74

Received By: [illegible] **Date:** 8/19/98

2183 HWY 78, (POB 145), DORCHESTER, SC. 29437
TEL: 843-563-2607, FAX: 843-563-4158

OAKRIDGE LANDFILL
a WASTE MANAGEMENT COMPANY

SPECIAL WASTE MANIFEST

Approval # OR 9908013
Expiration 11/18/99

Generator: ENVIRONMENTAL DETACHMENT CHARLESTON

Account Number: 490-189

Location/Address: GRID GO7~~&GO8~~ GO8 VT, ZONE H CHARLESTON SC (10)

Tele Number: 843-743-6777 **Contact:** VIRGINIA THOMAS

Generator Signature: _____

********** TO BE COMPLETED BY TRANSPORTER **********

Transporter of Waste: BUTLERWARE TRUCKING

Date: 8.19.99 **Truck #** 19

Driver's Signature: Perry

********** TO BE COMPLETED BY OAKRIDGE LANDFILL **********

Disposal Site: Oakridge Landfill DWP 130

Description of Waste: SOL / PCB CONTAMINATED SOIL

Ticket Number: 109955 **Tonnage:** 26.43

Received By: NCarter **Date:** 8/19/99

2183 HWY 78, (POB 146), DORCHESTER, SC 29437
TEL: 843-563-2607, FAX: 843-563-4158

OAKRIDGE LANDFILL
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SPECIAL WASTE MANIFEST

Approval # OR 9908013
Expiration 11/18/99

Generator: ENVIRONMENTAL DETACHMENT CHARLESTON

Account Number: 490-189

Location/Address: GRID GO7& GO8, ZONE H (G038) CHARLESTON SC (10)

Tele Number: 843-743-6777 (VT) **Contact:** VIRGINIA THOMAS

Generator Signature: Virginia Thomas

********** TO BE COMPLETED BY TRANSPORTER **********

Transporter of Waste: BUTLERWARE TRUCKING

Date: 8-19-99 **Truck #** 87

Driver's Signature: Jim Moody

********** TO BE COMPLETED BY OAKRIDGE LANDFILL **********

Disposal Site: Oakridge Landfill DWP 130

Description of Waste: SOIL / PCB CONTAMINATED SOIL

Ticket Number: 109978 **Tonnage:** 27.70

Received By: N Carter **Date:** 8/19/99

2183 HWY 78, (POB 146), DORCHESTER, SC. 29437
TEL: 843-863-2607, FAX: 843-563-4158

OAKRIDGE LANDFILL
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SPECIAL WASTE MANIFEST

Approval # OR 9908013
Expiration 11/18/99

Generator: ENVIRONMENTAL DETACHMENT CHARLESTON

Account Number: 490-189

Location/Address: GRID G07 & ~~G08~~ G08, ZONE H CHARLESTON SC (10)

Tele Number: 843-743-6777 **Contact:** VIRGINIA THOMAS

Generator Signature: Virginia Thomas

********** TO BE COMPLETED BY TRANSPORTER **********

Transporter of Waste: BUTLERWARE TRUCKING

Date: 8.19.99 **Truck #** 19

Driver's Signature: [illegible]

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* ******** TO BE COMPLETED BY OAKRIDGE LANDFILL **********

Disposal Site: Oakridge Landfill DWP 130

Description of Waste: SOIL / PCB CONTAMINATED SOIL

Ticket Number: 109981 **Tonnage:** 31.42

Received By: N Carter **Date:** 8/19/99

2183 HWY 78, (POB 145), DORCHESTER, SC 29437
TEL: 843-563-2697, FAX: 843-563-4158

OAKRIDGE LANDFILL
a WASTE MANAGEMENT COMPANY

SPECIAL WASTE MANIFEST

Approval # OR 9908013
Expiration 11/18/99

Generator: ENVIRONMENTAL DETACHMENT CHARLESTON

Account Number: 490-189

Location/Address: GRID G07& ~~G08~~ G08, ZONE H CHARLESTON SC (10)

VT

Tele Number: 843-743-6777 **Contact:** VIRGINIA THOMAS

Generator Signature: Virginia [illegible]

********** TO BE COMPLETED BY TRANSPORTER **********

Transporter of Waste: BUTLERWARE TRUCKING

Date: 8-27-99 **Truck #** 27

Driver's Signature: [illegible]

********** TO BE COMPLETED BY OAKRIDGE LANDFILL **********

Disposal Site: Oakridge Landfill DWP 130

Description of Waste: SOIL / PCB CONTAMINATED SOIL

Ticket Number: 110781 **Tonnage:** 25.07

Received By: [illegible] **Date:** 8/27/99

2183 HWY 78, (POB 145), DORCHESTER, SC. 29437
TEL: 843-563-2607, FAX: 843-563-4150

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To Virginia Thomas	From Nicole Carter
Co. Env. Detach	Co. Oakridge
Dept.	Phone # 800 952 5814
Fax # 2028011	Fax # 5633375

SPECIAL WASTE MANIFEST

Approval # OR 9908013
Expiration 11/18/99

Generator: ENVIRONMENTAL DETACHMENT CHARLESTON

Account Number: 490-189

Location/Address: GRID G07&~~H06~~ 6&38, ZONE H CHARLESTON SC (10)

Tele Number: 843-743-6777 **Contact:** VIRGINIA THOMAS

Generator Signature: Virginia Thomas

********** TO BE COMPLETED BY TRANSPORTER **********

Transporter of Waste: BUTLERWARE TRUCKING

Date: 8-27-99 **Truck #** 27

Driver's Signature: [illegible]

********** TO BE COMPLETED BY OAKRIDGE LANDFILL **********

Disposal Site: Oakridge Landfill DWP 130

Description of Waste: SOIL/ PCB CONTAMINATED SOIL

Ticket Number: 110847 **Tonnage:** 22.43

Received By: N Carter **Date:** 8/27/99

2185 HWY 78, (POB 140), DORCHESTER, SC. 29437
TEL: 843-563-2007, FAX: 843-563-4168