prepared for:

Delaware Solid Waste Authority
1128 S. Bradford Street
Dover, Delaware 19903

Volume 1:
Permit Application

Cherry Island Landfill
Expansion Project
Wilmington, Delaware

prepared by:

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Project No. ME0250
April 2003 -
Revised September 2003
Revised June 2004

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PERMIT APPLICATION CHECKLIST

Cherry Island Landfill
Wilmington, Delaware

DESCRIPTION	LOCATION WHERE ADDRESSED IN PERMIT APPLICATION
SECTION 4: PERMIT REQUIREMENTS AND ADMINISTRATIVE PROCEDURES	
4.A GENERAL PROVISIONS	
1. Permit Required	
a. No person shall engage in the construction, operation, material alteration, or closure of a solid waste facility, unless exempted from these regulations under Section 2.C, without first having obtained a permit from the Department.	Part II
2. Financial Responsibility	
a. Federal and State government entities that have general taxing powers and whose debts and liabilities also are those of the Federal or State government are exempt from the requirements for financial responsibility. [In addition, facilities owned/or operated by the Delaware Solid Waste Authority (DSWA) are currently exempt from the requirements of financial responsibility.]	Part XII
4.B APPLICATION PROCEDURES FOR SANITARY AND INDUSTRIAL LANDFILLS	
1. New Facilities	
a. Construction	
Any person desiring to obtain a permit to construct a sanitary or industrial landfill must submit a letter of intent to the Department.	Part II
The letter of intent shall be followed by the submission, by the applicant, of the following additional information:	

(continued)

DESCRIPTION			LOCATION WHERE ADDRESSED IN PERMIT APPLICATION
	(1)	"Application to Construct a Solid Waste Facility," form provided by the Department.	Part III
	(2)	Proof of ownership of the property.	Part IV
	(3)	A plan of operation	Part V
	(4)	An engineering report	Part VI
	(5)	A hydrogeological assessment	Part VII
	(6)	An environmental assessment	Part VIII
	(7)	Topographical and site location maps	Part IX
	(8)	Proof that all applicable zoning approvals and all appropriate federal, state, and local environmental permits have been obtained.	Part X
	(9)	Closure plan as described in Section Part 5.J.3 or 6.J.3, as appropriate.	Part XI
	(10)	Proof of financial responsibility for closure and post-closure care, as described in Section 4.A.11, b and d.	Part XII
	(11)	Any other related reports, date, maps, or information that the Department requires.	N/A
b.	To obtain an Operating Permit, the owner or operator must submit [an operation plan] to the Department prior to entering into the 90-day trial period.		Part V
c.	Any person wishing to obtain a closure permit must submit the following to the Department:		
	(1)	Notification of intent to close.	Part XI, 1.4.2
	(2)	Closure plan as described in Section 5.J.3 or 6.J.3, as appropriate.	Part XI

(continued)

DESCRIPTION	LOCATION WHERE ADDRESSED IN PERMIT APPLICATION
SECTION 5: SANITARY LANDFILLS	
5.A SITING	
[Proposed permit modification is a vertical expansion. Siting criteria were addressed during the original permit application for the site.]	Volume 15
5.B DESIGN	
Sanitary landfills shall be planned and designed by a Professional Engineer registered in Delaware.	Part VIb, § 1.1
5.B.2 Minimum Design Requirements	
a. All sanitary landfills shall be designed to minimize contaminant releases and to prevent significant adverse impacts on human health or the environment	Part VIb, § 4.4
b. A liner and internal leachate collection system which meet the requirements of Sections 5.C and 5.D of these regulations respectively.	Part VIb, § 4.2, § 4.3
c. A setback area, including a buffer zone with appropriate screening	Part VIb, § 2.3
d. A gas control system that meets the requirements of Section 5.E.	Part VIb, § 2.3, §4.4
e. A surface water management system that meets the requirements of Section 5.F.	Part VIb, § 2.3, §4.5
f. A ground water monitoring system that meets the requirements of Section 5.G.	Part VII
g. A capping system that meets the requirements of Section 5.H.	Part VIb, § 4.5; Part XI
5.C LINER	
5.C.1 General Provisions	
a. An impermeable liner shall be provided at all sanitary landfills	Part VIb, § 4.2
b. The Department reserves the right to	N/A

(continued)

DESCRIPTION	LOCATION WHERE ADDRESSED IN PERMIT APPLICATION
set a more stringent liner requirement	
c. The bottom of the liner (of the secondary liner, in a double liner system) shall be at least five (5) feet above the seasonal high water table as measured in the uppermost aquifer beneath the landfill.	Part VIb, § 4.2.5.2
d. All liners shall be prepared, constructed, and installed in accordance with a quality assurance plan included in the engineering report [(Section 4.B.1.a(4)] and approved by the Department.	Part VIb, § 8
5.C.2 Liner Characteristics	
a. Composite Liner	
A composite liner must have, as a minimum:	
(1) A primary (upper) liner which meets the following:	Part VIb, § 4.2.4
(a) Is at least 45 mils thick.	
(b) Is constructed of materials that have appropriate chemical properties and sufficient strength and thickness to prevent failure due to physical contact with the leachate to which it is exposed, climatic conditions, the stresses of installation, and the stresses of daily operation.	
(c) Is made of synthetic material that meets minimum requirements of the National Sanitation Foundation's publication, "Standard Number 54-1993, Flexible Membrane Liners" for membrane materials covered by this standard, or of other materials of equal or better performance as approved by the Department.	
(d) Is chemically resistant to the waste and leachate managed at the facility.	
(e) Is compounded from first quality virgin materials.	
(f) Is free of pinholes, blisters, holes, and contaminants, which include, but are not limited to, wood, paper, metal and non-dispersed ingredients.	

(continued)

DESCRIPTION	LOCATION WHERE ADDRESSED IN PERMIT APPLICATION
(2) A secondary (lower) liner composed of:	Part VIb, § 4.2.4
(a) Compacted clay at least two feet thick with a hydraulic conductivity no greater than 1×10^{-7} cm/sec, or	
(b) An equivalent material or combination of materials acceptable to the Department	
5.D LEACHATE COLLECTION, TREATMENT, DISPOSAL, AND MONITORING	
1. General Provisions	
a. All sanitary landfills shall be designed and constructed to include a leachate collection system, a leachate treatment and disposal system, and a leachate monitoring system.	Part VIb, § 4.3
b. The leachate systems shall be constructed, installed, and maintained in accordance with a Department-approved quality assurance plan.	Part VIb, § 8
c. The owner or operator shall keep and maintain documentation for the quality assurance procedures through the post-closure care period of the facility.	Part VIb, § 2.8
2. Leachate Collection	
a. Minimum Design Specifications	
(1) the leachate collection system shall be designed to operate without clogging through the post-closure care period of the facility.	Part VIb, § 4.3.3
(2) All elements of the system (pipes, sumps, pumps, etc.) shall be sized according to water balance calculations and shall be capable of handling peak flows.	Part VIb, § 4.3.3
(3) Collection pipes shall be sized and spaced to efficiently remove leachate from the bottom	Part VIb, § 4.3.3

(continued)

DESCRIPTION	LOCATION WHERE ADDRESSED IN PERMIT APPLICATION
of the waste and the side-walls of the cell. The capacity of the mains shall be at least equal to the sum of the capacities of the laterals.	
(4) The pipes shall be designed to withstand the weight, stresses, and disturbances from the overlying wastes, waste cover materials, equipment operation, and vehicular traffic.	Part VIb, § 4.3.3
(5) The collection pipes shall be designed to drain by gravity to a sump system. Sumps must function automatically and shall contain a conveyance system for the removal of leachate.	Part VIb, § 4.3.3
(6) Manholes or cleanout risers shall be located along the perimeter of the leachate collection system. The number and spacing of the manholes shall be sufficient to insure proper maintenance of the system by water jet flushing or an equivalent method.	Part VIb, § 4.3.3
(7) Innovative leachate collection system incorporating alternative designs may be used, after approval by the Department, if they are shown to be equivalent to or more effective than the specific design.	Part VIb, § 4.3
b. Construction Standards	
(1) The leachate collection system shall be installed immediately above an impermeable liner and at the bottom of a drainage layer. The drainage layer shall be at least 12 inches thick with a hydraulic conductivity not less than 1 x 10-3 cm/sec and a minimum controlling slope of two (2) percent. Alternate materials may be used for the drainage layer with prior written approval of the Department.	Part VIb, § 4.3.3.3
(2) Tests shall be performed on the soil proposed for use in the drainage layer, and all data shall be submitted to the Department prior to construction of the drainage layer.	Part VIb, § 8

(continued)

DESCRIPTION	LOCATION WHERE ADDRESSED IN PERMIT APPLICATION
(3) The leachate collection system and manholes or cleanout risers shall be constructed of materials that can withstand the chemical attack that results from leachates.	Part VIb, § 4.3.3
c. Operational Procedures	
(1) The leachate collection system shall operate automatically, whenever leachate is present in the sump, to remove accumulated leachate.	Part VIb, § 3.8
(2) Inspections shall be conducted weekly to verify proper functioning of the leachate collection system and to detect the presence of leachate in the removal sump.	Part V, § 3.8
The owner or operator shall keep records on the system to provide sufficient information that the leachate collection system is functional and operating properly. The amount of leachate collected from each cell shall be recorded on a weekly basis.	Part V, § 2.8
(3) Collection lines shall be cleaned according to a Department-approved scheduled maintenance program and more frequently if required.	Part V, § 4.3.3
3. Leachate Treatment and Disposal	
a. The leachate treatment and disposal system shall be designed in accordance with one of the following options.	
(1) Complete treatment on-site with or without direct discharge to surface water.	N/A
(2) Pretreatment on-site with discharge to an off-site treatment works for final treatment	N/A
(3) Storage on-site with discharge to an off-site treatment works for complete treatment	N/A
(4) Direct discharge to an off-site treatment works	Part VIb, § 3.5

(continued)

DESCRIPTION	LOCATION WHERE ADDRESSED IN PERMIT APPLICATION
(5) Pretreatment on-site with discharge on-site. The permittee must maintain all necessary permits and approvals for leachate storage and discharge activities.	N/A
b. Leachate storage	N/A
4. Leachate monitoring	
a. The leachate monitoring system shall be capable of measuring the quantity of the flow and sampling the leachate from each landfill cell. The volume of leachate collected from each cell shall be determined at least monthly and reported quarterly.	Part V, § 3.8.4
b. Leachate monitoring...shall be performed according to a Department-approved plan which includes quality control and quality assurance procedures.	Part V, § 3.8.4
c. In addition to requirement b above, samples of leachate shall be collected and analyzed from each waste cell,	Part V, § 3.8.4.3
(1) monthly	
(2) at least semi annually for parameters listed in Appendix II.	
d. Leachate monitoring results shall be submitted to the Department as part of the annual monitoring report or more frequently as directed by the Department.	Part V, § 5.4
e. For a double liner system, if liquid is discovered within the leak detection system, the owner or operator of the landfill shall notify the Department within five (5) working days of the discovery and test and record for the same parameters listed in Section 5.G.4.e. above.	N/A

(continued)

DESCRIPTION	LOCATION WHERE ADDRESSED IN PERMIT APPLICATION
5.E GAS CONTROL	
1. General Provisions	
a. a gas control system shall be installed at all sanitary landfills.	Part VIb, § 4.4
b. the gas control system shall be designed and constructed to:	Part VIb, § 4.4
(1) Evacuate gas from within the waste to prevent the accumulation of gas on-site or off-site	
(2) Prevent and control damage to vegetation	
(3) Control malodorous gaseous emissions to the extent that there is no perceivable landfill odor at the property boundary	
c. The concentration of landfill gas in facility structures.	Part VI, § 4.4
2. Design and construction standards	
a. The owner or operator of a sanitary landfill shall consider both active and passive gas control systems and shall consider both active and passive gas control systems and shall provide an evaluation of the proposed system for Department approval.	Part VI, § 4.4.2
3. Monitoring	
a. A sufficient number of gas monitoring wells shall be installed to evaluate gas production rates in the landfill.	Part VIb, § 4.4
b. The owner or operator shall sample the gas monitoring wells at least quarterly and provide analytical results [as required by conditions specified in the facility permit]	Permit

(continued)

DESCRIPTION	LOCATION WHERE ADDRESSED IN PERMIT APPLICATION
c. At sanitary landfills utilizing natural liners, gas probes must be installed in the soil outside the lined area to evaluate any lateral migration of landfill gas.	Part V
4. Response Actions	
5.F SURFACE WATER MANAGEMENT	
1. General Provisions	
2. Design Requirements	
An owner or operator of a sanitary landfill shall include:	
a. A run-on control system to prevent flow onto the active portion of the landfill during the peak discharge from a 24-hour, 25 year storm.	Part VIb, § 4.7
b. A run-off control system from the active portion of the landfill to collect and control at least the water volume resulting from a 24-hour, 25 year storm. The system shall be designed to include:	Part VIb, § 4.7
(1) Detention basins to provide temporary storage of the expected run-off from the design storm with sufficient reserve capacity to contain accumulated precipitation and sediment prior to discharge.	Part VIb, § 4.7.4
(2) Diversion structures designed to prevent run-off generated within the active areas from moving off site of the lined areas.	Part VIb, § 4.7.4
3. Channeling of run-off	
a. Run-off from the active areas within the active cell(s) must be channeled to the leachate treatment and disposal system.	Part VIb, § 4.7.4

(continued)

DESCRIPTION	LOCATION WHERE ADDRESSED IN PERMIT APPLICATION
b. Run-off from the unused portion of the active cell(s) that has not been in contact with waste shall be channeled to the detention basins or other approved sedimentation control devices.	Part VIb, § 3.10
c. Until vegetative cover has been established, run-off from closed cells will be directed to the detention basins or other approved sedimentation control devices.	Part VIb, § 3.10
4. Discharge	
Discharge from the detention basins shall be in compliance with all applicable federal and state regulations.	Part VIb, § 3.10
5.G GROUNDWATER MONITORING AND CORRECTIVE ACTION	
1. General Provision	
Owners or operators of all sanitary landfill facilities shall install maintain and operate a ground water monitoring program to evaluate facility impact upon ground water quality.	Part VIII
2. Design and Construction of Monitoring System	Part VIII
5.H CAPPING SYSTEM	
1. Requirement for a capping system	
a. Upon closure of the landfill or landfill cell the permittee shall install a capping system that will control the emission of gas, promote the establishment of vegetative cover, and minimize infiltration and percolation of water into, and prevent erosion of, the waste throughout the post-closure care period.	Part XI, § 1.2
b. The capping system shall be in place180 days following final waste disposal activity unless the Department approves a longer period of time.	Part XI, § 1.4

(continued)

DESCRIPTION	LOCATION WHERE ADDRESSED IN PERMIT APPLICATION
c. The capping system shall extend beyond the edge of the lined area.	Part XI, § 2.2
d. The proposed design of the capping system must be approved by the Department prior to installation.	Part XI, § 1.4
2. Composition of the capping system	
The capping system shall consist of at least the following components:	Part XI, § 4
a. A final grading layer	
b. A low permeability layer	
c. A final cover	
3. Final slopes	
a. The grades of the final slope shall be constructed in accordance with the following minimum standards:	Part VIb, § 4.5
(1) The final grade of the top slope, after allowing for settlement and subsidence, shall be designed to promote run-off;	
(2) The final grades of the side slopes shall be, at a maximum, three horizontal to one vertical (3:1)	
b. The top and side slopes shall be maintained to prevent erosion of the capping system and to insure complete vegetation cover.	Part VIb, § 4.5
5.I LANDFILL OPERATION AND MAINTENANCE STANDARDS	
1. General	
2. Details of operation and maintenance.	
a. Spreading and compacting	Part V, § 3.3.1.3
b. Lift depth	Part V, § 3.3.1.4

(continued)

DESCRIPTION	LOCATION WHERE ADDRESSED IN PERMIT APPLICATION
c. Cover	Part V, § 3.4
d. Control of nuisances and hazards	Part V, § 3.5
e. Bulky waste	Part V, § 3.7
f. Special solid wastes	Part V, § 3.7
g. Access	Part V, § 3.2
h. Salvaging	Part V, § 3.7.4
i. Personnel	Part V, § 2.5
j. Equipment	Part V, § 3.1
k. Employee health and safety	Part V, § 2.5
l. Procedures for excluding the receipt of hazardous waste	Part V, § 3.6
3. Recordkeeping	Part V, § 2.8
4. Reporting	
The permittee shall submit to the Department on an annual basis a report summarizing facility operations for the preceeding calendar year.	Part V, § 5.4
5. Prohibitions	Part V, § 3
5.J CLOSURE	
1. General	Part XI, § 1.2
2. Required submittals; notification	Part XI, § 1.4.2
3. Closure plan contents	Part XI, § 1.1
4. Minimum closure requirements	
a. The permittee shall notify the Department at least 30 working days prior to commencing closure activities.	Part XI, § 1.4.2
b. Finished porcions of the landfill shall receive	Part XI, § 4

(continued)

DESCRIPTION	LOCATION WHERE ADDRESSED IN PERMIT APPLICATION
a capping system which meets the requirements of Section 5.H.	
c. Finished portions of the landfill shall be planted with appropriate vegetation to promote stabilization of the cover.	Part XI, § 4.2
d. The closure shall be carried out in accordance with the approved closure plan and according to the approved closure schedule.	Part XI, § 1.4.2
e. Upon closure of an entire landfill, all non-landfilled wastes located on site shall be removed or disposed of in a manner approved by the Department.	Part XI, § 1.4.3
f. After closure of the facility, the site shall be returned to an acceptable appearance consistent with the surrounding area and the intended use of the land.	Part XI, § 1.4.3
g. When closure is completed, the owner or operator must submit to the Department certification by a professional engineer registered in Delaware that the landfill or cell has been closed in accordance with the specifications in the approved closure plan.	Part XI, § 1.4.3
5.K POST-CLOSURE CARE	
1. General	
a. The owner or operator of a sanitary landfill must continue post-closure care for 30 years after the completion of closure.	Part XI, § 6.1
b. At any time the post-closure care period the Department may remove one or more of the post-closure care requirements described in Section 5, Subsection K.2 below if it determines that the requirement(s) is/are no longer necessary for the protection of human health and the environment.	Part XI, § 6.1

(continued)

DESCRIPTION	LOCATION WHERE ADDRESSED IN PERMIT APPLICATION
2. Minimum post-closure care requirements	
Post-closure care must consist of at least the following:	
a. Maintaining the integrity and effectiveness of the capping system.	Part XI, § 6.3.2
b. Reseeding the cover.	Part XI, § 6.3.2
c. Maintaining and operating the leachate collection and treatment systems.	Part XI, § 6.3.5
d. Maintaining and operating the ground water monitoring system.	Part XI, § 6.3.8
e. Maintaining and monitoring the gas control and/or recovery system.	Part XI, § 6.3.8
f. Maintaining and monitoring the surface water management system.	Part XI, § 6.3.8
3. Prohibitions	Part XI, § 6.2
4. Post-closure land use	Part XI, § 6.5
5. Notice in deed to property	Part XI, § 1.4.2

EXECUTIVE SUMMARY

This Permit Modification Application has been prepared for the proposed vertical expansion of the Cherry Island Landfill, which is located at the Northern Solid Waste Management Center (NSWMC) in Wilmington, New Castle County, Delaware. The Delaware Solid Waste Authority (DSWA) owns and operates the Cherry Island Landfill. The currently permitted landfill is stable without additional foundation improvement up to elevation 172 ft-msl. The proposed foundation improvement will support expanding the landfill up to elevation 195 ft-msl

This Permit Modification Application was prepared to describe the proposed plan for expansion and to address the requirements of Sections 4 and 5 of the Delaware Regulations Governing Solid Waste (DRGSW). The purpose of the vertical expansion is to enhance the overall stability of the landfill and to provide additional disposal capacity to optimize the use of the site for municipal solid waste disposal. The concept for enhancing stability and increasing disposal capacity is illustrated in detail in the attached drawings entitled, "*Permit Drawings for Landfill Expansion, Cherry Island Landfill, New Castle County, Delaware*" (i.e., Permit Drawings), prepared by GeoSyntec and dated 13 June 2004. As shown on Drawing 4 (i.e., Landfill Expansion Development Plan) of the drawings, the plan for enhancing stability and increasing capacity includes the following components:

- Constructing a *stabilizing berm* around the perimeter of Phases III, IV, and V of the disposal area;
- Installing *prefabricated vertical drains* (PVDs) beneath the stabilizing perimeter berm to accelerate the stabilizing effect of the berm;
- Constructing a liner system over the Phase Va area;
- Constructing a *new leachate transmission system* around the perimeter of the landfill to replace the existing system, which will need to be decommissioned as a result of construction of the stabilizing perimeter berm;
- Expanding and improving the *landfill gas management system* to accommodate the increased quantity of landfill gas that will be generated by the expanded landfill; and

- Upgrading the system for *management of stormwater runoff* from the landfill, which is needed because the expanded landfill will have higher final grades and faster stormwater runoff than the currently-permitted landfill.

The design of the proposed expansion is provided in the attached permit modification application in twelve parts; this Executive Summary is Part I. The other eleven parts, and the information that is presented in those parts, are summarized below.

- *Part II – Letter of Intent*. A description of DSWA's intentions for the proposed expansion is provided.

- *Part III – Application Form*. Information required of applicants for solid waste facilities is provided.

- *Part IV – Proof of Property Ownership*. Legal documentation is provided that DSWA owns or has rights to develop the property as a solid waste disposal facility.

- *Part V – Operations and Maintenance Manual*. The current Operations and Maintenance Manual for the facility is provided, amended with additional geotechnical monitoring information and groundwater monitoring information that is required as a result of the proposed expansion activities.

- *Part VI – Engineering Report*. A detailed geotechnical characterization of the site and a description of the engineering analyses that were performed to design the proposed expansion are provided in this part.

- *Part VII – Hydrogeologic Assessment*. The original hydrogeologic assessment report is provided (which is contained in several reports, each of which is attached to the end of the permit modification application). A table showing which groundwater monitoring wells will be relocated as a result of the construction activities is also provided in this part.

- *Part VIII – Environmental Assessment*. An assessment of potential impacts to groundwater quality in the uppermost aquifer at the site is provided, as well as an evaluation of the potential for impacts to wetlands at the site. The original environmental assessment, which addresses most of the environmental assessment requirements of DRGSW, is also provided (which is contained in a report that is attached at the end of the entire permit modification application).

- *Part IX* – Topographic and Site Location Maps. Topographic and site location map requirements are addressed, and the required information is provided.

- *Part X* – Proof of Zoning. Because DSWA is exempt from zoning regulations, this section does not apply. This is discussed in Part X.

- *Part XI – Closure Plan.* A closure plan and post-closure plan are provided, as well as cost estimates for final closure and for post-closure care.

- *Part XII – Financial Assurance.* The requirements for financial assurance are identified and the DSWA's financial assurance mechanism is provided.

- *Part XIII – Siting.* A brief discussion of the siting requirements of DRGSW is provided in this part.

Each of the requirements of DRGSW is addressed in this permit modification application. This document contains all information that is needed to evaluate compliance of the plan with the requirements of DRGSW. As shown in the permit modification application, the design of the expansion achieves the overall project goals of protecting the environment, enhancing the stability of the facility, and providing additional disposal capacity, all in accordance with the requirements of the DRGSW.

DELAWARE SOLID WASTE AUTHORITY

Board of Directors
Richard V. Pryor
Chairman
Ronald G. McCabe
Vice Chairman
J. Donald Isaacs
Theodore W. Ryan
William J. DiMondi
Timothy P. Sheldon

N.C. Vasuki, P.E., DEE
Chief Executive Officer

Pasquale S. Canzano, P.E., DEE
Chief Operating Officer

June 15, 2004

Ms. Jamie Rutherford
Program Manager
Division of Air & Waste Management
Department of Natural Resources and Environmental Control
89 King Highway
Dover, Delaware 19901

Dear Ms. Rutherford:

RE: Major Modification Request for the Cherry Island Landfill
Permit #SW-01/01

The Delaware Solid Waste Authority is requesting a major modification to the Cherry Island Landfill Permit. The requested modification includes implementation of an engineered design to enhance the stability of the existing landfill foundation. The design incorporates a revised landfill final elevation and disposal volume for the facility. This expansion will increase the capacity of the landfill for the management of solid waste generated in the New Castle County. Four copies of the complete application are submitted, including drawings. However, only the following sections of the permit are modified:

- A new *Permit Application* has been prepared;
- Appendices E & G of *The Plan of Operations* have been modified;
- A new *Engineering Report* has been prepared;
- A new wetlands delineation and dredge pore water quality assessment were conducted. The results of these are included as a supplement to the previously approved *Environmental Assessment* information; and
- A new estimate of closure and post-closure care costs, as related to *Financial Assurance Requirements*, has been prepared.

1128 S. Bradford Street, P.O. Box 455, Dover, Delaware 19903-0455
Phone: (302) 739-5361 Fax: (302) 739-4287

CITIZENS' RESPONSE LINE: 1-800-404-7080 www.dswa.com
Printed on Recycled Paper

If you have any questions, please feel free to contact me.

Very truly yours,

Anne M. Germain, P.E., DEE
Manager of Engineering

Attachments

c: Board of Directors
N.C. Vasuki, P.E., DEE
P.S. Canzano, P.E., DEE
R.P. Watson, P.E.
T.E. Houska, P.E.
R.M. Roddy, P.E.

DELAWARE SOLID WASTE AUTHORITY

Board of Directors
Richard V. Pryor
Chairman
Ronald G. McCabe
Vice Chairman
J. Donald Isaacs
Theodore W. Ryan
William J. DiMondi
Timothy P. Sheldon

N.C. Vasuki, P.E., DEE
Chief Executive Officer

Pasquale S. Canzano, P.E., DEE
Chief Operating Officer

June 15, 2004

Ms. Jamie Rutherford
Program Manager
Division of Air & Waste Management
Department of Natural Resources and Environmental Control
89 King Highway
Dover, Delaware 19901

Dear Ms. Rutherford:

RE: Major Modification Request for the Cherry Island Landfill
Permit #SW-01/01

The Delaware Solid Waste Authority is requesting a major modification to the Cherry Island Landfill Permit. The requested modification includes implementation of an engineered design to enhance the stability of the existing landfill foundation. The design incorporates a revised landfill final elevation and disposal volume for the facility. This expansion will increase the capacity of the landfill for the management of solid waste generated in the New Castle County. Four copies of the complete application are submitted, including drawings. However, only the following sections of the permit are modified:

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R.M. Roddy, P.E.

Delaware Department of Natural Resources and Environmental Control
Solid & Hazardous Waste Management Branch

Solid Waste Management Facility Application – Part I

Please type or print all information

1. Facility Permit Information: (if applicable)

   A. Permit Number: **SW 01/01**

   B. Date of Expiration: **4/30/2006**

   C. Are you requesting any changes to the conditions required by the current solid waste facility permit?
   ☒ Yes ☐ No (If "Yes", please attach the request and supporting documents.)

2. Facility Information:

   Facility Name: **Cherry Island Landfill**

   Street: **1706 East 12th Street**

   City: **Wilmington** County: **New Castle** State: **Delaware**

   Zip: **19809** Phone(s): **(302) 764-5385** Fax: **(302) 764-5386**

   Total Site Area (Acres): **513** Latitude: **N39° 43.950′** Longitude: **W75° 31.091′**

3. Owner Information:

   Owner's Name: **Delaware Solid Waste Authority**

   Contact Person: **Anne Germain** Title: **Manager of Engineering**

   Street Address: **1128 South Bradford Street , or P.O. Box 455**

   City: **Dover** State: **Delaware** Zip: **19903-0455**

   Phone: **(302)739-5361** Fax: **(302)739-4287** Email: **amg@dswa.com**

4. Operator Information:

   Operator's Name: **Delaware Solid Waste Authority**

   Contact Person: **Robin Roddy** Title: **Facility Manager**

   Street Address: **1706 East 12th Street**

   City: **Wilmington** State: **DE** Zip: **19809**

   Phone: **(302) 764-5385** Fax: **(302) 764-5386** Email: **rmr@dswa.com**

5. Type of Facility:

☒ Sanitary Landfill ☐ Industrial Landfill
☐ Transfer Station ☐ Materials Recovery Facility
☐ Thermal Recovery ☐ Other _____

6. Types of Solid Waste to be Accepted (check all that apply):

☒ Municipal ☒ Industrial ☐ Infectious ☐ Other (specify) _____

7. Service Area (political jurisdictions and unincorporated area to be served by the facility):

New Castle County, North Kent County

8. Estimated Quantities of Waste Expected to be Handled at the Facility:

A. Average daily tonnage expected during peak season (may be a range): **1,710 tons**

B. Maximum daily tonnage expected: **4,000 tons**

C. Average weekly tonnage expected during peak season (may be a range): **10,260 tons**

D. Maximum weekly tonnage expected: **24,000 tons**

Note: Maximum daily and weekly tonnages must consider operating hours and days specified in Section 11 of this form. Analysis required by the Environmental Assessment must consider maximum expected tonnages whenever estimates of waste handling activity are needed. The Engineering Report required by the DRGSW must indicate the maximum tonnage which the facility is designed to process (per hour/per day).

9. Disposal Capacity of Proposed Landfill Cells (if applicable):

A. Cell Designation: **Phase III - Va**

B. Cell Acreage: **175 acres**

C. Cell Capacity (years): **20.5 years**

D. Cell Capacity (cubic yards): **20,700,000**

10. Disposal Capacity Remaining in Existing Landfill (if applicable):

_____

11. Operating Hours:

A. Daily Operating Hours (include all time periods when waste may be handled): **6:00a.m. – 7:00p.m.**

B. Daily Business Hours (i.e. hours open to the public): **7:00a.m. – 5:00p.m.**

C. Days of Operation: **Monday - Saturday**

D. Operating Days Per Year: **313**

12. Applicant Background Information:

If an Application Background Statement is required by 7 Del. C., Chapter 79, please complete the Solid Waste Facility Permit Application – Part II.

Has a Solid Waste Facility Permit Application – Part II been completed and attached? ☒ Yes ☐ No
Is any information in the Solid Waste Facility Permit Application – Part II considered by the applicant to be confidential? ☒ Yes ☐ No

INSTRUCTION: The applicant may claim that some of the information presented in the Applicant Background Statement is confidential. An applicant wishing to make such a claim should write, preferably in red ink, "claimed confidential information" at each point in the response where such confidentiality is claimed, and provide and explanation of why the release of such information would constitute an invasion of personal privacy or would seriously affect the applicant's business or competitive situation. The confidentiality determination will be subject to the **FOIA Regulation**, Section 6.

I certify, under penalty of law, that I have personally examined and am familiar with the information submitted in the application and all attachments and that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information.

N.C. Vasuki

Date

Signature of Applicant or Corporate Agent

Name: **N. C. Vasuki** Phone: **(302) 739-5361**

Title: **Chief Executive Officer** Email: **ncv@dswa.com**

Company: **Delaware Solid Waste Authority**

Address: **1128 South Bradford Street , or P.O. Box 455**

Dover, DE 19903-0455

Delaware Department of Natural Resources and Environmental Control
Solid & Hazardous Waste Management Branch

Solid Waste Management Facility Application – Part II
Application Background Statement

PROVIDING ALL THE INFORMATION REQUESTED IN THIS FORM STATISFIES THE REQUIREMENTS OF 7 DEL. C., CHAPTER 79, UNLESS THE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL OR THE DEPARTMENT OF JUSTICE DETERMINES THAT ADDITIONAL SUBMISSIONS ARE NECESSARY. FAILURE TO PROVIDE THAT INFORMATION REQUESTED OR PROVIDING ERRONEOUS INFORMATION IS GROUNDS FOR DENYING OR REVOKING AN ENVIRONMENTAL PERMIT, AND FOR CIVIL OR CRIMINAL PENALTIES.

A. *Attach a complete list of all current members of the Board of Directors, all current corporate officers, all persons owning more than 20 percent of the applicant's stock or other resources, all subsidiary companies, all parent companies, and all companies with which the applicant's company shares two or more members of the Board of Directors. In addition to providing the full name of each member, director, or corporate officer, please provide the following additional information for each individual:

1. Date of Birth
2. Driver's License Number (with name of State issuing license)
3. Social Security Number
4. State of Residence

B. *Attach a complete list of all affiliated companies. Affiliated companies are those companies owned by the same owners, corporate officers, or parent company. Also list any companies which have a common owner or common corporate officers. List name, address, nature of business, and business relationship of all company affiliates engaged in the business of solid or hazardous waste management, transport, treatment, storage, disposal, recovery, or reclamation. Check on of the following:

☒ No Company Affiliates
☐ List of Affiliates Attached

C. Please check one of the following, showing type of ownership for the applicant company, and if applicable, in Section C2, please provide the parent company name and mailing address:

1. ☐ Proprietorship ☐ Municipality
   ☐ Partnership ☒ Public Institution
   ☐ Corporation ☐ Other _____

   If company is a corporation, list city, state, date of incorporation, and Registered Agent:

   _____

   _____

2. Parent Company Name: _____

   Address: _____

   Contact Person: _____ Phone No: _____

D. Attach a description of any felony or other criminal conviction for any person or company identified in response to question "A" where the conviction resulted in a fine greater than $1,000 or a sentence longer than seven days, regardless of whether any portion of such fine or sentence was suspended.

E. *Have any of the following been issued to any person or entity specified in response to question "A" for any violation of any environmental statute, regulation, permit, license, approval or order, regardless of the state in which it occurred, during the five years prior to the date of the application?:

Notice of Violation	☒ Yes	☐ No
Administrative Penalties	☐ Yes	☒ No *See attached
Civil Penalties	☐ Yes	☒ No
Criminal Citation	☒ Yes	☐ No
Arrests	☐ Yes	☒ No
Convictions	☐ Yes	☒ No
Criminal Penalties	☐ Yes	☒ No

F. If you answered "Yes" to any of the items in question "E", attach a description of the incidents or events leading to the issuance of each enforcement action, the disposition of each action, and any actions that have been taken to correct the violations that led to such enforcement action.

G. Attach copies of any and all settlements of environmental claims associated with actions identified in response to question "E" above, whether or not such settlements were based on agreements where the applicant did not admit liability for the action.

I certify, under penalty of law, that I have personally examined and am familiar with the information submitted in the Application Background Application Statement and all attachments and that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information.

N. C. Vasuki

Date

Signature of Applicant or Corporate Agent

Name: **N. C. Vasuki** Phone: **(302) 739-5361**

Title: **Chief Executive Officer** Email: **ncv@dswa.com**

Company: **Delaware Solid Waste Authority**

Address: **1128 South Bradford Street , or P.O. Box 455**

Dover, DE 19903-0455

*NOTE: The applicant may claim that some of the information presented in the Applicant Background Statement is confidential. An applicant wishing to make such a claim should write, preferably in red ink, "claimed confidential information" at each point in the response where such confidentiality is claimed, and provide and explanation of why the release of such information would constitute an invasion of personal privacy or would seriously affect the applicant's business or competitive situation. The confidentiality determination will be subject to the **FOIA Regulation**, Section 6.

Supplemental Information for Application

Section III. Item A

Richard Y. Pryor, Chairman
Ronald G. McCabe, Vice Chairman
Theodore W. Ryan
William J. Dimondi
Timothy P. Sheldon
Tonda L. Parks

Section III. Items E&F

Violations for last 5 years:

1. NOV 98-02 Cheswold 9/24/98

   DNREC cited DSWA for failing to maintain cleanliness of the entire site. On October 5, 1998, DSWA provided comments to the violations.

2. NOV 00-01 SSWMC 3/1/00

   DNREC found 3 administrative violations. These violations, training employees, had no impact on the capability to manage waste. On March 29, 2000, DSWA responded stating all three violations had been resolved.

3. NOV 00-12 SSWMC 10/23/00

   DNREC cited 3 violations relating to the geosynthetic clay liner (GCL) being unloaded and stacked. On November 20, 2000, DSWA provided documentation regarding each violation. On January 18, 2001, DNREC deemed appropriate actions had been taken.

4. NOV 01/01 Bridgeville 1/30/01

   Wastes were stored on-site at the Bridgeville transfer station in excess of 72 hours. On February 9 & 28, 2001, DSWA received approval to store wastes up to 120 hours. On May 8,2001, DNREC acknowledges the problem had been resolved.

5. NOV 01/03 NSWMC2 2/7/01

Violations were noted regarding manhole inspections, leachate collection lines, clean-out boltholes, scrap pipe, and main pump station-fire/explosion. On March 6, 2001, DSWA provided comments for each violation. On May 11, 2001, DNREC stated corrective action is considered adequate.

6. NOV 01/06 SSWMC 4/6/01

Violations were noted regarding the GCL in Cell 4. On April 26, 2001, DSW A addressed the issue and supplied requested documentation. On May 11, 2001, DNREC deemed appropriate actions taken.

7. SW-NOV 01/08 Cheswold 9/17/01

Violations were noted for failure to operate the HHW collection event in accordance with the operation plan. On September 24, 28 & October 1, 2001, DSWA responded to violations.. On December 28, 2001, DNREC determined DSWA's response is adequate.

8. NOV 02-SW-07 Pine Tree Corners Transfer Station 5/31/02

Violations were noted because the leachate hauler was not licensed. On June 13, 2002, DSWA provided documentation that hauler received modified permit to haul leachate.

9. NOV 02-SW-08 Sussex County Collection Stations 7/25/02

Numerous holes were found in backup containers at Omar and Long Neck. Training and reporting were not in accordance with the Contingency Plan for Emergencies. On August 21, 2002, DSWA provided documentation demonstrating that violations have been corrected.

10. NOV 02-SW-03 CSWMC 8/8/02

Violations were noted regarding haulers of C&D material not having solid waste transporters permit. In addition, not all the equipment were equipped with radio units. On September 3, 2002, DSWA responded to violation.

11. NOV 02-SW-ll Alternate Daily Cover Recovermat 9/19/02

Landfill in violation of the conditions of the Approval of Alternate Daily Cover-Recovermat. On October 1, 2002, DSWA responded to violation. DNREC issued approval of alternate daily cover- Recovermat on November

14, 2002. On November 26, 2002, DNREC found DSWA to be in compliance. NOV closed.

12. Violation SSWMC 8/27/02

Uniform Criminal Complaint and Summons issued stating that DSWA did allow waste other than dry waste to be placed into their construction and demolition stockpile. Jim Vescovi, DSWA's facility manager, was summoned to appear at J.P. Court 4 on October 23, 2002. On October 23, 2002, Jim Vescovi appeared in court and fine was paid.

13. Violation NSWMC-2 3/1/03

Complaint-Warrant NR #8650 -$75.00 fine. DSWA did cause or contribute to a condition of odorous air pollution.

14. Violation NSWMC-2 5/7/03

Complaint- Warrant NR #10059 - $75.00 fine. DSWA did cause odor emissions such as to cause air pollution. DSWA pled no contest and paid fine at J.P. Court No. 10, July 21, 2003

15. Violation NSWMC-2 6/11/03

Violation of two conditions of AQM-033-00111. Periodic methane surface monitoring not done on quarterly basis. Back-up flare not maintained in proper operating condition.

16. Violation NSWMC-2 6/19/03

Complaint Warrant NR #10024 - $75.00 fine. DSWA did cause odorous emissions such as to cause air pollution. DSWA pled no contest and paid fine at J.P. Court No. 10, July 21, 2003

17. Violation NSWMC-2 8/9/03

Complaint Warrant NR #12965 – Fine $75.00. DSWA did cause or contribute to a condition of odorous air pollution. DSWA pled no contest and paid fine at J.P. Court No. 9, August 27, 2003

18. Violation NSWMC-2 10/27/03

Complaint Warrant NR #10034 – Fine $75.00. DSWA did cause odor emissions such as to create air pollution. DSWA pled no contest and paid fine at J.P. Court No. 10, November 26, 2003

19. Violation NSWMC-2 10/20/03

Complaint Warrant NR #10035 – Fine $75.00. DSWA did cause odor emissions such as to create air pollution. DSWA pled no contest and paid fine at J.P. Court No. 10, November 26, 2003

20. Noncompliance Notification NSWMC-2 11/5/03

Improper Methodology for Analysis from City of Wilmington. W-88-02 rev. 3 methods utilized for the analysis of several compounds were not consistent with those required by section C.6 of permit.
DSWA demonstrated that method was similar to method required. City of Wilmington accepted DSWA method.

21. Administrative Penalty Complaint NSWMC-2 3/1/04

Docket No. CAA-03-2004-0122 from EPA – Total Proposed Penalty $75,900. Count I: Failure to take correction action at areas with a monitored surface methane exceedance 40 C.F.R. § 60.755(c)(4). Count II: Failure to comply with treatment system requirements 50 C.F.R. § 60.755(e). DSWA is working with EPA to resolve.

22. Notice of Conciliation & Administrative Penalty Order NSWMC-2 3/1/04

Order No. 2004-A-0010 – Fine & Dept. costs $142,515.76. Based on fines from 3/1/03 to 10/27/03 Violation of Solid Waste Findings Permit SW-01/01 and Violations of Air Quality Findings *Delaware Regulations Governing the Control of Air Pollution* Regulation No. 19, Section 2.1 and AQM-003-00111. DSWA requested a public hearing. Ongoing.

IV. PROOF OF PROPERTY OWNERSHIP

As stated in DRGSW Section 4.B.1.a(2), proof of property ownership must be demonstrated in permit application documents for new solid waste management facilities. Accordingly, the Delaware Solid Waste Authority (DSWA) must provide proof of ownership prior to expansion of the property known as the Northern Solid Waste Management Center (NSWMC). Documents that demonstrate DSWA's proof of ownership of the property are attached to this section. The attached documents are copies of the original deeds between the DSWA and the original property owners filed with the Recorder of Deeds, New Castle County, Delaware. The documents also include agreements between the DSWA and the United States Army Corps of Engineers (USACOE) that allow the DSWA use of certain portions of the property that will be used for the expansion. These documents, in total, demonstrate that DSWA owns the property that will be used for the Cherry Island Landfill expansion.

RECEIVED
FEB 0 6 1995
DSWA

LAW OFFICES
PARKOWSKI, NOBLE & GUERKE
PROFESSIONAL ASSOCIATION
116 WEST WATER STREET
P.O. BOX 598
DOVER, DELAWARE 19903
302-678-3262
FAX: 302-678-9415

NCV	PSC	[illegible]
JWP	LJK	[illegible]
TEH	VAC	[illegible]
TEG	AHT	
MRW		JJB
	RPW	RVS
JL	HFD	TWT
	DMW	WGS
MSM	AMG	
LVM	AND	SER
	DAF	
	REA	
		FILE

F. MICHAEL PARKOWSKI
JOHN W. NOBLE
I. BARRY GUERKE
CLAY T. JESTER
JEREMY W. HOMER
JOHN C. ANDRADE
JONATHAN EISENBERG
DONALD R. KINSLEY
DANA J. SCHAEFER

GEORGE [illegible] GARDNER, III
OF COUNSEL

M E M O R A N D U M

TO: Richard P. Watson, P.E.

FROM: John W. Noble

RE: Landfill Declaration/Cherry Island

DATE: February 7, 1995

Attached is the recorded DSWA Declaration evidencing that Cherry Island has been used as a landfill. Recording a document such as this is a requirement of DSWA's DNREC landfill permit for Cherry Island.

If you have any questions, please give me a call.

JWN/cl
Enclosure

Tax Parcel #26-059.00-001
#26-053.00-003
#26-052.00-010

Prepared by: Parkowski, Noble & Guerke, P.A.
P.O. Box 598
Dover, DE 19903

DECLARATION

WHEREAS, the Delaware Solid Waste Authority ("Authority"), a body politic and corporate, existing pursuant to the provisions of 7 Del.C. Ch. 64, is the owner of certain lands ("Lands") on Cherry Island, in the City of Wilmington, New Castle County, and State of Delaware, and lying generally east of I-495 and south of 12th Street and lands now or formerly of the Mayor and Council of Wilmington (D.R. E-87-520); and

WHEREAS, DSWA has used or will use the Lands for solid waste disposal; and

WHEREAS, Section 5.K.5 of the Delaware Department of Natural Resources and Environmental Control's Regulations Governing Solid Waste requires the lodging with the Recorder of Deeds of certain notations with respect to real estate which has been used for solid waste disposal.

NOW, THEREFORE, this 31st day of March, 1993, the Authority hereby declares that:

A. The Lands have been used and will be used as a solid waste disposal site, and

B. The use of the Lands is restricted under the Delaware Department of Natural Resources and Environmental Control's Regulations Governing Solid Waste.

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95 JAN -9 P 3:46.0

2/ 7330

IN WITNESS WHEREOF, the Delaware Solid Waste Authority, by and through its duly authorized officers, has executed this Declaration as of the day and year aforesaid.

DELAWARE SOLID WASTE AUTHORITY

BY: _____
Chief Executive Officer

ATTEST: _____
Chief of Business Management

STATE OF DELAWARE)
:SS.
COUNTY OF KENT)

BE IT REMEMBERED, that on this 31st day of March, 1993, personally appeared before me, the subscriber, a Notary Public for the State and County aforesaid, N.C. Vasuki, Chief Executive Officer of the Delaware Solid Waste Authority, known to me personally to be such, and acknowledged this Declaration to be his act and deed and the act and deed of said Delaware Solid Waste Authority, that the signature of the said Chief Executive Officer is in his own proper handwriting and that his act of executing and delivering this Declaration was duly authorized by the Delaware Solid Waste Authority.

GIVEN under my Hand and Seal of Office the day and year aforesaid.

_____
NOTARY PUBLIC
State of Delaware D. June Peacock
Name _____
Commission Expires July 5, 1993

CILF 26-052.00-010

020485 — BK 1004 PG 0308

(NO. 40-B)

CORPORATE DEED-TYPEWRITER

Printed and Sold by Hugh George Co., Eastlawn, Wilmington, DE

BOARD OF ASSESSMENT NEW CASTLE COUNTY REGISTERED

This Deed, Made this

12th day of March in the year of our LORD one thousand nine hundred and ninety (1990).

BETWEEN, DELMARVA POWER & LIGHT COMPANY, a corporation of the State of Delaware, and the Commonwealth of Virginia, party of the first part,

and

DELAWARE SOLID WASTE AUTHORITY, a body politic constituting an instrumentality of the State of Delaware, of 1128 S. Bradford Street, P.O. Box 455, Dover, Kent County and State of Delaware, party of the second part,

Witnesseth, *That the said party of the first part, for and in consideration of the sum of* TEN ($10.00) DOLLARS and other good and *lawful money of the United States of America,* valuable consideration *the receipt whereof is hereby acknowledged, hereby grants and conveys unto the said party of the second part,* its successors or assigns

ALL that certain tract, piece or parcel of land situate on Fourth Street Extended easterly of Interstate 495, City of Wilmington, New Castle County, Delaware and shown on a plan prepared by Van DeMark & Lynch, Inc., Engineers, Planners and Surveyors, Wilmington, Delaware, dated September 18, 1984 and revised through December 1, 1988, Drawing No. 22988-M, Revision 9 and described, to-wit:

BEGINNING for the same, at a point on the northeasterly side of Fourth Street Extended, said point being South 62 degrees 03 minutes 30 seconds East 126.22 feet from the intersection of the said northeasterly side of Fourth Street Extended with the southeasterly right of way line for Interstate 495; thence from said point of beginning and leaving said Fourth Street Extended and along lines now or formerly of Delmarva Power & Light Company, North 53 degrees 09 minutes 55 seconds East 428.22 feet to a point, a corner for lands to be conveyed to Delaware Solid Waste Authority; thence along the southwesterly line of said lands to be conveyed to Delaware Solid Waste Authority, South 59 degrees 07 minutes 13 seconds East 1,160.90 feet to a point in the old centerline of Hay or Marsh Road (at 30 feet wide); thence along the said old centerline of Hay or Marsh Road, South 42 degrees 26 minutes 30 seconds West 40.48 feet to a point; thence leaving the said old centerline of Hay or Marsh Road and continuing along said lines of lands to be conveyed to Delaware Solid Waste Authority, South 48 degrees 27 minutes 30 seconds East, 384.50 feet to a point; thence South 40 degrees 10 minutes 39 seconds West, crossing said Fourth Street Extended, 782.86 feet to a point on the line of lands now or formerly of United States of America; thence partially along the northeasterly line of said lands now or formerly of the United States of America and the northeasterly line of lands now or formerly of the Mayor and Council of Wilmington, North 66 degrees 29 minutes 39 seconds West, 1,809.61 feet to a point on the said southeasterly right of way line for Interstate 495; thence along the said southeasterly right of way line for Interstate 495, North 45 degrees 00 minutes 00 seconds East, 634.68 feet to a point on the southwesterly side of said Fourth Street Extended; thence along the said southwesterly side of Fourth Street Extended, South 62 degrees 03 minutes 30 seconds East, 31.38 feet to a point; thence crossing said Fourth Street Extended, North 53 degrees 09 minutes 55 seconds East 110.53 feet to a point on the aforementioned northeasterly side of Fourth Street Extended, and being the point and place of beginning. Containing within said metes and bounds, 37.573 acres of land, be the same more or less.

8567 000 3/14/90 NO CHG .00

SUBJECT to a 30 foot wide right of way for a sanitary sewer and the Getty Pipeline running through the above described parcel adjacent to the said southeasterly right of way line for Interstate 495.

TOGETHER with all easements and rights of way relating to such tract.

AND BEING a part of the same lands and premises which were conveyed unto Delaware Power & Light Company, a Delaware corporation, by the following two deeds:

1. Deed from Manor Real Estate & Trust Company dated May 23, 1950 and recorded in the Office of the Recorder of Deeds in and for New Castle County and State of Delaware in Deed Book K, Volume 50 at Page 11.
2. Deed from S. Harry Lingo, single man, dated May 18, 1944 and recorded in the Office of the Recorder of Deeds in and for New Castle County and State of Delaware in Deed Book G, Volume 44 at Page 493.

AND FURTHER BEING the same lands and premises which were conveyed unto Delmarva Power & Light Company, a corporation of the State of Delaware, and the Commonwealth of Virginia, by deed of Delaware Solid Waste Authority, a body politic constituting an instrumentality of the State of Delaware, by deed bearing date the 6th day of April, 1989 and recorded in the Office of the Recorder of Deeds in and for New Castle County and State of Delaware in Deed Book 854 at Page 224.

GRANTEE'S ADDRESS
1128 S. BRADFORD STREET
PO BOX 455
DOVER, DE. 19901

In Witness Whereof, *The said* Delmarva Power & Light Company, a corporation of the State of Delaware, and the Commonwealth of Virginia, *hath caused its name by* RALPH E. KLESIUS *its* Vice- *President to be hereunto set, and the common and corporate seal of the said corporation to be hereunto affixed, duly attested by its* *Secretary, the day and year first above written.*

DELMARVA POWER & LIGHT COMPANY

Sealed and Delivered in the Presence of

BY: Ralph E. Klesius
Vice President

ATTEST: Carol O. Conrad
Asst. Secretary

State of Delaware,
New Castle County, } ss.

Be It Remembered, *That on this* 12TH *day of* MARCH *in the year of our LORD one thousand nine hundred and* ninety (1990) *personally came before me,* the Subscriber, *a Notary Public for the State of Delaware.* RALPH E. KLESIUS Vice- *President of* DELMARVA POWER & LIGHT COMPANY, and the Commonwealth of Virginia *a corporation existing under the laws of the State of Delaware, party to this Indenture, known to me personally to be such, and acknowledged this Indenture to be his act and deed and the act and deed of said corporation, that the signature of the* Vice- *President thereto is in his own proper handwriting and the seal affixed is the common and corporate seal of said corporation, and that his act of sealing, executing, acknowledging and delivering said Indenture was duly authorized by a resolution of the Board of Directors of said corporation.*

GIVEN under my Hand and Seal of office, the day and year aforesaid.

Notary Public

CITY OF WILMINGTON
REALTY TRANSFER TAX
Validation Number
Amount of City Tax $
Cancelled by 3/14/90

REC'D FOR RECORD MAR 14 1990

CILF

BOOK 854 PAGE 224

(NO. 40-B)

CORPORATE DEED-TITLE CLEAR

Printed and Sold by Hugh Cooper

BOARD OF ASSESSMENT, NEW CASTLE COUNTY REGISTERED

This Deed, Made this

3288 6th day of April in the year of our LORD one thousand nine hundred and eighty-nine (1989).

BETWEEN, DELAWARE SOLID WASTE AUTHORITY, a body politic constituting an instrumentality of the State of Delaware, of South Bradford Street, P.O. Box 455, Dover, Kent County and State of Delaware, party of the first part,

and

DELMARVA POWER & LIGHT COMPANY, a corporation of the State of Delaware, and of the Commonwealth of Virginia, Party of the second part,

DOCUMENTARY SURCHARGE PAID $3.00

Witnesseth, That the said party of the first part, for and in consideration of the sum of TEN ($10.00) DOLLARS & other good and valuable consideration lawful money of the United States of America, the receipt whereof is hereby acknowledged, hereby grants and conveys unto the said party of the second part, its successors or assigns

PARCEL NO. 1 - ALL that certain tract, piece or parcel of land situate on 4th Street Extended and Interstate 495, Cherry Island, New Castle County, Delaware and shown on a plan prepared by VanDemark & Lynch, Inc., Engineers, Planners and Surveyors, Wilmington, Delaware dated September 18, 1984 and revised through April 15, 1986, Drawing No. 22988-M, Revision 4.

NOTE: Delmarva Power & Light Company bearings are indicated in parenthesis.

BEGINNING at a point on the southwesterly side of 4th Street Extended (at 100 feet wide) said point being on the southeasterly right of way line of Interstate 495; thence from the said point of beginning and along the said southwesterly side of 4th Street, South 62 degrees 03 minutes 30 seconds East, (South 52°-54'-00" East), 1313.84 feet to a point; thence partially crossing said 4th Street Extended, North 41 degrees 48 minutes 30 seconds East, (North 50°-58'-00" East) 51.50 feet to a point; thence continuing crossing said 4th Street Extended and along the old centerline of Hay or Marsh Road (at 30 feet wide), North 41 degrees 52 minutes 30 seconds East, (North 51°-02'-00" East), 348.96 feet to a point, a corner for lands about to be conveyed to Delaware Solid Waste Authority; thence thereby South 48 degrees 27 minutes 30 seconds East, (South 39°-18'-00" East), 384.50 feet to a point; thence by a line recrossing said 4th Street Extended, South 40 degrees 10 minutes 39 seconds West, (South 49°-20'-09" West), 782.86 feet to a point in the line of lands now or formerly of the United States of America; thence along the northeasterly line of said lands now or formerly of the United States of America and the northeasterly line of lands now or formerly of the Mayor and Council of Wilmington, North 66 degrees 29 minutes 39 seconds West (North 57°-20'-09" West) 1809.61 feet to a point on the said southwesterly right of way for Intersate 495; thence thereby, North 45 degrees 00 minutes 00 seconds East (North 54°-09'-30" East), 634.68 feet to a point on the said southwesterly side of 4th Street Extended and the point and place of beginning; containing within said metes and bounds 24.634 acres of land, being the same, more or less.

PARCEL NO. 2 - ALL that certain tract, piece or parcel of land being a portion of Fourth Street Extended southeast of Interstate 495 City of Wilmington, New Castle County, Delaware and shown on a plat of survey prepared by VanDemark & Lynch, Inc., Engineers, Planners and Surveyors, Wilmington, Delaware, dated September 18, 1984 and revised through December 1, 1988, Drawing No. 22988-F, Revision 9 and described to-wit:

BEGINNING at the point of intersection of the northeasterly side of Fourth Street Extended and the southeasterly right of way line for Interstate 495; thence from the said point of Beginning and along the said northeasterly side of Fourth Street Extended, South 62 degrees 03 minutes 30 seconds East, 1386.32 feet to a point on the old centerline of Hay or Marsh Road; thence crossing said East Fourth Street Extended, the two following described courses and distances: (1) South 41 degrees 52 minutes 30 seconds West, 51.51 feet to a point on the centerline of the said Fourth Street Extended; and (2) South 41 degrees 48 minutes 30 seconds West, 51.50 feet to a point on the southwesterly side of Fourth Street Extended; thence thereby, North 62 degrees 03 minutes 30 seconds West, 1313.84 feet to a point on the said southeasterly right of way line for Interstate 495; thence recrossing said Fourth Street Extended, North 02 degrees 25 minutes 15 seconds East, 110.80 feet to a point on the said northeasterly side of Fourth Street Extended and the point and place of Beginning; containing within said metes and bounds, 3.099 acres of land being the same more or less.

SUBJECT to a 30 foot wide sanitary sewer right of way running through the above described parcel adjacent to Interstate 495 and as shown on the aforesaid plan by VanDemark & Lynch, Inc., dated September 18, 1984 and revised through April 15, 1986, Drawing No. 22988-M, Revision No. 4.

AND BEING a part of the same lands and premises which were conveyed unto Delaware Solid Waste Authority, a body politic constituing an instrumentality of the State of Delaware, by the following three deeds:

(1) Deed from Secretary of the Army dated November 19, 1985 and recorded in the Office of the Recorder of Deeds in and for New Castle County and State of Delaware in Deed Book 309 at Page 101.

(2) Deed from City of Wilmington dated November 26, 1986 and recorded in the Office of the Recorder of Deeds in and for New Castle County and State of Delaware in Deed Book 504 at Page 0250.

(3) Deed from City of Wilmington dated May 30, 1984 and recorded in the Office of the Recorder of Deeds in and for New Castle County and State of Delaware in Deed Book 137 at Page 110.

In Witness Whereof, *The said* Delaware Solid Waste Authority, a body politic constituting an instrumentality of the State of Delaware, *hath caused its name by* E. F. Jennings, Jr., Vice Chairman *President to be hereunto set, and the common and corporate seal of the said* instrumentality *is hereunto affixed, duly attested by its* General Manager, *the day and year first above written.*

Sealed and Delivered in the Presence of

(as to both)

BY: DELAWARE SOLID WASTE AUTHORITY, a body politic constituting an instrumentality of the State of Delaware
E.F. Jennings, Jr. Vice Chairman

ATTEST: N.C. Vasuki, General Manager

State of Delaware,
KENT **County,** } SS.

Be It Remembered, *That on this* 6th *day of* April *in the year of our LORD one thousand nine hundred and* eighty-nine *personally came before me,* the Subscriber, *a Notary Public for the State of Delaware.* E. F. Jennings, Jr., Vice Chairman DELAWARE SOLID WASTE AUTHORITY, a body politic constituting an instrumentality of the State of Delaware *party to this Indenture, known to me personally to be such, and acknowledged this Indenture to be his act and deed and the act and deed of said* instrumentality, *that the signature of the* Chairman *thereto is in his own proper handwriting and the seal affixed is the common and corporate seal of said* instrumentality, *and that his act of sealing, executing, acknowledging and delivering said Indenture was duly authorized by a resolution of the Board of Directors of said* instrumentality.

GIVEN under my Hand and Seal of office, the day and year aforesaid.

Notary Public

REC'D FOR RECORD APR 11 1989
WILLIAM M. HONEY, Recorder

(NO. 40-B)

CORPORATE DEED-TYPEWRITER

Printed and Sold by Hugh A. George Co., Stationers, 800 Tatnall St., Wilmington, Del.

BOARD OF ASSESSMENT NEW CASTLE COUNTY ★ REGISTERED

This Deed, Made this

3289 31st day of March

our LORD one thousand nine hundred and eighty-nine

BETWEEN, DELMARVA POWER & LIGHT COMPANY, a corporation of the State of Delaware and of the Commonwealth of Virginia, Party of the First Part,

and

DELAWARE SOLID WASTE AUTHORITY, a body politic constituting an instrumentality of the State of Delaware, of 1128 S. Bradford Street, P.O. Box 455, Dover, Kent County and State of Delaware, Party of the Second Part,

Witnesseth, *That the said party of the first part, for and in consideration of the sum of* Ten ($10.00) Dollars and other good and *lawful money of the United States of America,* valuable consideration *the receipt whereof is hereby acknowledged, hereby grants and conveys unto the said party of the second part,* its successors or assigns:

ALL that certain tract, piece or parcel of land situate on Hay or Marsh Road, Cherry Island, City of Wilmington, New Castle County, Delaware and shown on a plan prepared by VanDemark & Lynch, Inc., Engineers, Planners, and Surveyors, Wilmington, Delaware, dated September 18, 1984 and revised through April 15, 1986, Drawing No. 22988-M, Revision No. 4:

NOTE: Delmarva Power & Light Company bearings are indicated in parenthesis.

BEGINNING at a point on the centerline of Hay or Marsh Road (at 30 feet wide) said point being distant the three following described courses and distances from the intersection of the northwesterly side of relocated Hay Road (at 80 feet wide) and the southwesterly side of 12th Street (at 80 feet wide): (1) along the said northwesterly side of relocated Hay Road (at 80 feet wide), South 42 degrees 18 minutes 25 seconds West, (South 51 degrees-27 minutes-55 seconds West) 393.18 feet to a point; (2) partially crossing the terminus of relocated Hay Road, South 48 degrees 59 minutes 05 seconds East (South 39 degrees-49 minutes-35 seconds East) 65.02 feet to a point in the said old centerline of Hay or Marsh Road, and (3) along the said old centerline of Hay or Marsh Road, South 42 degrees 10 minutes 37 seconds West, (South 51 degrees-20 minnutes-07 seconds West), 747.45 feet to the point of beginning; thence from the said point of beginning, South 49 degrees 19 minutes 30 seconds East, (South 40 degrees-10 minutes-00seconds East), 947.24 feet to a point; thence South 29 degrees 21 minutes 13 seconds West, (South 38 degrees-30 minutes 43 seconds West) 401.18 feet to a point; thence North 62 degrees 03 minutes 30 seconds West, (North 52 degrees-54 minutes-00 seconds West), 461.85 feet to a point; thence North 48 degrees 27 minutes 30 seconds West, (North 39 degrees-18 minutes- 00 seconds West), 206.08 feet to a point, a corner for lands about to be conveyed to Delmarva Power & Light Company; thence along the northesaterly line of said lands about to be conveyed to Delmarva Power & Light Company, North 48 degrees 27 minutes 30 seconds West (North 39 degrees-18 minutes-00 seconds West), 384.50 feet to a point in the said old centerline of Hay or Marsh Road; thence thereby North 42 degrees 26 minutes 30 seconds East (North 51 degrees-36 minutes- 00 seconds East), 40.48 feet to a point; thence North 59 degrees 07 minutes 13 seconds West, (North 49

REC'D FOR RECORD APR 11 1989 WILLIAM M. HONEY, Recorder

degrees-57 minutes - 43 seconds West), 1160.90 feet to a point on the southeasterly side of a 30 foot wide sewer right of way; thence along the said southeasterly side of the 30 foot wide sewer right of way, North 54 degrees 02 minutes 21 seconds East (North 63 degrees -11 minutes - 51 seconds East), 674.37 feet to a point; thence South 48 degrees 35 minutes 30 seconds East, (South 39 degrees-26 minutes - 00 seconds East), 1001.94 feet to a point in the said old centerline of Hay or Marsh Road and the point and place of beginning; containing within said metes and bounds, 24.198 acres of land, being the same, more or less; and

BEING a part of the same lands and premises which were conveyed unto Delaware Power & Light Company, a Delaware corporation, by the following two deeds:

1. Deed from S. Harry Lingo, single man, dated May 6, 1944 and recorded in the Office of the Recorder of Deeds in and for New Castle County and State of Delaware in Deed Book G, Volume 44 at Page 484.

2. Deed from S. Harry Lingo, single man, dated May 18, 1944 and recorded in the aforesaid Recorder's Office in Deed Book G, Volume 44, at Page 493.

In Witness Whereof, *The said* Delmarva Power & Light Company, a corporation of the State of Delaware and the Commonwealth of Virginia *hath caused its name by* Thomas S. Shaw *its* Vice-President *to be hereunto set, and the common and corporate seal of the said corporation to be hereunto affixed, duly attested by its* Secretary, *the day and year first above written.*

DELMARVA POWER & LIGHT COMPANY

Sealed and Delivered in the Presence of

BY: T. S. Shaw
Vice-President

ATTEST: D. P. [illegible]
Secretary

State of Delaware,
NEW CASTLE **County,** } ss.

Be It Remembered, *That on this* 31st *day of* March *in the year of our LORD one thousand nine hundred and* eighty-nine *personally came before me,* the subscriber, *a Notary Public for the State of Delaware,*

Vice-President of Delmarva Power & Light Company, and the Commonwealth of Virginia, *a corporation existing under the laws of the State of Delaware/ party to this Indenture, known to me personally to be such, and acknowledged this Indenture to be his act and deed and the act and deed of said corporation, that the signature of the* Vice-President *thereto is in his own proper handwriting and the seal affixed is the common and corporate seal of said corporation, and that his act of sealing, executing, acknowledging and delivering said Indenture was duly authorized by a resolution of the Board of Directors of said corporation.*

GIVEN under my Hand and Seal of Office, the day and year aforesaid.

Sheryl [illegible]
Notary Public

RECD FOR RECORD APR 11 1989 WILLIAM M. HONEY Recorder

IN THE
UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

3905

UNITED STATES OF AMERICA, Plaintiff, vs. 11.45 ACRES OF LAND, MORE OR LESS, SITUATE IN NEW CASTLE COUNTY, STATE OF DELAWARE, AND R. ARNOLD BOYER, ET AL, Defendants	)	DECLARATION OF TAKING CIVIL NO. 81-733

TO THE HONORABLE,
THE UNITED STATES DISTRICT COURT:

I, John O. Marsh, Jr., Secretary of the Army,

do hereby declare that:

1. (a) The land hereinafter described is taken under and in accordance with the Act of Congress approved February 26, 1931 (46 Stat. 1421, 40 U.S.C. 258a), and acts supplementary thereto and amendatory thereof, and under the further authority of the Acts of Congress approved April 24, 1888 (25 Stat. 94, 33 U.S.C. 591) and July 18, 1918 (40 Stat. 911, 33 U.S.C. 594), which acts authorize the acquisition of land for river and harbor purposes; the Act of Congress approved June 20, 1938 (Public Law 685-75th Congress), which act authorizes the Delaware River from Allegheny Avenue, Philadelphia, Pennsylvania to the Sea Project and the Act of Congress approved December 4, 1981 (Public Law 97-88), which act made funds available for such purposes.

(b) The public uses for which said land is taken are as follows: The said land is necessary to provide for the maintenance of navigation in the Delaware River and for other uses incident thereto. The said land has been selected by me for acquisition by the United States for use in connection with the Edge Moor Disposal Area and for such other uses as may be authorized by Congress or by Executive Order.

2. A general description of the land being taken is set forth in Schedule "A" attached hereto and made a part hereof, and is a description of the same land described in the complaint in the above entitled cause.

3. The estate taken for said public uses is the fee simple title to the land described in Schedule "A", subject, however, to existing easements for public roads and highways, public utilities, railroads and pipelines.

4. A plan showing the land taken is annexed hereto as Schedule "B" and made a part hereof.

5. The sum estimated by me as just compensation for said land, with all buildings and improvements thereon and all appurtenances thereto and including any and all interests hereby taken in said land, is set forth in Schedule "A" herein, which sum I cause to be deposited herewith in the registry of said court for the use and benefit of the persons entitled thereto. I am of the opinion that the ultimate award for said land probably will be within any limits prescribed by law on the price to be paid therefor.

IN WITNESS WHEREOF, the United States of America, by its Secretary of the Army, thereunto authorized, has caused this declaration to be signed in its name by said John O. Marsh, Jr., Secretary of the Army, this 3RD day of SEPTEMBER, A.D. 19 80, in the City of Washington, District of Columbia.

John O. Marsh, Jr.
Secretary of the Army

The land which is the subject matter of this Declaration of Taking aggregates 11.45 acres, more or less, situate in New Castle County, State of Delaware. The description of the land, together with the names of the purported owners thereof, and a statement of the sum estimated to be just compensation therefor, are as follows:

SCHEDULE "A"

EDGE MOOR DISPOSAL AREA

NEW CASTLE COUNTY, DELAWARE

TRACT NUMBER 108

A certain tract of land situate in the State of Delaware, New Castle County, City of Wilmington, and more particularly bounded and described as follows:

Beginning at a corner common to lands now or formerly owned by the Frederick A. Potts Company and lands of the subject owner, in a line of lands now or formerly owned by the Delmarva Power and Light Company, said corner being in the center of Hay/Marsh Road, said corner being further located North 42°11'13" East 839.02 feet from the intersection of the centerlines of said Road and 4th Street; thence, leaving lands of said Potts Company and the centerline of said Road, and with a line of lands of said Power Company, the following courses and distances:

North 49°19'30" West 1,032.00 feet,
North 31°32'00" East 352.41 feet to a corner common to lands of said Power Company and lands of the subject owner, in a line of lands now or formerly owned by the State of Delaware; thence, leaving lands of said Power Company and with a line of said State lands,

North 81°06'15" East 162.78 feet to a corner common to lands now or formerly owned by the Wilmington Terminal Company and lands of the subject owner, in a line of said State lands; thence, leaving said State lands and with a line of lands of said Terminal Company;

South 49°19'30" East 994.80 feet to a corner common to lands of said Terminal Company and lands of the subject owner, in a line of lands of said Potts Company, being in the center of said Road; thence, leaving lands of said Terminal Company and with a line of lands of said Potts Company, along the centerline of said Road,

South 42°10'37" West 472.00 feet to the place of beginning, containing 11.45 acres, more or less.

The bearings used herein are referenced to the Delaware State Plane Coordinate System, 1927 North American Datum.

It is the intent of the foregoing description to include the same land as that described in a deed from Howard L. Weldin, Jr. and Barbara Weldin, his wife, Jacob Atwood Weldin and Elsie H. Weldin, his wife, and Frances W. Fritz, widow, to R. Arnold Boyer and Nancy W. Boyer, his wife, and Willis Weldin and Sarah M. Weldin, his wife, dated 19 January 1977, and filed for record, 20 January 1977, in Deed Book 95, Page 207, in the land records of New Castle County, Delaware.

PURPORTED OWNERS:

R. Arnold Boyer and
Nancy W. Boyer, his wife
22 Brookhill Drive
Newark, Delaware 19711

Willis Weldin II, and
Sarah M. Weldin, his wife
22 Brookhill Drive
Newark, Delaware 19711

VOL F121 PAGE 9

New Castle County
City/County Building
800 French Street
Wilmington, Delaware 19801

Getty Pipeline, Inc.
a Delaware Corporation
Delaware City, Delaware 19706

Finance Department
Treasury Division Collection Unit of
New Castle County
City/County Building
800 French Street
Wilmington, Delaware 19801

City Treasurer
City of Wilmington
City/County Building
800 French Street
Wilmington, Delaware 19801

And Unknown Owners

ESTIMATED COMPENSATION: $63,000.00

The gross sum estimated to be just compensation for the estate taken inclusive of all rights set forth in the Declaration of Taking is SIXTY-THREE THOUSAND DOLLARS ($63,000.00)

RECORDED FOR RECORD FEB 15 1983 4:10 PM LEO I. DUGAN, Jr. Recorder

CERTIFIED:
AS A TRUE COPY:
ATTEST:
J. R. MC ALLISTER JR., CLERK
BY Marlene A. Stewart
DEPUTY CLERK (4 pages)

88058

96 AUG -6 PM 12:18 2148 PG 0244

MICHAEL [illegible] BATTAGLIA
RECORDER OF DEEDS
NEW CASTLE CO. DE

TAX PARCEL NO. 26-065.00-002 (PART OF)

PREPARED BY: DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS
P.O. Box 1715
Baltimore, MD 21203

BOARD OF ASSESSMENT, NEW CASTLE COUNTY
REGISTERED

QUITCLAIM DEED

THIS QUITCLAIM DEED, made this 22th day of July 1996, between the United States of America, Grantor, and the Delaware Solid Waste Authority, Grantee, under and pursuant to the Federal Property and Administrative Services Act of 1949 (63 Stat. 377), as amended, and the delegation of authority to the Secretary of Defense from the Administrator of General Services Administration (41 C.F.R. 101-47.601) and the redelegation of authority from the Secretary of Defense to the Secretary of the Army (20 F.R. 7113).

WITNESSETH THAT:

WHEREAS, in accordance with 41 C.F.R. 101-47.601 and Chapter 6-1.a. and 6-2.c. of the Federal Property Management Regulations, the United States of America has determined that a negotiated sale to the Delaware Solid Waste Authority is in the public interest, in the conveyance of the land described in Exhibit "A", attached hereto and made a part hereof, the said Grantee being an agency of the State of Delaware.

NOW THEREFORE, the United States of America, for and in consideration of TWELVE THOUSAND SEVEN HUNDRED TEN DOLLARS ($12,710.00) and of other good and valuable considerations, the receipt and sufficiency whereof is acknowledged, does hereby quitclaim, grant, bargain, sell and convey unto the Grantee all that parcel of land described in Exhibit "A", attached hereto and made a part hereof, known as a 12.71 acre portion of Tract A of the Bellevue Disposal Area, New Castle County, Delaware.

SUBJECT to existing easements for public roads and highways, public utilities, railroads, and pipelines.

TO HAVE AND TO HOLD the property herein granted unto the Grantee and its assigns, in fee simple, forever.

IN WITNESS WHEREOF, the Grantor has caused these presents to be executed the day and year aforesaid.

WITNESS:

Michael R. Hewitt James S. Turkel (SEAL)

JAMES S. TURKEL
Chief, Real Estate Division

SEAL OF THE CITY OF WILMINGTON

EB 8-5-96

VALIDATION [illegible]
AMOUNT OF CITY [illegible]
RECEIVED BY
LOT #

4/17100

NCC 04A 10:50 AUG '96 045 $ 00 ST

STATE OF MARYLAND)
)
COUNTY OF BALTIMORE)

On this, the 22nd day of July 1996, before me, a Notary Public for the State of Maryland, the undersigned officer, personally appeared James J. Sulkel, known to me (or satisfactorily proven to be) the person whose name is subscribed to the within instrument for the purposes therein expressed as the act and deed of the United States of America.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

(SEAL)
Notary Public

My commission expires:
September 1, 1997

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88059

BK2148PG0248

The State of Delaware

To ANN J. TUCKER of New Castle County, Delaware, Greetings:

Know you, that reposing special trust and confidence in your knowledge, integrity, prudence, and ability we have constituted and appointed, and by these presents do constitute and appoint you, the said ANN J. TUCKER to be a Notary Public for the State of Delaware for the term of four years effective the eighteenth day of July, A.D. 1996, resident at NEW CASTLE, New Castle County, Delaware, giving hereby and granting unto you the said ANN J. TUCKER full power and authority to execute and discharge the said office of the commission aforesaid in all the several parts and branches thereof and keeping of all records, books, papers and writings whatsoever to the said office belonging:

To Hold, Exercise and Enjoy the Said Office

With all fees, perquisites, emoluments, and advantages thence lawfully arising, or thereunto of right in anywise appertaining, until your term therein, according to law, shall of course expire; you behaving yourself well so long in the said office.

In Witness Whereof, I, Thomas R. Carper, Governor of the State of Delaware have hereunto set my hand and the Great Seal of the State of Delaware has been hereunto affixed by the Secretary of State, at Dover, on this the eighteenth day of July, A.D. 1996.

No. 199619949

Thomas R Carper
By the Governor

Edward J. Freel
Secretary of State

CILF

(No. 40-B)

CORPORATE DEED-TYPEWRITER

Printed and Sold by Hugh George Co., Stationers

This Deed, Made this

4154 day of in the year of

our LORD one thousand nine hundred and eighty-eight (1988)

BETWEEN, FREDERIC A. POTTS & CO., INC., a New York corporation, c/o Theisen, Lank, Mulford & Goldberg, P.A., P.O. Box 1470, Wilmington, Delaware, party of the first part,

a n d

DELAWARE SOLID WASTE AUTHORITY, an instrumentality of the State of Delaware, party of the second part, P.O. Box 455, Dover, Delaware 19903,

Witnesseth, That the said party of the first part, for and in consideration of the sum of SEVEN HUNDRED SEVENTY-FIVE THOUSAND ($775,000.00) DOLLARS, lawful money of the United States of America, the receipt whereof is hereby acknowledged, hereby grants and conveys unto the said party of the second part, its successors or assigns

TRACT NO. 1 ALL that certain piece, parcel or tract of land situated in Cherry Island in the City of Wilmington, New Castle County and State of Delaware, more particularly bounded and described according to a computed survey by James M. Holden, Registered Land Surveyor, dated July 24, 1974, as follows, to-wit:

BEGINNING at a point on the Southwesterly side of Fourth Street, at 100 feet wide, at a corner for Lands of the United States of America, said point being S. 62° 03' East, 1888.36 feet measured along said side of 4th Street from the southeasterly side of the Philadelphia, Baltimore and Washington Railroad Company, at 100 feet wide;

THENCE extending the four (4) following courses and distances along said lands of the United States of America: (1) S. 41° 49' W., 165.53' to a point; (2) S. 48° 54' 30" E., 1251.70' to a point; (3) S. 21° 35' 30" W., 964.45' to a point; (4) S. 67° 09' 30" E., and crossing the former low water line of the Delaware River at a distance of 870', an overall distance of 3225.06' more or less to a point on the Bulkhead line for the Delaware River as established on a plan of "Delaware River Harbor Lines Christiana River and Vicinity", dated February 16, 1921, U.S. Engineer Office, Philadelphia, PA., approval of "Modified Pierhead and Bulkhead lines in the Christiana and of the extension down the Delaware River" by the War Department April 14, 1921; Thence, thereby N. 16° 43' 52.7" E., 2103.98', more or less, to a point of intersection with the Southwesterly extension of the Division Line between these lands herein described and lands now or formerly of the Wilmington Terminal Company; Thence N. 67° 47' 26" W. along said division line extended, 86.40 feet to a point of intersection with the southwesterly extension of the Bulkhead line established by survey of lands of DuPont deNemours & Company and lands of the Mayor and Council of Wilmington, said point being 3648 feet distant measured along said Bulkhead line from the centerline of Old Shellpot Creek; thence continuing along the division line between these lands

DUPLICATE

and lands now or formerly of Wilmington Terminal Co., N. 67° 47' 26" W., 2875.30 feet, more or less, to a point on the former river bank of the Delaware River, said point being a corner for lands now or formerly of Delmarva Power & Light Co.; Thence extending by the (3) following courses and distances along line of lands now or formerly of said Delmarva Power and Light Co.; (1) S. 29° 21' 43" W., 401.18 feet to a point; (2) N. 62° 03' W., 461.85 feet to a point; (3) N. 48° 27' W. 590.58 feet to a point in the center of Hay Road, at 30 feet wide; Thence thereby S. 41° 53' W., 297.45 feet to a point on the northeasterly side of said 4th Street, said point being S. 62° 03' E., measured along said side of 4th Street, 1810.00 feet from a stone monument set on the southeasterly side of said Philadelphia, Baltimore and Washington Railroad Co., at 175 feet wide; Thence S. 41° 53' W., 51.51 feet to a point in the centerline of said 4th Street; Thence S. 41° 49' W., 51.50 feet to the first mentioned point and place of Beginning, Containing within said metes and bounds 164.25 acres of land, be the same more or less.

(of which 9.77 acres, more or less, is occupied by the southeasterly extension of 4th Street from the northwesterly side of lands herein described to the Bulkhead line of the Delaware River as established by this survey).

BEING the same lands and premises granted unto Frederic A. Potts & Co. Inc., a corporation of the State of New York, by deed of Charles T. Gallagher and Hope D. Gallagher, his wife, dated October 21, 1975 and of record in the Office of the Recorder of Deeds in and for New Castle County, Delaware in Deed Record B-91, Page 298.

TRACT NO. 2 ALL of the lands and premises of the party of the first part situate East of Hay Road, Cherry Island Marsh, City of Wilmington, New Castle County and State of Delaware, the same being described as follows, to wit:

BEGINNING at a point in the Easterly side of Hay Road at 80 feet wide, said point being a corner for the lands herein described and lands now or formerly of the City of Wilmington (Deed Record E, Volume 87, Page 520); thence from said point of Beginning the four following courses and distances along the line of lands of the City of Wilmington: (1) South 62 degrees, 0 minutes, 4 seconds East, 933.60 feet to a point; (2) South 56 degrees, 2 minutes, 7 seconds East 603.51 feet to a point; (3) South 43 degrees, 34 minutes, 6 seconds East, 422.17 feet to a point; (4) South 62 degrees, 0 minutes, 4 seconds East, 1497.49 feet to a point in the bulk head line of the Delaware River; thence thereby South 17 degrees, 41 minutes, 8 seconds West, 628.12 feet to line of lands now or formerly of LeBaron B. Barker, thence thereby North 67 degrees, 47 minutes, 26 seconds West, 2,875.30 feet more or less to a corner for lands now or formerly of the Delmarva Power and Light Company; thence thereby North 49 degrees, 19 minutes West 947.24 feet to a point in the center line of Hay Road at 30 feet wide; thence thereby North 42 degrees, 3 minutes, 1 second East, 749.92 feet to a point; thence South 47 degrees, 44 minutes, 4 seconds East, 15 feet to the Easterly side of Hay Road at 80 feet wide, the point and place of BEGINNING. Containing within such metes and bounds 72.17 acres of land.

By this conveyance the party of the first part intends to convey unto the party of the second part all of the lands and premises possessed by the party of the first part East of Hay Road in Cherry Island Marsh as aforesaid.

The party of the first part further conveys unto the party of the second part all of its rights in and to a certain 15 foot wide easement for the purposes of ingress and egress as set forth in an indenture dated December 27, 1972 and recorded in Deed Record E-87, Page 520. The party of the first part also conveys to the party of the second part any and all of its certain rights relating to

Bay or Marsh Road as set forth in Deed Record E-87-520 whereby the City of Wilmington, its successors or assigns agreed to dedicate Hay or Marsh Road, at 80 feet wide including the aforementioned 15 foot easement.

BEING the same lands and premises granted unto Frederic A. Potts & Co. Inc., a corporation of the State of New York, by deed of Bellevue Holding Company, a Delaware corporation, dated March 10, 1976 and of record in the aforesaid Recorder's Office in Deed Record M-92, Page 75.

EXCEPTING THEREFROM, A certain tract of land situate in the State of Delaware, New Castle County, City of Wilmington, and more particularly bounded and described as follows:

BEGINNING at a corner common to lands now or formerly owned by the United States of America, known as Bellevue Spoil Disposal Area, and lands of the subject owner, in a line of other lands now or formerly owned by the United States of America, known as Wilmington Harbor Disposal Area, said corner being further located South 13° 16' 20" East 1932.85 feet from the intersection of the centerline of Hay (Marsh) Road with the centerline of Fourth (4th) Street; thence, leaving said Bellevue Spoil Disposal Area, and with lands of said Wilmington Harbor Disposal Area, the following courses and distances: North 21° 35' 30" East 964.45 feet, North 48° 54' 30" West 1251.70 feet, North 41° 49' 00" East 165.53 feet to a corner common to lands of said Wilmington Harbor Disposal Area, on the southwesterly right-of-way line of 4th Street; thence, leaving lands of said Wilmington Harbor Disposal Area, crossing the right-of-way of said Street, North 41° 49' 00" East 51.50 feet to a point on or near the intersection of the centerline of said Street with the centerline of said Hay (Marsh) Road; thence leaving the centerline of said Street, and with the centerline of said Road, North 41° 50' 20" East, passing a corner common to lands now or formerly owned by Delmarva Power and Light Company and the northeasterly right-of-way line of said Street at 51.50 feet, in all 348.96 feet to a corner common to lands of said Power Company, and lands of the subject owner; thence leaving the centerline of said Road, and with lands of said Power Company, the following courses and distances: South 48° 27' 30" East 590.58 feet, South 62° 03' 30" East 461.85 feet, North 29° 21' 13" East 401.18 feet, North 49° 19' 30" West 947.24 feet to a corner common to lands now or formerly owned by R. Arnold Boyer, et al, and lands of the subject owner, in line of lands of said Power Company, in the centerline of said Road; thence, leaving lands of said Power Company, and with lands of said Boyer, et al, and the centerline of said Road, North 42° 10' 37" East, passing a corner common to lands of said Boyer, et al, and lands now or formerly owned by the Wilmington Terminal Company at 472.00 feet, in all 747.45 feet; thence, leaving the centerline of said Road, and with lands now or formerly owned by the Mayor and City Council of Wilmington, the following courses and distances: South 47° 41' 35" East 15.00 feet, North 42° 18' 25" East 177.94 feet, South 61° 57' 35" East 713.00 feet more or less, to a point on the old river bank; thence, leaving lands of said Mayor and City Council of Wilmington, and with said old river bank, severing lands of the subject owner, the following courses and distances: Meandering in a general southwesterly or southerly direction, 2430 feet more or less; thence, Meandering in a general west-southwesterly direction, 440 feet more or less; thence, Meandering in a general southwesterly direction, 530 feet more or less, to a point on the line of lands of said Bellevue Spoil Disposal Area; thence, leaving said old river bank, and with lands of said Bellevue Spoil Disposal Area, North 67° 10' 00" West 240.00 feet more or less, to the place of beginning, containing 49.79 acres, more or less.

The bearings used herein are referenced to the Delaware State Plane Coordinate System, 1927 North American Datum.

It is the intent of the foregoing description to include a part of the same land as that described in a deed from Charles T. Gallagher, et ux to Frederic A. Potts and Co., Inc., dated 21 October 1975 and filed for record same date, in Deed Book B-91, Page 298, also a part of the same land as that described in a deed from Bellevue Holding Company to Frederic A. Potts and Co., Inc., dated 10 March 1976, and filed for record same date, in Deed Book M-92, Page 75, found in the land records of New Castle County, Delaware.

BEING the same lands and premises condemned and taken by the United States of America through Civil Action No. 82-732 in the United States District Court for the District of Delaware and which taking is reflected in Declaration of Takings filed in the aforesaid Recorder's Office in Deed Record A-121, Page 310 dated January 27, 1983, and Deed Record F-121, Page 1 dated February 15, 1983.

The foregoing tracts being more particularly described in accordance with a survey performed by Vandemark & Lynch, Inc., dated September 7, 1983, as follows, to-wit:

ALL that certain tract, piece or parcel of land situated off relocated Hay Road and East 12th Street, City of Wilmington, New Castle County, Delaware and shown on a plat of a survey by VanDemark & Lynch, Inc., Engineers, Planners and Surveyors, Wilmington, Delaware, dated September 7, 1983, Drawing No. 21540-B;

BEGINNING at a point on the line of lands now or formerly of the Mayor and Council of Wilmington, (Deed Record E, Volume 87, Page 520, dated 12/27/72) said point also being on the Old River Bank for the Delaware River as showo on a plan of "Part of Cherry Island Marsh" dated January 28, 1928, (Transit Book No. 152) and from a plan of "Edgemoor Disposal Area" by the United States Corps of Engineers, dated May 25, 1971, said point of Beginning being distant the three following described courses and distances measured from the point of intersection of the northwesterly side of relocated Hay Road (at 120 feet wide) and the southwesterly side of East 12th Street (at 80 feet wide): (1) Along the said northwesterly side of relocated Hay Road, South 43° 48' 54" West, 216.59 feet to a point; (2) Crossing relocated Bay Road, South 48° 48' 35" East, 120.00 feet to a point, a corner for said lands now or formerly of the Mayor & Council of Wilmington; and (3) Partially along the southwesterly line of said lands now or formerly of the Mayor & Council of Wilmington, South 61° 57' 35" East, 713.00 feet, more or less to the point of Beginning;

THENCE from the said point of Beginning and continuing along the southwesterly lines of the said lands now or formerly of the Mayor & Council of Wilmington, the four following described courses and distances: (1) South 61° 57' 35" East, 220.6 feet, more or less, to a point; (2) South 55° 59' 38" East, 603.51 feet to the point; (3) South 43° 31' 37" East, 422.17 feet to a point; and (4) South 61° 57' 35" East, 1,574.77 feet to a point on the bulkhead line for the Delaware River, said bulkhead line being distant northwesterly 1,030 feet therefrom measured at right angles thereto the centerline of the 800.00 foot wide channel for the Cherry Island Range of the said Delaware River;

THENCE along the said bulkhead and parallel with the said centerline of the 800 foot wide channel of the Cherry Island Range for the said Delaware River, South 16° 43' 35" West, 2,719.15 feet to a point, a corner for lands now or formerly of the United States of America (Tax Parcel No. 26-0.65.00-002);

THENCE partially along the northeasterly line of said lands now or formerly of the United States of America, North 67° 10' 00" West, 2,985.06 feet, more or less, to a point on the said Old River Bank;

THENCE in a northeasterly direction by the various meanderings of the said Old River Bank as shown on the said plan prepared by VanDemark & Lynch, Inc., dated September 7, 1983, Drawing No. 21540-B, crossing Fourth Street Extended (at 100 foot wide) (not cut through) 3,400 feet, more or less to the point and place of Beginning;

CONTAINING within said metes and bounds, 187.42 acres more or less of which includes 6.50 acres, more or less, in the bed of said Fourth Street Extended.

THIS CONVEYANCE is made pursuant to an Order, dated January 7, 1988, entered in the United States District Court for the Eastern District of Pennsylvania in an action entitled In re: F.A. Potts & Co., Inc., et al, being Chapter 11 Nos. 81-03639 and 81-03640. A copy of that Order is attached hereto as Exhibit "A".

In Witness Whereof, *The said* FREDERIC A. POTTS & CO., INC., *hath caused its name by* *its* *President to be hereunto set, and the common and corporate seal of the said corporation to be hereunto affixed, duly attested by its* *Secretary, the day and year first above written.*

FREDERIC A. POTTS & CO., INC.

Sealed and Delivered in the Presence of

Joan Weiderhold

BY: _____ *President*

ATTEST: _____ *Secretary*

State of ~~Delaware~~ Pennsylvania

SCHUYLKILL **County,** } ss.

Be It Remembered, *That on this* 18th *day of* February *in the year of our LORD one thousand nine hundred and* eighty-eight *personally came before me,* the Subscriber *a Notary Public for the State of* ~~Delaware~~ Pennsylvania. *President of* FREDERIC A. POTTS & CO., INC. *a corporation existing under the laws of the State of* ~~Delaware~~ New York *party to this Indenture, known to me personally to be such, and acknowledged this Indenture to be his act and deed and the act and deed of said corporation, that the signature of the* *President thereto is in his own proper handwriting and the seal affixed is the common and corporate seal of said corporation, and that his act of sealing, executing, acknowledging and delivering said Indenture was duly authorized by a resolution of the Board of Directors of said corporation.*

GIVEN under my Hand and Seal of office, the day and year aforesaid.

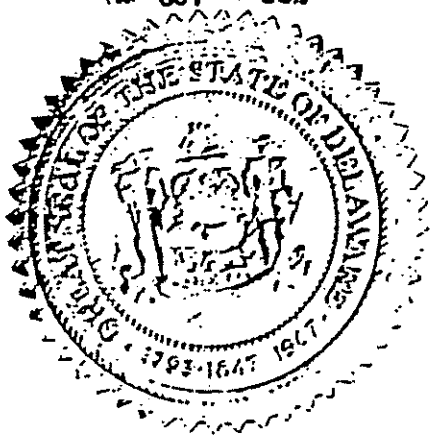
Notary Public

ALETHA M. HEINBAUGH, Notary Public
Pottsville, Schuylkill County, Pa.
My Commission Expires October 18, 1990

RECD FOR RECORD MAY 9 1988 WILLIAM M. HONEY, Recorder

BOOK 097 PAGE 332

5018



The State of Delaware

To SANDRA L. FAIRLEY Of New Castle County, Greeting:

Know You, That reposing special trust and confidence in your knowledge, integrity, prudence, and ability we have constituted and appointed, and by these presents do constitute and appoint you, the said SANDRA L. FAIRLEY To be a notary public for the State of Delaware for the term of 2 years

resident at Claymont, New Castle County, Delaware giving hereby and granting unto you the said SANDRA L. FAIRLEY full power and authority to execute and discharge the said office of the commission aforesaid in all the several parts and branches thereof and keeping of all records, books, papers and writings whatsoever to the said office belonging:

To Hold, Exercise and Enjoy the Said Office

With all fees, perquisites, emoluments and advantages thence lawfully arising, or thereunto of right in anywise appertaining, until your term therein, according to law, shall of course expire; you behaving yourself well so long in the said office.

In Witness Whereof, I, Michael N. Castle Governor of the State of Delaware have hereunto set my hand and the Great Seal of the State of Delaware has been hereunto affixed by the Secretary of State, at Dover, on this 12th day of May in the year of our Lord one thousand nine hundred and eighty-eight and in the year of the Independence of the United States of America the two hundred and twelfth

Michael N. Castle
By the Governor

Assistant Secretary of State

No. 9315

CILF 26-053.00-003

23475

QUITCLAIM DEED

THIS INDENTURE, made by and between the United States of America, acting by and through the Secretary of the Army, under and pursuant to the powers and authority vested in him by Public Law 75-685, approved June 20, 1938, (33 U.S.C. 558b), as amended, hereinafter referred to as the Government, party of the first part, and the Delaware Solid Waste Authority, hereinafter referred to as the Authority, party of the second part.

WITNESSETH:

WHEREAS, by certain Land Exchange Agreement, (Agreement), dated November 14, 1984, the parties hereto agreed to exchange certain lands and rights more particularly described in the said Agreement; and

WHEREAS, the Authority has therein agreed to grant and convey to the Government, subject to a condition of reversion, all its right, title and interest without warranties express or implied, the property therein described; and

WHEREAS, the Government has therein agreed to grant and convey to the Authority, subject to a condition of reversion, all its right, title, and interest without warranties express or implied, the property therein described; and

WHEREAS, the aforesaid Agreement was approved by the Secretary of the Army on 21 August , 1985;

NOW THEREFORE, the Government, for and in consideration of the performance of the terms and conditions of the aforesaid Agreement between the parties hereto, does hereby grant, remise, release, and forever quit-claim unto the Authority, subject to a condition of reversion, all the Government's right, title and interest without warranties express or implied in and to those certain lands situate, lying and being in the City of Wilmington, County of New Castle and State of Delaware, more particularly described in Exhibit A, attached hereto and made a part hereof.

TOGETHER WITH all right, title and interest which the Government may have in the banks, beds and waters of any streams bordering the said lands to be conveyed, and all interest in roads, ways, strips, gores, or railroad rights-of-ways abutting or adjoining said land, and in any means of ingress or egress appurtenant thereto.

SUBJECT TO, existing easements for public roads and highways, public utilities, railroads and pipelines.

TO HAVE AND TO HOLD the property herein conveyed, subject to the reservations, conditions, and covenants herein set forth, to the Authority, its successors and assigns, forever.

FURTHER, it is understood and agreed that the Authority, by acceptance of this deed, does acknowledge its full understanding of the terms and conditions herein set forth, and does further covenant and agree for itself, its successors and assigns, forever as follows:

1. If, after seven years from the date of this conveyance so made, construction of the Wilmington Harbor South Disposal Area has not begun, all right, title, and interest in and to the premises herein conveyed, or part thereof, shall, at the option of the Government, revert to and become the property of the Government, without compensation to the Authority, its successors and assigns.

2. The Government reserves a permanent right of ingress and egress over the premises herein conveyed to its lands and interests severed by this conveyance.

This conveyance is not subject to 10 U.S.C. 2662.

IN WITNESS WHEREOF, the United States of America has caused these presents to be executed in its name by John O. Marsh, Jr., Secretary of the Army, and the seal of the Department of the Army to be hereunto affixed this 21ST day of AUGUST, 1985.

UNITED STATES OF AMERICA

BY: John O. Marsh, Jr.
Secretary of the Army

North 49° 19' 30" West 1,032.00 feet,
North 31° 32' 00" East 352.41 feet to a corner of the Edge Moor boundary common to Tract Number 108 and lands of said Power Co., in a line of lands now or formerly owned by the State of Delaware; thence, leaving lands of said Power Co. along the Edge Moor boundary, a line between Tract Number 108 and said State lands,

North 81° 06' 15" East 162.78 feet to a corner of the Edge Moor boundary common to Tract 108 and lands now or formerly owned by the Wilmington Terminal Company, in a line of said State lands; thence, leaving said State lands along the Edge Moor boundary, a line between Tract Number 108 and lands of said Terminal Co.

South 49° 19' 30" East 994.80 feet to a corner of the Edge Moor boundary common to Tract Numbers 107 and 108, and lands of said Terminal Co. in the centerline of said Road; thence, leaving Tract Number 108 along the Edge Moor boundary, a line between Tract Number 107 and lands of said Terminal Co., also being said Road centerline,

North 42° 10' 37" East 275.45 feet to a corner of the Edge Moor boundary common to Tract Number 107, lands of said Terminal Co. and lands now or formerly owned by the Mayor and City Council of Wilmington, in the centerline of said Road; thence, leaving lands of said Terminal Co. and the centerline of said Road along the Edge Moor boundary, a line between Tract Number 107 and lands of said Mayor and City Council of Wilmington the following courses and distances:

South 47° 41' 35" East 15.00 feet,
North 42° 18' 25" East 177.94 feet,
South 61° 57' 35" East 713.00 feet, more or less to a corner of the Edge Moor boundary on the old river (Delaware) bank common to Tract Number 107 and lands now or formerly owned by Frederick A. Potts and Co., Inc. in a line of lands of said Mayor and City Council of Wilmington; thence, leaving lands of said Mayor and City Council of Wilmington along the Edge Moor, boundary a line between Tract Number 107 and lands of said Potts and Co., Inc. also being said old river bank,

Meandering in a generally south-southwesterly direction 2,186 feet, more or less to a point on the Edge Moor boundary, a line between Tract Number 107 and lands of said Potts and Co., Inc.; thence, leaving the Edge Moor boundary and said old river bank and lands of said Potts and Co., Inc. and crossing Tract Number 107,

North 66° 29' 39" West crossing the line between the Edge Moor boundary, a line of Tract Number 107 and the Wilmington Harbor boundary, a line of Tract Number 100 at 589.61 feet, in all 2,295.93 feet to a point on the line between Tract Number 100 and Tract Number 101 of the Wilmington Harbor Disposal Area; thence, along said line between Tract Numbers 100 and 101,

North 15° 52' 58" East 554.83 feet to the place of beginning, containing 66.18 acres, more or less.

The bearings used herein are referenced to the Delaware State Plane Coordinate System, 1927 North American Datum.

It is the intent of the foregoing description to include a portion of the same land as that described in the following Declarations of Taking by the United States of America as filed in the District Court of the United States of America for the District of Delaware,

from Wilmington Harbor Co., et al, by Civil Action 2904, dated 21 August 1964, final opinion by Attorney General dated 27 June 1967,

from Frederick A. Potts and Co., Inc., by Civil Action 82-732 dated 12 November 1982.

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Also the same land as that described in the following Declaration of Taking by the United States of America as filed in the District Court of the United States of America for the District of Delaware,

from R. Arnold Boyer, et al, by Civil Action 82-733 dated 12 November 1982.

BOOK 309 PAGE 107

LEO J. DUGAN, Jr. Recorder

NOV 2 6 1985

REC'D FOR RECORD

BOOK 309 PAGE 106

BOOK 309 PAGE 108

18395

The State of Delaware

To ELEANOR C. BALDWIN
Of New Castle County, Greetings:

Know You, That reposing special trust and confidence in your knowledge, integrity, prudence, and ability we have constituted and appointed, and by these presents do constitute and appoint you, the said ELEANOR C. BALDWIN
To be a notary public for the State of Delaware for the term of 2 years

resident at Wilmington, New Castle County, Delaware
giving hereby and granting unto you the said ELEANOR C. BALDWIN
full power and authority to execute and discharge the said office of the commission aforesaid in all the several parts and branches thereof and keeping of all records, books, papers and writings whatsoever to the said office belonging:

To Hold, Exercise and Enjoy the Said Office

With all fees, perquisites, emoluments and advantages thence lawfully arising, or thereunto of right in anywise appertaining, until your term therein, according to law, shall of course expire; you behaving yourself well so long in the said office.

In Witness Whereof, I,
Michael N. Castle
Governor of the State of Delaware have hereunto set my hand and the Great Seal of the State of Delaware has been hereunto affixed by the Secretary of State, at Dover, on this twenty-ninth day of November in the year of our Lord one thousand nine hundred and eighty-five and in the year of the Independence of the United States of America the two hundred and tenth

Michael N. Castle
By the Governor

Michael Forbes
Richard R. Carpenter
Assistant Secretary of State

No. 3865

(NO. 30-D) CORPORATE DEED-TYPEWRITER
Printed and Sold by Hugh A. George Co., Stationers, 100 Tatnall St., Wilmington, Del.

This Deed, Made this

BOARD OF ASSESSMENT, NEW CASTLE COUNTY
REGISTERED
in the year

7657 30th day of May

our LORD one thousand nine hundred and eighty-four

BETWEEN, CITY OF WILMINGTON, a municipal corporation of the State of Delaware, party of the first part,

AND

DELAWARE SOLID WASTE AUTHORITY, a body politic and corporate constituting a public instrumentality of the State of Delaware, party of the second part,

Witnesseth, That the said party of the first part, for and in consideration of the sum of ONE DOLLAR ($1.00) and other good lawful money of the United States of America, and valuable consideration---------- the receipt whereof is hereby acknowledged, hereby grants and conveys unto the said party of the second part, its successors and assigns,

ALL those five certain tracts, pieces or parcels of land situate in the City of Wilmington, New Castle County, State of Delaware, being bounded and described as follows, to-wit:

Parcel A:

ALL THAT CERTAIN tract, piece or parcel of land located on Cherry Island in the City of Wilmington, New Castle County, State of Delaware lying East of I-495 and being bounded on the North by 12th Street, on the East by relocated Hay Road and Hay Road or Marsh Road (not cut through), on the South by lands now or formerly of Mahaffey, and on the West by lands now or formerly of the State of Delaware, and being more particularly described in accordance with a plan of Terraqua Resources Corporation as follows, to-wit:

BEGINNING at a point being the intersection of the southerly line of 12th Street and the westerly line of relocated Hay Road;

THENCE running from said point of beginning with relocated Hay Road the following two courses and distances: (1) South 43°-48'-54" West 216.59 feet; (2) South 48°-48'-35" East 120.00 feet; thence South 42°-18'-25" West 177.94 feet to a point; thence North 47°-41'-35" West 15.00 feet to a point; thence with lands now or formerly of Mahaffey North 48°-59'-05" West 903.79 feet to a point in line of lands now or formerly of the State of Delaware; thence with lands now or formerly of the State of Delaware on the following two courses: (1) North 65°-58'-31" East 190.60 feet; (2) North 47°-19'-49" East 239.62 feet to a point in the southerly line of 12th Street; thence with the southerly line of 12th Street South 47°-01'-38" East 703.59 feet to the point and place of beginning and containing within said metes and bounds 7.31 acres of land be the same more or less. Subject to a pipeline easement and a sanitary sewer right-of-way.

BEING a part of the same lands and premises which Wilmington Terminal Company, a Delaware corporation, by its deed dated February 8, 1952 and recorded in the Office of the Recorder of Deeds in and for New Castle County, in Deed Record A, Volume 52, Page 169 did grant and convey unto the Mayor and Council of Wilmington, a municipal corporation of the State of Delaware.

Parcel B:

ALL THAT CERTAIN tract, piece or parcel of land located on the westerly side of the Delaware River, northeasterly of a right of way for the Delaware River Extension Branch of the Reading Railroad Company and easterly of a right of way for Conrail formerly Penn Central Railroad - New Castle Cut-Off, Pigeon Point, New Castle County, Delaware and shown as Parcel D-1 on a plan entitled "Portion of Property of City of Wilmington", prepared by VanDemark & Lynch, Inc., Consulting Engineers and Surveyors, Wilmington, Delaware dated August 17, 1983, drawing no. 21503-B;

BEGINNING at a point on the southeasterly side of a 100 foot wide right of way for Conrail (formerly Penn Central Railroad - New Castle Cut-Off), said point being a corner for lands now or formerly of The Sico Company;

THENCE from said point of Beginning and along the southwesterly line of said lands now or formerly of The Sico Company, South 87°-38'-10" East, 1,394.39 feet to a point a corner for Parcel D-3;

THENCE along the northwesterly line of said Parcel D-3 and the northwesterly line of Parcel D-2, South 02°-21'-50" West, 760.00 feet to a point;

THENCE along the southwesterly line of said Parcel D-2, South 87°-38'-10" East, 683.69 feet to a point near the westerly high water line of the Delaware River;

THENCE, South 13°-30'-23" West, 1,712.10 feet to a point on a northeasterly side of the said right of way for the Delaware River Extension Branch of the Reading Railroad Company;

THENCE THEREBY, the four following described courses and distances:

(1) northwesterly by a curve to the right having a radius of 3,819.83 feet, an arc distance of 767.62 feet to a point of tangency for said curve, said point being distant by a chord of North 47°-13'-35" West, 766.33 feet from the last described point;
(2) North 41°-20'-10" West, 1,425.00 feet to a point;
(3) South 48°-31'-50" West, 20.00 feet to a point; and
(4) North 41°-28'-10" West, 298.09 feet to a point on the said southeasterly side of the 100 foot wide right of way for Conrail (formerly Penn Central Railroad - New Castle Cut-Off);

THENCE THEREBY, northeasterly by a curve to the left having a radius of 5,779.60 feet, an arc distance of 715.76 feet to the point and place of Beginning, said point being distant by a chord of North 05°-53'-40" East, 715.30 feet from the last described point;

CONTAINING within said metes and bounds, 65.899 acres of land be the same more or less.

TOGETHER with the use of an access easement extending from Lambsons Lane to the above described parcel as described in Deed Record R, Volume 84, Page 693 recorded in the Office of the Recorder of Deeds in and for New Castle County.

BEING a part of the same lands and premises which New Castle County by its deed dated July 30, 1980 and recorded in the Office of the Recorder of Deeds in and for New Castle County, in Deed Record I, Volume 111, Page 285 did grant and convey unto the City of Wilmington, a municipal corporation of the State of Delaware.

Parcel C:

ALL THAT CERTAIN tract, piece or parcel of land located on the westerly side of the Delaware River, northeasterly of a right of way for the Delaware River Extension Branch of the Reading Railroad Company and easterly of a right of way for Conrail formerly Penn Central Railroad - New Castle Cut-Off, Pigeon Point, New Castle County, Delaware and shown as Parcel D-3 on a plan entitled "Portion of Property of City of Wilmington", prepared by VanDemark & Lynch, Inc., Consulting Engineers and Surveyors, Wilmington, Delaware dated August 17, 1983, drawing no. 21503-B;

BEGINNING at a point a corner for adjoining lands known as Parcel D-1 and lands now or formerly of The Sico Company, said point being distant measured along the southwesterly line of said lands now or formerly of The Sico Company, South 87°-38'10" East, 1,394.39 feet from a point on the southeasterly side of a 100 foot wide right of way for Conrail (formerly Penn Central Railroad - New Castle Cut-Off);

THENCE from said point of Beginning and continuing along the extension of the southwesterly line of said lands now or formerly of The Sico Company, South 87°-38'-10" East, 830.00 feet to a point on the westerly high water line of the Delaware River;

THENCE southwesterly along the various courses of the said westerly high water line of the Delaware River, 200 feet more or less to a point a corner for Parcel D-2, said point being distant by a tie of South 19°-58'-35" West, 198.30 feet from the last described point;

THENCE along the northeasterly line of said Parcel D-2, North 87°-38'-10" West, 770.00 feet to a point in the line of said Parcel D-1;

THENCE partly along the southeasterly line of said Parcel D-1, North 02°-21'-50" East, 189.00 feet to the point and place of Beginning.

CONTAINING within said metes and bounds, 3.43 acres of land be the same more or less.

BEING a part of the same lands and premises which New Castle County by its deed dated July 30, 1980 and recorded in the Office of the Recorder of Deeds in and for New Castle County, in Deed Record I, Volume 111, Page 285 did grant and convey unto the City of Wilmington, a municipal corporation of the State of Delaware.

Parcel D:

ALL THAT CERTAIN tract, piece or parcel of land located on the westerly side of the Delaware River, northeasterly of a right of way for the Delaware River Extension Branch of the Reading Railroad Company and easterly of a right of way for Conrail formerly Penn Central Railroad - New Castle Cut-Off, Pigeon Point, New Castle County, Delaware and shown as Parcel D-2 on a plan entitled "Portion of Property of City of Wilmington", prepared by VanDemark & Lynch, Inc., Consulting Engineers and Surveyors, Wilmington, Delaware dated August 17, 1983, drawing no. 21503-B;

BEGINNING at a point on the southeasterly line of Parcel D-1, said point being a corner for Parcel D-3 and being distant the two following described courses and distances from the southeasterly side of a 100 foot wide right of way for Conrail (formerly Penn Central Railroad - New Castle Cut-Off):

(1) along the southwesterly line of lands now or formerly of The Sico Company, South 87°-38'-10" East, 1,394.39 feet to a point a corner for said Parcel D-3; and
(2) along the northwesterly line of said Parcel D-3, South 02°-21'-50" West, 189.00 feet to the point of Beginning.

THENCE from said point of Beginning and along the southwesterly line of said Parcel D-3, South 87°-38'-10" East, 770.00 feet to a point on the westerly high water line of the Delaware River;

THENCE, South 10°-57'-35" West, 577.49 feet to a point a corner for said Parcel D-1;

THENCE along the northeasterly and southeasterly lines of said Parcel D-1, the two following described courses and distances:

(1) North 87°-38'-10" West, 683.69 feet to a point; and
(2) North 02°-21'-50" East, 571.00 feet to the point and place of Beginning.

CONTAINING within said metes and bounds, 9.53 acres of land be the same more or less.

BEING a part of the same lands and premises which New Castle County by its deed dated July 30, 1980 and recorded in the Office of the Recorder of Deeds in and for New Castle County, in Deed Record I, Volume 111, Page 285 did grant and convey unto the City of Wilmington, a municipal corporation of the State of Delaware.

Parcel E:

ALL THAT CERTAIN piece or parcel of land situated on Cherry Island in the City of Wilmington, New Castle County, State of Delaware being bounded on the North by 4th Street (not cut through) on the East by lands now or formerly of the United States of America, on the South by the Christina River, on the West by lands now or formerly of the United States of America and lands now or formerly of the State of Delaware, and being more particularly described in accordance with a Composite Property Plan, portion of Cherry Island Marsh, prepared by VanDemark & Lynch, Inc., Engineers and Surveyors, Wilmington, Delaware, dated September 7, 1983 (file no. 21540-B) as follows, to-wit:

BEGINNING at a point in the southerly line of 4th Street (not cut through) at a common boundary with lands of the State of Delaware, thence running with 4th Street (not cut through) South 62°-03'-30" East 525.18 feet to a point; thence running with lands now or formerly of the United States of America South 15°-52'-58" West a distance of 2729.83 feet to a point in the Harbor Line (combination of Pierhead and Bulkhead line for the Christina River); thence running with the Christina River on the following three courses: (1) North 79°-12'-35" West 35.10 feet to a point; (2) North 65°-00'-37" West 543.91 feet; (3) North 49°-31'-18" West 362.52 feet to a corner for lands now or formerly of the United States of America; thence running with lands now or formerly of the United States of America North 18°-05'-40" East a distance 2052.74 to a point in line of lands of the State of Delaware; thence with lands now or formerly of the State of Delaware North 45°-00'-00" East 634.68 feet to the point and place of beginning and containing within said metes and bounds 51.599 acres of land, be the same more or less, together with any and all riparian rights associated with or appurtenant to the parcel. Subject to a pipeline easement and a sanitary sewer right-of-way.

BEING a part of the same lands and premises which Koppers Company, Inc., a Delaware corporation, by its deed dated July 26, 1963 and recorded in the Office of the Recorder of Deeds in and for New Castle County, in Deed Record O, Volume 71, Page 284 did grant and convey unto the Mayor and Council of Wilmington, a municipal corporation of the State of Delaware.

Subject to all rights-of-way and easements of record.

BOOK 137 PAGE 114

In Witness Whereof, The said City of Wilmington,

hath caused its name by William T. McLaughlin its Mayor to be hereunto set, and the common and corporate seal of the said municipal corporation to be hereunto affixed, duly attested by its City Clerk the day and year first above written.

Sealed and Delivered in the Presence of

Nancy Ellen Daniels

BY: [signature]
MAYOR

ATTEST: [signature]
CITY CLERK.

State of Delaware,
NEW CASTLE County, } SS.

Be It Remembered, That on this 25TH day of May in the year of our LORD one thousand nine hundred and eighty-four personally came before me, the Subscriber, a Notary Public for the State of Delaware. William T. McLaughlin, Mayor of the City of Wilmington, a municipal corporation existing under the laws of the State of Delaware, party to this Indenture, known to me personally to be such, and acknowledged this Indenture to be his act and deed and the act and deed of said municipal corporation, that the signature of the Mayor thereto is in his own proper handwriting and the seal affixed is the common and corporate seal of said municipal corporation, and that his act of sealing, executing, acknowledging and delivering said Indenture was duly authorized by a resolution of the Council of said municipal corporation.

GIVEN under my Hand and Seal of office, the day and year aforesaid.

[signature]
Notary Public

CITY OF WILMINGTON
REAL ESTATE TRANSFER TAX

Amount of City Tax $ [illegible]
Recorded by [illegible]

JUL 30 1984
RECD FOR RECORD
LEO J. DUGAN, JR. Recorder

OPERATIONAL AND MAINTENACE MANUAL (see Volume 12)

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June 2000

Revised April 2001
Revised March 2003

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VII. HYDROGEOLOGIC ASSESSMENT

The regulations contained in the Delaware Regulations Governing Solid Waste (DRGSW) § 4.B.1.e require that owners and operators of sanitary landfills perform a hydrogeologic assessment of the proposed site. In accordance with this requirement, a hydrogeologic assessment was performed for the site when it was first permitted. The assessment, which was performed in 1984 and presented in the document entitled, "*Site Suitability Report – Geotechnical and Hydrogeologic Evaluation Volumes I and II*" by Terraqua Resources Corporation (Terraqua, 1984). This report is provided in Volume 13 of this permit modification application. Additional hydrogeologic studies can be found in Volumes 14 and 15 of this permit modification application. This study contained a comprehensive hydrogeologic assessment that fulfilled the requirements of DRGSW § 4.B.1.e. Because the proposed expansion project will be located entirely within the area evaluated during the 1984 study, the hydrogeologic assessment performed by Terraqua in 1984 satisfies the current requirements of the DRGSW§ 4.B.1.e. The only portion of DRGSW § 4.B.1.e that will be affected by the proposed vertical expansion is the monitoring wells located at the perimeter of the facility. Therefore, this part of the permit application addresses the measures that will be taken to ensure continuous groundwater monitoring in accordance with the requirements of the permit for the facility.

Groundwater has been monitored continuously since 1985 according to the groundwater monitoring program specified in the permit for the facility. In the permit, groundwater monitoring locations, frequency, and analytical and reporting requirements are specified. Groundwater monitoring will continue as specified in the permit except that several monitoring wells will be replaced during the expansion project as described below and as illustrated on Drawing 86. As shown on Drawing 86, ten monitoring wells are located within the area of perimeter berm construction. Each of these wells will need to be decommissioned during the project and then a new well will be installed in the same hydrostratigraphic unit to replace each decommissioned well. The decommissioned wells, as well as their corresponding replacements, are shown on Table VII-1. Each decommissioned well will be replaced in a location as near to the former location as feasible without intruding upon nearby wetlands during well installation. Also, the replacement wells will be installed as one of the first activities of the construction project so that overlap in sampling of the new and old wells can be provided. Table 1 provides a replacement schedule for wells that will be replaced during the expansion project. The proposed groundwater monitoring well network is illustrated on Drawing 86 (i.e., Environmental and Geotechnical Monitoring Plan) in Appendix VIb-A. In addition, two borings along the Christina River will be installed at the locations shown in Drawing 86 (i.e., P-201 and P-202). Each boring will be drilled to weathered bedrock and, if a sand unit is found in the Potomac Formation, then: (i) a monitoring well will be installed at each location where sand is found; and (ii) Table 1 and the figure indicating the monitoring well locations will be updated to reflect these additional monitoring points. Otherwise, if sand is not found in the Potomac Formation, the borehole will be backfilled with grout and abandoned.

Monitoring well decommissioning and construction will be performed in accordance with the Delaware Regulations Governing the Construction and Use of Wells by a qualified well driller licensed in the State of Delaware. As shown in Drawing 86, each replacement monitoring well will be located within 100 ft of the well that it replaces. Because the construction of the expansion components (i.e., PVD installation and MSE berm construction) will likely take several years to complete, well replacement will be phased and coordinated with construction activities to minimize the potential unavailability of a groundwater data from any monitoring point.

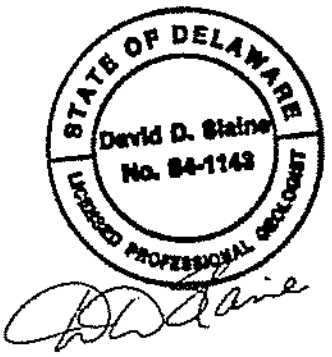

TABLE VII-1

MONITORING WELL REPLACEMENT SCHEDULE

Cherry Island Landfill Expansion Project
Wilmington, Delaware

Existing Monitoring Well[1]	Replacement Monitoring Well[2]
LC-101A	LC-101B
P-101A	P-101B
LC-102	LC-102A
UC-102A	UC-102B
P-102A	P-102B
LC-115	LC-115A
P-108	P-108A
UC-108	UC-108A
LC-105	LC-105A
p-105	P-105A
113	113A

Notes:

(1) Existing Monitoring Well Locations are shown on Drawing 12 - Demolition Plan.

(2) Proposed replacement monitoring well locations are shown on Drawing 86 - Environmental and Geotechnical Monitoring Plan.

Prepared for

DELAWARE SOLID WASTE AUTHORITY
1128 South Bradford Street
Dover, Delaware 19903

APPLICATION FOR SOLID WASTE PERMIT MODIFICATION PART VIII

ENVIRONMENTAL ASSESSMENT REPORT

Wilmington, Delaware

Prepared by

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Project No. ME0250

May 2005

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EXECUTIVE SUMMARY

This environmental assessment report (EAR) has been prepared to present an assessment of potential environmental impacts associated with the proposed vertical expansion of the Cherry Island Landfill (CIL), which is located at the Northern Solid Waste Management Center (NSWMC) in Wilmington, New Castle County, Delaware. The Delaware Solid Waste Authority (DSWA) owns and operates the CIL. This EAR addresses the requirements of § 4.b.1.f (i.e., Environmental Assessment) of the Delaware Regulations Governing Solid Waste (DRGSW), as implemented by the Delaware Department of Natural Resources and Environmental Control (DNREC). In this EAR, the existing environmental setting and conditions are presented as well as an evaluation of the potential environmental impacts posed by the proposed expansion project.

The proposed project involves expanding an existing, permitted municipal solid waste disposal facility; other aspects of the operation that could impact the environment will not change. Issues that are new to the proposed expansion project are potential groundwater quality impacts to the Columbia Formation and impacts to wetlands resulting from expansion of the landfill. Accordingly, this EAR provides an assessment of potential impacts to groundwater quality of using PVDs at the site. The assessment of potential impacts to the Columbia Formation consisted of collection and analyses of pore water samples and comparing the pore water quality data to historical data in the Columbia Aquifer or groundwater quality standards. In addition, a numerical evaluation of the groundwater impact was performed using the collected data. The evaluation of wetlands impacts involved performing a delineation of wetlands at the site and verifying that the site development activities would not impinge on those wetland areas.

The EAR concludes that increasing the rate of pore water discharge through the use of PVDs should not adversely affect the Columbia Formation groundwater quality at Cherry Island. Also, the EAR concludes that none of the proposed activities are expected to impact jurisdictional wetlands at Cherry Island.

1. INTRODUCTION

1.1 Terms of Reference

This Environmental Assessment Report (EAR) has been prepared to present an assessment of potential environmental impacts associated with the proposed vertical expansion of the Cherry Island Landfill (CIL), which is located at the Northern Solid Waste Management Center (NSWMC) in Wilmington, New Castle County, Delaware. The Delaware Solid Waste Authority (DSWA) owns and operates the CIL. This EAR addresses the requirements of § 4.B.1.f (i.e., Environmental Assessment) of the Delaware Regulations Governing Solid Waste (DRGSW), as implemented by the Delaware Department of Natural Resources and Environmental Control (DNREC). In this Subpart of the Permit Application, the existing environmental setting and conditions are presented, as well as an evaluation of the potential environmental impacts posed by the proposed expansion project.

This EAR was prepared by Mr. Paul Botek and Dr. Neal Durant of GeoSyntec Consultants (GeoSyntec) with the assistance of Mr. Richard Berringer, P.E., of Duffield and Associates, Inc. (Duffield) of Wilmington, Delaware, and members of GeoSyntec's staff from the Columbia, Maryland office. Mr. Michael F. Houlihan, P.E., of GeoSyntec directed the assessment and reviewed this EAR in accordance with the firm's quality control procedures.

1.2 Purpose and Scope

The purpose of this environmental assessment is to address the administrative requirements of the DRGSW § 4.B.1.f (i.e., Environmental Assessment). The proposed project involves expanding an existing, permitted municipal solid waste disposal facility; other aspects of the operation that could impact the environment will not change (e.g., waste disposal rate, waste management operations, site location, etc.). The environmental conditions at the site, and the potential environmental impacts of waste disposal at the CIL, have been well characterized and documented in previous permit applications and site investigations; the location where these assessments were provided is identified in Table 1. Because the expansion does not involve a new activity or a significant change to current operations, this EAR is focused only on the new ways that the expanded landfill could impact the environment. As shown in Section 3 of this EAR, the potential new impacts include: (i) impacts to groundwater quality resulting from the use of pre-fabricated vertical drains (PVDs); and (ii) impacts to wetlands.

1.3 Organization of Report

The remainder of this report is organized as follows:

- Section 2 presents a summary of the site background, history, and environmental conditions;
- Section 3 provides a detailed summary of the proposed expansion project;
- Section 4 provides an evaluation of potential impacts to groundwater quality posed by the use of PVDs at the CIL;
- Section 5 provides an assessment of potential impacts to jurisdictional wetlands posed by the expansion;
- Section 6 discusses protection of air quality and worker and/or public health and safety at the CIL;
- Section 7 discusses stormwater quality and management at the CIL;
- Section 8 presents a summary of the findings and the conclusions of this assessment; and
- Section 9 presents references.

2. SITE BACKGROUND

2.1 Introduction and Purpose

This section provides a description of the development and operational history of the CIL, as well as a summary of the elements of the environment that could be impacted by the landfill expansion. The purpose of this section is to provide the reader with an understanding of the site conditions and the current and historical operations as a basis for understanding the evaluation of potential groundwater impacts (Section 4) and wetlands (Section 5).

The background information contained in this Section was obtained from previous reports prepared by others, including: (i) "Site Suitability Study for the Northern Solid Waste Management Facility," prepared by Gilbert/Commonwealth of Reading, Pennsylvania, in January 1982 [Gilbert, 1982]; and (ii) "Site Suitability Report – Hydrogeologic and Geotechnical Evaluation of the Cherry Island Landfill," prepared by Terraqua Resources Corporation (Terraqua) in January 1984 (revised February 1, 1984) [Terraqua, 1984]. Additional information pertaining to site geology and land use history was obtained from the report entitled, "*Geotechnical Characterization Report – Cherry Island Landfill Expansion Project*" prepared by GeoSyntec [GeoSyntec, 2003].

2.2 Location

Cherry Island is located within the industrial sector of the city of Wilmington, New Castle County, Delaware, on the north shore of the Christina River at its confluence with the Delaware River. A Connectiv Power Plant and City of Wilmington Waste Water Treatment Plant (WWTP) are located immediately to the north of the facility. Interstate Highway I-495, a utility right-of-way, and a dredged material storage facility (i.e., the Wilmington Harbor North Disposal area) border the facility to the west. The Port of Wilmington is located to the south of the CIL, along the opposite shore of the Christina River. Brandywine Creek, Interstate 495, and two railroads separate the CIL from residential and commercial areas of Wilmington, which are located approximately one mile to the east of the facility. DuPont's Chambers Works facility is located across the Delaware River from Cherry Island. A site location plan is provided in Figure 1.

2.3 Land Use History

Prior to development of CIL, the site was a meadow toward the west and a tidal marsh near the river, as described in historic maps of the original Cherry Island tract dated 1841 and 1883. At that time, the site ranged in elevation from about 3 to 8 ft above mean sea level (msl) near the Delaware River to approximately 12 to 15 ft msl on the western side of the site.

Cherry Island and the adjacent areas have been used for many years as a disposal area for the material dredged from the Delaware and Christina Rivers to facilitate navigation at the Port of Wilmington. Dredging of the Christina River was initiated approximately in 1896. Two major dredge disposal areas were created on the site: (i) the "Edgemoor" disposal area, on the eastern side of Cherry Island; and (ii) the "Wilmington" disposal area, on the western side. The Wilmington disposal area occupied approximately the same location as the Wilmington Harbor North Dredge Disposal Area where the United States Army Corps of Engineers (USACE) is currently placing dredge. The dredge was placed using a hydraulic filling process that produced a material having a very high water content, and extremely soft consistency.

Review of historic records shows that from 1896 until approximately 1927-1930, most of the dredge was placed in the present-day Wilmington Harbor North Dredge Disposal Area, Phases I and II and the western-most portions of Phases III and IV. During this period, a portion of the Delaware River channel (i.e., the area east of the 1920's low water line) was claimed as a dredge storage area. The majority of this reclaimed area is beneath the present location of Phases III, IV, and V. An existing timber bulkhead along the Delaware River east of CIL was extended in 1910, referenced as the "Edgemoor training dike," to provide better control over river flow conditions and protection of the shoreline. The training dike demarcated the eastern boundary of the "Edgemoor" Disposal Site. The area created between the training dike and the existing shoreline was approximately 300 acres and was subsequently used for dredge disposal. This area corresponds approximately to the eastern portions of Phases III, IV, and V, as well as other facilities north of the CIL.

Development of the CIL began in 1985 and has been developed sequentially in six phases, identified as Phases I, IA, II, III, IV, and V. Phase I was constructed mostly over native soils, which consist primarily of alluvium. Based on aerial photographs from 1982 and 1984, this area also previously contained several sludge lagoons which were apparently part of the City of Wilmington Waste Water Treatment Plant. The

remaining phases were developed within the previously constructed containment dikes on top of the dredge. The valley between Phases I and II were subsequently filled to form what was called Phase 1A. Phase I and the northern area of Phase II have accepted asbestos and asbestos containing materials as well as municipal solid waste (MSW) and light industrial waste. However, Phases III through V have accepted only MSW and light industrial waste. The current average top elevations of the waste are approximately: 95 ft msl in Phase I, 100 ft msl in Phase II, approximately 60 to 65 ft msl in Phase III, and 70 to 85 ft msl in Phases IV and V.

The original landfill design utilized the in situ alluvium and dredge material to serve as a hydraulic barrier, or natural soil liner, because of its inherent low hydraulic conductivity. All phases have a leachate collection system (LCS), although the characteristics of the LCS vary from phase to phase. In Phases I and II, the LCS consists of a system of drainpipes. In Phase II, the LCS includes a drainpipe system that is overlain by a nominal 1-ft thick layer of fill (apparently with a sizeable portion of fines) placed directly on the dredge. In Phases III through V, the LCS consists of a nominal 1-ft thick layer of sand drainage layer and a system of collecting drainpipes overlain by a minimum of 12 in. of rice gravel.

2.4 Surface-Water Bodies

The Cherry Island Landfill is bounded to the east by the Delaware River and to the south by the Christina River. The Brandywine River is located several hundred feet west of the site, and a former discharge point of the Shellpot Creek is located near the northern boundary of the property. These bodies of water are tidal and brackish. The salinity of the tidal surface-water bodies varies with stream flow and tidal stage [Gilbert, Commonwealth, 1981]. Tidal fluctuations for both rivers at the site are approximately 5.6 ft, with a maximum range of water levels from –6-ft msl to +10-ft msl [Terraqua, 1984]. Dredge disposal areas were expanded within the 100-year flood plain, but all waste disposal areas were initially constructed at least approximately 30-ft above the 100-year flood level of 10-ft msl [NGVD29] (Figure 2).

As of 1980, the water quality of the lower Christina River was listed as "fair" [Gilbert/Commonwealth, 1982]. The Delaware River segment at Cherry Island Landfill is affected by the highly urbanized and industrial sections upstream, as a result the water quality is "marginal" [Gilbert/Commonwealth, 1982].

2.5 Drainage, Recharge, and Infiltration

The most prominent topographic features at the site are the waste disposal areas (i.e., Phases I through V), which range in elevation from approximately 60-75-ft msl in Phase III to approximately 100-ft msl in Phase I. Side slopes of the disposal areas are relatively steep (approximately 3H:1V) and the top of the disposal areas are relatively flat, although positive drainage is maintained to prevent ponding of water on top of the landfill. Areas outside of the landfill are relatively flat. As previously discussed, the site is surrounded by elevated dikes along the Christina and Delaware Rivers. Grading of the landfill is maintained in a manner that transmits stormwater through the existing stormwater management system. The stormwater management system consists of perimeter ditches, culverts, and two existing stormwater detention basins that serve to control sediment and erosion. A portion of the landfill is covered with an interim soil cover that is intended to minimize infiltration of precipitation and stormwater and leachate generation.

Infiltration of precipitation and stormwater to groundwater at the site is limited by low-permeability (mean value of 8×10^{-8} cm/sec [Terraqua, 1984] dredge deposits and alluvium located beneath CIL and adjacent waste disposal areas. Infiltration on areas of the landfill that are not currently active is limited by the interim soil cover and vegetation. Infiltration that does migrate through the wastes in CIL becomes perched on the underlying natural soil liner and is collected in the existing leachate collection system, from which it is transmitted to the WWTP, treated, and discharged to the Delaware River.

Due to the limited amount of infiltration at the site, recharge to the underlying Columbia Formation from on-site sources is likely minimal and primarily consists of vertical migration of pore water in the dredged material. The major sources of recharge for the underlying aquifer are likely north and west of the site between Cherry Island and Brandywine Creek.

2.6 Geology

Cherry Island is located at approximately latitude 39°43'30"N, longitude 75°30'50"W in the Coastal Plain Physiographic province and is bound by the Delaware and Christina Rivers (Figure 1). The Coastal Plain province consists of a wedge-shaped mass of unconsolidated clays, silts, sands, and gravels of river, estuary, or marine

depositional environments that thicken vertically to the southeast toward the continental shelf. The Coastal Plain sediments range in thickness from approximately 95 ft north of the site to 220 ft on the southeast of the site [Terraqua, 1984]. Much older metamorphic and igneous rocks of the Wilmington Complex underlie the Coastal Plain sediments in the vicinity of the site. The contact between the Piedmont and Coastal Plain province, referred to as the "Fall Line", lies approximately one mile northwest of the site. The Piedmont province consists of weathered pre-Cambrian metamorphic rocks [Schenk et al., 2000].

The five units comprise the subsurface stratigraphy of Cherry Island are the: (i) dredge; (ii) alluvium; (iii) Columbia Formation; (iv) Potomac Formation; and (v) Wilmington Formation. The main geologic features of these units beneath the CIL are described below.

Dredge. The dredge (also referred to as dredge material or dredge spoils in previous geotechnical and hydrogeological reports) consists of sandy silty clays to clayey silts that have been dredged from alluvial sediments lining the Delaware and Christina riverbeds. In some locations, the silts contain fibrous organic matter and organic marsh deposits. The dredge thickness varies from about 30 to 40 ft at the site.

Alluvium. The native subsurface materials underlying the dredge consist of unconsolidated, Holocene (e.g., approximately within the last 8,000 years) deposits, referred to as recent alluvium deposits in previous studies. These deposits are comprised of clayey silts and clays with varying amounts of sand and organic matter and silty sands. Occasionally, peat lenses are also encountered. The complex depositional process caused by the nearby rivers also formed lenses, which are apparently discontinuous, of coarse materials within the recent alluvium. The lenses consist mainly of silty to gravelly sand. The alluvium has a thickness varying approximately between 10 and 40 ft.

Columbia Formation. The Columbia Formation consists of unconsolidated sediments that are encountered under the alluvium. The Columbia Formation is of Pleistocene age (e.g., approximately 8,000 to 1.8 million years old). The Columbia Formation consists of poorly sorted, multi-color, fine to coarse sand and gravel with silty sand, silty clay, and clayey silt lenses. The sand and gravels of the Columbia Formation are interpreted as channel fill and associated fluvial sediment deposited by glacial streams that cut deeply into the underlying formation [Woodruff, 1981]. The

Columbia Formation is typically the source of recharge for the local deeper aquifers and varies in thickness from approximately 10 to 70 ft.

Potomac Formation. Underlying the Columbia Formation are weakly consolidated sediments of the Potomac Formation. The Potomac Formation is of early Cretaceous age (e.g., 145 to 65 million years old) and thickens to the southeast. The Potomac Formation consists of fine-grained, multicolored clay [Woodruff, 1981]. Sediments of the Potomac Formation were deposited in a fluvial environment [Woodruff, 1977], which resulted in discontinuous channel deposits of clay, silt, and sand. Regionally, the Potomac Formation is generally much thicker than the Columbia Formation, but this difference appears to be less pronounced at the CIL site [Terraqua, 1984]. The contact between the Columbia Formation and the Potomac Formation is defined by an unconformity or erosional surface [Woodruff, 1977]. Due to erosion caused by deep streams and subsequent filling with Columbia Formation material, it is common to encounter interbedded layers of sand in the Potomac Formation.

Wilmington Formation. The lowermost of the units at the site is the crystalline basement rocks of the Wilmington Complex [Woodruff and Thomson, 1975], which consists of metamorphic and igneous rocks. The basement rock contains weathered material consisting of blue to green silty clays with chips of mica schist. Rocks in the upper part of this sequence are heavily weathered, resulting in a weakly consolidated mixture of clay, silt, sand, and rock fragments. Approximate depths to the Wilmington Complex range from 70 to 200 ft below the ground surface at Cherry Island [Gilbert, 1982; Terraqua, 1984; Gannett Fleming, 1990a and 1990b].

2.7 Hydrogeology

2.7.1 Overview

Groundwater flow in the unconsolidated units beneath the site occurs within three distinct water-bearing zones, which include the dredge/alluvium, the Columbia Formation, and the interbedded sands of the Potomac Formation. A perched groundwater table exists in the dredge/alluvial material. Due to the low permeability of the dredge/alluvium, this groundwater system would not be considered an aquifer, however groundwater flow in this formation is accelerated by excess pore pressure caused by the load impinging upon it by the overlying landfill. The Columbia and Potomac Formations are utilized for groundwater supplies in New Castle County, but are not used in the Cherry Island area. Groundwater flow in the Columbia Formation

occurs under confined or semi-confined conditions beneath the alluvium. Groundwater in the Potomac Formation occurs under confined or semi-confined conditions in interbedded sand layers. In general a thick, stiff silty clay unit separates the Columbia Formation and the sands of the Potomac Formation and serves the confining or semi-confining unit of the Potomac Formation.

2.7.2 Groundwater Levels and Flow Directions

According to a review of recent potentiometric surface maps [ARM Inc. (ARM), 2002] (Appendix A), the potentiometric surface in the Columbia Formation forms a northeast trending and southeast plunging trough across the Cherry Island site indicating that the major direction of flow in the Columbia Formation is toward the Delaware River. In the Southeast portion of the site, the potentiometric surface indicates that groundwater flows toward the Christina River. During a 2002 survey [ARM, 2002], potentiometric levels in the Columbia Formation wells ranged from 2.36-ft msl to –0.74-ft msl, which are above the geologic contact of the Columbia Formation indicating confined or semi-confined conditions. Hydraulic gradients range from 0.001 to 0.0002 [ARM, 2002], indicating a nearly flat potentiometric surface. The hydraulic gradient in the area along the Delaware and Christina Rivers varies with tidal fluctuations and river stages.

The potentiometric surface in the Potomac Formation obtained during April 2002 ranged in elevation from the northern corner of the site from 2.28-ft msl to –1.49-ft msl in the southeast corner of the site. These elevations are well above the geologic contact with the Potomac Formation indicating confined or semi-confined conditions in this formation. Groundwater flow was generally from northwest to southeast with a gradient ranging from 0.001 to 0.005 [ARM, 2002]. The hydraulic gradient in this formation is also likely affected by tidal fluctuations and river stage.

Based on conditions reported by Terraqua [1984], groundwater levels in the Potomac and Columbia Formations appear to be influenced by tidal conditions in the Delaware and Christina Rivers. During the tidal study, groundwater levels in the Columbia Formation fluctuated from a maximum of approximately 1.25 ft in well C-105 to 0.33-ft in well C-106 in response to an approximate 4.5-ft tidal fluctuation. Groundwater levels in the Potomac Formation varied by approximately 1 ft to the same tidal fluctuation in wells P-105 and P-106.

2.7.3 Background Groundwater Quality/Chemistry

The following discussion on background groundwater quality is based according on the October 6, 1983 Water Quality Data Report of the Cherry Island Landfill prepared by Terraqua [1984]. This report indicates that the groundwater in the dredge, alluvium, and Columbia Formation is brackish, with elevated concentrations of iron, manganese, sulfate, chloride and dissolved solids, rendering it unsuitable for potable water supply. Groundwater occurring in the dredge, alluvium, Columbia and Potomac Formations exceed the Delaware limit for Total Dissolved Solids (TDS) of 500 mg/L. This report demonstrates that water occurring in the recent alluvium and dredge material has a low mean pH (6.3), with high mean concentrations of iron (55 ppm), manganese (60 ppm), chlorides (370 ppm) and total dissolved solids (1,238 ppm) all in excess of Delaware drinking water standards and indicative of brackish water [Terraqua, 1984]. The water occurring in the Columbia Formation also has a low mean pH (6.4), with high mean concentrations of iron (62.7 ppm), manganese (85.3 ppm), chlorides (449 ppm) and total dissolved solids (1,263 ppm) all of which exceed the Delaware drinking water standards and are indicative of brackish water [Terraqua, 1984]. The water occurring in the Potomac Formation is superior to that of the recent alluvium and dredge material and Columbia Formation, but also has high mean concentrations of iron (8.5 ppm) and manganese (18.7 ppm), both of which exceed the Delaware drinking water standards [Terraqua, 1984]. As discussed in Section 4, recent groundwater quality data in each of the water bearing zones are generally consistent with the groundwater quality data that were described previously.

2.7.4 Groundwater Uses

The City of Wilmington prohibits use of groundwater for potable purposes within the city limits. Based on a database search conducted by Environmental Data Resources, Inc. [EDR, 2002], there are no known federal or state wells drawing water from the Columbia or Potomac Formations within a one-mile radius of the CIL. According to Gilbert [1982], the nearest wells to the site were located at the Brandywine Chemical Company, which is located approximately 5,000-feet southwest of the CIL. These wells were relatively small capacity industrial-supply wells, which have now been abandoned. As previously discussed, groundwater in the Columbia and Potomac Formations in the vicinity of the site is unsuitable for consumption because of high total dissolved solids content, and elevated metals (e.g., iron) concentrations have been reported in excess of drinking water quality criteria.

3. DESCRIPTION OF PLANNED EXPANSION

The proposed expansion project consists of various components that will provide additional disposal capacity for the CIL and extend the active life of the facility. The major design components of the project are as follows:

- constructing a MSE wall and stabilizing berm around the perimeter of Phases III, IV, V, and Va of the disposal area;
- construction of a liner system over the Phase Va area;
- installing prefabricated vertical drains (PVDs) beneath the stabilizing perimeter berm (i.e., outside of the waste disposal areas) to accelerate the stabilizing effect of the berm;
- expanding and improving the landfill gas management system to accommodate the increased quantity of landfill gas that will be generated by the expanded landfill; and
- upgrading the system for management of stormwater runoff from the landfill, which is needed because the expanded landfill will have higher final grades than the currently permitted landfill.

The engineering design of these features of the landfill expansion is described in detail in Part VIb (i.e., Engineering Report) of this Permit Application. The PVDs will provide a conduit for excess pore water to drain to the underlying Columbia Formation as the dredge and alluvium consolidate. The PVDs will allow more rapid drainage of the pore water; thereby allowing accelerated consolidation of the dredge materials. Rapid consolidation of the dredge materials is necessary to provide the strength and stability needed to support the vertical expansion of the landfill. PVDs have been used successfully in the past to provide foundation improvements prior to the expansion of Phases IV and V.

4. GROUNDWATER QUALITY IMPACT ASSESSMENT

4.1 Introduction

The potential for a landfill to impact groundwater quality at the site has been evaluated in site suitability studies conducted by Gilbert [1982] and Terraqua [1984]. These studies concluded that a landfill constructed in dredge soils at this site would not adversely impact groundwater quality. Prefabricated vertical drains (PVDs) had been used to aid in consolidation around Phases IV and V to accelerate drainage of pore water from the dredge soils. Because this feature of the project represents a potential environmental impact, this section provides an assessment of potential impacts to groundwater quality of using PVDs at the site. The assessment primarily consisted of collection and analyses of pore water samples and comparing the pore water quality data to historical data in the Columbia Aquifer or groundwater quality standards. The data collection and comparisons were conducted by Duffield and presented in a report entitled, "*Dredged Material Pore Water Quality Assessment, DSWA Cherry Island Landfill Expansion - Wilmington, Delaware*" [Duffield 2003] (Appendix B).

4.2 Background

Drainage of pore water from the dredge material deposits is a source to be examined. These dredge materials, which were removed from the water bodies near the site or downstream from industrial and agricultural areas, have the potential to contain contaminants that may affect water quality. As waste is placed in the landfill over the dredge, the pore water will be forced from the dredge into the underlying Columbia Aquifer. This action is accelerated by the PVDs. As a result, there could be an impact to the Columbia Aquifer if the pore water is of poor quality and impinges on the Columbia Aquifer at a significant rate.

Although pore-water drainage to the Columbia Formation has previously been accelerated through construction and placement of wastes in the landfill and by use of PVDs in other areas of the site without causing a significant impact to the groundwater quality, the scale of the PVD installation during the proposed expansion project would be expected to increase pore water discharge to the Columbia Formation by a factor of more than 100. To assess whether an increase in pore water discharge to the Columbia Formation would adversely affect groundwater quality beneath the site, a pore-water quality assessment was performed as described below.

4.3 Pore-Water Assessment Methodology

4.3.1 Overview

To perform the pore-water assessment, a simplified method for assessing discharging pore water impacts was developed. The method involved making a simple comparison of average constituent concentrations in each formation (i.e., dredge and Columbia). This methodology assumed that, because groundwater in the Columbia Formation discharges to the rivers adjacent to the site, if the average water quality in the dredge material were not statistically different than the average water quality in the Columbia Formation, then discharge of dredge pore water would not result in a statistically significant change in groundwater quality in the Columbia Formation. For specific analytes that were not routinely monitored previously in the Columbia Formation, the dredge pore water quality was compared to DNREC uniform risk based standards (URSs). It was assumed that if concentrations of contaminants do not exceed a risk based standard, then discharge of pore water would not result in a significant impact to the Columbia Formation. A description of the pore-water quality assessment is provided in the following section.

4.3.2 Data Collection

First, data was collected to characterize the chemistry of the pore water. The data was collected in general accordance with the "*Draft Sampling and Analysis Plan for Dredged Pore Water Quality Assessment*" (SAP), prepared by Duffield and submitted to DNREC on 16 September 2002. As discussed in Section 2, the dredge and alluvium underlying the site consists primarily of very soft, small-grained clays and silts with a low hydraulic conductivity (i.e., approximately 10^{-7} or 10^{-8} cm/sec). Collection of representative pore-water samples from the dredge material was complicated by the low hydraulic conductivity of these materials and the mobility of fine-grained silt and clay particles. The sampling program was developed to accomplish two main goals: (i) obtaining a sufficient quantity of water to perform the prescribed laboratory analyses; and (ii) minimizing sampling-induced turbidity and the bias associated with suspended sediments in samples. To evaluate whether a sufficient quantity of water could be collected from the dredge materials, Duffield performed an evaluation of several piezometers screened within the dredge materials. Based on this evaluation, five existing piezometers and five new monitoring locations were constructed to obtain pore-water samples. The pore water sample locations are identified on Figure 3.

The pore water sampling program was implemented in October 2002 by Duffield in accordance with the SAP and several minor modifications to the plan, which were agreed upon during electronic mail correspondence with DSWA, GeoSyntec, and DNREC. Although the existing piezometers and newly constructed sampling points were developed and purged prior to sampling, samples still had high levels of turbidity and low relative yields. To minimize the bias associated with the high turbidity levels, each of the pore water samples (except aliquots that were analyzed for VOCs) was filtered through a 0.45-micron filter and then transferred to the appropriate sample container. Each pore-water sample was analyzed for a broad range of organic and inorganic constituents including: (i) volatile organic compounds (VOCs); (ii) semi-volatile organic compounds (SVOCs); (iii) polychlorinated biphenyls (PCBs) and PCB congeners; (iv) pesticides; (v) metals and semi-metals; and (vi) geochemical indicator parameters. The complete analyte list is provided in Appendix B.

4.3.3 Quality Assurance and Quality Control

To ensure that data of adequate quality were obtained, Duffield implemented Quality Assurance/Quality Control (QA/QC) procedures including analysis of equipment rinsate blanks, duplicate samples, and trip blanks. Laboratory QA/QC procedures were also employed to ensure that analytical results were consistent with the prescribed methods and laboratory QA/QC objectives. In addition, groundwater samples were obtained from five wells screened in the Columbia Formation. These groundwater samples were analyzed for a reduced parameter list and used as a quality assurance check to evaluate whether the current conditions were comparable to the historical data set. Groundwater samples from the Columbia Formation wells were also analyzed for polychlorinated biphenyl (PCB) congeners because no historical PCB data were available groundwater in the Columbia Formation.

4.3.4 Data Evaluation

Data was evaluated by performing comparisons between the average pore water quality and average concentrations of analytes detected in the Columbia Formation. Groundwater quality data in the Columbia Formation has been collected routinely at the site since 1983. Datasets for each Columbia Formation well monitored since the CIL was constructed were provided by DSWA. Average constituent concentrations were calculated for each analyte that had been monitored for each location, then an average

concentration and standard deviation for each analyte in the historical datasets was calculated. Average concentrations and standard deviations for each analyte were also calculated from the ten pore water quality samples obtained during the assessment.

The comparison between the datasets was conducted by first comparing the average concentration from the dredge water for a particular analyte to the average historical concentration in the Columbia Formation wells. If the average concentration was within one standard deviation, the data sets were assumed to be statistically similar and no further comparison was performed. Analytes that differed by more than one standard deviation were analyzed further using the Mann-Whitney Rank Sum Test at a 95 percent confidence level. The Mann-Whitney test is a nonparametric statistical test used to evaluate whether differences exist between datasets.

Although a significant amount of historical data existed for the Columbia Formation wells, because several additional analytes were measured in the pore water samples than are not included in the routine monitoring events at the site, comparisons between pore water and groundwater in the Columbia Formation could not be conducted for several analytes. When this occurred, pore water results were compared to the URS.

The URS values are analyte-specific concentrations that bave been established under the Delaware Hazardous Site Cleanup Act. These generic standards do not consider site specific conditions such as complete pathways or actual receptor exposure levels, rather they are typically based on regulatory values for drinking water (e.g., maximum contaminant levels), risk based concentrations (RBCs) developed by USEPA, or some other alternative standard. For this assessment, the URS values were used to provide a generic risk based values that can be used as a screening level to assess whether a potential risk to human health may exist. Based on a comparison between the analyte list used during the October 2002 dredge pore water sampling event and the analytes contained in the historical datasets, the following compounds were only assessed in the pore water samples: SVOCs, pesticides, and aluminum.

4.4 Results

The results of the field sampling and assessment of the data were presented in a document entitled "*Dredged Material Pore Water Quality Assessment – DSWA Cherry Island Landfill Expansion Wilmington, Delaware*" [Duffield, 2002], which is provided

in Appendix B. Tables 2, 3, and 4 provide a summary of the detected organic compounds, inorganic metals and semi-metals, and indicator analytes, respectively. The following paragraphs summarize the results of the data evaluations conducted at the site.

Data quality was assessed through a review of field and laboratory procedures as well as analysis of QA samples. Based on this review, the PCB congener results for 3-chorobiphenyl were rejected because detections of the compound attributed to laboratory contamination. Several minor discrepancies were observed between a review of sample and duplicate data and detections of low levels of iron and manganese were reported in the rinsate sample, however, these factors do not affect the overall quality of the data. Therefore, with the exception of the rejected 3-chlorophenyl data, the pore water laboratory data were deemed to be useable for this evaluation.

Based on the comparison of historical average concentrations to the average pore water concentrations and the results of the Mann-Whitney Rank Sum Tests, water quality within the Columbia Aquifer and the dredged material pore water are very similar. In fact, the only statistically significant differences in water quality were for chemical oxygen demand (COD), nitrate, organic nitrogen, total dissolved solids (TDS), calcium, and magnesium. Of these, nitrate concentrations in the dredged material pore water were lower than the Columbia Aquifer, while average concentrations of COD, organic nitrogen, TDS, calcium, and magnesium were higher in the dredged material than in the Columbia Formation. The relatively higher occurrence of TDS, calcium, and magnesium in the dredge pore water is likely caused primarily by the natural composition of the sediments. TDS, which represents the sum of all dissolved ions in the pore water, includes calcium and magnesium. In most natural fluvial sediments, TDS in pore water reflects weathering and dissolution of the sediments themselves. Magnesium, for example, is a common constituent in clay, and clay is a principal component of the dredge material. There are no primary or secondary drinking water standards for calcium and magnesium. Considering that river bottom sediments typically have an organic carbon content that is significantly greater than that of sand and gravel aquifers, it is not surprising that the average COD and organic nitrogen concentrations in the dredge pore water are higher than the Columbia Aquifer. The relatively higher COD and organic nitrogen results for the dredge pore water are likely due, in large part, to the higher natural organic carbon content of the dredge material (~ typically 5 percent organic carbon).

For those analytes that have only been measured in dredge pore water samples, the comparison between individual sample results and the respective URS indicated the following:

- No SVOCs were detected at concentrations exceeding URSs. In fact, no SVOCs were detected at concentrations exceeding the laboratory limit of quantitation (LOQ). Therefore, groundwater quality impacts related to SVOCs would not be expected.

- Summed PCB congener concentrations were below the URS for total PCBs at all locations. It was noted that at DR-3 that the summed concentration of 0.036 µg/L slightly exceeded the screening level (i.e., the level at which DNREC would likely suggest additional evaluation) URS of 0.030 µg/L. However, this concentration was well below URS of 0.5 µg/L that would likely be used for compliance evaluations. Because PCBs were detected in only a few pore water samples and the levels observed in those samples where detection occurred were extremely low, groundwater impacts related to PCB contamination would not be expected.

- Aluminum was reported at a concentration of 9.04 mg/l in the sample obtained from location DR-4, this concentration exceeds the URS of 200 µg/L for aluminum. However aluminum was only detected in three of ten samples collected. As such, the concentration reported at location DR-4 is atypical of the average pore water quality observed during this investigation. Therefore, although a relatively high concentration of aluminum was observed at one location, on an area-wide basis groundwater quality impacts to the Columbia Formation related to aluminum would not be expected.

4.5 Conclusions

The findings of the pore water quality assessment indicated that, where comparisons could be made, the pore water quality in the dredge was generally of similar quality to the groundwater quality in the Columbia Formation. Those analytes that were calculated to be statistically different between the two formations would not be expected to represent a significant water quality impact if they were released to the Columbia Formation because they do not typically represent a health risk. Concentrations of SVOCs, pesticides, and aluminum could not be compared to

historical data, however, based on the concentrations measured during this assessment, these analytes are not anticipated to significantly impact groundwater quality in the Columbia Formation, because they were generally only detected sporadically in the pore water samples, and when detected, were generally identified at low concentrations. In addition, significant impacts to groundwater quality did not appear to occur following installation of PVDs along the perimeter of Phases IV and V. Therefore, increasing the rate of pore water discharge through the use of PVDs should not adversely affect the Columbia Formation groundwater quality at CIL.

In addition, an evaluation of the potential groundwater impacts due to the acceleration of drainage of pore water from the dredge soils using the data presented in Appendix B is presented in Appendix C. The results of the numerical evaluation also support the conclusions presented herein.

5. WETLANDS HABITAT

Prior to initiating the Environmental Assessment, GeoSyntec reviewed the proposed activities and assessed whether the proposed project has the potential to affect the conclusions of previous environmental assessments conducted at the site. Based on this evaluation, it was determined that construction activities proposed for this project may occur near areas that may or may not be considered jurisdictional wetlands. Therefore, it was deemed necessary that a revised wetland delineation be performed and an assessment of potential impacts to wetland areas by the proposed project be undertaken.

A pre-design wetlands delineation was performed by Duffield in 2002. The wetland delineation report was sent to the USACE for a jurisdictional determination. The Wetland Delineation Report is presented in Appendix D. Based on the limits of the on-site wetlands, none of the proposed activities will occur within the delineated wetlands at the site. Therefore, no impacts to wetlands are evident.

6. AIR QUALITY

6.1 Landfill Gas

LFG is generated by anaerobic decomposition of organic materials within the waste, which if uncontrolled may affect air quality and worker and/or public health and safety. To mitigate these concerns, the existing LFG management system will be upgraded to better accommodate increased landfill gas generation associated with the expansion and to address historical inefficiencies in the landfill gas collection system at the site.

The LFG management system for the CIL facility will be designed and constructed in accordance with DRGSW §6.E. LFG management includes the following elements:

- extraction of LFG from the waste mass by means of vertically drilled wells and/or horizontal extraction trenches;
- transmission of LFG from the landfill to a flare through a piping system; and
- combustion of the LFG in a utility flare or management through an on-site LFG-plant.

Plans and details of the LFG management system are presented on the Permit Drawings. Operation of the LFG control system is expected to mitigate concerns related to air quality and/or public health and safety. These measures will be verified by inspection and maintenance of the system as described in the Operation and Maintenance Plan (PMA Part V), and perimeter LFG monitoring as described in the Engineering Report (PMA Part VI).

6.2 Odor Control

Odors may be caused by the generation of LFG within the landfill following disposal. Odors associated with mucipal solid waste are managed effectively by the application of daily cover. Odors associated with landfill gas are managed by collecting and flaring or treating the landfill gas. Regular inspection and maintenance of the LFG management system, and planned system expansion are anticipated to minimize odors from the landfill. If odors become a problem at the landfill an on-site evaluation will be performed by CIL personnel who will identify appropriate remedial actions to be taken. Typical remedial actions include reviewing the efficiency of the existing LFG

management system, installing additional LFG wells, or identifying specific incoming waste streams that may be a source of odors, and implementation of odor control technologies such as misters, activated charcoal tarps, etc.

6.3 Dust Control

Dust may be generated by wind, dumping, construction activities, or vehicular traffic. The main engineering control to be implemented to minimize dust generation at the CIL facility is the application of water on roadways, staging areas, construction zones, and unloading areas. Additional measures may be implemented, if necessary, including: (i) paving of heavily traveled perimeter roads; and/or (ii) limiting the area of disturbance and using temporary revegetation to cover disturbed areas. Dust control measures are described in the Operation and Maintenance Plan (PMA Part V).

As a result of the control measures described above, impacts to air quality through dust generation are not expected.

7. STORMWATER QUALITY AND MANAGEMENT

7.1 General

The proposed expansion has the potential to affect environmental conditions in surface water bodies near the CIL facility via stormwater runoff from disturbed or excavated areas, the active disposal area, and areas covered with alternative cover materials (e.g., stabilized sludge, shredded construction and demolition debris, and treated soil) that may be used as daily/intermediate/final cover. The primary mechanisms for potential environmental impacts related to stormwater runoff at the CIL site are: (i) stormwater contact with alternative cover materials; (ii) stormwater contact with waste; and (iii) sediment transported by stormwater. Accordingly, the proposed expansion will incorporate various engineering controls and monitoring procedures to minimize or eliminate potential impacts to surface water quality.

As described above, the potential impacts to surface water quality are primarily related to migration of contaminants from alternative cover materials or waste, or migration of sediments through stormwater runoff. The remainder of this section provides a description of the primary mechanisms for potential environmental impact, the corresponding engineering controls, and environmental monitoring procedures that will be used to mitigate these potential concerns.

7.2 Potential Environmental Impacts due to the Use of Alternative Cover Materials

7.2.1 General

As indicated in Section 5.I.2.c(4) of the DRGSW, alternative cover materials may be used as daily/intermediate cover if they can be shown to be as effective as the required compacted soils at preventing migration of waste and controlling flies, rodent and fires. Alternative cover materials that are currently used for intermediate/daily cover and are planned to continue to be used at the CIL facility are shredded construction and demolition debris (CDD) and treated contaminated soils. In addition, stabilized sludge has been used in the past and may be reused in the future as a daily cover, but is not presently being used. Because the proposed alternative cover materials are essentially soil-like materials, they are as effective as compacted soils typically used for intermediate cover materials. However, because of their origin, additional provisions must be taken to minimize/eliminate the potential of contaminants that may

be present in these type of alternative materials to migrate off-site due surface water runoff and/or erosion.

In general, the use of the alternative cover materials will be limited to daily and intermediate cover on the relatively flat slopes atop the expansion area. Because the materials are located on generally flat slopes (deck), runoff volume and intensity from these areas is anticipated to be low and, therefore, the potential for migration of potential contaminants is also expected to be low. This will be verified by testing discharges from the CIL facility as described in the Stormwater Monitoring Plan. A description of each of the proposed alternative materials, testing requirements prior to and after delivery to the site, handling procedures, as well as the acceptance/rejection criteria for each material type are presented below as well as in the Operations and Maintenance Plan.

7.2.2 Stabilized Sludge

Stabilized sludge is municipal sludge stabilized with coal ash and other products. The stabilization process reduces the potential for constituents in the sludge to leach, thereby minimizing or eliminating migration of contaminants from the sludge into the environment. The resulting processed material has the characteristics of silty soils with relatively high natural moisture content and high apparent cohesion. Stabilized sludge may be used at CIL as a daily cover. As described in (i) Chapter I, Subchapter 0, Title 40 of the Code of Federal Regulations (CFR), Part 503, Biosolids Rules, and (ii) Delaware's Guidance and Regulations Governing the Land Treatment of Wastes, Part III-Land Treatment of Sludges and Sludge Products (DNREC Sludge Regulations), sludge meeting the standards outlined in these regulations may be used in landfill projects with DNREC approval.

Although the stabilized sludge that would be used as a daily cover at CIL is expected to be non-hazardous, suppliers will provide DSWA with a certification for each sludge shipment, indicating, as a minimum, that the stabilized sludge delivered to the site meets the standards of the DNREC Sludge Regulations for Ceiling Concentrations and Average Concentrations for the pollutants listed in Table 402.2 and 402.3, respectively. In addition, the certification shall indicate that the maximum concentration for PCB is 5 ppm. The certification will also include a statement indicating that the testing was performed in accordance with sampling and analytical

procedures outlined in the DNREC Sludge Regulations and the supplier's approved permit. Copies of test results will be required to be submitted by the stabilized sludge provider in accordance with their Distributing Marketing Permit as the test results become available. If these requirements are not met, DSWA will reject the shipment, notify DNREC, and will not accept any further shipment until the supplier can demonstrate that the reasons causing the failures have been identified and corrected, and such correction is approved by DSWA. Because of the material characteristics (i.e., high apparent cohesion) migration due to dusting is not a concern. This material will be stored in an amount that can be used in two weeks within the lined area of the site.

7.2.3 Construction/Demolition Debris

Waste from construction, remodeling, repairing, and destruction of individual residences, commercial buildings, and other structures is classified as construction and demolition debris (CDD). The composition is variable but may include dirt, stone, concrete, bricks, plaster, lumber, shingles, broken glass, plastics, reinforcing steel, and plumbing, heating, and electrical parts. The resulting processed material has the characteristics of coarse granular soils with relatively low natural moisture content and low apparent cohesion. Shredded CCD may be used at CIL as a daily cover. Shredded CCD will be screened and processed to remove large pieces of concrete, wood, and similar materials prior to delivery to the site. The interaction of CDD with rainfall and subsequent runoff may result in mobilization of trace amounts of chemicals from the primary construction materials. However, because the materials used for the shredded CDD are generally inert, the chemicals that may be detected in runoff from these materials are generally non-hazardous. In, addition, because of their high permeability, runoff from these materials is greatly reduced.

Regardless, CDD alternative cover materials used at the CIL will be tested prior to delivery to the site. Each shipment of CDD will be accompanied by a certificate signed by the supplier with a copy of the analytical results of the composite samples taken from the lot being delivered to the site. DSWA's persounel will review these analyses and will not allow CDD to be unloaded unless the analytical results indicate that: (i) it has a minimum inert material content of 65% (dry weight); (ii) the PCBs content is less than 3 ppm; (iii) it contains less than 1% by weight of asbestos; and (iv) it is non-hazardous as determined by the Toxicity Characteristics Leaching Procedure (TCLP) testing. If these requirements are not met, DSWA will reject the shipment, notify DNREC, and will not accept any further shipment until the supplier can demonstrate that the reasons causing the failures have been identified and corrected, and such

correction is approved by DSWA. The material will be transported in enclosed or tarped vehicles and unloaded in such a manner that prevents migration of dust beyond the boundary of the landfill (i.e., wetted if necessary). This material will be stored in an amount that can be used in two weeks within the lined area of the site.

7.2.4 Treated Soils

The third alternative cover material considered by DSWA is treated petroleum contaminated soil. Petroleum contaminated soils are typically generated at facilities that have fuel stored in underground or aboveground storage tanks, maintenance and vehicle wash areas, and training areas where fuel has been spilled on the ground. Therefore, primary constituents of concern are petroleum hydrocarbons. These soils are typically contaminated with low to intermediate concentrations of petroleum hydrocarbon and treated to remediate the contaminated media to concentration levels which will not adversely impact on water quality, human health, and the environment. The characteristics of resulting processed material depend upon the source soil. The resulting clean soil can then be beneficially reused where needed. At CIL, these soils may be used as daily or intermediate cover. However, the use of these materials will be restricted to the terms of the Beneficial Use Determination (BUD) for each source issued by the Solid and Hazardous Waste Management Branch (e.g., soils from Clean Earth of Philadelphia will be used for alternative daily cover only) and any other pertinent regulatory agency (e.g., Clean Earth of Philadelphia BUD requires that treated soils meet Pennsylvania Safe Fill Standards). Therefore, these Materials must meet performance standards without presenting an increased threat to human health or the environment. Any modifications to a BUD will be evaluated by DSWA and additional parameters to be tested for, if any, will be incorporated into the CIL operations manual. Copies of all test results required by the most recent BUD will be reported to and evaluated by DSWA and the material will be rejected if it does not meet the BUD requirements.

The toxicity of petroleum products is more often associated with low molecular weight volatile components such as benzene, toluene, and xylene (BTEX). As such, DSWA personnel will routinely request from the supplier the results of laboratory analysis (e.g., EPA method 8260) quantifying concentrations of BTEX, as well as methyl tertiary butyl ether (MTBE) which is a common oxygenate additive in gasoline. In accordance with requirements in DRGSW, only treated soil determined to be non-hazardous that meets all the source BUD requirements will be used in the CIL site as a cover material. As such, prior to delivering the material to the site, the supplier will

provide DSWA with a certificate verifying conformance with DRGSW requirements and that soils to be used as an alternative cover material at CIL are sampled at least every 4,000 tons (composite of grab samples taken at least every 1,000 tons). The supplier should also provide DSWA with the analytical results indicating that: (i) total petroleum hydrocarbon (TPH) is less than 1,000 ppm; (ii) total BTEX is less than 10 ppm with specific maximum limits of 0.5, 10, 5, and 5 ppm for benzene, toluene, ethylbenzene, and xylene, respectively; (iii) PCB is less than 3 ppm; and (iv) it is non-hazardous as determined by the TCLP testing. The limits listed above are as stringent as the Delaware Uniform Risk-Based Remediation Standards (URS) for protection of human health, non-critical water resource area (restricted use).

If these results do not meet the standards listed above, DSWA will reject the shipment of the material, notify DNREC, and will not accept any further shipment until the supplier can demonstrate that the reasons causing the failures have been identified and corrected, and such correction is approved by DSWA. To minimize fugitive dust, the material will be transported and delivered to the site in enclosed or tarped vehicles. This material will be stored in an amount that can be used in two weeks within the lined area of the site.

If treated soils are used as intermediate cover, a fertility test may be required to verify that these soils can sustain temporary vegetation. If necessary, treated soils will be amended to improve its ability to sustain temporary vegetation.

7.3 Potential Environmental Impact During Landfill Operations

7.3.1 Surface Water Management

Surface water contacting waste or other potential constituents within the landfill and migrating off-site is a potential environmental concern. The soft foundation of the CIL necessitates that waste placement be distributed over large areas rather than confined within a smaller active cell, as it is the case in landfills with stronger foundations. Waste placement over a large area allows for the foundation at the CIL to consolidate and gain strength before the next lift of waste is placed. Because of this waste placement practice, a large nearly flat area (the area of Phases III to V is approximately 150 acres) actively accepts waste at any given time. To reduce the area with exposed waste, flat areas not expected to accept waste for the six months following the last waste placement are covered with an intermediate cover, which may consist of

alternative cover materials which have been specifically approved for use as intermediate covers. As described above, controls will be in place to mitigate potential impacts to surface water due to the use of these materials. To address potential concerns related to the contacting MSW, the active face of the landfill will be graded such that surface water from this area will infiltrate into the waste mass and will not migrate outside of the active area. Unstabilized areas not receiving waste will be seeded and mulched semi-annually to minimize erosion potential.

Recently, DNREC approved DSWA's permit modification application to install a temporary exposed geomembrane (TEG) over Phases III to V to reduce leachate generation and improve gas collection at CIL. Where installed, the TEG will prevent stormwater runoff contacting waste and/or alternative cover materials, thus eliminating the potential sources of environmental impact described above during waste placement. At locations where the TEG is not installed, or it has been removed to allow waste placement, DSWA will continue to use materials for daily/intermediate/final cover system that will not adversely impact the environment.

7.3.2 Erosion and Sediment Control

Another potential environmental impact due to surface water runoff is sediment transport. Erosion and sedimentation control during construction and operation will be consistent with applicable state regulations and local ordinances. This includes implementation of Best Management Practices (BMPs), such as silt fence, channels, sediment basins, and temporary and permanent vegetation, among others. The engineering controls and procedures that will be implemented to control erosion and sedimentation are provided in the Erosion and Sediment Control Plan provided as Appendix VIb-J of the Engineering Report and also included in the Operation and Maintenance Manual.

7.4 Potential Environmental Impacts After Landfill Closure

Following closure of the site, the landfill will be graded and a final cover system will be installed. The final cover will prevent stormwater contact with waste or other potentially contaminated material thereby eliminating potential chemical contamination of surface water. The final cover system will also be vegetated to minimize erosion and sediment transport.

Stormwater runoff from the landfill during the post closure period will be managed and controlled throughout through a series of engineered drainage control features that are described in the Engineering Report. The ability to prevent sediments from being transported away from the final cover depends upon maintaining the integrity of the landfill cover system and stormwater control components. The final cover and stormwater management features will be routinely inspected as described in the Operations and Maintenance Manual to verify that these features are operating properly and to identify maintenance needs.

7.5 Floodplain

The proposed activities at the CIL facility are outside the 100-year floodplain (i.e., above El. 10 ft-msl), as indicated in Permit Drawing No. 3. The global stability of the landfill due to the 100-year flood has been analyzed in Appendix D.2 of the Engineering Report. As shown in that Appendix, overall stability is adequate for the 100-year floodplain conditions.

8. CONCLUSIONS

The proposed expansion of the Cherry Island Landfill will provide additional capacity to the landfill with only a slight increase in the footprint of the existing disposal area. The continued operation of the facility is consistent with historical land use and will provide safe and efficient long-term solid waste management for the citizens of Delaware well into the future. The proposed design limits potential changes to the environmental conditions at the site. Therefore, the results of previous environmental assessments conducted at the site indicate that no significant adverse impacts are apparent based on the expansion and continued operation of the facility.

Although the proposed design and operations of the facility are very similar to those practices conducted at the site in the past, several design elements required a more extensive evaluation to assess whether unacceptable environmental impacts were evident. For example, the large-scale use of PVDs at the site and the potential for impacts to wetlands were not specifically evaluated during previous assessments. However, based on the information collected and evaluations presented herein, the use of PVDs is not expected to significantly impact the groundwater quality conditions in the Columbia or Potomac Formation underlying the site. Also, none of the proposed activities are expected to impact jurisdictional wetlands at CIL.

9. REFERENCES

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TABLE 1

ENVIRONMENTAL ASSESSMENT SUMMARY

Cherry Island Landfill
Wilmington, Delaware

Assessment Factor	Will the Expansion Have a Negative Impact on the Assessment Factor?	Location of Information Supporting the Finding
Air Quality	No	NSWMC Air Quality Permit
Surface Water Quality	No	Gilbert, 1982, pages 6-30 to 6-34
Groundwater Quality	No	Section 4 of this Environmental Assessment Report
Stream Flow	No	Gilbert, 1982, pages 6-24 to 6-25
Fish and Wildlife	No	Gilbert, 1982, pages 6-29 to 6-30
Plants	No	Gilbert, 1982, and Section 5 of this Environmental Assessment Report
Threatened or Endangered Species	No	Gilbert, 1982, pages 6-34 to 6-36
Water Uses	No	Gilbert, 1982, pages 6-17 to 6-18
Land Use	No	Gilbert, 1982, pages 6-36 to 6-38
Aesthetics	No	Gilbert, 1982, page 6-39
Traffic	No	Gilbert, 1982, page 6-40
Public Health and Safety	No	Gilbert, 1982 (throughout Section 6)
Cultural, Recreational, and Natural Areas	No	Gilbert, 1982, page 6-39
Historic Sites	No	Gilbert, 1982, page 6-39
Social and Economic Factors	No	Gilbert, 1982, pages 6-43 to 6-54

TABLE 2
SUMMARY OF DETECTED ORGANCIC COMPOUNDS IN DREDGED MATERIAL PORE WATER

Environmental Assessment Report
Cherry Island Landfill Expansion Project
Wilmington, Delaware

Parameter	DR-1R	DR-2	DR-3	DR-4	DR-5	P4-4	P5-3A	P5-11A	P5-12A	P5-13A
POLYCHLORINATED BIPHENYL CONGENERS (ug/L)										
2,2'-Dichlorobiphenyl	ND	ND	0.030	ND	ND	ND	ND	ND	ND	ND
2,4-Dichlorobiphenyl	ND	ND	0.0056	ND	ND	0.0052	ND	ND	ND	ND
2,2',4,5',6-Pentachlorobiphenyl	ND	ND	ND	ND	ND	ND	0.0051	ND	ND	ND
Calculated Total PCB	ND	ND	0.036	ND	ND	0.0052	0.0051	ND	ND	ND
TCL PESTICIDES (ug/L)										
Alpha Chlordane	ND	ND	ND	ND	ND	ND	0.0035 J	ND	ND	ND
Gamma Chlordane	ND	ND	ND	ND	ND	0.012	0.027	ND	ND	ND
Beta BHC	ND	0.021 J	0.004	0.013	ND	ND	ND	ND	0.0034 J	ND
Gamma BHC	0.0037 J	0.005	ND	ND	ND	0.0043 J	ND	ND	ND	0.0061 J
Delta BHC	0.0068	ND	0.011	ND	0.0061 J	0.014	0.0028 J	0.0031 J	0.0062 J	ND
Heptachlor epoxide	0.014	0.01	ND	ND	0.0072	0.0033 J	ND	ND	ND	ND
p,p-DDE	ND	ND	ND	ND	ND	ND	0.0049 J	ND	ND	ND
Dieldrin	ND	ND	ND	ND	ND	ND	0.0049 J	ND	ND	ND
Endrin	ND	ND	ND	ND	ND	0.011 J	0.014 J	ND	0.0049 J	ND
Endosulfan II	ND	ND	ND	ND	ND	ND	0.0047 J	ND	ND	ND
TCL SEMIVOLATILE ORGANIC COMPOUNDS (ug/L)										
bis(2-Ethylhexyl)phthalate	ND	ND	ND	ND	ND	ND	ND	ND	2 J	ND
4-Chloroaniline	ND	2 J	ND	ND	ND	ND	ND	ND	ND	ND
Phenol	ND	ND	ND	3 J	ND	ND	ND	ND	ND	ND
4-Methylphenol	ND	ND	ND	2 J	ND	ND	ND	ND	ND	ND
TABLE 1 VOLATILE ORGANIC COMPOUNDS (ug/L)										
Acetone	8 J	ND	ND	12 J	ND	ND	ND	7 J	ND	ND
Toluene	ND	ND	ND	1 J	ND	ND	ND	ND	ND	ND

TABLE 3
SUMMARY OF DETECTED INORGANIC COMPOUNDS IN DREDGED MATERIAL PORE WATER

Environmental Assessment Report
Cherry Island Landfill Expansion Project
Wilmington, Delaware

Parameter	October 2002 Pore Water Samples									
	DR-1-R	DR-2	DR-3	DR-4	DR-5	P4-4	P5-3A	P5-11A	P5-12A	P5-13A
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Aluminum	ND	ND	ND	9.04	ND	ND	0.0964 J	0.37	ND	0.126 J
Antimony	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic	0.0067 J	ND	0.0377	0.0575	0.0831	0.008 J	0.027	0.0057 J	0.0342	ND
Barium	0.149	0.151	0.228	0.481	0.272	0.121	0.18	0.0851 J	0.390	0.132
Beryllium	ND	ND	ND	0.00065 J	ND	ND	ND	ND	ND	ND
Cadmium	ND	ND	0.0011 J	0.0014 J	0.0025 J	ND	0.001 J	ND	ND	ND
Calcium	80.8	123	140	108	201	155	124	212	103	130
Chromium	0.011 J	0.0123 J	ND	0.0945	0.0239 J	0.0021 J	0.0171 J	0.0032 J	0.0157 J	0.0042 J
Cobalt	0.0105 J	0.0054 J	0.0072 J	0.0239 J	ND	0.0022 J	0.0164 J	0.468	0.0147 J	ND
Copper	0.015 J	ND	ND	0.0838	ND	ND	ND	ND	ND	ND
Iron	3.11	66.1	55	121	148	42	67.8	69.8	37.8	2.09
Lead	ND	ND	ND	0.119	ND	ND	ND	ND	ND	ND
Magnesium	87.2	105	170	115	250	139	153	145	103	118
Manganese	1.17	4.4	2.8	1.71	5.97	7.55	2.95	8.75	0.525	7.14
Mercury	ND	ND	0.000087 J	ND	ND	ND	ND	ND	ND	ND
Nickel	0.0126 J	0.0048 J	0.0127 J	0.0334 J	ND	0.0026 J	0.0289 J	0.889	0.0147 J	0.0021 J
Potassium	60.9	23.4	34.8	86.8	27.6	17.5	32.7	24.2	27.7	22.9
Selenium	ND	ND	ND	ND	0.006 J	ND	0.0088 J	ND	ND	ND
Silver	ND	ND	ND	ND	ND	ND	0.008 J	ND	ND	0.0024 J
Sodium	303	179	184	587	289	215	486	57.1	483	89.7
Thallium	ND	ND	0.0155 J	ND	0.0248	ND	ND	0.0166 J	ND	0.0172 J
Vanadium	ND	0.012 J	0.0061 J	0.0392	0.0123 J	0.003 J	0.0138 J	ND	0.0046 J	0.0042
Zinc	0.0559	0.006 J	ND	0.582	ND	0.0116 J	0.0052 J	20.2	0.0159 J	ND
Cyanide	ND	ND	ND	ND	0.009	ND	ND	ND	ND	ND

Notes:

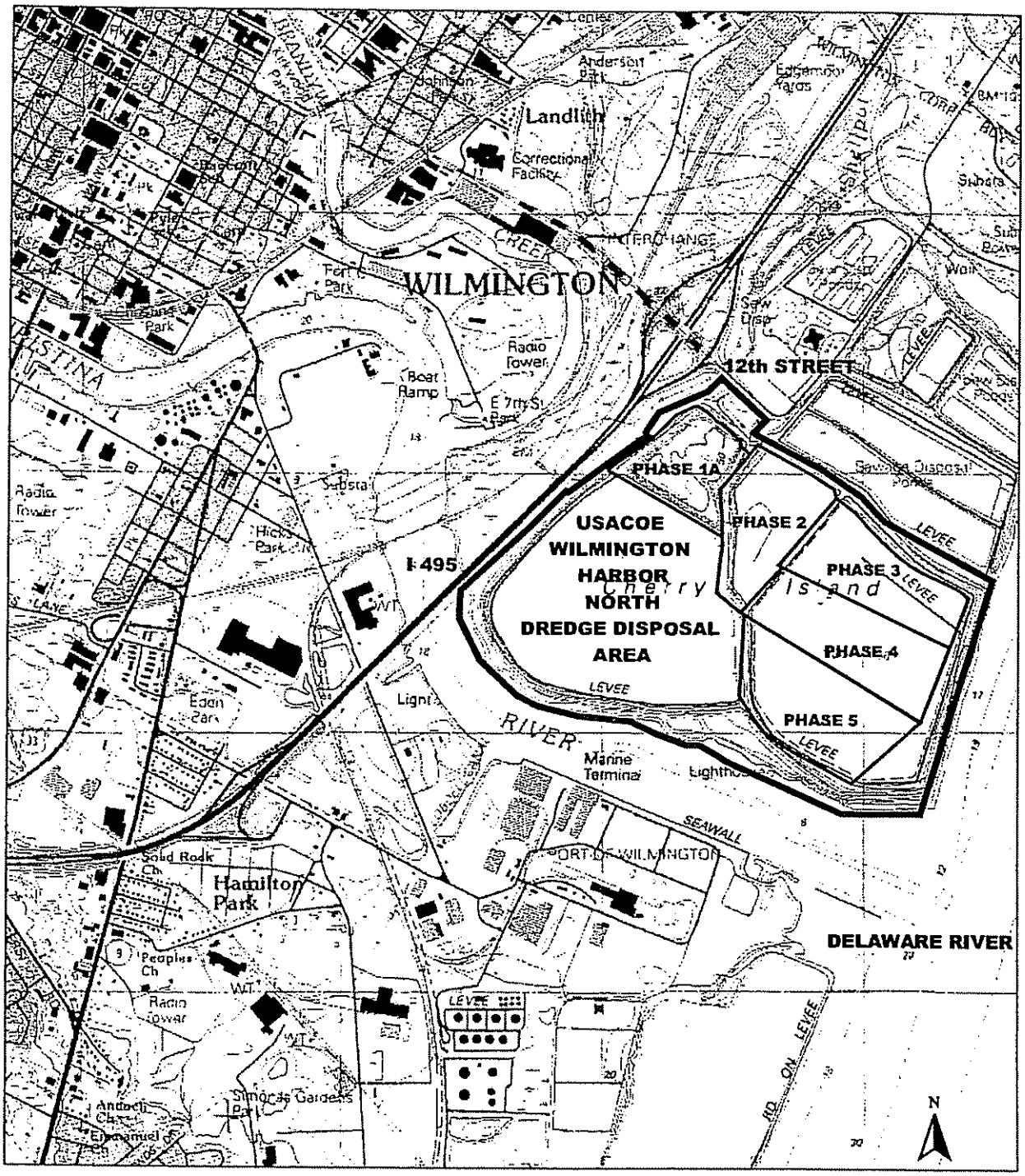
J - Value indicates an estimated concentration greater than the method detection limit but less than the limit of quantitation.

TABLE 4
SUMMARY OF INDICATOR PARAMETERS IN DREDGED MATERIAL PORE WATER

Environmental Assessment Report
Cherry Island Landfill Expansion Project
Wilmington, Delaware

Parameter	Units	October 2002 Dredged Material Pore Water Samples									
		DR-1	DR-2	DR-3	DR-4	DR-5	P4-4	P5-3A	P5-11A	P5-12A	P5-13A
Bicarbonate	mg/L	838	795	909	946	593	916	1050	306	778	333
COD	mg/L	301	318	122	368	303	209	423	62	296	88
Ammonia Nitrogen	mg/L	51.2	34.6	35	60.4	25.7	15.2	41.3	6.4	58.2	23.3
Organic Nitrogen	mg/L	14.3	12.1	18.5	14.5	11.1	12.6	8.2	2.3	18.9	10.9
Nitrate	mg/L	ND	ND	ND	ND	ND	ND	ND	0.41	ND	ND
Chloride	mg/L	463	343	300	1080	596	551	823	59	890	65.5
TDS	mg/L	1620	1500	1670	2730	2920	1960	2640	1850	2430	1460
Total Phosphates	mg/L	0.28	5.33	3.91	0.36	3.38	2.39	4.14	0.7	1.25	6.14
Sulfide	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.5
Sulfate	mg/L	0.63	ND	262	2.5	830	31	20.1	990	ND	710
TOC	mg/L	94.1	97.6	32.5	111	93.8	63.7	140	13.6	84.2	24.1

Notes: All concentrations in mg/L unless otherwise noted.



2000 0 2000 Feet

LEGEND

PHASE BOUNDARY
PROPERTY BOUNDARY

SOURCE: USGS 7.5-Minute Topographic Map
Wilmington, DE-NJ Quadrangle
1993

GEOSYNTEC CONSULTANTS 10015 Old Columbia Road, Suite A-200 Columbia, Maryland 21046	GENERAL SITE PLAN CHERRY ISLAND LANDFILL WILMINGTON, DELAWARE	FIGURE 1 PROJECT- ME0250

1920s LOW WATER LINE
(SEE NOTE 2)

1920s HIGH WATER LINE
(SEE NOTE 2)

100-YEAR FLOODPLAIN
(ELEV 10.0 CONTOUR)

NORTH

12TH STREET

PHASE I

PHASE II

PHASE III

PHASE IV

PHASE V

E 471,000 N 632,000

E 472,000 N 631,000

E 473,000 N 630,000

E 474,000 N 629,000

N 628,000

N 627,000

N 626,000

E 474,000

E 473,000

E 472,000

E 471,000

E 470,000 N 631,000

E 470,000 N 630,000

E 470,000 N 629,000

N 628,000

N 627,000

N 626,000

LEGEND

PROPERTY BOUNDARY

PHASE BOUNDARY

60 EXISTING GRADE CONTOUR (FEET, MSL)

NOTES:

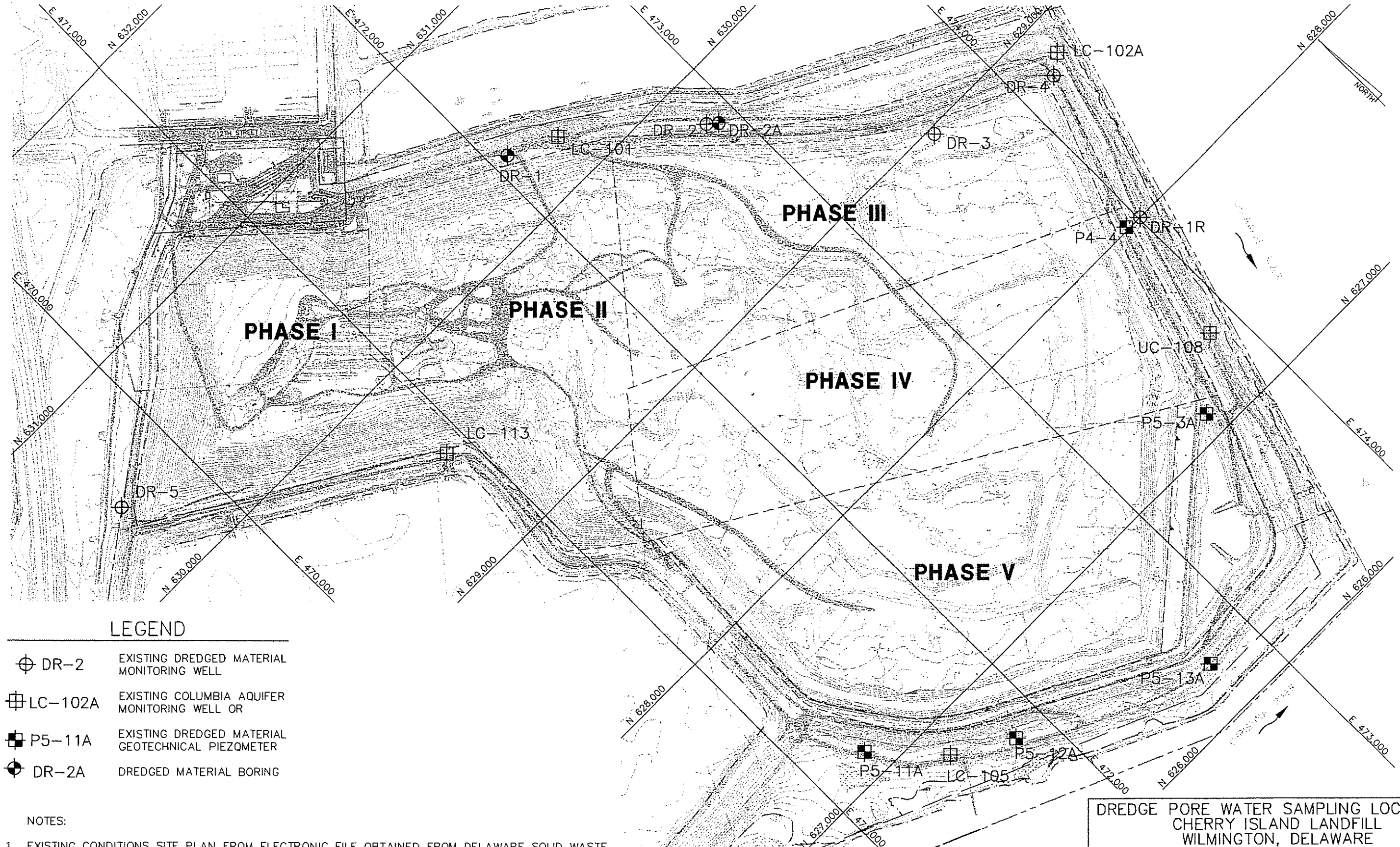
1. EXISTING CONDITIONS SITE PLAN IS FROM AN AERIAL ELECTRONIC FILE OF SURVEY BY TETRATECH, INC., DATED OCTOBER 2002.
2. 1920s HIGH AND LOW WATER LINES DIGITIZED FROM "FIGURE 1: APPROXIMATE LOCATION PLAN, DSWA CHERRY ISLAND LANDFILL EXPANSION" BY DUFFIELD ASSOCIATES, DATED 06 JUNE 2002, CONTAINED IN APPENDIX R.

450 225 0 450
SCALE IN FEET

SITE PLAN
CHERRY ISLAND LANDFILL
WILMINGTON, DELAWARE

GEOSYNTEC CONSULTANTS
COLUMBIA, MARYLAND

PROJECT NO.	ME0250	FILE NO.	0250F606
DOCUMENT NO.		FIGURE NO.	2



LEGEND

DR-2	EXISTING DREDGED MATERIAL MONITORING WELL
LC-102A	EXISTING COLUMBIA AQUIFER MONITORING WELL OR
P5-11A	EXISTING DREDGED MATERIAL GEOTECHNICAL PIEZOMETER
DR-2A	DREDGED MATERIAL BORING

NOTES:

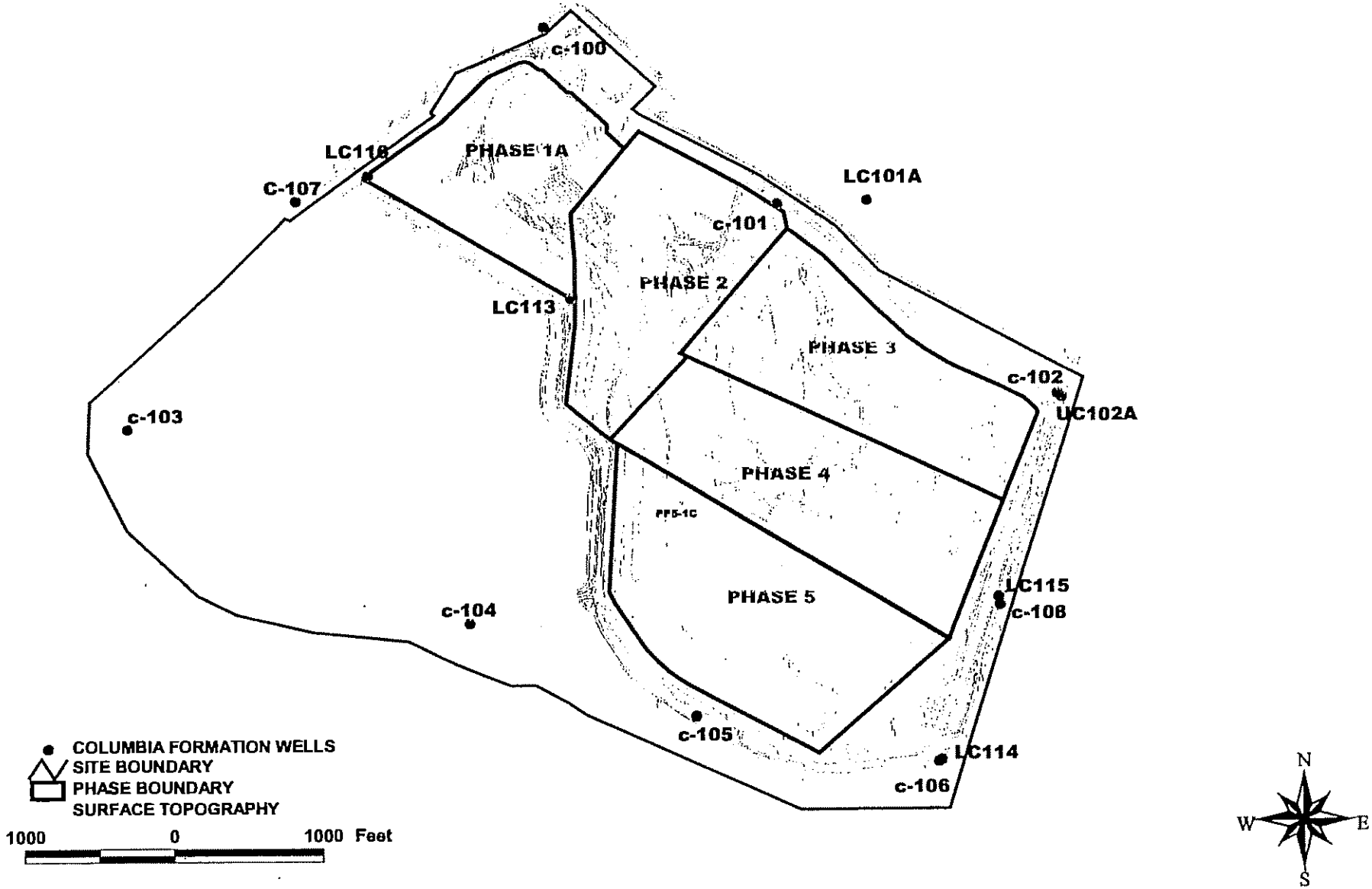
1. EXISTING CONDITIONS SITE PLAN FROM ELECTRONIC FILE OBTAINED FROM DELAWARE SOLID WASTE AUTHORITY (AND COPYRIGHTED MAY 2002 BY LAND & MAPPING SERVICES); ORIGINAL FILES COMPILED BY PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHY EXPOSED 21 APR 1998 AND AMENDED FROM PHOTOGRAPHY 24 JUL 1998, 17 OCT 1998, 19 JAN 1999, 24 APR 1999, 01 OCT 1999, 01 APR 2000, 27 SEP 2000, 03 APR 2001, 29 OCT 2001, AND 3 APRIL 2002.
2. SURVEY INFORMATION IS FROM VANDEMARK & LYNCH, INC. OF WILMINGTON, DELAWARE AND IS DATED 10 JULY 1997.

450 225 0 450
SCALE IN FEET

DREDGE PORE WATER SAMPLING LOCATIONS
CHERRY ISLAND LANDFILL
WILMINGTON, DELAWARE

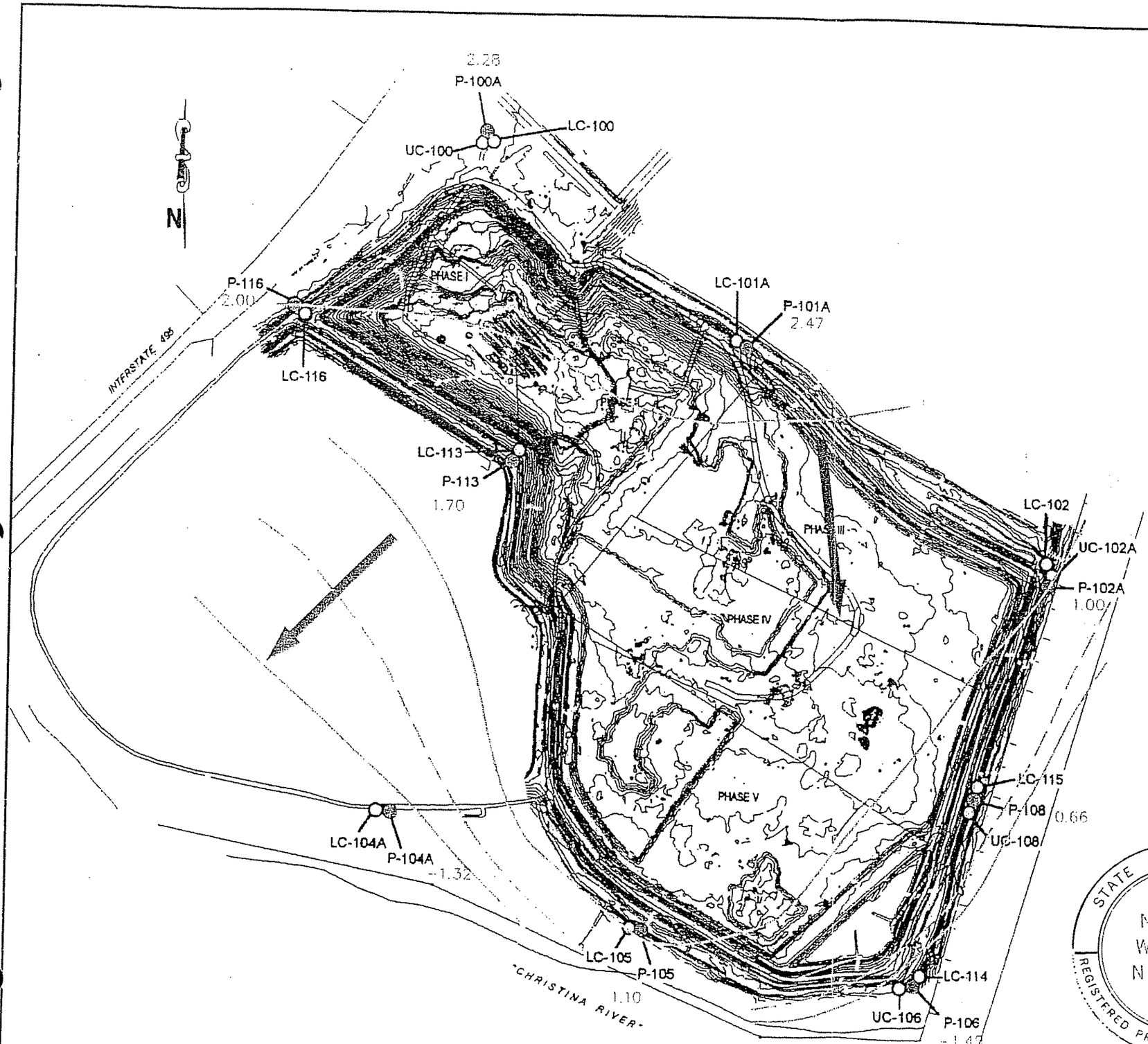
GEOSYNTEC CONSULTANTS
COLUMBIA, MARYLAND

PROJECT NO.	ME0250	FILE NO.	0250F613
DOCUMENT NO.		FIGURE NO.	3



GEOSYNTEC CONSULTANTS 10015 Old Columbia Road, Suite A-200 Columbia, Maryland 21046	**PLAN VIEW OF MONITORING WELLS IN THE COLUMBIA FORMATION**	**FIGURE 4** **PROJECT: ME0250**

APPENDIX A



This drawing is a combination of Vandemark & Lynch Inc.'s 1999 Instrument Location Drawing and Tetra-Tech, Inc.'s April 2001 Aerial Topo.

RECENT DEPOSTIS	REFERENCE POINT ELEVATION	DEPTH TO WATER (FEET)*	GROUNDWATER ELEVATIONS (FEET NGVD)**
POTOMAC AQUIFER			
P-100A**	17.81	15.53	2.28
P-101A	49.30	46.83	2.47
P-102A	30.11	29.11	1.00
P-104A	25.46	26.78	-1.32
P-105	22.94	21.84	1.10
P-106	28.95	30.44	-1.49
P-108	29.97	29.31	0.66
P-113	41.22	39.52	1.70
P-116	26.38	24.38	2.00

* ALL WELLS GAUGED ON APRIL 1, 2002.
** WELL P-100A WAS PREVIOUSLY DESIGNATED AS P-100.

LEGEND

MONITORING WELL LOCATION (WELLS CONSTRUCTED WITHIN POTOMAC SANDS)

POTENTIOMETRIC SURFACE CONTOUR (feet NGVD)

INFERRED GROUNDWATER FLOW DIRECTION

NOTES

1) ARM REPRODUCED THIS GENERALIZED SITE MAP BASED ON MAPS PROVIDED BY DSWA.

2) INTERPRETED SCREENED INTERVALS PROVIDED TO ARM BY DSWA.

3) GROUNDWATER SURFACE CONTOURS ARE INTERPRETED BETWEEN DATA POINTS.

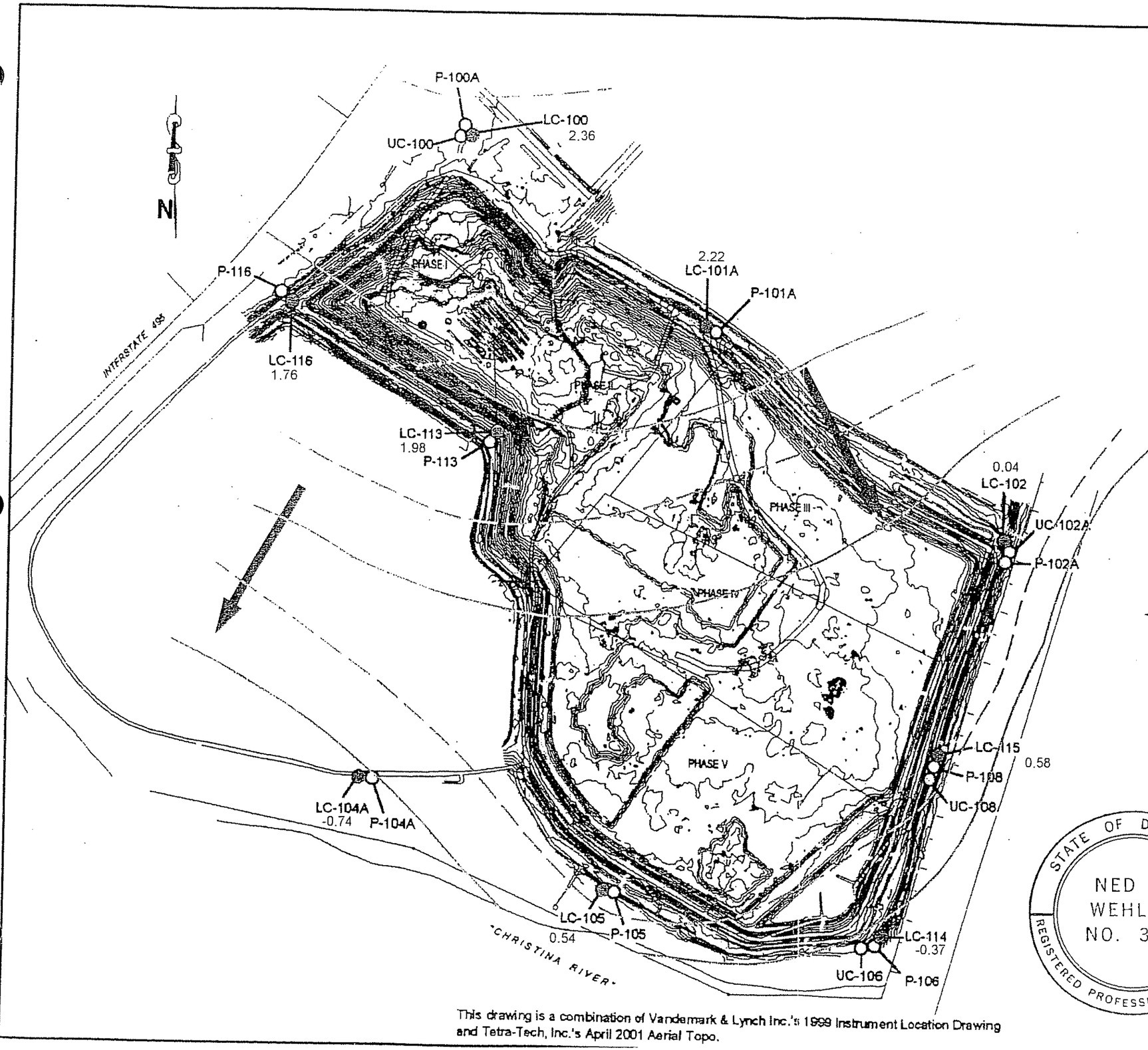
STATE OF DELAWARE
NED E. WEHLER
NO. 328
REGISTERED PROFESSIONAL GEOLOGIST

Potentiometric Surface Elevation
April 2002
Potomac Formation
NSWMC-2 at Cherry Island
New Castle County, DE

designed	BAW	scale	1" = 450'
drawn	MWF	date	05/02/02
checked	SBF	project no.	02105

ARM Group Inc.
Earth Resource Engineers and Consultants
1129 West Governor Road • Hershey, PA 17033-0797

Figure 6



WELL IDENTIFICATION NUMBER	REFERENCE POINT ELEVATION	DEPTH TO WATER (FEET)*	GROUNDWATER ELEVATION (FEET NGVD)
RECENT DEPOSITS ***			
UC-100	18.42	14.83	3.59
ISOLATED SAND LENS			
UC-102A	28.80	28.56	0.24
UC-106	30.07	27.87	2.20
UC-108	29.45	27.18	2.27
COLUMBIA AQUIFER			
LC-101A	49.30	47.08	2.22
LC-102	29.78	29.74	0.04
C-104	16.96	ABANDONED	ABANDONED
LC-104A	24.96	25.70	-0.74
LC-105	24.21	23.67	0.54
C-111	44.93	ABANDONED	ABANDONED
LC-113	43.19	41.21	1.98
LC-114	30.02	29.65	0.37
LC-115	32.41	31.83	0.58
LC-116	28.59	26.83	1.76
LC-100 **	18.24	15.88	2.36

* ALL WELLS GAUGED ON APRIL 1, 2002

** WELL LC-100 WAS ORIGINALLY DESGNATED AS P-100.

*** DESPITE COLUMBIA AQUIFER DESIGNATION, THESE WELLS ARE SUSPECTED OF BEING SCREENED WITHIN DISTINCT MINOR HYDROLOGIC UNITS ABOVE THE COLUMBIA AQUIFER. THEY HAVE NOT BEEN USED IN CONTOURING.

LEGEND

MONITORING WELL LOCATION (WELLS CONSTRUCTED WITHIN POTOMAC SANDS)

POTENTIOMETRIC SURFACE CONTOUR (feet NGVD)

INFERRED GROUNDWATER FLOW DIRECTION

NOTES

1) ARM REPRODUCED THIS GENERALIZED SITE MAP BASED ON MAPS PROVIDED BY DSWA.

2) INTERPRETED SCREENED INTERVALS PROVIDED TO ARM BY DSWA.

3) GROUNDWATER SURFACE CONTOUR LINES ARE INTERPRETED BETWEEN DATA POINTS.

STATE OF DELAWARE
NED E. WEHLER
NO. 328
REGISTERED PROFESSIONAL GEOLOGIST

This drawing is a combination of Vandermark & Lynch Inc.'s 1999 Instrument Location Drawing and Tetra-Tech, Inc.'s April 2001 Aerial Topo.

Potentiometric Surface Elevation
April 2002
Columbia Aquifer
NSWMC-2 at Cherry Island
New Castle County, DE

designed	BAW	scale	1" = 450'
drawn	MWF	date	05/02/02
checked	SBF	project no.	02105

ARM Group Inc.
Earth Resource Engineers and Consultants
1129 West Governor Road • Hershey, PA 17033-0797

Figure 5

DUFFIELD ASSOCIATES

DREDGED MATERIAL PORE WATER QUALITY ASSESSMENT

DSWA CHERRY ISLAND LANDFILL EXPANSION WILMINGTON, DELAWARE

March 2003

Submitted to:

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Solid Waste Management Branch
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Project No. 4685.ED – Task 7.5

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I. INTRODUCTION

Duffield Associates, Inc. has completed a groundwater and dredged material pore water quality assessment at the Delaware Solid Waste Authority (DSWA) Cherry Island Landfill (previously referred to as the Northern Solid Waste Management Center-2), located in the City of Wilmington, Delaware (see Figure 1). The purpose was to assess potential impacts on water quality in the Columbia aquifer that may be associated with accelerated pore water drainage from dredged material to that aquifer.

The assessment has been based on a comparison of the chemistry of dredged material pore water to the chemistry of groundwater in the Columbia aquifer beneath Cherry Island Landfill. Five new monitoring wells were installed and five existing geotechnical piezometers were used to acquire ten dredged material pore water samples at locations around the perimeter of the approximately 238-acre landfill. These samples were analyzed for a broad range of chemical parameters to characterize the environmental quality of the pore water. Columbia aquifer water quality was characterized using the DSWA's approximate 17-year groundwater monitoring record (May 1985 and January 2002), and new data developed from five groundwater samples collected from the Columbia aquifer and analyzed during this assessment. Data in the DSWA record acquired in 1983, prior to landfill construction, was not used for developing Columbia aquifer statistics. The 1983 data appeared inconsistent with post-1985 monitoring data (e.g., manganese was indicated to be present at concentrations an order of magnitude larger than post-1985 mean concentrations). Statistical comparisons were performed using the reported analytic testing results for the pore water samples, the testing results for new Columbia aquifer samples, and the mean parameter and analyte values developed from DSWA's historical Columbia aquifer monitoring record, to highlight differences and similarities in water quality between the data sets.

The assessment was performed in general accordance with Duffield Associates' "Draft Sampling and Analysis Plan for Dredged Material Pore Water Quality Assessment, DSWA Cherry Island Landfill Expansion, City of Wilmington, Delaware," dated September 2002, that was submitted to the State of Delaware, Department of Natural Resources and Environmental Control-Solid Waste Management Branch (DNREC-SWMB) for review and acceptance. A final edition of the Sampling and Analysis Plan (SAP) was not required by DNREC-SWMB for the project. During the review process and prior to the start of field activities, DNREC-SWMB, DSWA, and DSWA's consultants (GeoSyntec Consultants, and Duffield Associates, Inc.) agreed to minor SAP changes through electronic mail (e-mail) correspondence and discussions. These changes are presented in Section III.B of this report.

II. BACKGROUND

Under current conditions, the dredged materials and estuarine sediments beneath the Cherry Island Landfill slowly release excess pore water to the underlying Columbia aquifer, due to the low permeability of these materials. Duffield Associates' review of the groundwater quality records maintained by DSWA prior to and since the inception of Cherry Island Landfill indicates that the water quality in the Columbia aquifer has not changed significantly during the approximate 18-year monitoring period.

The groundwater in the portion of the Columbia aquifer beneath Cherry Island is not considered to be a potential source of potable and industrial water supply. Iron and manganese concentrations in the groundwater are typically above levels considered satisfactory for potable and industrial water supply, which was a factor considered during the construction permitting for the landfill. Furthermore, the City of Wilmington generally prohibits development of private groundwater wells as sources of potable water within its corporate boundaries (Wilmington City Code, Section 45-101).

DSWA and their consultants are evaluating the use of prefabricated vertical drains (PVDs) to improve (accelerate) drainage of the pore water held in the silty to clayey dredged materials and estuarine sediment deposits. If drainage can be improved, consolidation of these materials is anticipated to occur more quickly, resulting in a stronger and more stable foundation system for the landfill. Previous use of PVDs succeeded in accelerating consolidation of these materials beneath the perimeter dikes for Phases IV and V of the landfill. Drainage from those PVDs was conveyed to both the surface and to the Columbia aquifer.

The drainage system currently being considered would expand the use of PVDs to portions of the Phase I, II, and III perimeter dikes. The proposed PVDs are anticipated to primarily drain to the Columbia aquifer. Prior to this assessment, no data was available to evaluate the environmental characteristics of the pore water held in the dredged sediments.

III. SAMPLE COLLECTION AND ANALYSIS DETAILS

This section summarizes monitoring well construction activities, well development, pore water sample collection, groundwater sample collection, and analytic testing procedures performed during this assessment. The locations of sampling points (i.e., monitoring wells and piezometers) are shown on Figure 2.

One of the objectives of the sampling program was to generally characterize the environmental condition of dredged material pore water in the deposits beneath Cherry Island Landfill. As such, spatially separated sampling locations were proposed to avoid bias toward sampling dredged material deposits associated with single dredging events or dredging events of a common age. Following a review of existing geotechnical

piezometers that had screen sections located in dredged material and an assessment of the ability of those piezometers to produce the volume of water required for analytic testing, five piezometers were selected for sampling (P4-4, P5-3A, P5-11A, P5-12A, and P5-13A). Construction information for these piezometers, obtained from DSWA records, is provided in Appendix B. These piezometers were located along the southern and eastern perimeter of Phases IV and V of the landfill. To avoid bias and to allow collection of a sufficient number of samples for statistical assessment, five locations were selected for installation of new monitoring wells into the dredged materials along the western perimeter of Phase I, the northern perimeter of Phase II, and the northern perimeter of Phase III.

Five existing, spatially separated, monitoring wells completed in the Columbia aquifer were selected for sample collection. The wells selected were LC-101, UC-102, LC-105, UC-108 and LC-113. The data generated from analysis of the samples collected from these wells was intended to:

- Provide a quality assurance comparison between the results produced from this assessment and DSWA's historical monitoring records; and
- Provide PCB congener data for the Columbia aquifer groundwater that could be used in comparison with similar data developed for the dredged material pore water.

A. WELL INSTALLATIONS AND DEVELOPMENT

Between October 7 and 15, 2002, Duffield Associates' personnel reviewed the construction of five, 4-inch diameter, monitor wells (DR-1R, DR-2, DR-3, DR-4, and DR-5) at the landfill. Walton Corporation, Duffield Associates' subcontractor constructed the wells in general accordance with the SAP. The monitoring wells were installed at spatially separated locations around the perimeter of the landfill, using hollow-stem auger methods. Split-spoon samples were collected during drilling to allow visual determination of the materials being encountered. Duffield Associates' personnel reviewed and logged the recovered split-spoon samples.

The well screens (5-foot length) and sand filters (15-foot length) were set within the dredged material deposits. Copies of well completion reports, prepared by Walton Corporation's well driller, licensed in the State of Delaware, can be found in Appendix A. Copies of soil boring logs completed by Duffield Associates during review of well construction are provided in Appendix B.

Installation of DR-3 was delayed for several days when elevated levels of combustible gas (presumably methane) were detected at the top of the borehole during drilling. The combustible gas meter used for safety monitoring registered values as high as 100 percent of the lower explosive limit.

Water-saturated dredged materials were not encountered during the drilling of DR-1, at the original location selected for this installation (northern landfill perimeter). Therefore, this borehole was backfilled with portland cement grout. Monitoring well DR-1R was installed as a replacement for DR-1, at a location along the eastern perimeter of the landfill. Drilling of DR-1R was delayed for several hours due to elevated combustible gas levels detected at the top of the borehole during drilling.

Development of the five newly constructed wells began on October 14, 2002, and was completed by October 18, 2002. Details of development are provided in Appendix C. Pumping techniques were employed for well filter development. Development of the new wells began a minimum of 48 hours after well construction, to allow hydration of the bentonite well seals and setting of the portland cement-based grout around the casings. The development efforts in both the new wells and the existing piezometers stopped when water clarity (visually observed and as measured with a turbidity meter), or in the case of the piezometers, no more water was available for further development.

Elevated levels of combustible gas (presumably methane) were detected at the wellheads of DR-1R, DR-3, and DR-4 during development. As such, development of these monitoring wells was performed using a centrifugal pump and suction tubing that allowed the pump and other potential sources of ignition to be located at a safe distance from the wellheads. Development of DR-2 and DR-5 was performed using a submersible 2-inch diameter pump.

Due to the construction of the existing piezometers (10-foot length of 2-inch diameter well screen, with ¾-inch diameter riser casing), they were developed using a peristaltic pump and tubing.

The five Columbia aquifer wells (UC-101, LC-102A, LC-105, UC-108, and LC-113) are periodically used for groundwater sampling as part of the DSWA's ongoing monitoring program. As such, they were not redeveloped (turbidity monitoring and water yields measured during sampling confirmed that redevelopment was not necessary).

B. GROUNDWATER PURGING AND SAMPLING

Prior to 1996, the groundwater samples at Cherry Island Landfill were collected after approximately three well casing of water had been purged from the wells. Groundwater samples typically were filtered, except those destined for volatile organic compounds analyses. In an effort to collect data comparable to the historical Cherry Island monitoring data and due to foreseen difficulties with collecting non-turbid water samples from dredged materials, the SAP initially proposed to use these techniques for all groundwater sample collection during this assessment.

Through e-mail correspondence between DNREC-SWMB, DSWA, and DSWA's consultants, concluded October 10, 2002, the well/piezometer purging techniques outlined in the SAP were changed to those currently used for routine groundwater monitoring at the landfill under the terms of the landfill permit. The landfill permit issued by the DNREC-SWMB requires groundwater monitoring in accordance with the current version of "Regulations Governing Solid Waste." Since 1996, the regulations have required low flow rate sampling techniques (less than 1 liter per minute) and a preference for unfiltered samples when turbidity is less than 10 Nephelometric Turbidity Units (NTU). Filtering of samples is permitted by the regulations when turbidity exceeds 10 NTU.

The analytic testing proposed in the SAP was modified to more closely follow those used for groundwater samples collected at sanitary landfills regulated by the State of Delaware. One such change affected the volatile organic analytes. The analytes were changed from the U.S. EPA Target Compound List to those listed in "Regulations Governing Solid Waste," Section 5, Table 1 (also referenced by U.S. EPA as 40 CFR 258 Appendix I Volatile Organic Compounds). The addition of iron and manganese analyses for Columbia aquifer samples was also agreed to at the time of correspondence that concluded October 10, 2002.

On October 17, 2002, while well and piezometer development was in progress, Duffield Associates' project manager and DNREC-SWMB's case manager further discussed sample turbidity and sampling techniques. Due to the fine-grained character of the dredged materials, the water produced by monitoring wells and piezometers completed in those materials was more turbid than 10 NTU, despite the development efforts performed. During this discussion, agreement was reached that all pore water samples could be filtered (except those collected for volatile organic compounds analyses and field measured parameters), when measured turbidity levels during purging were above 10 NTU. Groundwater samples collected from the Columbia aquifer wells were not filtered, except those samples destined for metals analyses. Also, both parties agreed to allow the use of peristaltic pumps for sample collection from the existing piezometers, including those samples being analyzed for volatile organic compounds, since the constriction of the piezometer risers (¾-inch diameter) negated the use of submersible pumps and restricted the use of bailers.

Well purging and sample collection details are enclosed in Appendix C. Purging of Columbia aquifer and dredged material wells and piezometers began on October 24, 2002. Prior to purging, depths to groundwater were measured and volume of water in the wells was calculated. Purging ceased when at least three well volumes of water had been removed from a well or piezometer or when the well or piezometer was pumped dry. While purging was in progress, temperature, pH, specific conductivity, dissolved oxygen, turbidity, and oxidation-reduction potential of the purged water were measured and recorded for all sampling points except DR-2, DR-4, and LC-101. In wells that did not pump dry, the measured

parameters were allowed to stabilize prior to sample collection. Following purging, wells and piezometers were allowed to recharge to a level sufficient for sample collection. Sampling occurred on October 25, 28, and 31, 2002.

During purging, parameter monitoring at DR-2, DR-4 and LC-101 was limited to temperature, pH and specific conductivity, due to equipment limitations brought on by the slow recovery of water levels in the piezometers, combustible gas related delays that had been experienced during well installation and development, and weather-related delays during the field portion of the project. To meet project schedule objectives, samples needed to be received by the laboratory by November 1, 2002. A second sampling crew was used to improve the speed of sample collection on October 28 and 31, 2002. A second flow cell similar to the one used for the other sampling points was unavailable for use by this crew.

C. SAMPLE ANALYSIS

Pore water samples were collected from five existing piezometers (P4-4, P5-3A, P5-11A, P5-12A, and P5-13A) and five new monitoring wells (DR-1R, DR-2, DR-3, DR-4 and DR-5). These samples were submitted to Lancaster Laboratories for analysis. Water temperature, pH, dissolved oxygen content, turbidity, oxidation-reduction potential and specific conductivity were measured in the field and recorded by Duffield Associates' personnel, except those for the samples obtained from Monitoring Wells DR-2, DR-4 and LC-102. Measured field parameters in the samples obtained from these wells were temperature, pH, and specific conductivity.

The pore water samples, associated duplicate samples, and equipment rinse samples submitted to the laboratory were analyzed as follows:

- Bicarbonate by Standard Method 18th Edition 2320B, including Alkalinity to pH 4.5 and 8.3 by EPA Method 310.1;
- Chemical Oxygen Demand (COD) by EPA Method 410.2;
- Organic Nitrogen by calculation after EPA Method 350.3 (Ammonia Nitrogen) and EPA Method 351.2 (Total Kjeldahl Nitrogen);
- Nitrate/Nitrite by EPA Method 353.2;
- Total Suspended Solids (TSS) by EPA Method 160.2;
- Total Organic Carbon EPA Method 415.1;
- U.S. EPA Target Analyte List inorganic substances, including Total Cyanide, by appropriate SW-846 Methods 6010B, 7470A and 9012A;
- Chloride by EPA Method 300.0;
- Total Phosphate by EPA Method 365.1;
- Sulfide by EPA Method 376.1;
- Sulfate by EPA Method 300.0;

- DNREC, Table 1 Volatile Organic Compounds by SW-846 Method 8260 (referenced by Lancaster Laboratory as Appendix I volatiles in their analysis reports);
- U.S. EPA Target Compound List (TCL) Semi-Volatile Organic Compounds by SW-846 Method 8270;
- TCL Pesticides by SW-846 Method 8081; and
- Polychlorinated biphenyl (PCB) congeners by SW-846 Method 8082.

Groundwater samples were collected from five existing Columbia aquifer monitoring wells (LC-101, UC-102A, LC-105, UC-108, and LC-113). These samples, along with the associated duplicate samples and equipment rinse blank samples were submitted to Lancaster Laboratories for a reduced list of analyses. Total Dissolved Solids (TDS) by EPA Method 160.1, Total Suspended Solids (TSS) by EPA Method 160.2, Iron by SW-846 Method 6010B, and Manganese by SW-846 Method 6010B analyses were performed to provide quality assurance information through comparison of the reported results to the values contained in the DSWA's historical monitoring records. Polychlorinated biphenyl (PCB) congeners by SW-846 Method 8082 was performed to provide Columbia aquifer information that could be compared to pore water analysis results. No record was found of prior PCB congeners testing for Columbia aquifer samples collected at Cherry Island.

Lancaster Laboratories supplied trip blanks consisting of containerized deionized water. These samples accompanied the sample containers from issuance by the laboratory, through sample collection, and return to the laboratory. The laboratory analyzed the trip blanks for Table 1 Volatile Organic Compounds by SW-846 Method 8260.

Due to potential interference from pesticides and semi-volatile organic compounds in the samples, a sulfuric acid clean-up procedure (SW-846 3660B) was recommended by the laboratory and completed on all samples analyzed for PCB congeners. The sulfuric acid cleanup procedure was performed in addition to the standard fluorosil column cleanup procedure, during preparation of these samples.

As reported by Lancaster Laboratories, total organic carbon (TOC) levels were elevated in the pore water samples. Based on the elevated TOC levels, the high-level chemical oxygen demand (COD) analysis (EPA Method 410.4) was used in lieu of EPA Method 410.2 for these samples.

The laboratory reported detecting sulfur in pore water sample P5-13A during an initial attempt at performing the pesticides analysis at a concentration that interfered with pesticide detections. As a result, the laboratory performed a Gel Permeation Cleanup (SW-846 3640A) on this sample before re-analyzing it for pesticides.

IV. TESTING RESULTS

This section summarizes observations made during the field review, the analytic results for samples of water collected from the site, and provides a discussion of the results. Table 1 displays the findings for parameters measured in the field by Duffield Associates at the time of sample collection. Appendix F contains the analysis reports prepared by Lancaster Laboratories for the collected samples.

The data assessment began with a review of quality assurance data to ascertain the usefulness of the analytic data generated from the collected samples. Following the quality assurance review, mean values and standard deviations for each parameter and analyte reported for the pore water and October 2002, Columbia aquifer samples were calculated. For these calculations, concentrations set at one-half of the Method Detection Limit concentration were substituted for results reported by the laboratory as being non-detected. Historical Columbia aquifer monitoring records were treated in a similar manner when mean concentrations and standard deviations were calculated. To the extent that historical data were available for the Columbia Aquifer, historical mean values were compared to the mean concentrations calculated from the analytic testing results for the collected pore water samples and Columbia aquifer samples collected by Duffield Associates in October 2002. Tables presenting the mean values and standard deviations calculated from these data sources are provided in Appendix D (Tables D.1 through D.6). Direct comparison of the weighted mean values and standard deviations of the historical data with mean values and standard deviations for the data generated for this assessment were used to quickly identify pore water characteristics that might differ from Columbia aquifer characteristics.

The Mann-Whitney Rank-Sum Test was used to further evaluate analytes or parameters where mean pore water values appeared to be different from the weighted mean values for the Columbia aquifer, as derived from the historical database. The Mann-Whitney procedure (equivalent to the Wilcoxon Rank-Sum Test) is a non-parametric statistical test used to evaluate similarities or differences between data populations. In this case, the populations are represented by the ten pore water samples collected for this study versus the historical mean concentrations for thirteen Columbia aquifer wells. This test requires at least four samples from each population. Therefore, it works well with the relatively small data set generated for this evaluation. The test assumes that independent random samples have been collected. This statistical procedure is recommended in U.S. Environmental Protection Agency guidance documents, such as "Guidance for Data Quality Assessment: Practical Methods for Data Analysis" (1998) and "Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities" (1992). Appendix E provides a brief example of the Mann-Whitney test calculations.

The Mann-Whitney test results shows that the majority of the evaluated constituent concentrations in the pore water are statistically similar to the constituent concentrations in the Columbia aquifer water. However, some constituents were shown to belong to statistically different populations of water. These constituents are: calcium, magnesium,

chemical oxygen demand (COD), nitrate, organic nitrogen, and total dissolved solids (TDS).

When no historical monitoring data were available for comparison to the sample data, State of Delaware, Hazardous Substance Cleanup Act (HSCA), Uniform Risk-based Remediation Standards (URS) for groundwater were used to evaluate pore water quality in terms of potential human health or environmental issues. The URS are published in a document title, "Remediation Standards Guidance Under the Delaware Hazardous Substance Cleanup Act," last revised by DNREC in December 1999.

A. QUALITY ASSURANCE REVIEW

Several levels of quality assurance checks were built into the assessment. The first was the collection and analysis of Columbia aquifer samples to allow comparison of the reported results to those contained in the historical monitoring records. The second was the collection and analysis of duplicate samples, which allowed for a check of the consistency of the reported results. The third was the inclusion of rinse blank samples and trip blank samples to check for possible introduction of substances through sampling techniques or the ambient environment through which the samples passed before analysis.

Table 2 provides a well-by-well summary of the October 2002 Columbia aquifer sample results and mean values for the same analytes or parameters derived from the historical monitoring record for Columbia aquifer groundwater samples. This direct comparison suggested that there might be differences between the data generated for this assessment and the historical database.

The mean and standard deviation values presented in this table were calculated based on an assumption that the results for each analyte or parameter in the historical database had a normal distribution. Comparison of these parametric values to the historical values indicates that some of the data sets do not have a normal distribution. Some of the standard deviation values, when added or subtracted from the mean values yield values that fall outside of the minimum or maximum values of the historical data. An example of this situation is dissolved oxygen. Subtracting the standard deviations from the mean dissolved oxygen concentrations of LC-105, UC-108, and LC-113 yield values less than 0 mg/l. The minimum dissolved oxygen concentrations for these wells are 0.02, 0.01 and 0.02 mg/l, respectively, according to the historical monitoring record. The non-parametric Mann-Whitney test was selected for second level comparison of the data sets on the basis of this finding.

Table 8 provides a summary of the Mann-Whitney test comparison of the mean values for the Columbia aquifer samples collected in October and the weighted mean values derived from the historical database for the parameters and analytes included in this assessment. The Mann-Whitney test comparison demonstrated

that the results obtained during this assessment are similar to those contained in the historical record. This finding indicated that the methods employed during this assessment yielded data that could be used in comparison to the historical monitoring record.

Table 3 provides a summary of results obtained from duplicate sample analyses, which includes both pore water samples and Columbia aquifer groundwater samples. The table only lists substances detected in at least one of the samples of the duplicate pairs. Most analytes were not detected in any of the samples. For quality assurance purposes, non-detection of an analyte in both samples of a duplicate pair is indicative of good analytic precision. The reported duplicate results for detected substances also indicate that the methods and techniques employed during this assessment yielded consistent results. The few exceptions are discussed in the following paragraphs.

In two instances, substances were detected at concentrations close to the method detection limits (reported with "J" flags) in one sample of a duplicate pair, but not in the other. This situation applies to arsenic, copper, 4-chloroaniline and bis (2-ethylhexyl) phthalate in the DR-2 sample pair, and Gamma BHC – Lindane and 2,4-Dichlorobiphenyl (PCB-7) in the DR-1R sample pair. The results suggest that these substances were present in the pore water samples at concentrations close to the lower limit of the analytic detection. This situation had no significant affect on the use or interpretation of the data within the context of this assessment.

In the DR-2 sample pair, Beta BHC and Delta BHC were detected at small concentrations in one sample but were reported as not detected in the other sample. The situation was discussed with Christine Delaney, a data verifier in the pesticide laboratory at Lancaster Laboratories, who reviewed the chromatograms from the analyses. According to her explanation, a peak was detected adjacent to the Delta BHC retention time window on the chromatogram from the primary chromatography column during analysis of the DR-2 sample. A peak fell within the retention time window for Delta BHC on the chromatogram of the confirmatory column. A similar situation unfolded for Beta BHC during analysis of sample DR-2 Duplicate. In both cases, the analyst decided to report the substances as" not detected," due to the absence of positive confirmation. The verifier was of the opinion that both substances were present in both samples. For the purpose of this assessment, the concentrations of the substances, if present, but reported as "not detected," do not change the conclusions drawn from the data.

The calculated relative percent difference between the results reported for total phosphorous (40.18%) in the DR-2 duplicate pair exceeded 20%, a USEPA supported control limit (EPA Publication 9240.1-26). Following USEPA guidance, all phosphorous results for other samples collected and analyzed, as a batch with these samples, should be considered estimated concentrations. Therefore, the phosphorous concentrations for the samples collected from DR-2, DR-4, P4-4 and P5-12A are considered estimated values. Phosphorous has not

been routinely monitored at Cherry Island Landfill. Treating the results as estimated values did not affect the use or interpretation of the data within the context of this assessment.

The relative percent differences for iron (43.13 %) and organic nitrogen (26.09%) exceeded the 20% EPA criteria in the DR-1R duplicate sample pair. A similar situation occurred with the iron concentrations reported for the UC-108 sample pair. Therefore, the reported values for iron in samples collected from DR-1R, DR-3, DR-5, P5-3A, P5-11A, P5-13A, LC-101, UC-102, LC-105, UC-108 and LC-113 were considered estimated concentrations. The iron concentrations reported for all three rinse blank samples should also be considered estimated. The organic nitrogen values for samples DR-1R, DR-3, DR-5, as well as the October 25, 2002 rinse blank, were considered estimated concentrations. For the purposes of this assessment, the values reported by the laboratory were considered the laboratory's best estimate of the actual concentrations of iron and organic nitrogen. The reported values were used for statistical comparison, with appropriate caution regarding conclusions based on iron and organic nitrogen statistics. In the context of the whole data set, the uncertainty introduced by this use of the data had no affect on the conclusions.

Table 4 summarizes the substances detected in the field equipment rinse blank samples. Calcium (0.0506 mg/l), magnesium (0.0358 mg/l), manganese (0.00054 mg/l), and potassium (0.0962 mg/l) were detected in the rinse blank samples collected on October 25, 2002. The October 28, 2002, rinse blank reportedly contained a detectable concentration of total dissolved solids (11 mg/l). The October 31, 2002, rinse blank was reported to contain detectable concentrations of manganese (0.0028 mg/l) and iron (0.13 mg/l). These detections are insignificant in magnitude compared to the concentrations reported in the pore water samples (i.e., the values detected or reported for the blanks were more than one order of magnitude (factor of 10) lower than the values detected or reported for the pore water and groundwater samples). The detections in the blanks had no impact on the interpretation or use of the data, within the context of the assessment. In accordance with the SAP, the sampling equipment was not rinsed with nitric acid during cleanup between sample collections. The absence of an acid rinse may have lead to the low-level metals detections in the rinse blanks.

No Table 1 volatile organic compounds were reported as being detected in the trip blanks. This finding indicates that ambient environmental conditions through which the samples passed prior to analyses did not impact the integrity of the samples.

One PCB congener, 3-chlorobiphenyl or PCB 2, was detected in all of the pore water, Columbia aquifer samples and rinse blanks collected for this assessment. This congener was also detected in the laboratory's method blanks for each of the sample batches analyzed. Lancaster Laboratories attributed the presence of PCB-2 to reagent contamination. From a quality assurance perspective, the results for

PCB-2 are not valid and rejected. Therefore, the results for 3-chlorobiphenyl were excluded from consideration in the assessment.

B. FIELD MEASUREMENTS

Duffield Associates measured values of water temperature, pH, dissolved oxygen content (DO), turbidity, oxidation-reduction potential, (ORP) and specific conductivity in the field, using a flow through cell and meters, at the time of sample collection. These measurements were made on unfiltered samples. Results are presented in Table 1. Initial comparison of the mean pore water sample values to weighted mean Columbia aquifer values, developed from DSWA's historical Columbia aquifer monitoring data, suggested that the pore water field parameters were potentially different from those obtained from Columbia aquifer groundwater. Temperature, pH, DO, ORP and specific conductivity results obtained were statistically compared using the Mann-Whitney test to weighted mean Columbia aquifer values (see Table 8). The statistical comparison indicated that the pore water results were similar to the weighted mean values derived from historical Columbia aquifer data. Therefore, no significant changes in these parameters, as measured in the Columbia aquifer, would be anticipated to occur, if the rate and volume of pore water discharge to the Columbia aquifer is increased in the future.

C. LABORATORY ANALYSIS RESULTS

1. ENVIRONMENTAL INDICATOR ANALYTES AND PARAMETERS

For the purposes of this report, environmental indicator analytes and parameters include:

- Bicarbonate
- Chemical Oxygen Demand (COD)
- Ammonia nitrogen
- Kjedahl nitrogen (TKN)
- Organic nitrogen
- Nitrate
- Total Dissolved Solids (TDS)
- Total Organic Carbon (TOC)

The results reported by Lancaster Laboratories for the pore water samples regarding these parameters are summarized in Table 5 and are compared to mean concentrations derived from the DSWA's historical monitoring data for the Columbia aquifer. Table D.1 in Appendix D displays the statistical mean and standard deviation values derived from the pore water sample analysis results in comparison to the same statistics for the Columbia

aquifer as derived from the historical database. Based on this comparison, the average character of these parameters and analytes in pore water differed from the average character of the Columbia aquifer. As a result, the pore water results for these indicator parameters were assessed further statistically using the Mann-Whitney test.

The results of the statistical analysis are summarized in Table 8. The results indicate that the bicarbonate, ammonia nitrogen, COD, TKN and TOC concentrations for the pore water samples are similar to those found in the Columbia aquifer at Cherry Island. Pore water nitrate, organic nitrogen, and TDS concentrations are statistically different from the mean values derived from historical Columbia aquifer monitoring. Of these, the mean nitrate concentration in the pore water samples is less than the mean Columbia aquifer concentration. The mean concentrations organic nitrogen and TDS in pore water samples are greater than mean Columbia aquifer concentrations.

The mean organic nitrogen concentration in pore water is 12 mg/l, based on the testing results. The mean organic nitrogen content of the Columbia aquifer at Cherry Island is 5.1 mg/l, based on the historical monitoring record. The difference probably results from the organic matter content of the dredged materials.

In the context of using the results as a measure of available nutrients for biological degradation (oxidation), the ammonia nitrogen content of the pore water is not having an adverse affect on the dissolved oxygen content of the pore water. Given the probable long residence time of the pore water in the dredged material, reactions between organic matter and oxygen in the pore water are complete, and not exerting a continued oxygen demand. As such, more rapid drainage of the pore water and the constituent ammonia nitrogen to the Columbia aquifer through the installation of PVDs is not anticipated to adversely impact the dissolved oxygen content of Columbia aquifer groundwater.

2. ORGANIC SUBSTANCES

Table 6 provides a summary of detected organic substances in the pore water and Columbia aquifer samples collected during this assessment. In general, few DNREC Table 1 volatiles organic compounds, TCL semi-volatile organic compounds, TCL pesticides, and PCB congeners were detected in the pore water samples.

The historical monitoring record for the Columbia aquifer at Cherry Island contains data for volatile and semi-volatile organic data. No data is available in this record for pesticides or PCBs. Most of the analyte

volatile organic compounds and semi-volatile organic compounds were not detected in the pore water samples. Comparison of statistical mean pore water concentrations for volatile and semi-volatile organic compounds (both mostly not detected – see Tables D.2 and D.3) to statistical mean concentrations for these substances derived from the historical monitoring record for the Columbia aquifer indicates that pore water quality and Columbia aquifer groundwater quality are similar, primarily due to the absence of volatile or semi-volatile organic compound detections.

The two volatile organic compounds detected in the pore water samples were acetone and toluene. Acetone was detected in three of the ten samples (DR-1R, DR-4, and P5-11A). In each case, the concentrations were estimated, falling between the laboratory's practical quantitation limit (PQL – limit of quantitation – the lowest level that the laboratory believes it can provide an accurate value) and the method detection limit (MDL – the lowest level that the method can detect). Toluene was detected in one of the ten samples, at an estimated concentration between the PQL and the MDL.

According to the DSWA database, acetone has been detected by the Columbia aquifer monitoring at Cherry Island six times in the 62 samples analyzed. The statistical mean concentration of acetone in the Columbia aquifer, based on the monitoring record, has been 22 mg/l. The concentrations ranged between 4 and 50 µg/l. The statistical mean concentration of acetone in the pore water samples was 4.8 mg/l. On this basis, the pore water contains less acetone than does the Columbia aquifer.

Toluene has been detected at Cherry Island in Columbia aquifer samples three times out of 187 samples analyzed, according to the DSWA database. The statistical mean concentration of toluene in the Columbia aquifer at Cherry Island is 0.96 µg/l, with concentrations ranging between 1 and 5 µg/l. The statistical mean concentration of toluene in the pore water samples is 0.42 µg/l. The data indicate that pore water contains less toluene than the groundwater in the Columbia aquifer at Cherry Island.

As a context measure, the uniform risk-based remediation standards (URS) for these compounds in groundwater at Hazardous Substance Cleanup Act (HSCA) sites in the State of Delaware are 61 µg/l for acetone and 750 µg/l for toluene. When detected, the reported concentrations of acetone and toluene in the pore water samples were two to three orders of magnitude lower than the HSCA standards, suggesting that they pose minimal human health or environmental concern potential.

Four semi-volatile compounds were detected in the pore water samples. The plasticizer, bis (2-ethylhexyl) phthalate, was detected in one of the twelve samples (includes DR-2 Duplicate and DR-1R Duplicate). The substances 4-chloroaniline, phenol and 4-methylphenol also were detected in one of the twelve samples (includes DR-2 Duplicate and DR-1R Duplicate). When detected, all four substances were reported at concentrations between the PQL and the MDL. Bis (2-ethylhexl) phthalate and 4-chloroaniline were each detected in one of the DR-2 samples and not in the other, further reinforcing the probable small concentration of these substances in those samples. Of the semi-volatile substances detected in the pore water, only phenol has been detected in the Columbia aquifer, according to the DSWA database. As with the detected volatile organic compounds, the concentrations of these substances when detected were below the HSCA URS, suggesting that they pose minimal potential to affect human health or environmental conditions.

Ten of the twenty target pesticides were detected in the pore water samples. None of the pesticides were detected universally in the samples. The concentrations of these substances were extremely small (the equivalents of few parts per trillion). In most cases, the concentrations were estimated, falling between the laboratory's PQL and the MDL. As discussed in the Quality Assurance Review section of this report, duplicate sample analyses failed to detect some of the pesticides in one sample while detection was obtained in the other, most likely due to the small concentrations present in the samples. Where available, the pesticide concentrations detected in the pore water samples are at or below HSCA URS, again suggesting that they pose minimal potential to affect human health or environmental conditions. No pesticide concentration data was available in the historical monitoring record for comparison to the reported pore water concentration data.

Three of the 209 possible PCB congeners were detected in the pore water samples: 2, 2'-dichlorophenyl (PCB 4); 2, 4-dichlorobiphenyl (PCB 7); and 2, 2', 4, 5', 6-pentachlorobiphenyl (PCB 103). PCB 4 and PCB 103 were each detected in one of the twelve samples (including DR-1R and DR-2 duplicate samples). PCB 7 was detected in three of the twelve samples (including duplicate samples). No PCB congeners were detected in the Columbia aquifer samples collected during this assessment. No congener specific HSCA URS were available for comparison. However, a total PCB URS for groundwater does exist. When totaled, the reported PCB concentrations approximate or were below the HSCA total PCB screening of 0.03 μg/l. The HSCA total PCB URS concentration is 0.5 μg/l.

3. INORGANIC SUBSTANCES

Analytic testing results for inorganic substances (metals, semi-metals, anions and cyanide) are summarized in Table 7 and compared to weighted mean values derived from the DSWA's historical monitoring data for the Columbia aquifer. Mann-Whitney Test analysis results for these substances are summarized in Table 8. Generally, the mean concentrations of the inorganic substances in the pore water are similar to the weighted mean values derived from historical monitoring data, in terms of both absolute values and statistical analysis. The two metals concentrations that are statistically different from those in the Columbia aquifer are calcium and magnesium. No environment standards, such as HSCA URS, are available for comparison to the calcium and magnesium concentrations found in the pore water samples. Neither metal typically is considered to pose human health or environmental issues. The aluminum concentration could not be compared to the historical database. Aluminum is not monitored routinely at Cherry Island Landfill.

V. CONCLUSIONS

Based on findings from analysis of the data used for this assessment, Duffield Associates' opinion is that dredged material pore water quality is similar to Columbia aquifer groundwater quality at Cherry Island. Therefore, increasing the rate of the existing pore water drainage to the Columbia aquifer through the proposed use of prefabricated vertical wick drains should not adversely impact the Columbia aquifer groundwater quality at Cherry Island.

Few of the assessed pore water quality parameters values are statistically different from Columbia aquifer values for the same parameters. Those that are different are calcium, magnesium, chemical oxygen demand, nitrate, organic nitrogen, and total dissolved solids. The concentration of nitrate in pore water is less than the concentration in Columbia aquifer groundwater. The concentrations of the other parameters are greater in pore water than in the Columbia aquifer groundwater. The organic nitrogen and COD in the pore water may be linked. The dissolved oxygen content of the pore water indicates that the COD is not exerting a demand on oxygen in the pore water. The average dissolved oxygen content of the pore water is larger than average dissolved oxygen content of Columbia aquifer groundwater. Therefore, no adverse impact is anticipated to result from more rapidly draining pore water with a larger COD to the Columbia aquifer.

Small concentrations (low parts per trillion) were detected in half of the pore water samples. The detected pesticide concentrations in pore water samples could not be compared to historical data for Columbia aquifer due to the absence of such data. The concentrations of the detected pesticides in the pore water samples are not elevated with respect to State of Delaware URS for these compounds, indicating that they pose minimal risk to human health and the environment. As such, increasing the rate of pore water

discharge to the Columbia aquifer should not adversely impact the quality of Columbia aquifer groundwater with respect to these substances.

Three PCB congeners were detected occasionally (3 of 10 samples) in the pore water. In two samples, the congeners were detected close to the lower limit of analytic detection (approximately 5 parts per trillion). In the third sample (DR-3), the totaled concentration of the two congeners was approximately equivalent to the HSCA screening value for groundwater (0.03 µg/l). The HSCA URS value is 0.5 µg/l, more than an order of magnitude greater than the detected concentration. As such, increasing the rate of pore water discharge to the Columbia aquifer should not adversely impact the quality of Columbia aquifer groundwater with respect to these substances.

This report is based on Duffield Associates' professional judgment of environmental conditions as known through the analytic testing results reported during this assessment and the analytic testing results available through the DSWA's groundwater monitoring records for Cherry Island Landfill. The observations, conclusions, and recommendations included in this report are based solely on conditions known to Duffield Associates during the time period when this assessment was being performed. Latent conditions and other contingencies bearing upon the environmental conditions of the site may be evident in the future.

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Listing of Abbreviations Used in Tables

Dredged Material Pore Water Quality Assessment
Cherry Island Landfill, Wilmington, Delaware

Abbreviation	Meaning
ND	Substance was not detected in the sample.
---	No measurement or analysis of the parameter was made.
ORP	Oxidation-Reduction Potential
TDS	Total Dissolved Solids
TOC	Total Organic Carbon
TSS	Total Suspended Solids
Spec. Conductivity	Specific Conductivity
SU	Standard Units
Deg. C	Degrees Centigrade
µmohs/cm	micromhos per centimeter
NTU	Nephelometric Turbidity Units
mg/L	milligrams per liter
µg/L	micrograms per liter
mV	millivolts
J	Substance was detected in the sample at a concentration between the lower limit of quantitation and the method detection limit. The concentration shown is estimated.
MDL	Analytic Method Detection Limit
RPD	Relative Percent Difference

COLUMBIA AQU. . .TA SUMMARY
COMPARISON OF STATISTICAL VALUES DERIVED FROM HISTORICAL MONITORING RECORDS
AND
REPORTED DATA FOR OCTOBER 2002 SAMPLES

CHERRY ISLAND
WILMINGTON, DELAWARE

ANALYTE OR PARAMETER	UNITS	LC-101					UC-102				
		DSWA Historical Monitoring Statistics				October	DSWA Historical Monitoring Statistics				October
		Min	Max	Mean	Std. Dev.	2002	Min	Max	Mean	Std. Dev.	2002
Iron	mg/L	1.46	88	64.5	18.9	33.3	34	73	56.4	12.0	25.8
Manganese	mg/L	0.05	17	2.73	2.66	1.38	0.26	0.9	0.581	0.201	1.72
Temperature	°C	3.0	19.6	14.8	3.35	12.92	8.7	21.9	15.9	3.62	14.80
pH	SU	6.14	6.83	6.51	0.12	7.76	6.04	7.19	6.78	0.21	7.03
Spec. Conductivity	µmhos/cm	697	1979	1540	201	1380	2490	7140	3591	815	1400
ORP	mV	-192.7	66.8	-69.6	67.6	-96.3	-252	185.4	-65.0	102.4	-
Dissolved Oxygen	mg/L	0.11	3.01	0.77	0.69	1.43	0.08	1.37	0.51	0.40	-
Turbidity	NTU	0.0	128	20.9	35.2	7.7	1.0	117	26.6	34.4	-

ANALYTE OR PARAMETER	UNITS	LC-105					UC-108				
		DSWA Historical Monitoring Statistics				October	DSWA Historical Monitoring Statistics				October
		Min	Max	Mean	Std. Dev.	2002	Min	Max	Mean	Std. Dev.	2002
Iron	mg/L	0.050	52.0	21.9	16.4	38.6	7.12	66.0	31.4	19.8	48.3
Manganese	mg/L	0.080	0.240	0.151	13.7	0.537	4.26	11.7	7.52	2.59	3.64
Temperature	°C	5.2	20.7	15.3	3.0	14.40	8.5	27	16.29	3.93	15.93
pH	SU	6.47	7.26	6.75	0.16	6.37	6.27	7.05	6.70	0.18	6.49
Spec. Conductivity	µmhos/cm	713	2504	1787	369	2416	668	2924	2292	469	3180
ORP	mV	-151.6	37.2	-61.1	56.9	-76.5	-141.4	141.4	-46.1	79.9	-109.3
Dissolved Oxygen	mg/L	0.02	6.50	1.00	1.36	2.69	0.01	4.1	0.81	1.00	1.40
Turbidity	NTU	0.0	91.1	11.0	25.2	5.0	0.0	540	41.0	113	1.3

ANALYTE OR PARAMETER	UNITS	LC-113				
		DSWA Historical Monitoring Statistics				October
		Min	Max	Mean	Std. Dev.	2002
Iron	mg/L	1.70	74.0	39.1	30.4	70.7
Manganese	mg/L	0.056	2.30	1.30	0.99	1.81
Temperature	°C	7.7	21.9	16.5	3.33	15.62
pH	SU	6.49	12.51	8.14	2.30	6.34
Spec. Conductivity	µmhos/cm	1,180	6,800	2,470	1472	1762
ORP	mV	-251.6	92.3	-74.5	91.5	-81.5
Dissolved Oxygen	mg/L	0.02	3.60	0.94	1.00	1.95
Turbidity	NTU	2.0	231	42.3	55.4	5.7

Notes:

Min = Minimum value for analyte during the period of historical record used for assessment (May 1985 to January 2002)
Max = Maximum value of analyte during the period of historical record used for assessment (May 1985 to January 2002)
Mean = Calculated mean value of analyte for the period of historical record used for assessment (May 1985 to January 2002)
Std. Dev. = Calculated standard deviation of analyte values for the period of historical record used for assessment (May 1985 to January 2002)
This table is part of a report titled, "Dredged Material Pore Water Quality Assessment, DSWA Cherry Island Landfill Expansion, Wilmington, Delaware," dated March 2003, and should only be viewed in the context of that report.

DUFFIELD ASSOCIATES, INC.
PROJECT NO. 4685.ED

TABLE 1
SUMMARY OF FIELD
DETERMINED PARAMETERS

CHERRY ISLAND LANDFILL
WILMINGTON, DELAWARE

Parameter	Units	Mean Historical Columbia Aquifer	October 2002 Dredged Material Pore Water Samples										October 2002 Columbia Aquifer Samples				
			New Monitoring Wells					Existing Piezometers					Existing Monitoring Wells				
			DR-1R	DR-2	DR-3	DR-4	DR-5	P4-4	P5-3A	P5-11A	P5-12A	P5-13A	LC-101	UC-102	LC-105	LC-113	UC-108
pH	SU	6.64	6.48	6.53	6.36	6.68	6.38	6.66	6.49	6.23	6.64	6.37	7.76	7.03	6.37	6.34	6.49
Temperature	Deg. C	15.5	16.13	16.98	15.1	14.75	15.7	15.4	15.98	15.01	14.31	14.5	12.92	14.8	14.4	15.62	15.93
Spec. Conductivity	µmohs/cm	1874	2493.3	2078	3230	3620	4520	4160	4845	2308	4624.28	2216	1380	1400	2417.5	1761.66	3180
Turbidity	NTU	31	40	-	110	-	52	80	165	170	70.57	65.25	7.67	-	5	5.67	1.33
Dissolved Oxygen	mg/L	1.4	1.84	-	0.87	-	1.35	2.17	3.3	3.13	1.72	1.11	1.43	-	2.685	1.95	1.4
ORP	mV	-27	8	-	-79	-	-95	-67	-64	14.33	125.5	41.33	-96.33	-	-76.5	-81.5	-109.33

Notes:

1 This table is part of a report titled, "Dredged Material Pore Water Quality Assessment, DSWA Cherry Island Landfill Expansion, Wilmington, Delaware," dated March 2003, and should only be viewed in the context of that report.

DUFFIELD ASSOCIATES, INC.
PROJECT NO. 4685.ED
TASK 7.5
MARCH 2003

TABLE 3

SUMMARY OF ANALYTIC TESTING RESULTS FOR DUPLICATE SAMPLES

CHERRY ISLAND LANDFILL
WILMINGTON, DELAWARE

Analyte	DR-2		DR-2 Duplicate		MDL	5*MDL	?>5MDL		RPD	DR-1R		DR-1R Duplicate		MDL	5*MDL	?>5MDL		RPD	UC-108		UC-108 Duplicate		MDL	5*MDL	?>5MDL		RPD
	Result	Flag	Result	Flag			DR-2	DR-2D		Result	Flag	Result	Flag			DR-2	DR-2		Result	Flag	Result	Flag			DR-2	DR-2	
TAL Metals (mg/L) Metals not shown were not detected																											
Arsenic	ND		0.0055	J	0.0049	0.0245	N	N		0.0067	J	0.0078	J	0.0049	0.0245	N	N		-		-		0.0049	0.0245			
Barium	0.151		0.156		0.00044	0.0022	Y	Y	3.26%	0.149		0.148		0.00044	0.0022	Y	Y	0.67%	-		-		0.00044	0.0022			
Calcium	123		125		0.0493	0.2465	Y	Y	1.61%	80.8		80.8		0.0493	0.2465	Y	Y	0.00%	-		-		0.0493	0.2465			
Chromium	0.0123	J	0.0121	J	0.0020	0.0100	Y	Y	1.64%	0.011	J	0.0105	J	0.0020	0.0100	Y	Y	4.65%	-		-		0.0020	0.0100			
Cobalt	0.0054	J	0.0048	J	0.0017	0.0085	N	N		0.0105	J	0.0102	J	0.0017	0.0085	Y	Y	2.90%	-		-		0.0017	0.0085			
Copper	ND		0.0039	J	0.0026	0.0130	N	N		0.015	J	0.0129	J	0.0026	0.0130	Y	N		-		-		0.0026	0.0130			
Iron	66.1		67.4		0.0349	0.1745	Y	Y	1.95%	3.11		4.82		0.0349	0.1745	Y	Y	43.13%	48.3		65.2		0.0349	0.1745	Y	Y	29.78%
Magnesium	105		106		0.0195	0.0975	Y	Y	0.95%	87.2		86.2		0.0195	0.0975	Y	Y	1.15%	-		-		0.0195	0.0975			
Manganese	4.4		4.49		0.00050	0.0025	Y	Y	2.02%	1.17		1.18		0.00050	0.0025	Y	Y	0.85%	3.64		4.01		0.00050	0.0025	Y	Y	9.67%
Nickel	0.0048	J	0.0063	J	0.0019	0.0095	N	N		0.0126	J	0.012	J	0.0019	0.0095	Y	Y	4.88%	-		-		0.0019	0.0095			
Potassium	23.4		24.2		0.0472	0.2360	Y	Y	3.36%	60.9		54.3		0.0472	0.2360	Y	Y	11.46%	-		-		0.0472	0.2360			
Sodium	179		176		0.2493	1.2465	Y	Y	1.69%	303		283		0.2493	1.2465	Y	Y	6.83%	-		-		0.2493	1.2465			
Vanadium	0.012	J	0.0118	J	0.0017	0.0085	Y	Y	1.68%	ND		ND		0.0017	0.0085	N	N		-		-		0.0017	0.0085			
Zinc	0.006	J	0.0097	J	0.0049	0.0245	N	N		0.0559		0.046		0.0049	0.0245	Y	Y	19.43%	-		-		0.0049	0.0245			
Environmental Indicator Parameters (mg/L) Indicators not shown were not detected																											
Alkalinity to pH 4.5	795		811		0.4100	2.0500	Y	Y	1.99%	838		826		0.4100	2.0500	Y	Y	1.44%	-		-		0.4100	2.0500			
Total Dissolved Solids	1500		1510		9.7000	48.5000	Y	Y	0.66%	1620		1590		9.7000	48.5000	Y	Y	1.87%	916		1050		9.7000	48.5000	Y	Y	17.35%
Kjeldahl Nitrogen	-		-		0.3000	1.5000				66		63		0.3000	1.5000	Y	Y	4.65%	-		-		0.3000	1.5000			
Nitrite Nitrogen	0.085		0.034	J	0.0150	0.0750	Y	N		ND		ND		0.0150	0.0750	N	N		-		-		0.0150	0.0750			
Organic Nitrogen	-		-		1.0000	5.0000				14.3		11		1.0000	5.0000	Y	Y	26.09%	-		-		1.0000	5.0000			
Chloride	343		349		0.3000	1.5000	Y	Y	1.73%	463		418		0.3000	1.5000	Y	Y	10.22%	-		-		0.3000	1.5000			
Sulfate	ND		ND		0.3000	1.5000	N	N		6.3		5.8		0.3000	1.5000	Y	Y	8.26%	-		-		0.3000	1.5000			
Total Organic Carbon	97.6		96.7		0.5000	2.5000	Y	Y	0.93%	94.1		93.4		0.5000	2.5000	Y	Y	0.75%	-		-		0.5000	2.5000			
Total Phosphorus	5.33		8.01		0.1200	0.6000	Y	Y	40.16%	0.28		0.27		0.1200	0.6000	N	N		-		-		0.1200	0.6000			
Bicarbonate	795		811		0.4100	2.0500	Y	Y	1.99%	838		826		0.4100	2.0500	Y	Y	1.44%	-		-		0.4100	2.0500			
COD	318		325		6.8400	44.2000	Y	Y	2.18%	301		299		6.8400	44.2000	Y	Y	0.67%	-		-		6.8400	44.2000			
Ammonia-Nitrogen	34.6		35		0.0200	0.1000	Y	Y	1.15%	51.2		52.3		0.0200	0.1000	Y	Y	2.13%	-		-		0.0200	0.1000			
TCL Pesticides, PCB Aroclors (µg/L) Pesticides and Aroclors not shown were not detected																											
Beta BHC	0.021		ND		0.0033	0.0165	Y	N		ND		ND		0.0033	0.0165	N	N		-		-		0.0033	0.0165			
Gamma BHC - Lindane	0.005	J	0.0038	J	0.0024	0.0120	N	N		0.0037	J	ND		0.0024	0.0120	N	N		-		-		0.0024	0.0120			
Delta BHC	ND		0.018		0.0020	0.0100	N	Y		0.0068	J	0.0074	J	0.0020	0.0100	N	N		-		-		0.0020	0.0100			
Endrin	0.01	J	0.0052	J	0.0048	0.0240	N	N		0.014	J	0.012	J	0.0048	0.0240	N	N		-		-		0.0048	0.0240			
2,4-Dichlorobiphenyl (PCB-7)	ND		ND		0.0048	0.0240	N	N		ND		0.006017	J	0.0048	0.0240	N	N		ND		ND		0.0049	0.0245			
TCL Semivolatiles (µg/L) Semivolatiles not shown were not detected																											
4-Chloroaniline	2	J	ND		1.0000	5.0000	N	N		ND		ND		1.0000	5.0000	N	N		-		-		1.0000	5.0000			
bis(2-Ethylhexyl)phthalate	ND		3	J	2.0000	10.0000	N	N		ND		ND		2.0000	10.0000	N	N		-		-		2.0000	10.0000			
DRGSW Table 1 Volatiles (µg/L) Volatiles not shown were not detected																											
Acetone	ND		ND		6.0000	30.0000	N	N		8	J	8	J	6.0000	30.0000	N	N		-		-		6.0000	30.0000			

Notes:

Relative Percent Difference (RPD) calculations are in accordance with EPA Publications 9240.1-26, "Laboratory Data Validation, Functional Guidelines for Evaluating Inorganics Analyses," and 9240.1-27, "Laboratory Data Validation, Functional Guidelines for Evaluating Organics Analyses," both dated December 1994.

This table is part of a report titled, "Dredged Material Pore Water Quality Assessment, DSWA Cherry Island Landfill Expansion, Wilmington, Delaware," dated March 2003, and should be viewed only in the context of that report.

TABLE 4
SUMMARY OF SUBSTANCES DETECTED IN RINSE BLANK SAMPLES

CHERRY ISLAND LANDFILL
WILMINGTON, DELAWARE

Analyte	Units	10/25/02 Rinse Blank		10/28/02 Rinse Blank		10/31/02 Rinse Blank	
		Result	Flag	Result	Flag	Result	Flag
Calcium	mg/L	0.0506	J	-		-	
Magnesium	mg/L	0.0358	J	-		-	
Manganese	mg/L	0.00054	J	ND		0.0028	J
Potassium	mg/L	0.0962	J	-		-	
Iron	mg/L	ND		ND		0.13	
Alkalinity to 4.5 pH	mg/L	0.58	J	-		-	
TOC	mg/L	0.642	J	-		-	
Bicarbonate	mg/L	0.58	J	-		-	
TDS	mg/L	ND		11	J	ND	

Notes:

1 This table is part of a report titled, "Dredged Material Pore Water Quality Assessment, DSWA Cherry Island Landfill Expansion, Wilmington, Delaware," dated March 2003, and should be viewed only in the context of that report.

TABLE 5
SUMMARY OF ANALYTIC TESTING RESULTS FOR ENVIRONMENTAL INDICATOR ANALYTES

CHERRY ISLAND LANDFILL
WILMINGTON, DELAWARE

Analyte	Units	Mean Historical Columbia Aquifer	October 2002 Dredged Material Pore Water Samples									
			DR-1	DR-2	DR-3	DR-4	DR-5	P4-4	P5-3A	P5-11A	P5-12A	P5-13A
Bicarbonate	mg/L	399	838	795	909	946	593	916	1050	306	778	333
COD	mg/L	140	301	318	122	368	303	209	423	62	296	88
Ammonia Nitrogen	mg/L	17	51.2	34.6	35	60.4	25.7	15.2	41.3	6.4	58.2	23.3
Organic Nitrogen	mg/L	5.1	14.3	12.1	18.5	14.5	11.1	12.6	8.2	2.3	18.9	10.9
Nitrate	mg/L	0.45	ND	ND	ND	ND	ND	ND	ND	0.41	ND	ND
TDS	mg/L	979	1620	1500	1670	2730	2920	1960	2640	1850	2430	1460
TOC	mg/L	39	94.1	97.6	32.5	111	93.8	63.7	140	13.6	84.2	24.1

Notes:

1 This table is part of report titled., "Dredged Material Pore Water Quality Assessment, DSWA Cherry Island Landfill, Wilmington, Delaware," dated March 2003, and should only be viewed in the context of that report.

TABLE 6
SUMMARY OF ANALYTIC TESTING RESULTS
ORGANIC SUBSTANCES DETECTED IN COLUMBIA AQUIFER AND PORE WATER SAMPLES
CHERRY ISLAND LANDFILL
WILMINGTON, DELAWARE

October 2002 Columbia Aquifer Samples (PCB Congener Analyses Only)

Sample Identification	LC-101	LC-102	LC-105	LC-108	LC-113
Laboratory Identification	3931401	3929667	3929668	3931400	3931397
Sample Type	Grab	Grab	Grab	Grab	Grab
Date (month/day/year)	10/31/02	10/28/02	10/28/02	10/31/02	10/31/02
Units	µg/L	µg/L	µg/L	µg/L	µg/L
2,2'-Dichlorobiphenyl (PCB 4)	ND	ND	ND	ND	ND
2,4-Dichlorobiphenyl (PCB 7)	ND	ND	ND	ND	ND
2,2',4,5',6-Pentachlorobiphenyl (PCB 103)	ND	ND	ND	ND	ND

Dredged Materials Pore Water Samples

Sample Identification	DR-1R	DR-2	DR-3	DR-4	DR-5	P4-4	P5-3A	P5-11A	P5-12A	P5-13A	HSCA Groundwater URS Value
Laboratory Identification	3929659	3928360	3929670	3928364	3929666	3928368	3931391	3931393	3928366	3931395	
Sample Type	Grab	Grab	Grab	Grab	Grab	Grab	Grab	Grab	Grab	Grab	
Date (month/day/year)	10/28/02	10/25/02	10/28/02	10/25/02	10/28/02	10/25/02	10/31/02	10/31/02	10/25/02	10/31/02	
POLYCHLORINATED BIPHENYL CONGENERS (µg/L)											
2,2'-Dichlorobiphenyl (PCB 4)	ND	ND	0.02994	ND	ND	ND	ND	ND	ND	ND	NA
2,4-Dichlorobiphenyl (PCB 7)	ND	ND	0.005629 J	ND	ND	0.005195 J	ND	ND	ND	ND	NA
2,2',4,5',6-Pentachlorobiphenyl (PCB 103)	ND	ND	ND	ND	ND	ND	0.005065 J	ND	ND	ND	NA
Calculated Total PCB	ND	ND	0.03557	ND	ND	0.0052	0.0051	ND	ND	ND	0.5
TCL PESTICIDES (µg/L)											
Alpha Chlordane	ND	ND	ND	ND	ND	ND	0.0035 J	ND	ND	ND	2
Gamma Chlordane	ND	ND	ND	ND	ND	0.012	0.027	ND	ND	ND	2
Beta BHC	ND	0.021	0.0040 J	0.013	ND	ND	ND	ND	0.0034 J	ND	0.04
Gamma BHC	0.0037 J	0.005 J	ND	ND	ND	0.0043 J	ND	ND	ND	0.0061 J	0.2
Delta BHC	0.0068 J	ND	0.011	ND	0.0061 J	0.014	0.0028 J	0.0031 J	0.0062 J	ND	NA
Heptachlor epoxide	ND	0.01	ND	ND	0.0072 J	0.0033 J	ND	ND	ND	ND	NA
p,p-DDE	ND	ND	ND	ND	ND	ND	0.0040 J	ND	ND	ND	0.2
Dieldrin	ND	ND	ND	ND	ND	ND	0.0049 J	ND	ND	ND	0.004
Endrin	0.014 J	ND	ND	ND	ND	0.011 J	0.014 J	ND	0.0040 J	ND	2
Endosulfan II	ND	ND	ND	ND	ND	ND	0.0047 J	ND	ND	ND	22
TCL SEMIVOLATILE ORGANIC COMPOUNDS (µg/L)											
bis(2-Ethylhexyl)phthalate	ND	ND	ND	ND	ND	ND	ND	ND	2 J	ND	6
4-Chloroaniline	ND	2 J	ND	ND	ND	ND	ND	ND	ND	ND	15
Phenol	ND	ND	ND	3 J	ND	ND	ND	ND	ND	ND	4000
4-Methylphenol	ND	ND	ND	2 J	ND	ND	ND	ND	ND	ND	18
TABLE 1 VOLATILE ORGANIC COMPOUNDS (µg/L)											
Acetone	8 J	ND	ND	12 J	ND	ND	ND	7 J	ND	ND	61
Toluene	ND	ND	ND	1 J	ND	ND	ND	ND	ND	ND	1000

Notes:
1 This table is part of a report titled, "Dredged Material Pore Water Quality Assessment, DSWA Cherry Island Landfill Expansion, Wilmington, Delaware," dated March 2003, and should only be viewed in the context of that report.

TABLE 7
SUMMARY OF ANALYTIC TESTING RESULTS
INDRGANIC SUBSTANCES DETECTED IN PORE WATER SAMPLES

CHERRY ISLAND LANDFILL
WILMINGTON, DELAWARE

Analyte	October 2002 Pore Water Samples									
	DR-1-R	DR-2	DR-3	DR-4	DR-5	P4-4	P5-3A	P5-11A	P5-12A	P5-13A
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Aluminum	ND	ND	ND	9.04	ND	ND	0.0964	0.37	ND	0.126
Antimony	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic	0.0067	ND	0.0377	0.0575	0.0831	0.008	0.027	0.0057	0.0342	ND
Barium	0.149	0.151	0.228	0.481	0.272	0.121	0.18	0.0851	0.39	0.132
Beryllium	ND	ND	ND	0.00065	ND	ND	ND	ND	ND	ND
Cadmium	ND	ND	0.0011	0.0014	0.0025	ND	0.001	ND	ND	ND
Calcium	80.8	123	140	108	201	155	124	212	103	130
Chromium	0.011	0.0123	ND	0.0945	0.0239	0.0021	0.0171	0.0032	0.0157	0.0042
Cobalt	0.0105	0.0054	0.0072	0.0239	ND	0.0022	0.0164	0.468	0.0147	ND
Copper	0.015	ND	ND	0.0838	ND	ND	ND	ND	ND	ND
Iron	3.11	66.1	55	121	148	42	67.8	69.8	37.8	2.09
Lead	ND	ND	ND	0.119	ND	ND	ND	ND	ND	ND
Magnesium	87.2	105	170	115	250	139	153	145	103	118
Manganese	1.17	4.4	2.8	1.71	5.97	7.55	2.95	8.75	0.525	7.14
Mercury	ND	ND	0.000087	ND	ND	ND	ND	ND	ND	ND
Nickel	0.0126	0.0048	0.0127	0.0334	ND	0.0026	0.0289	0.889	0.0147	0.0021
Potassium	60.9	23.4	34.8	86.8	27.6	17.5	32.7	24.2	27.7	22.9
Selenium	ND	ND	ND	ND	0.006	ND	0.0088	ND	ND	ND
Silver	ND	ND	ND	ND	ND	ND	0.008	ND	ND	0.0024
Sodium	303	179	184	587	289	215	486	57.1	483	89.7
Thallium	ND	ND	0.0155	ND	0.0248	ND	ND	0.0166	ND	0.0172
Vanadium	ND	0.012	0.0061	0.0392	0.0123	0.003	0.0138	ND	0.0046	0.0042
Zinc	0.0559	0.006	ND	0.582	ND	0.0116	0.0052	20.2	0.0159	ND
Chloride	463	343	300	1080	596	551	823	59	890	65.5
Cyanide	ND	ND	ND	ND	0.009	ND	ND	ND	ND	ND
Phosphorus	0.28	5.33	3.91	0.36	3.38	2.39	4.14	0.7	1.25	6.14
Sulfide	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.5
Sulfate	0.63	ND	262	2.5	830	31	20.1	990	ND	710

Note: This table is part of a report titled, " Dredged Material Pore Water Quality Assessment, DSWA Cherry Island Landfill Expansion, Wilmington, Delaware," dated March 2003, and should only be viewed in the context of that report.

DUFFILED ASSOCIATES, INC.
PROJECT NO 4685.ED
TASK 7.5
MARCH 2003

TABLE 8

SUMMARY OF STATISTICAL COMPARISONS FOR NON-ORGANIC PARAMETERS AND PARAMETERS

CHERRY ISLAND LANDFILL

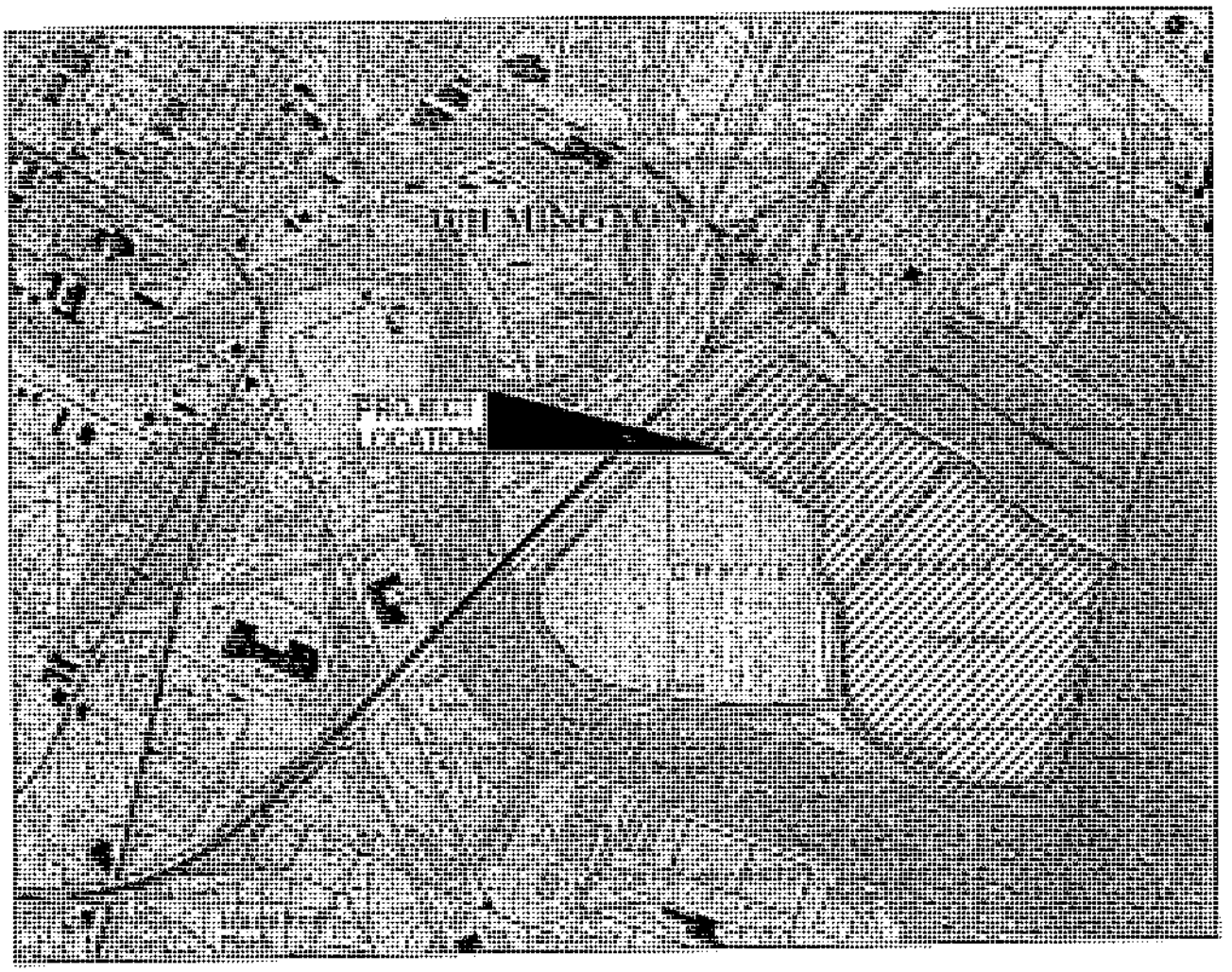
WILMINGTON, DE

Analyte or Parameter	Units	Mean Values			Statistical Results from Comparison to Historical Columbia Aquifer	
		Historical Columbia Aquifer	Columbia Aquifer October 2002	Dredged Material Pore water	Columbia Aquifer October 2002	Dredged Material Pore water
Aluminum *	mg/L	-	-	0.969	-	-
Antimony	mg/L	0.026	-	0.007	-	Similar
Arsenic	mg/L	0.074	-	0.031	-	Similar
Barium	mg/L	0.133	-	0.218	-	Similar
Beryllium	mg/L	0.003	-	0.001	-	Similar
Cadmium	mg/L	0.003	-	0.002	-	Similar
Calcium	mg/L	62.9	-	138	-	Different
Chromium	mg/L	0.021	-	0.019	-	Similar
Cobalt	mg/L	0.013	-	0.055	-	Similar
Copper	mg/L	0.011	-	0.011	-	Similar
Iron	mg/L	50.5	43.3	61.3	Similar	Similar
Lead	mg/L	0.028	-	0.025	-	Similar
Magnesium	mg/L	49.5	-	139	-	Different
Manganese	mg/L	4.16	1.82	4.30	Similar	Similar
Mercury	mg/L	0.001	-	0.000	-	Similar
Nickel	mg/L	0.029	-	0.105	-	Similar
Potassium	mg/L	39.7	-	35.9	-	Similar
Selenium	mg/L	0.005	-	0.025	-	Similar
Silver	mg/L	0.005	-	0.002	-	Similar
Sodium	mg/L	246	-	329	-	Similar
Thallium	mg/L	0.066	-	0.050	-	Similar
Vanadium	mg/L	0.006	-	0.010	-	Similar
Zinc	mg/L	0.089	-	0.070	-	Similar
Chlorides	mg/L	323	-	517	-	Similar
Nitrate	mg/L	0.45	-	0.059	-	Different
Ammonia Nitrogen	mg/L	17	-	35	-	Similar
Kjedahl Nitrogen	mg/L	30	-	49	-	Similar
Organic Nitrogen	mg/L	5.1	-	12	-	Different
Sulfate	mg/L	53	-	285	-	Similar
Bicarbonate	mg/L	399	-	746	-	Similar
COD	mg/L	140	-	249	-	Similar
Dissolved Oxygen	mg/L	1.40	1.8	1.7	Similar	Similar
TOC	mg/L	39	-	75	-	Similar
TDS	mg/L	979	1,004	2,069	Similar	Different
Specific Conductivity	µmhos/cm	1,874	1,870	3,410	Similar	Similar
pH	SU	6.64	6.98	6.49	Similar	Similar
ORP	mV	-27	-89	-14	Similar	Similar
Temperature	°C	15.5	14.3	15.4	Similar	Similar

Notes:

1. Statistical results were obtained using the Mann-Whitney test
2. * - Aluminum contain to few data points for Mann-Whitney test statistcal Comparison.
3. Similar means that $\mu-1.96\delta < U < \mu+1.96\delta$, where U is the statistical variable used in the test.
   Different means that U does not fall within the range created by the test.
   Example Calculations for the test are provided in Appendix E.
4. This table is part of a report titled, "Dredged Material Pore Water Quality Assessment, DSWA Cherry Island Landfill, Wilmington, Delaware," dated March 2003, and should only be viewed in the context of that report.

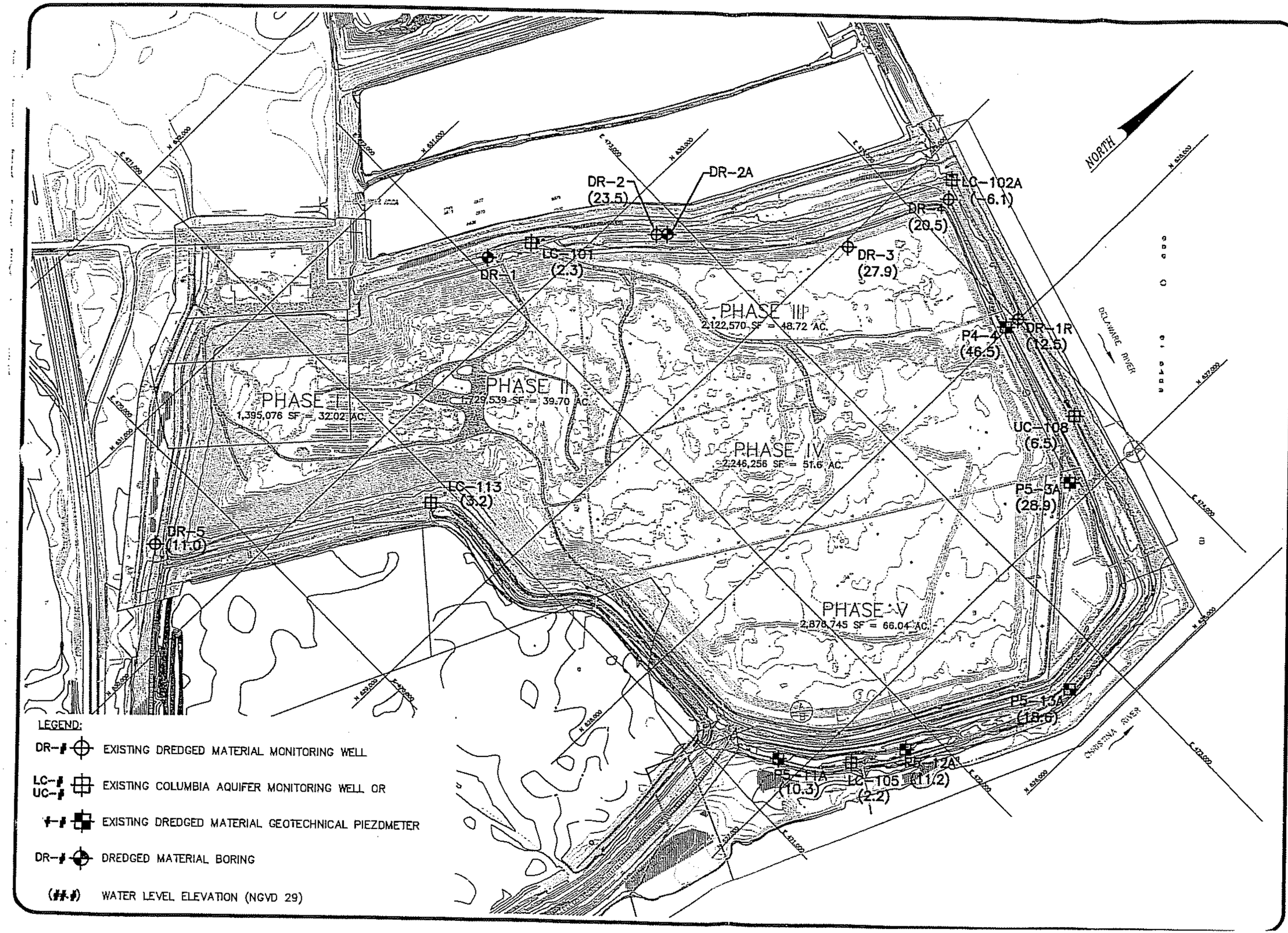
DUFFIELD ASSOCIATES, INC.
PROJECT NUMBER 4685.ED
TASK 7.5
MARCH 2003



APPROXIMATE LIMITS OF PROJECT SITE

NOTE:
THIS LOCATION SKETCH IS ADAPTED FROM THE U.S.G.S. TOPOGRAPHIC MAP, 7.5 MINUTE SERIES, FOR WILMINGTON SOUTH, DELAWARE 1993.

DATE: 11 DECMBER 2002	SITE LOCATION SKETCH U.S.G.S. TOPOGRAPHIC MAP	DESIGNED BY: JME	DUFFIELD ASSOCIATES Consultants in the Geosciences
SCALE: 1"=1000'	CHERRY ISLAND LANDFILL	DRAWN BY: EDB	5400 LIMESTONE ROAD WILMINGTON, DE 19808-1232 TEL (302)239-6634 FAX (302)239-8485
W.O. NO. 4685.ED TASK 7.5	DREDGED MATERIAL PORE WATER QUALITY ASSESSMENT	CHECKED BY:	1528 WALNUT STREET, SUITE 725 PHILADELPHIA, PA 19102
SHEET: FIGURE 1	WILMINGTON – NEW CASTLE COUNTY – DELAWARE	FILE: A4685ED05	E-MAIL: DUFFIELD@DUFFNET.COM



DUFFIELD ASSOCIATES
Consultant to the Geosciences
5400 LIMESTONE ROAD
WILMINGTON, DE 19808-1223
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FAX (302)239-8485
1528 WALNUT STREET, SUITE 723
PHILADELPHIA, PA 19102
WWW.DUFFIELDASSOCIATES.COM

DESIGNED BY: MRB	
DRAWN BY: EDB	
CHECKED BY: MRB	
FILE: B4685ED02	

SAMPLE LOCATION SKETCH

DREDGED MATERIAL PORE WATER ASSESSMENT

CHERRY ISLAND LANDFILL

WILMINGTON ~ NEW CASTLE COUNTY ~ DELAWARE

DATE: 11 NOVEMBER 2002

SCALE: 1"=500'

W.O. NO. 4685.ED TASK 16

SHEET: FIGURE 2

APPENDIX A

WELL COMPLETION REPORTS

MAIL TO:

WATER SUPPLY SECTION
DIVISION OF WATER RESOURCES
89 KINGS HIGHWAY
DOVER, DELAWARE 19901

PHONE: 302-739-3665
FAX: 302-739-7764

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
AND ENVIRONMENTAL CONTROL

WELL COMPLETION REPORT

http://www.dnrec.state.de.us/

WELL COMPLETION REPORT MUST BE RETURNED WITHIN 30 DAYS OF CONSTRUCTION. A WELL FORMATION LOG MUST BE INCLUDED WITH THIS REPORT.

- OFFICIAL USE ONLY -

PAGE 1 OF 2 PAGES

ILLEGIBLE OR INCOMPLETE FORMS WILL BE RETURNED

PLEASE PRINT OR TYPE - USE BLUE OR BLACK INK ONLY

Permit # of completed well: 129567 Local ID: DR-12

Tax Map/Parcel #: 2C-59.00-003

Property Owner: Delaware Solid Waste Authority

Water Well Contractor: Walton Corp WC Lic #: 52

Well Driller in Charge during Construction: Gary R Trower Sr

WELL CONSTRUCTION METHOD

☑ Augered ☐ Bored ☐ Cable Tool
☐ Driven ☐ Jetted ☐ Air Rotary
☐ Mud Rotary ☐ Reverse ☐ Washed
☐ Other (Specify):

Total Depth of Excavation: 33 FT

Construction Date: 10-15-02

CASING INSTALLATION:

	INNER CASING (1)	(2)	(3)	(4)	(5)	(6)	OUTER CASING
CASING TOP:	+2.5						+3.0
CASING BOTTOM:	-33.0						-2.0
CASING DIAMETER:	4"						6"
CASING MATERIAL:	PVC						STEEL

SCREEN INSTALLATION

SCREEN TOP:	-28.0					
SCREEN BOTTOM:	-33.0					
SCREEN DIAMETER:	4"					
SCREEN MATERIAL:	PVC					

Gravel Pack From: -13.0 ft. To: -33.0 ft.

Grout Type: ☐ Cement ☐ Bentonite Clay

☐ Other: From: -2.0 ft. To: -13.0 ft.

Type of Non-Grout backfill of Well Annulus:

From: To:

Static Water Level: ft. ☐ Below OR ☐ Above Ground Surface

On (date):

Pumping Water Level: ft. On (date):

After: hrs. Pumping at: GPM

Was a Geophysical Log Taken? ☐ YES ☐ NO

WELL HEAD COMPLETION:

Type: ☐ Pitless Adapter ☐ Standard "T"
☐ Well Pit ☐ Pad Mount
☐ Other - Specify:

Well Head Completed: inches ☐ Above (OR) ☐ Below Ground Surface

Was the Well Tag attached in accordance with current regulations?

☑ YES ☐ NO If "NO", Please Explain:

TYPE OF PERMANENT PUMP INSTALLED:

Pump Manufacturer:

Rated Capacity (GPM):

Pump Intake Setting: Ft. Below Ground Surface:

Pump Installed By: On (date):

The location and construction of this well is in Compliance with all permit conditions and all applicable well construction regulations.

☐ YES ☐ NO

If "NO," attach a copy of the approved well permit showing the revised location clearly marked.

COMMENTS:

I HEREBY AFFIRM THE INFORMATION I HAVE SUBMITTED IS ACCURATE AND CORRECT.

Signature - Well Driller in Charge of Well Construction

License # 121 Date 10-15-02

MAIL TO:

WATER SUPPLY SECTION
DIVISION OF WATER RESOURCES
89 KINGS HIGHWAY
DOVER, DELAWARE 19901
PHONE: 302-739-3665
FAX: 302-739-2296

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
AND ENVIRONMENTAL CONTROL

FORMATION LOG

WELL COMPLETION REPORT MUST BE RETURNED WITHIN 30 DAYS OF CONSTRUCTION DATE

PAGE 2 OF 2 PAGES

PLEASE PRINT OR TYPE - ILLEGIBLE OR INCOMPLETE FORMS WILL BE RETURNED

PERMIT# 189567 LOCAL ID# DR-1R

PROPERTY OWNER DELAWARE SOLID WASTE AUTHORITY

WELL CONTRACTOR WALTON CORP LIC# 52

DESCRIPTION	TOP OF STRATA	BOTTOM OF STRATA
BR SILT SAND + GRVL	0.0	1.0
BR SILT W/TR SAND	1.0	2.5
BR GR CLAYEY SILT W/TR SAND + ORGANICS	2.5	33.0

OTHER COMMENTS:

I HEREBY AFFIRM THE INFORMATION I HAVE SUBMITTED IS ACCURATE AND CORRECT

[signature] 124 10-15-02

Signature of Well Driller In Charge License# Date

White - DNREC • Canary - Contractor • Pink - Owner

Doc. No. 40-08-82-12-11

MAIL TO:

WATER SUPPLY SECTION
DIVISION OF WATER RESOURCES
89 KINGS HIGHWAY
DOVER, DELAWARE 19901

PHONE: 302-739-3665
FAX: 302-739-7764

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
AND ENVIRONMENTAL CONTROL

http://www.dnrec.state.de.us/

WELL COMPLETION REPORT MUST BE RETURNED WITHIN 30 DAYS OF CONSTRUCTION. A WELL FORMATION LOG MUST BE INCLUDED WITH THIS REPORT.

WELL COMPLETION REPORT

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PAGE 1 OF 2 PAGES

ILLEGIBLE OR INCOMPLETE FORMS WILL BE RETURNED

PLEASE PRINT OR TYPE - USE BLUE OR BLACK INK ONLY

Permit # of completed well: 187663 Local ID: DR-2A
Tax Map/Parcel #: 2-00-037.00-003
Property Owner: DELAWARE SOLID WASTE AUTHORITY
Water Well Contractor: WALTON CORP WC Lic #: 32
Well Driller in Charge during Construction: GARY N. TANNER SR

WELL CONSTRUCTION METHOD

☑ Augered ☐ Bored ☐ Cable Tool
☐ Driven ☐ Jetted ☐ Air Rotary
☐ Mud Rotary ☐ Reverse ☐ Washed
☐ Other (Specify):
Total Depth of Excavation: 28.5
Construction Date: 10-8-02

CASING INSTALLATION:

	INNER CASING (1)	(2)	(3)	(4)	(5)	(6)	OUTER CASING
CASING TOP:	+2.5						+3.0
CASING BOTTOM:	-23.5						-2.0
CASING DIAMETER:	4"						6"
CASING MATERIAL:	PVC						STEEL

SCREEN INSTALLATION

SCREEN TOP:	-23.5					
SCREEN BOTTOM:	-28.5					
SCREEN DIAMETER:	4"					
SCREEN MATERIAL:	PVC					

Gravel Pack From: -13.5 ft. To: -28.5 ft.
Grout Type: ☐ Cement ☑ Bentonite Clay
☐ Other : From: -2.0 ft. To: -13.5 ft.
Type of Non-Grout backfill of Well Annulus:
From: To:
Static Water Level: ft. ☐ Below OR ☐ Above Ground Surface
On (date):
Pumping Water Level: ft. On (date):
After: hrs. Pumping at: GPM
Was a Geophysical Log Taken? ☐ YES ☐ NO

WELL HEAD COMPLETION:

Type: ☐ Pitless Adapter ☐ Standard "T"
☐ Well Pit ☐ Pad Mount
☐ Other - Specify:
Well Head Completed: inches ☐ Above (OR) ☐ Below Ground Surface
Was the Well Tag attached in accordance with current regulations?
☑ YES ☐ NO If "NO", Please Explain:

TYPE OF PERMANENT PUMP INSTALLED:

Pump Manufacturer:
Rated Capacity (GPM):
Pump Intake Setting: Ft. Below Ground Surface:
Pump Installed By: On (date):
The location and construction of this well is in Compliance with all permit conditions and all applicable well construction regulations.
☑ YES ☐ NO
If "NO," attach a copy of the approved well permit showing the revised location clearly marked.

COMMENTS:

I HEREBY AFFIRM THE INFORMATION I HAVE SUBMITTED IS ACCURATE AND CORRECT.

Signature - Well Driller in Charge of Well Construction

License # Date

MAIL TO:

WATER SUPPLY SECTION
DIVISION OF WATER RESOURCES
89 KINGS HIGHWAY
DOVER, DELAWARE 19901
PHONE: 302-739-3665
FAX: 302-739-2296

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
AND ENVIRONMENTAL CONTROL

WELL COMPLETION REPORT MUST BE RETURNED WITHIN 30 DAYS OF CONSTRUCTION DATE

FORMATION LOG

PAGE 2 OF 2 PAGES

PLEASE PRINT OR TYPE - ILLEGIBLE OR INCOMPLETE FORMS WILL BE RETURNED

PERMIT# 189663 LOCAL ID# PR-2 A

PROPERTY OWNER DELAWARE SOLID WASTE AUTHORITY

WELL CONTRACTOR WALTON CORE LIC# 52

DESCRIPTION	TOP OF STRATA	BOTTOM OF STRATA
BR SILT, SAND & GRAVEL	0.0	1.5
BR SILT W/TR SAND	1.5	3.0
DK GR CLAYEY SILT W/LT SAND	3.0	10.0
DK GR (F-C) SAND & GRAVEL W/TR SILT	10.0	17.5
DK GR CLAYEY SILT W/TR ORGANICS + MICACEOUS SAND	17.5	28.5

OTHER COMMENTS:

I HEREBY AFFIRM THE INFORMATION I HAVE SUBMITTED IS ACCURATE AND CORRECT

Signature of Well Driller In Charge _____ License# _____ Date _____

White - DNREC • Canary - Contractor • Pink - Owner

Doc. No. 40-08-82-12-11

MAIL TO:

WATER SUPPLY SECTION
DIVISION OF WATER RESOURCES
89 KINGS HIGHWAY
DOVER, DELAWARE 19901

PHONE: 302-739-3665
FAX: 302-739-7764

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
AND ENVIRONMENTAL CONTROL

http://www.dnrec.state.de.us/

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WELL COMPLETION REPORT

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PAGE 1 OF 2 PAGES

ILLEGIBLE OR INCOMPLETE FORMS WILL BE RETURNED

PLEASE PRINT OR TYPE - USE BLUE OR BLACK INK ONLY

Permit # of completed well: 187664 Local ID: DR-3
Tax Map/Parcel #: 26-657.00-003
Property Owner: Delaware Solid Waste Authority
Water Well Contractor: Walton Corp WC Lic #: 52
Well Driller in Charge during Construction: Gary R. Trimer Sr

WELL CONSTRUCTION METHOD

☑ Augered ☐ Bored ☐ Cable Tool
☐ Driven ☐ Jetted ☐ Air Rotary
☐ Mud Rotary ☐ Reverse ☐ Washed
☐ Other (Specify):
Total Depth of Excavation: 32 FT
Construction Date: 10-9-02

CASING INSTALLATION:

	INNER CASING (1)	(2)	(3)	(4)	(5)	(6)	OUTER CASING
CASING TOP:	+.25						+3.0
CASING BOTTOM:	-27.0						-2.0
CASING DIAMETER:	4"						6"
CASING MATERIAL:	PVC						STEEL

SCREEN INSTALLATION

SCREEN TOP:	-27.0					
SCREEN BOTTOM:	-32.0					
SCREEN DIAMETER:	4"					
SCREEN MATERIAL:	PVC					

Gravel Pack From: -12.0 ft. To: -32.0 ft.
Grout Type: ☑ Cement ☑ Bentonite Clay
☐ Other: From: -2.0 ft. To: -12.0 ft.
Type of Non-Grout backfill of Well Annulus:
From: To:
Static Water Level: ft. ☐ Below OR ☐ Above Ground Surface
On (date):
Pumping Water Level: ft. On (date):
After: hrs. Pumping at: GPM
Was a Geophysical Log Taken? ☐ YES ☐ NO

WELL HEAD COMPLETION:

Type: ☐ Pitless Adapter ☐ Standard "T"
☐ Well Pit ☐ Pad Mount
☐ Other - Specify:
Well Head Completed: inches ☐ Above (OR) ☐ Below Ground Surface
Was the Well Tag attached in accordance with current regulations?
☑ YES ☐ NO If "NO", Please Explain:

TYPE OF PERMANENT PUMP INSTALLED:

Pump Manufacturer:
Rated Capacity (GPM):
Pump Intake Setting: Ft. Below Ground Surface:
Pump Installed By: On (date):
The location and construction of this well is in Compliance with all permit conditions and all applicable well construction regulations.
☑ YES ☐ NO
If "NO," attach a copy of the approved well permit showing the revised location clearly marked.

COMMENTS:

I HEREBY AFFIRM THE INFORMATION I HAVE SUBMITTED IS ACCURATE AND CORRECT.

Gary R. Trimer Sr
Signature - Well Driller in Charge of Well Construction

[illegible] 10-15-02
License # Date

Doc No. 40-08/78/01/03 - EC 7

MAIL TO:

WATER SUPPLY SECTION
DIVISION OF WATER RESOURCES
89 KINGS HIGHWAY
DOVER, DELAWARE 19901
PHONE: 302-739-3665
FAX: 302-739-2296

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
AND ENVIRONMENTAL CONTROL

WELL COMPLETION REPORT MUST BE RETURNED WITHIN 30 DAYS OF CONSTRUCTION DATE

FORMATION LOG

PAGE 2 OF 2 PAGES

PLEASE PRINT OR TYPE - ILLEGIBLE OR INCOMPLETE FORMS WILL BE RETURNED

PERMIT# 187664 LOCAL ID# DK-3

PROPERTY OWNER DELAWARE SOLID WASTE AUTHORITY

WELL CONTRACTOR WALTON CORP LIC# 52

DESCRIPTION	TOP OF STRATA	BOTTOM OF STRATA
MISC FILL (SILT, SAND, GRAVEL, STONE	0.0	7.0
GR CLAYEY SILT W/TR. LIT SAND + ORGANICS	7.0	32.0

OTHER COMMENTS:

I HEREBY AFFIRM THE INFORMATION I HAVE SUBMITTED IS ACCURATE AND CORRECT

Signature of Well Driller In Charge | License# 124 | Date 10/1/02

White - DNREC • Canary - Contractor • Pink - Owner

Doc. No. 40-08-82-12-11

MAIL TO:

WATER SUPPLY SECTION
DIVISION OF WATER RESOURCES
89 KINGS HIGHWAY
DOVER, DELAWARE 19901

PHONE: 302-739-3665
FAX: 302-739-7764

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
AND ENVIRONMENTAL CONTROL

http://www.dnrec.state.de.us/

WELL COMPLETION REPORT MUST BE RETURNED WITHIN 30 DAYS OF CONSTRUCTION. A WELL FORMATION LOG MUST BE INCLUDED WITH THIS REPORT.

WELL COMPLETION REPORT

- OFFICIAL USE ONLY -

PAGE 1 OF 2 PAGES

ILLEGIBLE OR INCOMPLETE FORMS WILL BE RETURNED

PLEASE PRINT OR TYPE - USE BLUE OR BLACK INK ONLY

Permit # of completed well: 189665 Local ID: DK-4
Tax Map/Parcel #: 26-059.00-003
Property Owner: Delaware Solid Waste Authority
Water Well Contractor: Walton Corp WC Lic #: 32
Well Driller in Charge during Construction: Geary R. Turner Sr.

WELL CONSTRUCTION METHOD

☑ Augered ☐ Bored ☐ Cable Tool
☐ Driven ☐ Jetted ☐ Air Rotary
☐ Mud Rotary ☐ Reverse ☐ Washed
☐ Other (Specify):
Total Depth of Excavation: 40 FT
Construction Date: 10-7-02

CASING INSTALLATION:

	INNER CASING (1)	(2)	(3)	(4)	(5)	(6)	OUTER CASING
CASING TOP:	+2.5						+3.0
CASING BOTTOM:	-35.0						-2.0
CASING DIAMETER:	4"						6"
CASING MATERIAL:	PVC						STEEL

SCREEN INSTALLATION

SCREEN TOP:	-35.0					
SCREEN BOTTOM:	-40.0					
SCREEN DIAMETER:	4"					
SCREEN MATERIAL:	PVC					

Gravel Pack From: -25.0 ft. To: -40.0 ft.
Grout Type: ☐ Cement ☑ Bentonite Clay
☐ Other: From: -2.0 ft. To: -25.0 ft.
Type of Non-Grout backfill of Well Annulus:
From: To:
Static Water Level: ft. ☐ Below OR ☐ Above Ground Surface
On (date):
Pumping Water Level: ft. On (date):
After: hrs. Pumping at: GPM
Was a Geophysical Log Taken? ☐ YES ☐ NO

WELL HEAD COMPLETION:

Type: ☐ Pitless Adapter ☐ Standard "T"
☐ Well Pit ☐ Pad Mount
☐ Other - Specify:
Well Head Completed: inches ☐ Above (OR) ☐ Below Ground Surface
Was the Well Tag attached in accordance with current regulations?
☑ YES ☐ NO If "NO", Please Explain:

TYPE OF PERMANENT PUMP INSTALLED:

Pump Manufacturer:
Rated Capacity (GPM):
Pump Intake Setting: Ft. Below Ground Surface:
Pump Installed By: On (date):
The location and construction of this well is in Compliance with all permit conditions and all applicable well construction regulations.
☐ YES ☐ NO
If "NO," attach a copy of the approved well permit showing the revised location clearly marked.

COMMENTS:

I HEREBY AFFIRM THE INFORMATION I HAVE SUBMITTED IS ACCURATE AND CORRECT.

[signature]
Signature - Well Driller in Charge of Well Construction

[illegible] 10-7-02
License # Date

Doc No. 40-08/78/01/03 - EC 7

MAIL TO:

WATER SUPPLY SECTION
DIVISION OF WATER RESOURCES
89 KINGS HIGHWAY
DOVER, DELAWARE 19901
PHONE: 302-739-3665
FAX: 302-739-2296

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
AND ENVIRONMENTAL CONTROL

WELL COMPLETION REPORT MUST BE RETURNED WITHIN 30 DAYS OF CONSTRUCTION DATE

FORMATION LOG

PAGE 2 OF 2 PAGES

PLEASE PRINT OR TYPE - ILLEGIBLE OR INCOMPLETE FORMS WILL BE RETURNED

PERMIT# 189665 LOCAL ID# JR-4

PROPERTY OWNER DELAWARE SOLID WASTE AUTHORITY

WELL CONTRACTOR WALTON CORP LIC# 52

DESCRIPTION	TOP OF STRATA	BOTTOM OF STRATA
[illegible] SILT W/TR SAND	0.0	4.0
[illegible] SAND & GRVL	4.0	4.5
DK [illegible] CLAYEY SILT W/TR SAND & ORGANICS	4.5	40.0

OTHER COMMENTS:

I HEREBY AFFIRM THE INFORMATION I HAVE SUBMITTED IS ACCURATE AND CORRECT

[illegible] 124 10-15-02

Signature of Well Driller In Charge License# Date

White - DNREC • Canary - Contractor • Pink - Owner

Doc. No. 40-08-82-12-11

MAIL TO:

WATER SUPPLY SECTION
DIVISION OF WATER RESOURCES
89 KINGS HIGHWAY
DOVER, DELAWARE 19901

PHONE: 302-739-3665
FAX: 302-739-7764

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
AND ENVIRONMENTAL CONTROL

http://www.dnrec.state.de.us/

WELL COMPLETION REPORT MUST BE RETURNED WITHIN 30 DAYS OF CONSTRUCTION. A WELL FORMATION LOG MUST BE INCLUDED WITH THIS REPORT.

WELL COMPLETION REPORT

- OFFICIAL USE ONLY -

PAGE 1 OF 2 PAGES

ILLEGIBLE OR INCOMPLETE FORMS WILL BE RETURNED

PLEASE PRINT OR TYPE - USE BLUE OR BLACK INK ONLY

Permit # of completed well: 189666 Local ID: DR-5
Tax Map/Parcel #: 26-059.00-003
Property Owner: Delaware Solid Waste Authority
Water Well Contractor: Walton Corp WC Lic #: 52
Well Driller in Charge during Construction: Gary R. Trimer SR

WELL CONSTRUCTION METHOD

☑ Augered ☐ Bored ☐ Cable Tool
☐ Driven ☐ Jetted ☐ Air Rotary
☐ Mud Rotary ☐ Reverse ☐ Washed
☐ Other (Specify):
Total Depth of Excavation: 22.5 FT
Construction Date: 10-14-02

CASING INSTALLATION:

	INNER CASING (1)	(2)	(3)	(4)	(5)	(6)	OUTER CASING
CASING TOP:	+2.5						+3.0
CASING BOTTOM:	-17.5						-2.0
CASING DIAMETER:	4"						6"
CASING MATERIAL:	PVC						STEEL

SCREEN INSTALLATION

	(1)	(2)	(3)	(4)	(5)	(6)
SCREEN TOP:	-17.5					
SCREEN BOTTOM:	-22.5					
SCREEN DIAMETER:	4"					
SCREEN MATERIAL:	PVC					

Gravel Pack From: -9.0 ft. To: -22.5 ft.
Grout Type: ☐ Cement ☑ Bentonite Clay
☐ Other: From: 2.0 ft. To: -9.0 ft.
Type of Non-Grout backfill of Well Annulus:
From: To:
Static Water Level: ft. ☐ Below OR ☐ Above Ground Surface
On (date):
Pumping Water Level: ft. On (date):
After: hrs. Pumping at: GPM
Was a Geophysical Log Taken? ☐ YES ☐ NO

WELL HEAD COMPLETION:

Type: ☐ Pitless Adapter ☐ Standard "T"
☐ Well Pit ☐ Pad Mount
☐ Other - Specify:
Well Head Completed: inches ☐ Above (OR) ☐ Below Ground Surface
Was the Well Tag attached in accordance with current regulations?
☑ YES ☐ NO If "NO", Please Explain:

TYPE OF PERMANENT PUMP INSTALLED:

Pump Manufacturer:
Rated Capacity (GPM):
Pump Intake Setting: Ft. Below Ground Surface:
Pump Installed By: On (date):
The location and construction of this well is in Compliance with all permit conditions and all applicable well construction regulations.
☑ YES ☐ NO
If "NO," attach a copy of the approved well permit showing the revised location clearly marked.

COMMENTS:

I HEREBY AFFIRM THE INFORMATION I HAVE SUBMITTED IS ACCURATE AND CORRECT.

Gary R. Trimer Sr

Signature - Well Driller in Charge of Well Construction

License # Date

Doc No. 40-08/78/01/03 - EC 7

MAIL TO:

WATER SUPPLY SECTION
DIVISION OF WATER RESOURCES
89 KINGS HIGHWAY
DOVER, DELAWARE 19901
PHONE: 302-739-3665
FAX: 302-739-2296

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
AND ENVIRONMENTAL CONTROL

WELL COMPLETION REPORT MUST BE RETURNED WITHIN 30 DAYS OF CONSTRUCTION DATE

FORMATION LOG

PAGE 2 OF 2 PAGES

PLEASE PRINT OR TYPE - ILLEGIBLE OR INCOMPLETE FORMS WILL BE RETURNED

PERMIT# 189666 LOCAL ID# DP-5

PROPERTY OWNER DELAWARE SOLID WASTE AUTHORITY

WELL CONTRACTOR WALTON CORP LIC# 52

DESCRIPTION	TOP OF STRATA	BOTTOM OF STRATA
BR SAND + GRVL W/TR SILT	0.0	1.0
BR SANDY SILT (SILL)	1.0	8.5
DK GR CLAYEY SILT W/TR SAND + ORGANICS	8.5	17.5
DK GR (F-M) SAND W/ TR SILT, CLAY GRVL + ORG.	17.5	21.0
DK GR CLAYEY SILT W/TR LIGNITE, SAND + ORGANICS	21.0	22.5

OTHER COMMENTS:

I HEREBY AFFIRM THE INFORMATION I HAVE SUBMITTED IS ACCURATE AND CORRECT

Signature of Well Driller In Charge: [illegible] License#: 124 Date: 10-19-[illegible]

White - DNREC • Canary - Contractor • Pink - Owner

Doc. No. 40-08-82-12-11

APPENDIX B

MONITOIRING WELL SOIL BORING LOGS
AND
CONSTRUCTION INFORMATION REGARDING
EXISTING GEOTECHNICAL PIEZOMETERS

DUFFIELD ASSOCIATES
Consultants in the Geosciences

LOG OF BORING DR-1

Delaware Solid Waste Authority
Cherry Island Landfill
Wilmington, Delaware

WO No. 4685.ED

Logged By	: SLK	Driller	: Gary Truver, Sr.
Date Started	: October 9, 2002	Drilling Equipment	: Truck-Mounted CME-55
Date Completed	: October 9, 2002	Drilling Procedures	: 4.25" Hollow Stem Auger
Weather	: Partly cloudy, 60's		: with 2" Split Spoons
Drilling Agency	: Walton Corporation		

Depth in Feet	Surf. Elev. 36	DESCRIPTION	Samples	Recovery (feet)	Blow Count	Water Levels
0	36	Gray to brown SILT, SAND and GRAVEL, (fill)				
2	34	Dark gray to brown SILT, trace clay, trace fine sand (Fill, possibly mixed with fly ash)				
4	32					
6	30					
8	28	Dark gray GRAVEL and coarse to fine SAND, trace to little clayey silt (damp)				
10	26		1	0.5	1-10-15	
12	24	Dark gray to brown and dark gray to black clayey SILT, trace fine sand, trace vegetative matter (damp to moist)				
14	22		2	1.3	1-1-1	
16	20					
18	18	SAME with trace vegetative material				
20	16		3	1.5	WH-1-1	
22	14					
24	12	SAME with trace to little vegetative material				
			4	1.5	WH-WH-1	
26	10					
28	8	SAME with trace vegetative matter				
30	6		5	1.5	WH-1-1	
32						

1. Boring terminated at 30.5 feet below the ground surface.
2. Borehole is dry and open to 30 feet at completion.
3. Borehole grouted to surface.

12-11-2002 C:\ACE\GEO\4685ed\dr-1.bor

DUFFIELD ASSOCIATES
Consultants in the Geosciences

LOG OF BORING DR-1R

Delaware Solid Waste Authority
Cherry Island Landfill
Wilmington, Delaware

WO No. 4685.ED

Logged By	: SLK	Driller	: Gary Truver, Sr.
Date Started	: October 15, 2002	Drilling Equipment	: Truck-Mounted CME-55
Date Completed	: October 15, 2002	Drilling Procedures	: 4.25" Hollow Stem Auger
Weather	: Partly cloudy, 60's		: with 2" Split Spoons
Drilling Agency	: Walton Corporation		

Depth in Feet	Surf. Elev. 32.5	DESCRIPTION	Samples	Recovery (feet)	Blow Count	Water Levels
0	32	Brown SAND and GRAVEL, some to little silt, trace root material (fill)				
2	30	Brown sandy SILT (Fill)				
		Dark gray clayey SILT, trace fine to medium SAND, trace vegetative matter (moist)				
4	28					
6	26					
8	24					
10	22					
12	20					
14	18	Gray to dark brown clayey SILT, little fine micaceous sand, trace vegetative material (moist)	1	1.5	1-1-1	
16	16					
18	14	Dark gray to gray clayey SILT, trace fine micaceous sand, trace vegetative material (damp to moist)	2	1.5	WH-1-1	
20	12					
22	10					
24	8	Dark gray clayey SILT, trace fine micaceous sand, trace, vegetative material, (moist)	3	1.5	WH-1-2	▼
26	6					
28	4	Dark gray clayey SILT, trace fine sand, trace vegetative matter (wet lense at 29 to 29.5 feet)	4	1.5	1-1-2	
30	2					
32						

1. Boring terminated at 30.5 feet below the ground surface.
2. Wet on rods at 24.5 feet with augers at 29 feet.
3. Construct monitoring well DR-1R within borehole.

12-11-2002 C:\ACE\GEO\4685eddr-1r.bor

DUFFIELD ASSOCIATES
Consultants in the Geosciences

WELL COMPLETION DIAGRAM DR-1R

Delaware Solid Waste Authority
Cherry Island Landfill
Wilmington, Delaware

WO Number 4685.ED

Logged By	: SLK	Driller	: Gary Truver, Sr.
Date Started	: October 15, 2002	Drilling Equipment	: Truck-Mounted CME-55
Date Completed	: October 15, 2002	Drilling Procedures	: 4.25" Hollow Stem Auger
Weather	: Partly cloudy, 60's		: with 2" Split Spoons
Drilling Agency	: Walton Corporation	Well Permit Number	: 189567

Depth in Feet

Well Construction Information

WELL CONSTRUCTION

Date Compl	: October 15, 2002
Drill. Method	: HSA
Diameter	: 4.25 in.
Company	: Walton Corp.

WELL CASING

Material	: PVC
Diameter	: 4 inch
Joints	: Threaded

WELL SCREEN

Material	: PVC
Diameter	: 4 inch
Joints	: Threaded
Opening	: .020 slot

SAND PACK

#1 filter sand :

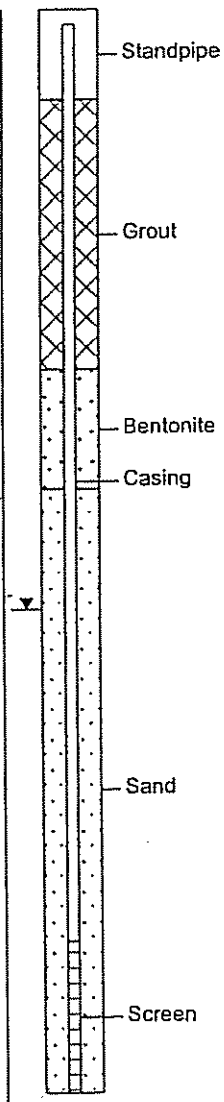
ANNULUS SEAL

Bentonite amended grout

NOTES

PVC = Polyvinyl chloride
HSA = Hollow Stem Auger
TOC = Top of casing

Well1: DR-1R
Elev.: 35 (TOC)



Water Levels

0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38

12-11-2002 \\ACE\GEO\4685EDWELLS\dr-1r.bor

DUFFIELD ASSOCIATES
Consultants in the Geosciences

LOG OF BORING DR-2A

Delaware Solid Waste Authority
Cherry Island Landfill
Wilmington, Delaware

WO No. 4685.ED

Logged By	: SLK	Driller	: Gary Truver, Sr.
Date Started	: October 8, 2002	Drilling Equipment	: Truck-Mounted CME-55
Date Completed	: October 8, 2002	Drilling Procedures	: 4.25" Hollow Stem Auger
Weather	: Partly cloudy, 60's		: with 2" Split Spoons
Drilling Agency	: Walton Corporation		

Depth in Feet	Surf. Elev. 37	DESCRIPTION	Samples	Recovery (feet)	Blow Count	Water Levels
0	37	Brown and gray SILT and SAND and GRAVEL (fill)				
2	35	Brown to gray GRAVEL and SAND, little silt (Fill)				
4	33	Dark gray to brown clayey SILT, trace fine SAND, trace vegetative matter (damp)				
6	31					
8	29					
10	27	Dark gray GRAVEL and SAND, trace silt, trace clay (wet)				
12	25					
14	23		1	0.6	7-10-14	
16	21					
18	19	Dark gray to brown and dark gray to black clayey SILT, trace fine micaceous material, trace vegetative material (moist)				
20	17		2	1.2	1-1-1	
22	15					
24	13	Same	3	1.3	WH/1-2	
26	11					
28	9	SAME with trace fine sand, trace vegetative matter				
30	7		4	1.5	1-2-1	
32	5					
34	3	Same with fine sandy lenses	5	1.5	WH/1.2-2	
36	1					
38	-1	Same with fine sandy lenses, trace peat	6	1.5	WH-2-2	
40						

1. Boring terminated at 40 feet below the ground surface.
2. Wet on rods at 12.5 feet with augers at 14 feet.
3. Grout borehole to surface due to methane levels.

12-11-2002 C:\ACE\GEO\4685ed\dr-2a.bor

DUFFIELD ASSOCIATES
Consultants in the Geosciences

LOG OF BORING DR-2

Delaware Solid Waste Authority
Cherry Island Landfill
Wilmington, Delaware

WO No. 4685.ED

Logged By	: SLK	Driller	: Gary Truver, Sr.
Date Started	: October 8, 2002	Drilling Equipment	: Truck-Mounted CME-55
Date Completed	: October 8, 2002	Drilling Procedures	: 4.25" Hollow Stem Auger
Weather	: Partly cloudy, 60's		: with 2" Split Spoons
Drilling Agency	: Walton Corporation		

Depth in Feet	Surf. Elev. 37	DESCRIPTION	Water Levels
0	37	SILT and SAND and GRAVEL (fill)	
		GRAVEL and SAND, little silt (Fill)	
2	35		
4	33	Dark gray clayey SILT, trace fine SAND, trace vegetative matter (moist)	
6	31		
8	29		
10	27		
12	25	Gray sandy, clayey SILT, with gravel lenses	
14	23		
16	21		▼
18	19	Gray clayey SILT	
20	17		
22	15		
24	13		
26	11		
28	9		
30	7		
32			

1. Boring terminated at 28.5 feet below the ground surface.
2. Sample descriptions derived from auger cuttings and drillers notes.
3. Construct monitoring well DR-2 within borehole.

12-11-2002 C:\ACE\GEO\4685ed\dr-2r.bor

DUFFIELD ASSOCIATES
Consultants in the Geosciences

WELL COMPLETION DIAGRAM DR-2

Delaware Solid Waste Authority
Cherry Island Landfill
Wilmington, Delaware

WO Number 4685.ED

Logged By	: SLK	Driller	: Gary Truver, Sr.
Date Started	: October 15, 2002	Drilling Equipment	: Truck-Mounted CME-55
Date Completed	: October 15, 2002	Drilling Procedures	: 4.25" Hollow Stem Auger
Weather	: Partly cloudy, 60's		: with 2" Split Spoons
Drilling Agency	: Walton Corporation	Well Permit Number	: 189663

Depth in Feet

Well Construction Information

WELL CONSTRUCTION

Date Compl	: October 15, 2002
Drill. Method	: HSA
Diameter	: 4.25 in.
Company	: Walton Corp.

WELL CASING

Material	: PVC
Diameter	: 4 inch
Joints	: Threaded

WELL SCREEN

Material	: PVC
Diameter	: 4 inch
Joints	: Threaded
Opening	: .020 slot

SAND PACK

#1 filter sand :

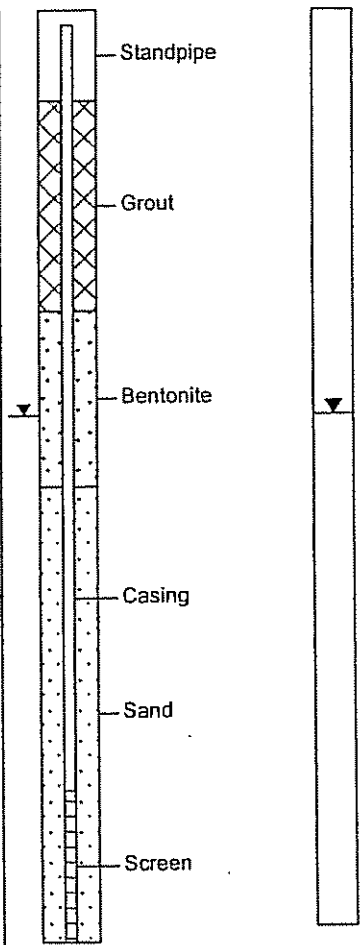
ANNULUS SEAL

Bentonite amended grout

NOTES

PVC = Polyvinyl chloride
HSA = Hollow Stem Auger
TOC = Top of casing

Well1: DR-2
Elev.: 39.5 (TOC)



Water Levels

1. Boring terminated at 30.5 feet below the ground surface.
2. Wet on rods at 24.5 feet with augers at 29 feet.
3. Construct monitoring well DR-1R within borehole.

12-11-2002 \ACE\GEO\4685ED\WELLS\dr-2.bor

DUFFIELD ASSOCIATES
Consultants in the Geosciences

LOG OF BORING DR-3

Delaware Solid Waste Authority
Cherry Island Landfill
Wilmington, Delaware

WO No. 4685.ED

Logged By	: SLK	Driller	: Gary Truver, Sr.
Date Started	: October 9, 2002	Drilling Equipment	: Truck-Mounted CME-55
Date Completed	: October 14, 2002	Drilling Procedures	: 4.25" Hollow Stem Auger
Weather	: Partly cloudy, 60's		: with 2" Split Spoons
Drilling Agency	: Walton Corporation		

Depth in Feet	Surf. Elev. 45	DESCRIPTION	Samples	Recovery (feet)	Blow Count	Water Levels
0	45	Yellowish brown silty SAND (fill)				
		Dark brown to brown sandy SILT with gravel (Fill)				
2	43	Dark brown sandy SILT				
		Gravel (2.7-3.3 feet)				
		Silty ASH lense (3.3 - 3.5 feet)				
4	41					
6	39					
8	37	Dark gray clayey SILT, trace fine sand, trace vegetative matter				
10	35					
12	33					
14	31		1	0.0	1-2-2	
16	29					
18	27					
20	25	Dark gray to brown and dark gray clayey SILT, trace fine sandl, trace vegetative material (damp)	2	1.5	1-1-1	▼
22	23					
24	21	Same less clay	3	1.5	1-2-2	
26	19	WOOD/ORGANIC lense				
28	17					
30	15	Dark gray to black clayey SILT, trace to little vegetation, trace fine micatious sand (moist)	4	2.0	WH-2-2-2	
32						

1. Boring terminated at 31 feet below the ground surface.
2. Construct monitor well DR-3 within borehole.

12-11-2002 C:\ACE\GEO\4685ed\dr-3.bor

DUFFIELD ASSOCIATES
Consultants in the Geosciences

WELL COMPLETION DIAGRAM DR-3

Delaware Solid Waste Authority
Cherry Island Landfill
Wilmington, Delaware

WO Number 4685.ED

Logged By	: SLK/BJS	Driller	: Gary Truver, Sr.
Date Started	: October 9, 2002	Drilling Equipment	: Truck-Mounted CME-55
Date Completed	: October 14, 2002	Drilling Procedures	: 4.25" Hollow Stem Auger
Weather	: Sunny, 60's		: with 2" Split Spoons
Drilling Agency	: Walton Corporation	Well Permit Number	:

Depth in Feet

Well Construction Information

WELL CONSTRUCTION

Date Compl	: October 15, 2002
Drill. Method	: HSA
Diameter	: 4.25 in.
Company	: Walton Corp.

WELL CASING

Material	: PVC
Diameter	: 4 inch
Joints	: Threaded

WELL SCREEN

Material	: PVC
Diameter	: 4 inch
Joints	: Threaded
Opening	: .020 slot

SAND PACK

#1 filter sand :

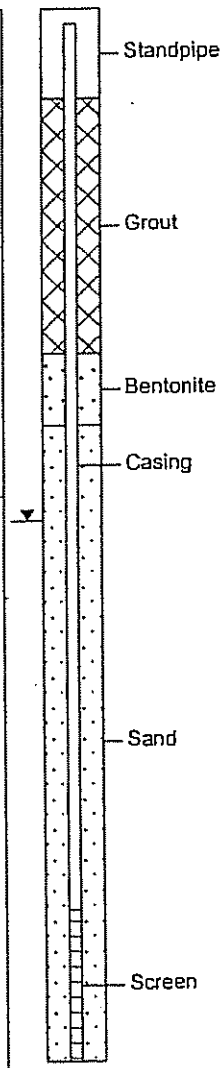
ANNULUS SEAL

Bentonite amended grout

NOTES

PVC = Polyvinyl chloride
HSA = Hollow Stem Auger
TOC = Top of casing

Well1: DR-3
Elev.: 47.5 (TOC)



Water Levels

0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38

12-11-2002 \\ACE\GEO\4685ED\WELLS\dr-3.bor

DUFFIELD ASSOCIATES
Consultants in the Geosciences

LOG OF BORING DR-4

Delaware Solid Waste Authority
Cherry Island Landfill
Wilmington, Delaware

WO No. 4685.ED

Logged By	: STS	Driller	: Gary Truver, Sr.
Date Started	: October 7, 2002	Drilling Equipment	: Truck-Mounted CME-55
Date Completed	: October 7, 2002	Drilling Procedures	: 4.25" Hollow Stem Auger
Weather	: Partly sunny, 70's		: with 2" Split Spoons
Drilling Agency	: Walton Corporation		

Depth in Feet	Surf. Elev. 40.5	DESCRIPTION	Samples	Recovery (feet)	Blow Count	Water Levels
0	40	Grass and roots				
2	38	Brown SILT trace fine sand				
4	36	Gray clayey SILT, trace fine sand				
6	34					
8	32					
10	30					
12	28					
14	26		1	1.3	WH-WH-2	
16	24					
18	22	Same				
20	20		2	1.5	WH-WH-2	▼
22	18					
24	16	Gray to dark gray clayey SILT, trace fine sand, trace organics	3	1.5	WH-1-2	
26	14					
28	12	Gray clayey SILT, trace fine sand				
30	10		4	1.5	1-1-2	
32	8					
34	6	Gray clayey SILT, trace fine sand, trace organics	5	1.5	1-1-2	
36	4					
38	2	Same	6	1.5	WH-1-2	
40						

1. Boring terminated at 31 feet below the ground surface.
2. Construct monitor well DR-3 within borehole.

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LOG OF BORING DR-5

Delaware Solid Waste Authority
Cherry Island Landfill
Wilmington, Delaware

WO No. 4685.ED

Logged By	: SLK	Driller	: Gary Truver, Sr.
Date Started	: October 9, 2002	Drilling Equipment	: Truck-Mounted CME-55
Date Completed	: October 14, 2002	Drilling Procedures	: 4.25" Hollow Stem Auger
Weather	: Cloudy, 65		: with 2" Split Spoons
Drilling Agency	: Walton Corporation		

Depth in Feet	Surf. Elev. 22	DESCRIPTION	Samples	Recovery (feet)	Blow Count	Water Levels
0	22	Brown GRAVEL and SAND, little silt (Fill)				
		Brown sandy SILT (Fill)				
2	20					
4	18					
6	16					
8	14					
		Brown to dark gray and dark gray clayey SILT, trace fine sand, trace vegetative matter	1	1.4	1-2-2	
10	12					
12	10					▼
14	8	Same less clayey, trace to little vegetative matter, trace gravel (damp to moist)	2	1.5	WH-WH-1	
16	6	Same, little vegetative matter, trace gravel (moist)	3	2.0	1-1-1-5	
18	4	Dark gray to black fine to medium SAND, some gravel to coarse sand, trace silt, trace clay, trace organics (wet)				
20	2	Dark gray fine to medium SAND, some gravel, little silt, trace clay, trace organics, trace coarse sand (wet)	4	0.4	4-4-4	
22	0	Dark gray to black clayey SILT, trace lignite, trace fine micateous sand, trace vegetative matter (moist)	5	1.1	1-1-1	
24						

1. Boring terminated at 22.5 feet below the ground surface.
2. Water level thru augers at 13.5 feet with augers at 16 feet.
2. Construct monitor well DR-5 within borehole.

DUFFIELD ASSOCIATES
Consultants in the Geosciences

WELL COMPLETION DIAGRAM DR-5

Delaware Solid Waste Authority
Cherry Island Landfill
Wilmington, Delaware

WO Number 4685.ED

Logged By	: SLK	Driller	: Gary Truver, Sr.
Date Started	: October 15, 2002	Drilling Equipment	: Truck-Mounted CME-55
Date Completed	: October 15, 2002	Drilling Procedures	: 6.25" Hollow Stem Auger
Weather	: Partly cloudy, 60's		: with 2" Split Spoons
Drilling Agency	: Walton Corporation	Well Permit Number	:

Depth in Feet

Well Construction Information

WELL CONSTRUCTION

Date Compl	: October 15, 2002
Drill. Method	: HSA
Diameter	: 6.25 in.
Company	: Walton Corp.

WELL CASING

Material	: PVC
Diameter	: 4 inch
Joints	: Threaded

WELL SCREEN

Material	: PVC
Diameter	: 4 inch
Joints	: Threaded
Opening	: .020 slot

SAND PACK

#1 filter sand :

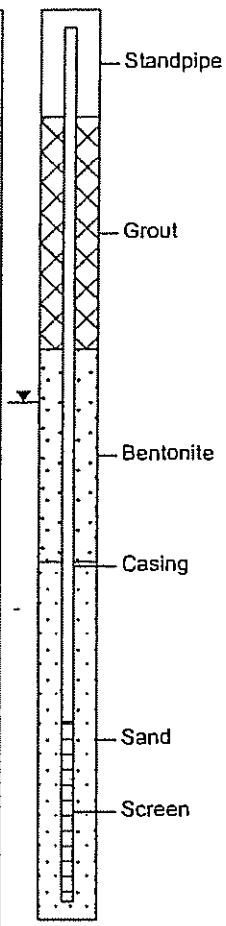
ANNULUS SEAL

Bentonite amended grout

NOTES

PVC = Polyvinyl chloride
HSA = Hollow Stem Auger
TOC = Top of casing

Well1: DR-5
Elev.: 24.5 (TOC)



Water Levels

0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32

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NSW/
PHASE .V

PIEZOMETRIC DATA TABLE [1][2][3]

Piezometer No.[4]	Top of Piezometer Casing Elevation (feet)[5]	Reported Bottom of Piezometer Elevation (feet)[5]	Measured Bottom of Piezometer Elevation (feet)[6]	Piezometric Elevation (feet)							
				06/10/97	07/02/97	08/07/97	09/03/97	10/06/97	11/14/97	12/11/97	01/09/98
P4-1	49.0	16.0	13.4	18.9	18.5	18.7	18.5	18.2	18.4	18.1	18.3
P4-2	34.0	-5.0	-7.4	5.5	5.4	5.4	5.3	5.0	6.6	4.8	6.5
* P4-4	54.3	29.8	26.0	44.7	45.1	45.3	45.5	44.5	46.4	45.2	46.5
P4-5	39.0	6.0	3.8	6.9	6.9	6.2	6.3	5.8	7.1	6.2	8.9
P4-7	50.0	16.0	15.2	19.9	19.7	21.3	21.1	21.4	20.9	20.2	20.8
P4-8	32.5	-5.0	-7.7	4.0	3.9	3.6	3.5	2.8	4.8	2.5	4.3
P4-11	54.0	30.0	27.9	45.1	45.1	45.5	45.6	44.8	47.7	45.6	50.9
P4-12	39.8	6.0	5.3	7.9	7.8	7.7	7.9	7.5	7.5	7.9	8.2
P4-14	49.0	16.0	14.8	24.0	23.6	23.4	23.2	22.6	22.3	22.8	23.1
P4-15	33.0	-5.0	-6.9	4.0	4.0	3.5	3.5	2.8	4.6	2.5	4.1
P4-17	53.0	30.0	29.3	44.7	44.7	44.7	44.5	44.3	45.7	44.5	46.7
P4-19	39.6 [13]	6.0	3.5	5.2	4.6	4.6	4.6	4.6	5.3	4.5	9.8
P4-21	48.0	16.0	13.7	18.6	17.6	18.7	18.0	16.9	19.3	18.8	20.5
P4-22	33.0	-5.0	-7.2	4.1	4.0	3.6	3.5	2.8	4.6	2.6	4.0
P4-27[14]	38.7	-35.8	---	2.7	2.6	2.4	2.6	2.3	2.8	2.1	2.5
P4-28[14]	41.5	-39.0	---	4.2	4.4	4.1	4.3	3.9	4.6	3.8	4.1
P4-29[14]	42.9	-39.6	---	5.2	5.4	4.8	4.9	4.5	4.4	4.3	4.5

PIEZOMETRIC DATA TABLE[1][2][3]

NOTES:

1. All piezometers are 2 inch diameter PVC well screen (#6 slot, 0.006") 10 foot length for perimeter dike with flush joint, threaded connection 2 inch schedule 40 PVC solid wall riser pipe, based on individual "Report of Monitoring" data sheets submitted as construction records by Woodward-Clyde Consultants in 1994.
2. Piezometric elevation determined from measured depth to groundwater, referenced to top of casing elevation.
3. Elevation datum - N.G.V.D. as reported by Woodward-Clyde Consultants (WWC).
4. Piezometers installed by Woodward-Clyde Consultants in 1993/1994 as part of the Phase IV construction.
5. Top and bottom of casing elevations based on "Report of Monitoring Well" data sheets submitted as construction records, by Woodward-Clyde Consultants in 1994.
6. Bottom of casing elevation based on top of casing elevations reported by Woodward-Clyde Consultants and depth of casing measured in the field by Duffield Associates.
7. Top of casing bent from possible damage, repair needed.
8. Piezometric monitoring performed by Weston.
9. Top of casing bent from possible damage, repair needed (reported by Weston).
10. Obstruction/silted-up (reported by Weston).
11. Monitored on 5/28/96.
12. Appeared to be material on surface of water in piezometers P4-1, P4-4, P4-7, P4-11, and P4-14, which was observed on water level probe when reading these instruments. Field personnel indicated difficulty in obtaining accurate readings due to this material.
13. P4-19 casing shortened 0.3" on July 10, 1996 by Duffield Associates, Inc. Top of casing elevation reflects adjusted height.
14. Instruments installed by Duffield Associates between November 4 and 6, 1996. Piezometers are 3/4-inch porous tube piezometers. The top of piezometer casing elevations were determinad by Duffield Associates using the adjacent piezometer and inclinometer top of casing elevations as a reference.
15. Piezometers P4-1, P4-4, P4-7, P4-11, P4-14, P4-17 and P4-21 flushed out on 03/28/97. Piezometric readings for 03/28/97 collected prior to flushing.

DUFFIELD ASSOCIATES
Consultants in the Geosciences

WELL COMPLETION DIAGRAM DR-4

Delaware Solid Waste Authority
Cherry Island Landfill
Wilmington, Delaware

WO Number 4685.ED

Logged By	: SLK	Driller	: Gary Truver, Sr.
Date Started	: October 9, 2002	Drilling Equipment	: Truck-Mounted CME-55
Date Completed	: October 14, 2002	Drilling Procedures	: 4.25" Hollow Stem Auger
Weather	: Sunny, 60's		: with 2" Split Spoons
Drilling Agency	: Walton Corporation	Well Permit Number	: 189665

Depth in Feet

Well Construction Information

WELL CONSTRUCTION

Date Compl	: October 15, 2002
Drill. Method	: HSA
Diameter	: 4.25 in.
Company	: Walton Corp.

WELL CASING

Material	: PVC
Diameter	: 4 inch
Joints	: Threaded

WELL SCREEN

Material	: PVC
Diameter	: 4 inch
Joints	: Threaded
Opening	: .020 slot

SAND PACK

#1 filter sand :

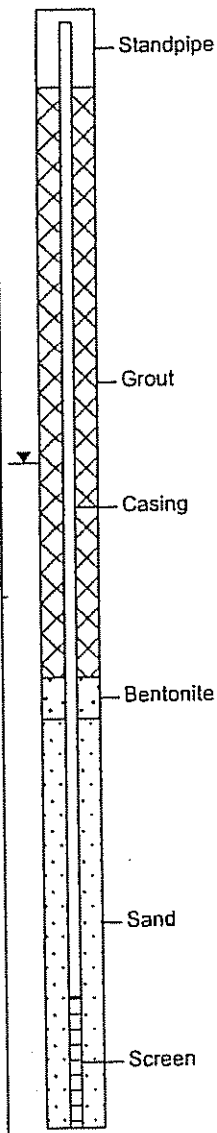
ANNULUS SEAL

Bentonite amended grout

NOTES

PVC = Polyvinyl chloride
HSA = Hollow Stem Auger
TOC = Top of casing

Well1: DR-4
Elev.: 43 (TOC)



Water Levels

0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44

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NSWMC-2
PHASE V
PERIMETER PIEZOMETRIC DATA TABLE

Piezometer No. [1][4]	Top of Piezometer Casing Elevation (feet)[5]	Bottom of Piezometer Elevation (feet)[5]	Piezometer Elevation [2][3] (feet)								
			04/11/97	05/14/97	05/16/97	06/09/97	07/10/97	08/07/97	09/05/97	10/06/97	01/07/98
P5-1A	52.5	22.0	30.2	29.8	—	29.8	29.7	29.5	29.2	28.9	28.5
P5-1B	52.5	-3.0	(6)	(6)	—	(6)	(6)	(6)	(7)	(7)	(7)
P5-1C [8]	51.6	-3.1	—	—	—	—	—	—	—	8.4	7.7
P5-2A	53.5	-3.0	10.8	13.9	13.5	13.5	11.1	10.5	10.2	9.7	9.2
P5-2B	53.5	-28.0	10.1	13.4	13.0	13.0	10.5	9.8	9.6	9.1	8.6
* P5-3A	42.5	22.0	31.6	31.6	—	31.0	30.9	30.8	30.8	30.3	31.0
P5-3B	42.5	-3.0	18.7	18.9	—	18.1	17.3	16.4	16.1	14.6	16.5
P5-4A	53.5	-3.0	3.5	3.5	—	3.4	3.3	3.2	3.3	3.0	3.5
P5-4B	53.5	-28.0	2.2	2.2	—	2.9	1.9	2.0	2.9	2.8	2.5
P5-5A	48.3	22.1	22.6	22.6	—	22.6	22.7	22.6	22.6	22.7	22.6
P5-5B	48.5	-3.0	4.7	4.6	—	4.8	4.3	4.2	4.2	4.1	3.5
P5-6A	47.5	-2.8	1.6	2.2	2.4	2.7	2.5	2.4		2.8	2.5
P5-6B	47.5	-28.0	1.8	2.4	2.4	2.8	2.5	2.5		2.9	3.3
P5-7A	48.5	22.5	—	26.9	—	26.8	26.9	27.8		27.9	26.7
P5-7B	48.5	-0.5	—	11.0	—	10.8	11.2	11.1		9.9	8.6
P5-8A	48.5	1.0	—	6.6	—	6.5	6.1	6.1		5.9	5.3
P5-8B	48.5	-22.0	—	6.2	—	6.2	6.1	5.6		5.5	5.2
P5-9A	49.7	26.0	—	27.5	—	27.4	27.4	27.5		27.5	27.6
P5-9B	49.5	6.0	—	8.7	—	8.6	8.6	8.5		8.3	[9]
P5-10A	50.5	6.0	—	15.7	—	15.6	16.7	15.6		12.8	13.7
P5-10B	50.5	-14.0	—	5.6	—	5.9	5.5	5.4		5.6	5.6
* P5-11A	24.5	6.0	—	13.0	—	12.5	9.4	9.6		8.6	17.3
P5-11B	24.5	-11.0	—	13.8	—	13.5	13.0	12.8		12.4	12.7
* P5-12A	24.0	-11.0	—	17.0	—	16.5	16.1	15.8		15.4	15.8
P5-12B	24.0	-28.0	—	13.9	—	13.3	13.1	12.8		12.4	12.5
* P5-13A	27.7	5.0	20.8	20.5	—	19.4	17.4	17.3		11.9	17.5
P5-13B	26.8	-13.0	10.4	10.1	—	9.0	7.5	6.8		6.4	6.9

NSWMC-2
PHASE V
PERIMETER PIEZOMETRIC DATA TABLE

NOTES:

1. All piezometers are 2-inch diameter PVC well screen (#6 slot, 0.006") 10 foot length connected to 3/4 inch schedule 80 PVC solid wall riser pipe, based on individual "Report of Monitoring" data sheets submitted as construction records by Woodward-Clyde Consultants in February 1997.
2. Piezometric elevation determined from measured depth to groundwater, referenced to top of casing elevation.
3. Elevation datum - N.G.V.D. as reported by Woodward-Clyda Consultants (WWC).
4. Piezometers installed by Woodward-Clyde Consultants in 1996 as part of the Phase IV construction.
5. Top and bottom of casing elevations based on "Report of Monitoring Well" data sheets submitted as construction records, by Woodward-Clyde Consultants in 1997.
6. Unable to obtain water level. Water level indicator probe stops at a depth of 20.4 feet below the top of casing.
7. Piezometer abandoned on 8/25/97.
8. Piezometer installed in August 1997.
9. Piezometer casing obstructed or sheared. Water level indicator and weighted tape stop at depth of 24.6 feet below top of casing.

APPENDIX C

PIEZOMETER AND MONITORING WELL PURGING SAMPLING DETAILS

PIEZOMETER AND MONITORING WELL DEVELOPMENT, PURGING AND SAMPLING DETAILS

This appendix provides a brief summary of monitoring well and piezometer development, purging and sampling by Duffield Associates' personnel for the Dredged Material Pore Water Quality Assessment at Cherry Island Landfill. The piezometers and monitoring wells used for this assessment were completed in dredged materials that lie beneath Cherry Island Landfill and in the Columbia Aquifer at locations beneath the dredged material deposits. Development, purging and sampling occurred during October 2002.

Piezometers

The existing geotechnical piezometers used for the collection of dredged material pore water samples are located along the perimeter of Cherry Island Landfill Phases IV and V. The Phase V area piezometers (P5-3A, P5-11A, P5-12A, and P5-13A) have 10-foot length, two-inch diameter well screen sections. The casing (riser) sections above the well screens have interior diameters of 0.75 inches. The Phase IV area piezometer utilized (P4-4) has a 2-inch diameter well screen and casing. The casing section of this piezometer is curved (probably due to soil creep).

An attempt was made to develop the geotechnical piezometers (P5-3A, P5-3B, P5-11, P5-13A, and P5-12A) by pumping them using a peristaltic pump and moving the suction intake of the pump tubing up and down through the screen interval. No other development efforts were attempted due to the restricted size of the piezometer casing. Monitoring during this development pumping was limited to visual observation of the water and volume tracking. Development ceased when visibly clear water was being discharged or the piezometer was pumped dry. Pumping rates were low – typically 0.25 liters per minute or less. Duffield Associates developed piezometer P4-4 during a separate feasibility assessment performed in August 2002.

Piezometers were purged using a peristaltic pump and dedicated disposable tubing. Purging of piezometers P5-3A, P5-11A, and P5-12A occurred on October 24, 2002. Piezometers P4-4 and P5-13A were purged on October 25, 2002. All of the piezometers were pumped dry prior to the removal of three well volumes of water. Water level recovery rates following purging varied substantially. Recovery in P4-4 occurred within hours of purging, and it was sampled on October 25, 2002. Recovery in P5-12A occurred within 24 hours, and it was sampled on October 25, 2002. The other piezometers did not recover sufficiently to allow sampling until October 31, 2001 (approximately one week after purging). The disposable tubing used for purging was also used for sampling.

During purging and sampling, Duffield Associates' personnel wore disposable latex or nitrile gloves. Field parameters were monitored using a Horiba U-22, flow-through meter and recorded by Duffield Associates (see Table C.1.). The turbidity of the pore water was above 10 NTU at the time of sample collection. Due to this turbidity, the samples were pumped through a 0.45-micron filter before being containerized, with the exception of water placed in Volatile Organic Compounds containers and water used for field-measured parameters. Samples

collected for the analysis of volatile organic compounds and water used for filed measured parameters were not filtered. Lancaster Laboratories provided all of the sample containers. Collected samples were placed on ice in coolers for shipment to Lancaster Laboratories, Inc.

Pore Water Monitoring Wells

During development, drawdown, pH, temperature, conductivity, turbidity and combustible gas levels were monitored and recorded. A suction pump (centrifugal pump) equipped with a foot valve at the suction intake was used to develop monitor wells DR-1R, DR-3 and DR-4, due to elevated levels of combustible gas (likely methane) in these well casings. The use of suction pumps allowed potential sources of ignition to be remote from the wells. A 2-inch diameter submersible pump was used to develop monitor wells DR-2 and DR-5. The intakes of the pumps (or hoses) periodically were moved up and down across the screened interval of the wells during pumping in an effort to remove fine-grained materials from the sand filter. Pumping rates were limited (typically varied between 0.5 to 2 gallons per minute). Aggressive surging of the wells with wells blocks was not done to avoid pulling finer-grained dredged sediments into the sand filter. Pumping was cycled. As wells went dry, pumping stopped, and the water levels in the wells were allowed to recover. During a rest cycle, 5-gallons of water was added to monitor wells DR-1R and DR-4, due to the low yields of those wells. Water additions were not needed in the other wells.

The 4-inch diameter monitoring wells (DR-1R through DR-5) were purged using a centrifugal pump with a check valve. The lower explosive limit exceeded 10 percent within the wells at the wellhead, which excluded the use of a submersible pump, due to potential sources of ignition being located within the well casings. Bailers were not used due to the potential for them to produce more water turbidity than a centrifugal pump. Generally, the well bottoms were below the practical pumping depth of the centrifugal pump. In order to prime the pump, the suction line was raised and lowered initially to allow a water column to build in the hose. The water column was held in the hose by a check valve (foot valve) at the inlet. This surging action increased the turbidity of the well water. Three of the five wells (DR-1R, DR-3, and DR-4) were pumped dry. The remaining two wells (DR-2 and DR-5) were pumped until minimums of three well volumes of water were removed and field-measured parameters stabilized.

During purging and sampling, Duffield Associates' personnel wore disposable latex or nitrile gloves. Field parameters were monitored using a Horiba U-22 flow-through meter or portable meters, and recorded by Duffield Associates (see Table C.2). Turbidity exceeded 10 NTU in the water produced by these wells. As a result, the samples, except those for Volatile Organic Compounds analysis and those used to meter field parameters, were passed through a 0.45-micron filter before being placed in laboratory provided sample containers. The volatile organic compounds samples and the water used for field-measured parameters was not filtered.

Monitoring wells DR-1R, DR-2, DR-3, and DR-5 were sampled using a peristaltic pump with dedicated tubing. Monitor well DR-4 was sampled using a 4-inch bailer. The bailed water was placed in a decontaminated transfer container. A peristaltic pump was used to transfer the water from the container through a filter and into the laboratory-prepared jars.

Columbia Aquifer Monitoring Wells

The 4-inch Columbia aquifer monitoring wells (LC-101, UC-102, LC-105, UC-108, and LC-113) were purged using a two-inch submersible pump. The wells were purged at a rate of approximately 5 gallons per minute for the first two well volumes and at approximately one gallon per minute for the third well volume. The water was field screened using a flow-through cell and was pumped until the parameters stabilized.

Immediately following purging, groundwater samples were collected using a bailer. During sampling, Duffield Associates' personnel wore disposable latex or nitrile gloves. Field parameters were monitored using a Horiba U-22 flow-through meter or portable meters, and recorded by Duffield Associates (see Table C.3). Since, turbidity readings for the Columbia aquifer groundwater were below 10 NTU, the samples were not filtered, except those samples destined for metals analysis. The metal samples were placed in laboratory-prepared jars and transferred to sample containers (with preservative) using a peristaltic pump with a 0.45-micron filter.

Reusable equipment (pumps, bailers, transfer equipment, monitoring equipment, etc.) was cleaned with soapy tap water, rinsed with tap water, and then re-rinsed with deionized water. A rinse blank was collected from the deionized water rinsate from a cleaned piece of equipment on each day of sample collection. Cleaning solutions and rinse water was discharged to the ground surface. All purged water was released onto the ground surface near the wells. All disposable gloves, tubing, bailers, etc., were placed in plastic bags and disposed of as solid waste.

APPENDIX C

TABLE C.1
2-INCH DIAMETER PORE WATER PIEZOMETERS
FIELD PARAMETERS MEASURED DURING PURGING

CHERRY ISLAND LANDFILL
WILMINGTON, DELAWARE

Sampling Point	Date	Time	Gallons Purged	pH SU	Temperature °C	Conductivity µmhos/cm	Turbidity NTU	Dissovled Oxygen mg/l	ORP mV	Other
P4-4	10/25/02	12:30	5							Dry
		15:30		6.66	15.4	4.16	80	2.17	-67	
P5-3A	10/24/02	11:31	1.2	6.46	16.3	4.75		.		
			2.7	6.51	16.1	4.81				
			3.2	6.52	15.8	4.95	220			Dry
	10/31/02	12:00		6.46	15.7	4.87	110	3.3	-64	
P5-11A	10/24/02	13:45	1.2	6.26	14.9	2.26	>990			
			1.5	6.25	14.8	2.27	570			Dry
	10/25/02	10:46	0.2	6.13	14.7	2.24	62	2.55	51	
	10/31/02	8:30	0	6.15	15.1	2.35	51	3.32	11	
		8:45		6.36	15.5	2.42	-3	3.53	-19	
P5-12A	10/24/02	12:15	0	6.65	14.2	4.69	150			
			2.1	6.63	14.3	4.75	40			
			3	6.63	14.3	4.77	42			
			3.8	6.63	14.6	4.64	40			
			5	6.64	14.4	4.55	35			
		14:00	6	6.65	14.4	4.56	37	0.34	-139	Dry
	10/25/02	9:20	0.2	6.62	14	4.41	150	3.1	-112	
P5-13A	10/25/02	8:51	0.5	6.45	14.5	2.14	14	2.01		
		8:59	1.5	6.44	14.8	2.45	47	1.18		
		9:20	3.75							Dry
	10/31/02	10:30	0	6.41	13.3	2.12	>990	0.9	-23	
				6.2	15.1	2.16	60	0.82	-34	
				6.37	14.8	2.21	140	0.65	-67	Nearly Dry

APPENDIX C

TABLE C.2
4-INCH DIAMETER PORE WATER MONITORING WELLS
FIELD PARAMETERS MEASURED DURING PURGING

CHERRY ISLAND LANDFILL
WILMINGTON, DELAWARE

Sampling Point	Date	Time	Gallons Purged	pH SU	Temperature °C	Conductivity µmhos/cm	Turbidity NTU	Dissovled Oxygen mg/l	ORP mV	Other
DR-1R	10/25/02	10:56	16	6.39	16.8	2.05				
		11:05	21	6.7	16.9	2.25				
		11:12	23							Dry
	10/28/02	10:45		6.35	14.7	3.18	40	1.84	8	
DR-2	10/25/02	13:36	3	6.56	15.3	2.3				
		13:54	17	6.5	16.8	2.13				
		14:05	25	6.57	16.5	1.93				
		14:12	32	6.52	18.3	2.05				
		14:13	33	6.48	18	1.98				
DR-3	10/28/02	9:30	11							Dry
		14:30		6.36	15	3.23	110	0.87	-79	
DR-4	10/25/02	11:38	10	6.76	15.3	3.71				
		11:48	20	6.6	14.2	3.53				Dry
DR-5	10/28/02		30	6.38	15.7	4.52	52	1.35	-95	

APPENDIX C

TABLE C.3
COLUMBIA AQUIFER MONITORING WELLS
FIELD PARAMETERS MEASURED DURING PURGING

CHERRY ISLAND LANDFILL
WILMINGTON, DELAWARE

Sampling Point	Date	Time	Gallons Purged	pH SU	Temperature °C	Conductivity µmhos/cm	Turbidity NTU	Dissovled Oxygen mg/l	ORP mV	Other
LC-101	10/31/02	9:16	90	7.69	11.8	1.21				
		9:20	91.2	7.81	11.9	1.23				
		9:25	92.7	8.01	12	1.23				
		9:30	94.2	8.45	12.3	1.22				
		9:32	94.8	8.8	12.4	1.22				
		9:35	95.7	8.81	12.5	1.22				
		9:37	96.3	8.81	12.5	1.22				
		9:58		6.38	14.6	1.75	17	2.33	-91	Flow Cell
		10:01		6.4	14.6	1.75	4	1.14	-97	
		10:03		6.43	14.6	1.75	2	0.83	-101	
LC-102	10/28/02	11:54	85	7.03	14.8	1.4				
			120							
LC-105	10/28/02		40	6.24	14.9	2.06				
			75	6.7	14.1	2.03				
		15:40	100	6.25	14.3	2.8	9	4.51	-64	
		15:45	115	6.28	14.3	2.78	1	0.86	-89	
UC-108	10/31/02	11:57	65	6.44	15.8	3.18	2	2.51	-100	
		12:03	68	6.51	16	3.18	1	0.85	-111	
		12:05	69	6.53	16	3.18	1	0.84	-117	
LC-113	10/31/02	15:07	88	6.7	15.7	1.78	6	6.16	-79	
		15:10	89.5	6.28	15.6	1.76	6	2.25	-75	
		15:12	90.5	6.24	15.6	1.76	6	1.27	-76	
		15:15	92	6.24	15.6	1.76	6	0.79	-82	
		15:19	94	6.28	15.6	1.76	5	0.65	-87	
		15:22	95.5	6.3	15.6	1.75	5	0.6	-90	

APPENDIX D

CALCULATED MEAN PARAMETER VALUES AND STANDARD DEVIATIONS

APPENDIX D
TABLE D.1
NON-ORGANIC SUBSTANCES AND ANALYTES
CALCULATED MEAN VALUES AND STANDARD DEVIATIONS FOR PORE WATER AND COLUMBIA AQUIFER

CHERRY ISLAND LANDFILL
WILMINGTON, DELAWARE

Analyte	Units	DREDGED MATERIAL PORE WATER CONCENTRATION STATISTICAL MEAN	DREDGED MATERIAL PORE WATER CONCENTRATION STANDARD DEVIATION	HISTORICAL COLUMBIA AQUIFER CONCENTRATION STATISTICAL MEAN	HISTORICAL COLUMBIA AQUIFER CONCENTRATION STANDARD DEVIATION
Antimony	mg/l	0.007	0.000	0.026	0.031
Arsenic	mg/l	0.029	0.027	0.074	0.116
Barium	mg/l	0.219	0.135	0.133	0.073
Beryllium	mg/l	0.001	0.000	0.003	0.001
Cadmium	mg/l	0.002	0.000	0.003	0.003
Calcium	mg/l	138	43.9	62.9	9.2
Chromium	mg/l	0.019	0.029	0.021	0.008
Cobalt	mg/l	0.056	0.153	0.013	0.009
Copper	mg/l	0.011	0.027	0.011	0.008
Iron	mg/l	61.3	48.8	50.5	19.8
Lead	mg/l	0.025	0.035	0.028	0.017
Magnesium	mg/l	139	49.3	49.5	9.8
Manganese	mg/l	4.30	3.04	4.16	2.49
Mercury	mg/l	0.000	0.000	0.001	0.001
Nickel	mg/l	0.101	0.293	0.029	0.009
Potassium	mg/l	35.9	22.8	39.7	45.5
Selenium	mg/l	0.025	0.008	0.005	0.004
Silver	mg/l	0.002	0.000	0.005	0.003
Sodium	mg/l	287	175	246	86.2
Thallium	mg/l	0.050	0.028	0.066	0.063
Vanadium	mg/l	0.010	0.012	0.006	0.003
Zinc	mg/l	2.09	6.71	0.089	0.192
Cyanide	mg/l	0.003	0.002	0.003	0.000
Total Phosphorus	mg/l	2.8	2.2	-	-
Chloride	mg/l	517	344	323	70
Sulfate	mg/l	285	411	53	48
Sulfide	mg/l	0.49	0.75	-	-
Alkalinity to pH 8.3	mg/l	0.21	0.000	-	-
Alkalinity to pH 4.5	mg/l	746	246	373	76
Bicarbonate	mg/l	746	246	399	72
Total Dissolved Solids	mg/l	2069	538	979	141
Chemical Oxygen Demand	mg/l	249	113	140	46
Total Organic Carbon	mg/l	75	36	39	13

APPENDIX D
TABLE D.1
NON-ORGANIC SUBSTANCES AND ANALYTES
CALCULATED MEAN VALUES AND STANDARD DEVIATIONS FOR PORE WATER AND COLUMBIA AQUIFER

CHERRY ISLAND LANDFILL
WILMINGTON, DELAWARE

Analyte	Units	DREDGED MATERIAL PORE WATER CONCENTRATION STATISTICAL MEAN	DREDGED MATERIAL PORE WATER CONCENTRATION STANDARD DEVIATION	HISTORICAL COLUMBIA AQUIFER CONCENTRATION STATISTICAL MEAN	HISTORICAL COLUMBIA AQUIFER CONCENTRATION STANDARD DEVIATION
Nitrite Nitrogen	mg/l	0.060	0.032	0.17	0.34
Nitrate Nitrogen	mg/l	0.059	0.13	0.45	0.58
Kjeldahl Nitrogen	mg/l	49	27	30	5.5
Ammonia-Nitrogen	mg/l	35	19	17	5.0
Organic Nitrogen	mg/l	12	5.2	5.1	4.0

Notes:

1 Statistical mean values include the substitution of concentrations set at 1/2 the Method Detection Limit where the laboratory or historical data records report non-detections of substances.

2 The historical means and standard deviations are weighted means calculated with historical data from wells lc-101,uc-102,lc-105,uc-108 (May 1985 - January 2002) and lc-113 (April 1996 - January 2002). The weighted means were calculated with the following algebraic formula:

$$\text{weighted mean} = \frac{\Sigma (n^*x)}{N}$$

n = Number of samples for well
x = Average concentration of substance in well
N = Total number of samples

When calculating the weighted mean standard deviation, the "x" value is the standard deviation for the well.

3 This table is part of a report titled, "Dredged Material Pore Water Quality Assessment, DSWA Cherry Island Landfill, Wilmington, Delaware," dated March 2003, and should only be viewed in the context of that report.

APPENDIX D
TABLE D.2
VOLATILE ORGANIC COMPOUNDS
CALCULATED MEAN VALUES AND STANDARD DEVIATIONS FOR PORE WATER AND COLUMBIA AQUIFER

CHERRY ISLAND LANDFILL
WILMINGTON, DELAWARE

Analyte	Units	DREDGED MATERIAL PORE WATER CONCENTRATION STATISTICAL MEAN	DREDGED MATERIAL PORE WATER CONCENTRATION STANDARD DEVIATION	HISTORICAL COLUMBIA AQUIFER CONCENTRATION STATISTICAL MEAN	HISTORICAL COLUMBIA AQUIFER CONCENTRATION STANDARD DEVIATION
Chloromethane	ug/l	0.50	0.000	2.6	1.7
Vinyl Chloride	ug/l	0.50	0.000	1.3	1.18
Bromomethane	ug/l	0.50	0.000	2.7	1.6
Chloroethane	ug/l	0.50	0.000	1.3	1.23
Trichlorofluoromethane	ug/l	1.0	0.000	1.14	0.55
1,1-Dichloroethene	ug/l	0.40	0.000	0.95	0.70
Methylene Chloride	ug/l	1.0	0.000	1.05	0.70
trans-1,2-Dichloroethene	ug/l	0.40	0.000	0.67	0.35
1,1-Dichloroethane	ug/l	0.50	0.000	0.89	0.68
cis-1,2-Dichloroethene	ug/l	0.40	0.000	0.92	0.50
Chloroform	ug/l	0.40	0.000	1.49	1.02
Bromochloromethane	ug/l	0.50	0.000	0.69	0.40
1,1,1-Trichloroethane	ug/l	0.40	0.000	-	-
Carbon Tetrachloride	ug/l	0.50	0.000	0.89	0.70
Benzene	ug/l	0.25	0.000	0.90	0.72
1,2-Dichloroethane	ug/l	0.50	0.000	-	-
Trichloroethene	ug/l	0.50	0.000	0.86	0.65
1,2-Dichloropropane	ug/l	0.50	0.000	0.93	0.71
Dibromomethane	ug/l	0.50	0.000	1.4	0.78
Bromodichloromethane	ug/l	0.50	0.000	1.11	0.81
Toluene	ug/l	0.42	0.22	0.95	0.82
1,1,2-Trichloroethane	ug/l	0.40	0.000	-	-
Tetrachloroethene	ug/l	0.40	0.000	0.86	0.65
Dibromochloromethane	ug/l	0.50	0.000	0.94	0.69
1,2-Dibromoethane	ug/l	0.50	0.000	-	-
Chlorobenzene	ug/l	0.40	0.000	0.85	0.65
1,1,1,2-Tetrachloroethane	ug/l	0.50	0.000	0.69	0.40
Ethylbenzene	ug/l	0.40	0.000	0.91	0.86
Styrene	ug/l	0.50	0.000	0.69	0.40
Bromoform	ug/l	0.50	0.000	1.18	0.73
1,1,2,2-Tetrachloroethane	ug/l	0.50	0.000	1.16	0.73
1,2,3-Trichloropropane	ug/l	0.50	0.000	1.00	0.51
1,4-Dichlorobenzene	ug/l	0.50	0.000	-	-
1,2-Dichlorobenzene	ug/l	0.50	0.000	-	-
1,2-Dibromo-3-chloropropane	ug/l	0.50	0.000	1.8	0.80

APPENDIX D
TABLE D.2
VOLATILE ORGANIC COMPOUNDS
CALCULATED MEAN VALUES AND STANDARD DEVIATIONS FOR PORE WATER AND COLUMBIA AQUIFER

CHERRY ISLAND LANDFILL
WILMINGTON, DELAWARE

Analyte	Units	DREDGED MATERIAL PORE WATER CONCENTRATION STATISTICAL MEAN	DREDGED MATERIAL PORE WATER CONCENTRATION STANDARD DEVIATION	HISTORICAL COLUMBIA AQUIFER CONCENTRATION STATISTICAL MEAN	HISTORICAL COLUMBIA AQUIFER CONCENTRATION STANDARD DEVIATION
Acetone	ug/l	4.8	3.3	15	18
2-Butanone	ug/l	1.5	0.000	4.5	2.1
trans-1,3-Dichloropropene	ug/l	0.50	0.000	0.88	0.68
cis-1,3-Dichloropropene	ug/l	0.50	0.000	0.86	0.65
4-Methyl-2-pentanone	ug/l	1.5	0.000	3.0	1.2
2-Hexanone	ug/l	1.5	0.000	3.0	1.3
Xylene (Total)	ug/l	0.40	0.000	1.5	0.34
Methyl Iodide	ug/l	0.50	0.000	-	-
Acrylonitrile	ug/l	2.0	0.000	29	34
Vinyl Acetate	ug/l	1.0	0.000	2.5	1.7
trans-1,4-Dichloro-2-butene	ug/l	7.5	0.000	5.4	5.4

Notes:

1 Statistical mean values include the substitution of concentrations set at 1/2 the Method Detection Limit where the laboratory or historical data records report non-detections of substances.

2 The historical means and standard deviations are weighted means calculated with historical data from wells lc-101,uc-102,lc-105,uc-108 (May 1985 - January 2002) and lc-113 (April 1996 - January 2002). The weighted means were calculated with the following algebraic formula:

$$\text{weighted mean} = \frac{\Sigma\,(n^{*}x)}{N}$$

n = Number of samples for well
x = Average concentration of substance in well
N = Total number of samples

When calculating the weighted mean standard deviation, the "x" value is the standard deviation for the well.

3 This table is part of a report titled, "Dredged Material Pore Water Quality Assessment, DSWA Cherry Island Landfill, Wilmington, Delaware," dated March 2003, and should only be viewed in the context of that report.

APPENDIX D
TABLE D.3
SEMIVOLATILE ORGANIC COMPOUNDS
CALCULATED MEAN VALUES AND STANDARD DEVIATIONS FOR PORE WATER AND COLUMBIA AQUIFER

CHERRY ISLAND LANDFILL
WILMINGTON, DELAWARE

Analyte	Units	DREDGED MATERIAL PORE WATER CONCENTRATION STATISTICAL MEAN	DREDGED MATERIAL PORE WATER CONCENTRATION STANDARD DEVIATION	HISTORICAL COLUMBIA AQUIFER CONCENTRATION STATISTICAL MEAN	HISTORICAL COLUMBIA AQUIFER CONCENTRATION STANDARD DEVIATION
Methoxychlor	ug/l	0.010	0.000	-	-
4-Chloroaniline	ug/l	0.65	0.50	-	-
Dibenzofuran	ug/l	0.50	0.000	-	-
2-Methylnaphthalene	ug/l	0.50	0.000	-	-
2-Nitroaniline	ug/l	0.50	0.000	-	-
3-Nitroaniline	ug/l	0.50	0.000	-	-
4-Nitroaniline	ug/l	0.50	0.000	-	-
2,4,5-Trichlorophenol	ug/l	0.50	0.000	-	-
2-Chlorophenol	ug/l	0.50	0.000	-	-
Phenol	ug/l	0.75	0.83	0.008	0.007
2-Nitrophenol	ug/l	0.50	0.000	-	-
2,4-Dimethylphenol	ug/l	0.50	0.000	-	-
2,4-Dichlorophenol	ug/l	0.50	0.000	-	-
4-Chloro-3-methylphenol	ug/l	0.50	0.000	-	-
2,4,6-Trichlorophenol	ug/l	0.50	0.000	-	-
2,4-Dinitrophenol	ug/l	10	0.000	-	-
4-Nitrophenol	ug/l	5.0	0.000	-	-
4,6-Dinitro-2-methylphenol	ug/l	2.5	0.000	-	-
Pentachlorophenol	ug/l	1.5	0.000	-	-
bis(2-Chloroethyl)ether	ug/l	0.50	0.000	-	-
1,3-Dichlorobenzene	ug/l	0.50	0.000	-	-
1,4-Dichlorobenzene	ug/l	0.50	0.000	-	-
1,2-Dichlorobenzene	ug/l	0.50	0.000	-	-
Hexachloroethane	ug/l	0.50	0.000	-	-
N-Nitroso-di-n-propylamine	ug/l	0.50	0.000	-	-
Nitrobenzene	ug/l	0.50	0.000	-	-
Isophorone	ug/l	0.50	0.000	-	-
bis(2-Chloroethoxy)methane	ug/l	0.50	0.000	-	-
1,2,4-Trichlorobenzene	ug/l	0.50	0.000	-	-
Naphthalene	ug/l	0.50	0.000	-	-
Hexachlorobutadiene	ug/l	0.50	0.000	-	-
Hexachlorocyclopentadiene	ug/l	0.50	0.000	-	-
2-Chloronaphthalene	ug/l	0.50	0.000	-	-
Acenaphthylene	ug/l	0.50	0.000	-	-
Dimethylphthalate	ug/l	0.50	0.000	-	-
2,6-Dinitrotoluene	ug/l	0.50	0.000	-	-
Acenaphthene	ug/l	0.50	0.000	-	-
2,4-Dinitrotoluene	ug/l	0.50	0.000	-	-
Fluorene	ug/l	0.50	0.000	-	-
4-Chlorophenyl-phenylether	ug/l	0.50	0.000	-	-
Diethylphthalate	ug/l	1.0	0.000	-	-
N-Nitrosodiphenylamine	ug/l	1.0	0.000	-	-
4-Bromophenyl-phenylether	ug/l	0.50	0.000	-	-
Hexachlorobenzene	ug/l	0.50	0.000	-	-
Phenanthrene	ug/l	0.50	0.000	-	-
Anthracene	ug/l	0.50	0.000	-	-

APPENDIX D
TABLE D.3
SEMIVOLATILE ORGANIC COMPOUNDS
CALCULATED MEAN VALUES AND STANDARD DEVIATIONS FOR PORE WATER AND COLUMBIA AQUIFER

CHERRY ISLAND LANDFILL
WILMINGTON, DELAWARE

Analyte	Units	DREDGED MATERIAL PORE WATER CONCENTRATION STATISTICAL MEAN	DREDGED MATERIAL PORE WATER CONCENTRATION STANDARD DEVIATION	HISTORICAL COLUMBIA AQUIFER CONCENTRATION STATISTICAL MEAN	HISTORICAL COLUMBIA AQUIFER CONCENTRATION STANDARD DEVIATION
Di-n-butylphthalate	ug/l	1.0	0.000	-	-
Fluoranthene	ug/l	0.50	0.000	-	-
Pyrene	ug/l	0.50	0.000	-	-
Butylbenzylphthalate	ug/l	1.0	0.000	-	-
Benzo(a)anthracene	ug/l	0.50	0.000	-	-
Chrysene	ug/l	0.50	0.000	-	-
3,3'-Dichlorobenzidine	ug/l	0.50	0.000	-	-
bis(2-Ethylhexyl)phthalate	ug/l	1.1	0.33	80	122
Di-n-octylphthalate	ug/l	1.0	0.000	-	-
Benzo(b)fluoranthene	ug/l	0.50	0.000	-	-
Benzo(k)fluoranthene	ug/l	0.50	0.000	-	-
Benzo(a)pyrene	ug/l	0.50	0.000	-	-
Indeno(1,2,3-cd)pyrene	ug/l	0.50	0.000	-	-
Dibenz(a,h)anthracene	ug/l	0.50	0.000	-	-
Benzo(g,h,i)perylene	ug/l	0.50	0.000	-	-
2-Methylphenol	ug/l	0.50	0.000	-	-
2,2'-oxybis(1-Chloropropane)	ug/l	0.50	0.000	-	-
4-Methylphenol	ug/l	1.1	0.33	-	-
Carbazole	ug/l	0.50	0.000	-	-

Notes:

1 Statistical mean values include the substitution of concentrations set at 1/2 the Method Detection Limit where the laboratory or historical data records report non-detections of substances.

2 The historical means and standard deviations are weighted means calculated with historical data from wells lc-101,uc-102,lc-105,uc-108 (May 1985 - January 2002) and lc-113 (April 1996 - January 2002). The weighted means were calculated with the following algebraic formula:

$$\text{weighted mean} = \frac{\Sigma (n^*x)}{N}$$

n = Number of samples for well
x = Average concentration of substance in well
N = Total number of samples

When calculating the weighted mean standard deviation, the "x" value is the standard deviation for the well.

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APPENDIX D
TABLE D.4
PESTICIDES AND PCBs
CALCULATED MEAN VALUES AND STANDARD DEVIATIONS FOR PORE WATER AND COLUMBIA AQUIFER

CHERRY ISLAND LANDFILL
WILMINGTON, DELAWARE

Analyte	Units	DREDGED MATERIAL PORE WATER CONCENTRATION STATISTICAL MEAN	DREDGED MATERIAL PORE WATER CONCENTRATION STANDARD DEVIATION	HISTORICAL COLUMBIA AQUIFER CONCENTRATION STATISTICAL MEAN	HISTORICAL COLUMBIA AQUIFER CONCENTRATION STANDARD DEVIATION
Endrin Ketone	ug/l	0.002	0.000	-	-
Alpha Chlordane	ug/l	0.002	0.000	-	-
Gamma Chlordane	ug/l	0.005	0.003	-	-
Alpha BHC	ug/l	0.001	0.000	-	-
Beta BHC	ug/l	0.005	0.007	-	-
Gamma BHC - Lindane	ug/l	0.003	0.002	-	-
Delta BHC	ug/l	0.005	0.005	-	-
Heptachlor	ug/l	0.001	0.000	-	-
Aldrin	ug/l	0.004	0.000	-	-
Heptachlor Epoxide	ug/l	0.002	0.001	-	-
p,p-DDE	ug/l	0.002	0.000	-	-
p,p-DDD	ug/l	0.002	0.000	-	-
p,p-DDT	ug/l	0.002	0.000	-	-
Dieldrin	ug/l	0.003	0.000	-	-
Endrin	ug/l	0.007	0.004	-	-
Toxaphene	ug/l	0.15	0.000	-	-
Endosulfan II	ug/l	0.002	0.000	-	-
Endosulfan I	ug/l	0.001	0.000	-	-
Endosulfan Sulfate	ug/l	0.002	0.000	-	-
Endrin Aldehyde	ug/l	0.011	0.000	-	-
PCB-1016	ug/l	0.050	0.000	-	-
PCB-1221	ug/l	0.050	0.000	-	-
PCB-1232	ug/l	0.050	0.000	-	-
PCB-1242	ug/l	0.050	0.000	-	-
PCB-1248	ug/l	0.050	0.000	-	-
PCB-1254	ug/l	0.050	0.000	-	-
PCB-1260	ug/l	0.050	0.000	-	-

Notes:

1 Statistical mean values include the substitution of concentrations set at 1/2 the Method Detection Limit where the laboratory or historical data records report non-detections of substances.

2 This table is part of a report titled, "Dredged Material Pore Water Quality Assessment, DSWA Cherry Island Landfill, Wilmington, Delaware," dated March 2003, and should only be viewed in the context of that report.

APPENDIX D
TABLE D.5
DETECTED PCB CONGENGERS IN PORE WATER AND COLUMBIA AQUIFER SAMPLES
CALCULATED MEAN CONCENTRATIONS AND STANDARD DEVIATIONS

CHERRY ISLAND LANDFILL
WILMINGTON, DELAWARE

Detected Pore Water Congeners

LLI Sample Identification	3929659			3928360			3929670			3928364			3929668			3928368			3931391			3931394			3928366			3931396			Pore Water	
DAI Sample Identification	DR-1-R			DR-2			DR-3			DR-4			DR-5			P4-4			P5-3A			P5-11A			P5-12A			P5-13A				
PCB Congener	Result	MDL	Statistics Based Conc.	Result	MDL	Statistics Based Conc.	Result	MDL	Statistics Based Conc.	Result	MDL	Statistics Based Conc.	Result	MDL	Statistics Based Conc.	Result	MDL	Statistics Based Conc.	Result	MDL	Statistics Based Conc.	Result	MDL	Statistics Based Conc.	Result	MDL	Statistics Based Conc.	Result	MDL	Statistics Based Conc.	Statistics-Based Mean Conc.	Statistics-Based Standard Deviation
	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l
2,2'-Dichlorobiphenyl	ND	0.0048	0.0024	ND	0.0048	0.0024	0.030	0.0049	0.0299	ND	0.0048	0.0024	ND	0.0051	0.0026	ND	0.0048	0.0024	ND	0.0050	0.0025	ND	0.0052	0.0026	ND	0.0048	0.0024	ND	0.0049	0.0024	0.0052	0.0087
2,4-Dichlorobiphenyl	ND	0.0048	0.0024	ND	0.0048	0.0024	0.0056	0.0049	0.0056	ND	0.0048	0.0024	ND	0.0051	0.0026	0.005195	0.0048	0.0052	ND	0.0050	0.0025	ND	0.0052	0.0026	ND	0.0048	0.0024	ND	0.0049	0.0024	0.0030	0.0013
2,2',4,5',6-Pentachlorobiphenyl	ND	0.0048	0.0024	ND	0.0048	0.0024	ND	0.0049	0.0025	ND	0.0048	0.0024	ND	0.0051	0.0026	ND	0.0048	0.0024	0.0051	0.0050	0.0051	ND	0.0052	0.0026	ND	0.0048	0.0024	ND	0.0049	0.0024	0.0027	0.0008

Columbia Aquifer Results for Congeners Detected in Pore Water

LLI Sample Identification	3931401			3929667			3929666			3931397			3931400			Columbia Aquifer	
DAI Sample Identification	LC-101			UC-102			LC-105			LC-113			UC-108				
PCB Congener	Result	MDL	Statistics Based Conc.	Result	MDL	Statistics Based Conc.	Result	MDL	Statistics Based Conc.	Result	MDL	Statistics Based Conc.	Result	MDL	Statistics Based Conc.	Statistics-Based Mean Conc.	Statistics-Based Standard Deviation
	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l
2,2'-Dichlorobiphenyl	ND	0.0048	0.002385	ND	0.0048	0.002411	ND	0.0048	0.002411	ND	0.0048	0.002379	ND	0.0049	0.00243	0.002	0.0000
2,4-Dichlorobiphenyl	ND	0.0048	0.002385	ND	0.0048	0.002411	ND	0.0048	0.002411	ND	0.0048	0.002379	ND	0.0049	0.00243	0.002	0.0000
2,2',4,5',6-Pentachlorobiphenyl	ND	0.0048	0.002385	ND	0.0048	0.002411	ND	0.0048	0.002411	ND	0.0048	0.002379	ND	0.0049	0.00243	0.002	0.0000

Notes:

1 Statistical mean values include the substitution of concentrations set at 1/2 the Method Detection Limit where the laboratory reported non-detections of substances.

2 This table is part of a report titled, "Dredged Material Pore Water Quality Assessment, DSWA Cherry Island Landfill, Wilmington, Delaware," dated March 2003, and should only be viewed in the context of that report.

APPENDIX D
TABLE D.6
STATISTICS DERIVED FROM HISTORICAL COLUMBIA AQUIFER DATA

CHERRY ISLAND LANDFILL
WILMINGTON, DELAWARE

	Temperature (Centigrade)	pH (SU)	Spec. Cond. (umhos/cm)	REDOX (mV)	D.O. (mg/L)	Turbidity (NTUs)	Alkalinity (mg/L)	Phenolphthalein Alk (mg/L)	Carbonate (mg/L)	Bicarbonate (mg/L)	Total Hardness (mg/L)	COD (mg/L)	TOC (mg/L)	Total Carbon (mg/L)	TDS (mg/L)	Chloride (mg/L)
[illegible]																
# of Samples	23	61	61	23	22	23	44	44	8	8	0	44	44	3	43	44
Minimum	9.2	5.73	723	-21.2	0.12	0.000	71	0.50	0.50	78		2.5	3.4	33	610	100
Maximum	18.2	6.92	1661	230.4	7.4	51	465	2.5	2.5	359		234	21	125	1200	500
Mean	14.3	6.23	1380	78.1	2.6	9.2	142	0.77	2.0	134		58	9.4	82	817	242
St. Dev.	2.6	0.23	167	65.1	2.5	12	70	0.69	0.93	93		40	3.9	46	108	69
[illegible]																
# of Samples	23	51	51	23	23	23	34	33	8	8	0	33	34	2	34	34
Minimum	3.0	6.14	697	-192.7	0.11	0.000	76	0.50	0.50	270		25	13	140	600	258
Maximum	19.6	6.83	1,979	66.8	3.0	128	390	2.5	2.5	390		120	34	166	930	440
Mean	14.8	6.51	1,540	-69.6	0.77	21	299	0.86	2.0	320		63	18	153	769	297
St. Dev	3.4	0.12	201	67.6	0.69	35	59	0.78	0.93	35		18	4.1	18	71	34
[illegible]																
# of Samples	25	39	39	25	25	25	17	17	5	5	3	17	17	2	17	17
Minimum	10.2	6.02	1440	-242.0	0.010	1.0	125	0.5	0.50	490	70	27	14.6	228	918	290
Maximum	30.0	7.39	3305	138.5	1.9	710	702	2.5	2.5	702	545	160	46	260	1640	687
Mean	16.7	6.57	2730	-54.3	0.56	54	478	0.88	1.7	572	230	98	24	244	1414	509
St. Dev.	4.0	0.27	450	88.3	0.48	140	153	0.78	1.1	80	273	36	7.0	23	195	132
[illegible]																
# of Samples	23	38	38	23	23	23	21	20	8	8	0	20	21	2	21	21
Minimum	5.2	6.47	713	-151.6	0.020	0.000	264	0.50	0.50	270		31	4.4	114	790	330
Maximum	20.7	7.26	2504	37.2	6.5	91	489	2.5	2.5	498		260	86	151	1070	434
Mean	15.3	6.75	1787	-61.1	1.0	11	321	1.1	2.0	340		90	22	132	866	366
St. Dev	3.0	0.18	369	56.9	1.4	25	50	0.93	0.93	73		50	23	26	64	25
[illegible]																
# of Samples	0	39	39	0	0	0	39	39	2	2	0	39	39	2	39	39
Minimum		6.16	717				431	0.5	0.50	485		279	14	316.6	748	210
Maximum		6.50	1960				701	2.5	0.50	493		440	310	320	1500	270
Mean		6.34	1730				566	0.60	0.50	489		379	132	318	1089	236
Std. Dev.		0.07	191				71	0.40	0	5.7		40	41	2.4	123	16
[illegible]																
# of Samples	0	36	36	0	0	0	36	36	2	2	1	36	36	3	36	36
Minimum		6.38	250				54	0.5	0.50	347	193	25	7.3	120	190	20
Maximum		6.71	1500				436	1.0	0.50	376	193	150	40	216	1020	275
Mean		6.55	1282				341	0.51	0.50	362	193	76	19	155	704	207
Std. Dev.		0.09	249				68	0.08	0	21		31	5.7	53	120	60
[illegible]																
# of Samples	0	25	24	0	0	0	25	25	2	2	0	25	25	2	25	25
Minimum		6.16	737				147	0.50	0.50	225		47	13	101	659	177
Maximum		7.82	1770				474	0.50	0.50	389		442	44	150	2360	490
Mean		6.44	1423				351	0.50	0.50	307		137	22	126	823	263
Std. Dev.		0.31	198				79	0	0	116		105	5.1	35	325	53
[illegible]																
# of Samples	23	23	23	23	23	22	6	6	6	6	0	6	6	0	6	6
Minimum	7.7	6.49	1180	-251.6	0.020	2.0	369	2.5	2.5	2.5		90	3.8		952	190
Maximum	21.9	12.51	6800	92.3	3.6	231	1400	1200	380	476		520	180		1900	357
Mean	16.5	8.14	2470	-74.5	0.94	42	609	260	103	287		240	58		1317	311
St. Dev.	3.3	2.30	1472	91.5	1.0	55	391	481	163	223		170	63		366	62
[illegible]																
# of Samples	23	23	23	23	23	23	6	6	6	6	0	6	6	0	6	6
Minimum	5.7	6.71	310	-82.4	2.9	0.000	12	2.5	2.5	12		2.5	1.3		290	71
Maximum	20.9	8.68	536	194	8.0	5.3	110	5.0	10	96		16	1.8		320	84
Mean	15.9	7.68	458	-60.5	5.7	1.4	65	2.9	3.8	63		5.6	1.5		300	77
Std. Dev.	3.3	0.41	54	70.7	1.4	1.5	31	1.0	3.1	27		5.5	0.17		12	5.3
[illegible]																
# of Samples	22	61	61	22	21	22	45	45	8	8	0	45	45	3	45	45
Minimum	6.6	5.77	1040	-61.8	0.060	0.000	48	0.50	0.50	134		24	12	60	540	16
Maximum	18.1	6.86	2200	193	1.3	410	254	2.5	2.5	186		160	30	91	1090	580
Mean	13.9	6.33	1629	24.1	0.63	80	169	0.77	2.0	155		79	19	79	847	368
Std. Dev.	3.1	0.17	307	65.3	0.38	120	39	0.69	0.93	19		26	3.5	16	153	123
[illegible]																
# of Samples	22	26	27	21	21	22	11	10	8	8	2	10	11	2	11	11
Minimum	8.7	6.04	2490	-252	0.080	1.0	629	0.50	1.0	629	708	210	53	270	1550	442
Maximum	21.9	7.19	7140	185	1.4	117	790	2.5	5.0	790	708	333	94	296	2000	876
Mean	15.9	6.78	3591.	-65.0	0.51	27	721	1.8	4.0	715	708	260	65	283	1803	731
St. Dev	3.6	0.21	815	102	0.40	34	56	1.0	1.9	61		42	12	18	140	130
[illegible]																
# of Samples	22	36	36	22	22	22	20	20	8	8	1	20	20	2	20	20
Minimum	7.5	6.50	922	-174	0.010	0.000	526	0.50	0.50	526	644	68	24.4	260	1260	130
Maximum	22.2	7.08	3190	71.3	3.6	310	744	2.5	2.5	726	644	320	79	306.2	1620	630
Mean	15.7	6.79	2658	-59.2	0.71	20	667	1.1	2.0	634	644	193	51	283	1491	505
Std. Dev.	3.3	0.14	447	60.2	0.80	65	65	0.93	0.93	79		79	15	33	105	127
[illegible]																
# of Samples	22	33	33	22	22	22	17	17	8	8	0	17	17	2	17	17
Minimum	8.5	6.27	868	-141	0.010	0.000	458	0.50	0.50	639	.	160	37	249	1000	190
Maximum	27.0	7.05	2924	141	4.1	540	920	2.5	2.5	898		380	86	310	1660	510
Mean	16.3	6.70	2292	-46.1	0.81	41	722	1.2	2.0	734		231	63	280	1401	376
St. Dev	3.9	0.18	469	79.9	1.0	113	130	1.0	0.93	82		69	16	43	204	94

GENERALIZED COLUMBIA FORMATION	Temperature (Centigrade)	pH (SU)	Spec. Cond. (umhos/cm)	REDOX (mV)	D.O. (mg/L)	Turbidity (NTU)	Alkalinity (mg/L)	Phenolphthalein Alk (mg/L)	Carbonate (mg/L)	Bicarbonate (mg/L)	Total Hardness (mg/L)	COD (mg/L)	TOC (mg/L)	Total Carbon (mg/L)	TDS (mg/L)	Chloride (mg/L)
# of Samples	228	491	491	227	225	227	321	318	79	79	7	318	321	25	320	321
Minimum	3.0	5.73	250	-252	0.010	0.000	12	0.50	0.50	2.5	70	2.5	1.3	33	150	16
Maximum	30.0	12.51	7140	230	8.0	710	1400	1200	380	898	708	520	310	320	2360	876
Weighted Mean	[illegible]	6.64	1874	-27	1.4	31	373	5.7	9.9	390	420	140	39	193	979	322
Weighted St. Dev.	[illegible]	0.29	[illegible]	75	1.0	80	76	9.7	43	72	117	40	15	30	141	70

4685ED/4685.ED.16.Appendix D.6.xls

DUFFIELD ASSOCIATES, INC.
PROJECT NO. 4685.ED
TASK 7.5
MARCH 2003

APPENDIX D
TABLE D.6
STATISTICS DERIVED FROM HISTORICAL COLUMBIA AQUIFER DATA

CHERRY ISLAND LANDFILL
WILMINGTON, DELAWARE

[illegible]	Temperature (Centigrade)	pH (SU)	Spec. Cond. (umhos/cm)	REDOX (mV)	D.O. (mg/L)	Turbidity (NTUs)	Alkalinity (mg/L)	Phenolphthalein Alk. (mg/L)	Carbonate (mg/L)	Bicarbonate (mg/L)	Total Hardness (mg/L)	COD (mg/L)	TOC (mg/L)	Total Carbon (mg/L)	TDS (mg/L)	Chloride (mg/L)
# of Samples	23	61	61	23	22	23	44	44	8	8	0	44	44	3	43	44
Minimum	9.2	5.73	723	-21.2	0.12	0.000	71	0.50	0.50	78		2.5	3.4	33	610	100
Maximum	18.2	6.92	1661	230.4	7.4	51	465	2.5	2.5	359		234	21	125	1200	500
Mean	14.3	6.23	1380	78.1	2.6	9.2	142	0.77	2.0	134		58	9.4	82	817	242
St. Dev.	2.6	0.23	167	65.1	2.5	12	70	0.69	0.93	93		40	3.9	46	108	69
[illegible]	Temperature (Centigrade)	pH (SU)	Spec. Cond. (umhos/cm)	REDOX (mV)	D.O. (mg/L)	Turbidity (NTUs)	Alkalinity (mg/L)	Phenolphthalein Alk. (mg/L)	Carbonate (mg/L)	Bicarbonate (mg/L)	Total Hardness (mg/L)	COD (mg/L)	TOC (mg/L)	Total Carbon (mg/L)	TDS (mg/L)	Chloride (mg/L)
# of Samples	23	51	51	23	23	23	34	33	8	8	0	33	34	2	34	34
Minimum	3.0	6.14	697	-192.7	0.11	0.000	76	0.50	0.50	270		25	13	140	600	258
Maximum	19.6	6.83	1,979	66.8	3.0	128	390	2.5	2.5	390		120	34	166	930	440
Mean	14.8	6.51	1,540	-69.6	0.77	21	299	0.86	2.0	320		63	18	153	769	297
St. Dev	3.4	0.12	201	67.6	0.69	35	59	0.78	0.93	35		18	4.1	18	71	34
[illegible]	Temperature (Centigrade)	pH (SU)	Spec. Cond. (umhos/cm)	REDOX (mV)	D.O. (mg/L)	Turbidity (NTUs)	Alkalinity (mg/L)	Phenolphthalein Alk. (mg/L)	Carbonate (mg/L)	Bicarbonate (mg/L)	Total Hardness (mg/L)	COD (mg/L)	TOC (mg/L)	Total Carbon (mg/L)	TDS (mg/L)	Chloride (mg/L)
# of Samples	25	39	39	25	25	25	17	17	5	5	3	17	17	2	17	17
Minimum	10.2	6.02	1440	-242.0	0.010	1.0	125	0.5	0.50	490	70	27	14.6	228	918	290
Maximum	30.0	7.39	3305	138.5	1.9	710	702	2.5	2.5	702	545	160	46	260	1640	687
Mean	16.7	6.57	2730	-54.3	0.56	54	478	0.88	1.7	572	230	98	24	244	1414	509
St. Dev.	4.0	0.27	450	88.3	0.48	140	153	0.78	1.1	80	273	36	7.0	23	195	132
[illegible]	Temperature (Centigrade)	pH (SU)	Spec. Cond. (umhos/cm)	REDOX (mV)	D.O. (mg/L)	Turbidity (NTUs)	Alkalinity (mg/L)	Phenolphthalein Alk. (mg/L)	Carbonate (mg/L)	Bicarbonate (mg/L)	Total Hardness (mg/L)	COD (mg/L)	TOC (mg/L)	Total Carbon (mg/L)	TDS (mg/L)	Chloride (mg/L)
# of Samples	23	38	38	23	23	23	21	20	8	8	0	20	21	2	21	21
Minimum	5.2	6.47	713	-151.6	0.020	0.000	264	0.50	0.50	270		31	4.4	114	790	330
Maximum	20.7	7.26	2504	37.2	6.5	91	489	2.5	2.5	498		260	86	151	1070	434
Mean	15.3	6.75	1787	-61.1	1.0	11	321	1.1	2.0	340		90	22	132	866	366
St. Dev	3.0	0.18	369	56.9	1.4	25	50	0.93	0.93	73		50	23	26	64	25
[illegible]	Temperature (Centigrade)	pH (SU)	Spec. Cond. (umhos/cm)	REDOX (mV)	D.O. (mg/L)	Turbidity (NTUs)	Alkalinity (mg/L)	Phenolphthalein Alk. (mg/L)	Carbonate (mg/L)	Bicarbonate (mg/L)	Total Hardness (mg/L)	COD (mg/L)	TOC (mg/L)	Total Carbon (mg/L)	TDS (mg/L)	Chloride (mg/L)
# of Samples	0	39	39	0	0	0	39	39	2	2	0	39	39	2	39	39
Minimum		6.16	717				431	0.5	0.50	485		279	14	316.6	748	210
Maximum		6.50	1960				701	2.5	0.50	493		440	310	320	1500	270
Mean		6.34	1730				566	0.60	0.50	489		379	132	318	1089	236
Std. Dev.		0.07	191				71	0.40	0	5.7		40	41	2.4	123	16
[illegible]	Temperature (Centigrade)	pH (SU)	Spec. Cond. (umhos/cm)	REDOX (mV)	D.O. (mg/L)	Turbidity (NTUs)	Alkalinity (mg/L)	Phenolphthalein Alk. (mg/L)	Carbonate (mg/L)	Bicarbonate (mg/L)	Total Hardness (mg/L)	COD (mg/L)	TOC (mg/L)	Total Carbon (mg/L)	TDS (mg/L)	Chloride (mg/L)
# of Samples	0	36	36	0	0	0	36	36	2	2	1	36	36	3	36	36
Minimum		6.38	250				54	0.5	0.50	347	193	25	7.3	120	190	20
Maximum		6.71	1500				436	1.0	0.50	376	193	150	40	216	1020	275
Mean		6.55	1282				341	0.51	0.50	362	193	76	19	155	704	207
Std. Dev.		0.09	249				68	0.08	0	21		31	5.7	53	120	60
[illegible]	Temperature (Centigrade)	pH (SU)	Spec. Cond. (umhos/cm)	REDOX (mV)	D.O. (mg/L)	Turbidity (NTUs)	Alkalinity (mg/L)	Phenolphthalein Alk. (mg/L)	Carbonate (mg/L)	Bicarbonate (mg/L)	Total Hardness (mg/L)	COD (mg/L)	TOC (mg/L)	Total Carbon (mg/L)	TDS (mg/L)	Chloride (mg/L)
# of Samples	0	25	24	0	0	0	25	25	2	2	0	25	25	2	25	25
Minimum		6.16	737				147	0.50	0.50	225		47	13	101	659	177
Maximum		7.82	1770				474	0.50	0.50	389		442	44	150	2360	490
Mean		6.44	1423				351	0.50	0.50	307		137	22	126	823	263
Std. Dev.		0.31	198				79	0	0	116		105	5.1	35	325	53
[illegible]	Temperature (Centigrade)	pH (SU)	Spec. Cond. (umhos/cm)	REDOX (mV)	D.O. (mg/L)	Turbidity (NTUs)	Alkalinity (mg/L)	Phenolphthalein Alk. (mg/L)	Carbonate (mg/L)	Bicarbonate (mg/L)	Total Hardness (mg/L)	COD (mg/L)	TOC (mg/L)	Total Carbon (mg/L)	TDS (mg/L)	Chloride (mg/L)
# of Samples	23	23	23	23	23	22	6	6	6	6	0	6	6	0	6	6
Minimum	7.7	6.49	1180	-251.6	0.020	2.0	369	2.5	2.5	2.5		90	3.8		952	190
Maximum	21.9	12.51	6800	92.3	3.6	231	1400	1200	380	476		520	180		1900	357
Mean	16.5	8.14	2470	-74.5	0.94	42	609	260	103	287		240	58		1317	311
St. Dev.	3.3	2.30	1472	91.5	1.0	55	391	481	163	223		170	63		366	62
[illegible]	Temperature (Centigrade)	pH (SU)	Spec. Cond. (umhos/cm)	REDOX (mV)	D.O. (mg/L)	Turbidity (NTUs)	Alkalinity (mg/L)	Phenolphthalein Alk. (mg/L)	Carbonate (mg/L)	Bicarbonate (mg/L)	Total Hardness (mg/L)	COD (mg/L)	TOC (mg/L)	Total Carbon (mg/L)	TDS (mg/L)	Chloride (mg/L)
# of Samples	23	23	23	23	23	23	6	6	6	6	0	6	6	0	6	6
Minimum	5.7	6.71	310	-82.4	2.9	0.000	12	2.5	2.5	12		2.5	1.3		290	71
Maximum	20.9	8.68	536	194	8.0	5.3	110	5.0	10	96		16	1.8		320	84
Mean	15.9	7.68	458	-60.5	5.7	1.4	65	2.9	3.8	63		5.6	1.5		300	77
Std. Dev.	3.3	0.41	54	70.7	1.4	1.5	31	1.0	3.1	27		5.5	0.17		12	5.3
[illegible]	Temperature (Centigrade)	pH (SU)	Spec. Cond. (umhos/cm)	REDOX (mV)	D.O. (mg/L)	Turbidity (NTUs)	Alkalinity (mg/L)	Phenolphthalein Alk. (mg/L)	Carbonate (mg/L)	Bicarbonate (mg/L)	Total Hardness (mg/L)	COD (mg/L)	TOC (mg/L)	Total Carbon (mg/L)	TDS (mg/L)	Chloride (mg/L)
# of Samples	22	61	61	22	21	22	45	45	8	8	0	45	45	3	45	45
Minimum	6.6	5.77	1040	-61.8	0.060	0.000	48	0.50	0.50	134		24	12	60	540	16
Maximum	18.1	6.86	2200	193	1.3	410	254	2.5	2.5	186		160	30	91	1090	580
Mean	13.9	6.33	1629	24.1	0.63	80	169	0.77	2.0	155		79	19	79	847	368
Std. Dev.	3.1	0.17	307	65.3	0.38	120	39	0.69	0.93	19		26	3.5	16	153	123
[illegible]	Temperature (Centigrade)	pH (SU)	Spec. Cond. (umhos/cm)	REDOX (mV)	D.O. (mg/L)	Turbidity (NTUs)	Alkalinity (mg/L)	Phenolphthalein Alk. (mg/L)	Carbonate (mg/L)	Bicarbonate (mg/L)	Total Hardness (mg/L)	COD (mg/L)	TOC (mg/L)	Total Carbon (mg/L)	TDS (mg/L)	Chloride (mg/L)
# of Samples	22	26	27	21	21	22	11	10	8	8	2	10	11	2	11	11
Minimum	8.7	6.04	2490	-252	0.080	1.0	629	0.50	1.0	629	708	210	53	270	1550	442
Maximum	21.9	7.19	7140	185	1.4	117	790	2.5	5.0	790	708	333	94	296	2000	876
Mean	15.9	6.78	3591.	-65.0	0.51	27	721	1.8	4.0	715	708	260	65	283	1803	731
St. Dev	3.6	0.21	815	102	0.40	34	56	1.0	1.9	61		42	12	18	140	130
[illegible]	Temperature (Centigrade)	pH (SU)	Spec. Cond. (umhos/cm)	REDOX (mV)	D.O. (mg/L)	Turbidity (NTUs)	Alkalinity (mg/L)	Phenolphthalein Alk. (mg/L)	Carbonate (mg/L)	Bicarbonate (mg/L)	Total Hardness (mg/L)	COD (mg/L)	TOC (mg/L)	Total Carbon (mg/L)	TDS (mg/L)	Chloride (mg/L)
# of Samples	22	36	36	22	22	22	20	20	8	8	1	20	20	2	20	20
Minimum	7.5	6.50	922	-174	0.010	0.000	526	0.50	0.50	526	644	68	24.4	260	1260	130
Maximum	22.2	7.08	3190	71.3	3.6	310	744	2.5	2.5	726	644	320	79	306.2	1620	630
Mean	15.7	6.79	2658	-59.2	0.71	20	667	1.1	2.0	634	644	193	51	283	1491	505
Std. Dev.	3.3	0.14	447	60.2	0.80	65	65	0.93	0.93	79		79	15	33	105	127
[illegible]	Temperature (Centigrade)	pH (SU)	Spec. Cond. (umhos/cm)	REDOX (mV)	D.O. (mg/L)	Turbidity (NTUs)	Alkalinity (mg/L)	Phenolphthalein Alk. (mg/L)	Carbonate (mg/L)	Bicarbonate (mg/L)	Total Hardness (mg/L)	COD (mg/L)	TOC (mg/L)	Total Carbon (mg/L)	TDS (mg/L)	Chloride (mg/L)
# of Samples	22	33	33	22	22	22	17	17	8	8	0	17	17	2	17	17
Minimum	8.5	6.27	868	-141	0.010	0.000	458	0.50	0.50	639	.	160	37	249	1000	190
Maximum	27.0	7.05	2924	141	4.1	540	920	2.5	2.5	898		380	86	310	1660	510
Mean	16.3	6.70	2292	-46.1	0.81	41	722	1.2	2.0	734		231	63	280	1401	376
St. Dev	3.9	0.18	469	79.9	1.0	113	130	1.0	0.93	82		69	16	43	204	94

GENERALIZED COLUMBIA FORMATION	Temperature (Centigrade)	pH (SU)	Spec. Cond. (umhos/cm)	REDOX (mV)	D.O. (mg/L)	Turbidity (NTUs)	Alkalinity (mg/L)	Phenolphthalein Alk. (mg/L)	Carbonate (mg/L)	Bicarbonate (mg/L)	Total Hardness (mg/L)	COD (mg/L)	TOC (mg/L)	Total Carbon (mg/L)	TDS (mg/L)	Chloride (mg/L)
# of Samples	228	491	491	227	226	227	321	318	79	79	7	318	321	25	320	[illegible]
Minimum	3.0	5.73	250	-252	0.010	0.000	12	0.50	0.50	2.5	70	2.5	1.3	33	190	16
Maximum	30.0	12.51	7140	230	8.0	710	1400	1200	380	898	708	520	310	320	2360	876
Weighted Mean	[illegible]	6.64	1674	-27	1.4	31	379	6.7	6.6	396	420	110	39	183	975	323
Weighted St. Dev.	3.4	0.29	368	75	1.0	60	76	9.7	13	72	117	40	15	30	141	70

DUFFIELD ASSOCIATES, INC.
PROJECT NO. 4685.ED
TASK 7.5
MARCH 2003

APPENDIX D
TABLE D.6
STATISTICS DERIVED FROM HISTORICAL COLUMBIA AQUIFER DATA

CHERRY ISLAND LANDFILL
WILMINGTON, DELAWARE

[illegible]	Kjeldahl-N (mg/L)	Organic-N (mg/L)	Ammonia-N (mg/L)	Nitrate-N (mg/L)	Nitrite-N (mg/L)	Silica (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Calcium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Iron (mg/L)
# of Samples	4	3	44	44	7	6	44	0	25	26	25	26	0	26	6	26	7	26	44
Minimum	2	1.1	0.050	0.01	0.005	15	2.5		0.002	0.001	0.04	0.002		0.001	48.0	0.003	0.023	0.005	0.11
Maximum	5	1.2	3.5	1.29	1.3	50	330		0.10	0.062	0.10	0.005		0.012	68.0	0.025	0.060	0.015	101
Mean	3.0	1.1	1.5	0.37	0.20	28	201		0.027	0.006	0.062	0.003		0.003	54.8	0.019	0.036	0.010	42.6
St. Dev.	1.4	0.06	0.86	0.34	0.46	17	69		0.034	0.012	0.022	0.001		0.003	7.28	0.009	0.014	0.003	18.8

[illegible]	Kjeldahl-N (mg/L)	Organic-N (mg/L)	Ammonia-N (mg/L)	Nitrate-N (mg/L)	Nitrite-N (mg/L)	Silica (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Calcium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Iron (mg/L)
# of Samples	5	4	34	34	9	6	34		19	20	17	19	0	19	6	20	6	20	34
Minimum	4.0	0.50	3.2	0.010	0.005	20	0.25		0.002	0.003	0.040	0.004		0.001	26.0	0.003	0.003	0.005	1.46
Maximum	10	5.0	6.8	1.3	1.25	50	591		0.025	0.030	0.180	0.005		0.014	56.0	0.025	0.060	0.17	88.0
Mean	6.9	2.0	5.3	0.33	0.22	34	20		0.012	0.020	0.089	0.005		0.003	33.2	0.019	0.014	0.018	64.5
St. Dev	2.5	2.6	0.82	0.29	0.42	12	102		0.011	0.008	0.050	0.000		0.003	11.3	0.009	0.023	0.037	18.9

[illegible]	Kjeldahl-N (mg/L)	Organic-N (mg/L)	Ammonia-N (mg/L)	Nitrate-N (mg/L)	Nitrite-N (mg/L)	Silica (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Calcium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Iron (mg/L)
# of Samples	3	2	17	17	3	3	17	1	14	14	12	14	1	14	3	14	3	14	17
Minimum	59	0.5	14	0.01	0.005	20	0.25	0.5	0.002	0.000	0.05	0.002	0.11	0.001	65.0	0.003	0.003	0.005	1.17
Maximum	71	2	72	1.2	0.040	80	370	0.5	0.10	0.040	0.41	0.005	0.11	0.018	68.0	0.025	0.025	0.015	109
Mean	63	1.3	44	0.38	0.02	47	103	0.5	0.032	0.006	0.13	0.003	0.11	0.004	66.7	0.020	0.010	0.011	34.7
St. Dev.	6.7	1.1	18	0.40	0.02	31	121		0.038	0.010	0.11	0.001		0.004	1.53	0.008	0.013	0.003	27.3

[illegible]	Kjeldahl-N (mg/L)	Organic-N (mg/L)	Ammonia-N (mg/L)	Nitrate-N (mg/L)	Nitrite-N (mg/L)	Silica (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Calcium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Iron (mg/L)
# of Samples	5	5	21	21	3	6	21		18	19	17	18	0	18	6	19	7	19	21
Minimum	24	0.50	11	0.020	0.010	15	0.25		0.004	0.001	0.050	0.002		0.001	27.0	0.003	0.003	0.005	0.050
Maximum	34	15	33	1.0	0.050	80	5.0		0.20	0.017	0.34	0.010		0.010	52.0	0.050	0.050	0.015	52.0
Mean	29	8.0	24	0.39	0.027	38	2.1		0.051	0.009	0.15	0.005		0.005	37.7	0.033	0.012	0.010	21.9
St. Dev	5.1	6.4	5.3	0.27	0.021	22	1.6		0.071	0.005	0.090	0.002		0.003	9.65	0.021	0.017	0.004	16.4

[illegible]	Kjeldahl-N (mg/L)	Organic-N (mg/L)	Ammonia-N (mg/L)	Nitrate-N (mg/L)	Nitrite-N (mg/L)	Silica (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Calcium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Iron (mg/L)
# of Samples	2	2	39	39	7	0	39	0	19	19	17	19	0	19	0	19	1	19	39
Minimum	27	1.7	2.4	0.01	0.005		0.25		0.002	0.005	0.05	0.0025		0.003		0.015	0.025	0.010	24.6
Maximum	30	8.6	61	15	1.25		15		0.10	0.04	0.1	0.005		0.029		0.025	0.025	0.015	133
Mean	29	5.2	28	0.73	0.20		2.6		0.040	0.011	0.065	0.003		0.007		0.024	0.025	0.012	87.2
Std. Dev.	2.1	4.9	9.4	2.4	0.46		2.5		0.038	0.008	0.023	0.001		0.008		0.003		0.002	29.8

[illegible]	Kjeldahl-N (mg/L)	Organic-N (mg/L)	Ammonia-N (mg/L)	Nitrate-N (mg/L)	Nitrite-N (mg/L)	Silica (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Calcium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Iron (mg/L)
# of Samples	2	1	36	36	8	0	36	0	18	18	16	18	0	18	0	18	0	18	36
Minimum	2	4.2	0.9	0.010	0.005		0.6		0.002	0.004	0.010	0.003		0.003		0.025		0.01	4.97
Maximum	10	4.2	8.4	1.3	1.3		20		0.10	0.010	0.10	0.005		0.01		0.025		0.015	62.6
Mean	6.0	4.2	5.1	0.34	0.17		4.3		0.030	0.006	0.057	0.003		0.003		0.025		0.011	41.1
Std. Dev.	5.7		1.1	0.27	0.44		4.4		0.034	0.001	0.024	0.001		0.002		0.000		0.002	12.5

[illegible]	Kjeldahl-N (mg/L)	Organic-N (mg/L)	Ammonia-N (mg/L)	Nitrate-N (mg/L)	Nitrite-N (mg/L)	Silica (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Calcium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Iron (mg/L)
# of Samples	2	1	25	25	8	0	24	0	13	13	12	13	0	13	0	13	0	13	25
Minimum	3	17	4	0.01	0.005		0.25		0.002	0.005	0.050	0.003		0.003		0.025		0.010	0.30
Maximum	30	17	13	1.3	1.3		20		0.025	0.030	0.10	0.003		0.013		0.025		0.05	98.4
Mean	17	17	7.2	0.36	0.26		3.32917		0.015	0.012	0.063	0.003		0.003		0.025		0.015	63.5
Std. Dev.	19		1.8	0.32	0.43		3.85658		0.011	0.007	0.023	0.000		0.003		0.000		0.011	31.0

[illegible]	Kjeldahl-N (mg/L)	Organic-N (mg/L)	Ammonia-N (mg/L)	Nitrate-N (mg/L)	Nitrite-N (mg/L)	Silica (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Calcium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Iron (mg/L)
# of Samples	2	2	6	6	0	6	6		6	6	6	6	0	6	6	6	6	6	6
Minimum	47	9.0	8.3	0.050		10	2.5		0.005	0.011	0.070	0.002		0.001	22.0	0.003	0.003	0.005	1.70
Maximum	48	12	38	0.36		80	96		0.005	0.029	0.310	0.002		0.001	80.0	0.011	0.011	0.010	74.0
Mean	48	11	19	0.21		38	28		0.005	0.021	0.202	0.002		0.001	63.7	0.006	0.005	0.007	39.1
St. Dev.	0.71	2.1	14	0.13		24	35		0.000	0.007	0.078	0.000		0.000	21.3	0.003	0.003	0.003	30.4

[illegible]	Kjeldahl-N (mg/L)	Organic-N (mg/L)	Ammonia-N (mg/L)	Nitrate-N (mg/L)	Nitrite-N (mg/L)	Silica (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Calcium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Iron (mg/L)
# of Samples	2	2	6	6	0	6	6	0	6	6	6	6	0	6	6	6	6	6	6
Minimum	0.50	0.50	0.050	4		10	28		0.005	0.003	0.020	0.002		0.001	39.0	0.003	0.003	0.005	0.07
Maximum	0.50	0.50	0.15	4.4		15	45		0.005	0.003	0.030	0.002		0.001	43.0	0.011	0.003	0.01	0.32
Mean	0.50	0.50	0.07	4.2		11	37		0.005	0.003	0.023	0.002		0.001	40.5	0.008	0.003	0.007	0.14
Std. Dev.	0	0	0.04	0.15		2.0	5.6		0.000	0.000	0.005	0.000		0	1.64	0.003	0.000	0.003	0.10

[illegible]	Kjeldahl-N (mg/L)	Organic-N (mg/L)	Ammonia-N (mg/L)	Nitrate-N (mg/L)	Nitrite-N (mg/L)	Silica (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Calcium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Iron (mg/L)
# of Samples	4	4	45	45	8	6	45	0	26	26	25	26	0	26	6	26	7	26	45
Minimum	4	0.2	0.25	0.01	0.005	15	7.8		0.002	0.003	0.050	0.0005		0.001	38.0	0.003	0.018	0.005	1.90
Maximum	10	6	6.8	1.3	1.3	50	469		0.10	0.010	0.66	0.005		0.023	49.0	0.025	0.033	0.015	85.0
Mean	5.7	2.1	3.4	0.29	0.24	32	66		0.027	0.005	0.13	0.002		0.004	44.3	0.020	0.027	0.01	54.7
Std. Dev.	2.9	2.6	1.1	0.25	0.44	17	77		0.033	0.002	0.11	0.001		0.005	5.05	0.009	0.006	0.003	14.5

[illegible]	Kjeldahl-N (mg/L)	Organic-N (mg/L)	Ammonia-N (mg/L)	Nitrate-N (mg/L)	Nitrite-N (mg/L)	Silica (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Calcium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Iron (mg/L)
# of Samples	5	5	11	11	3	6	11	0	10	11	8	10	0	10	6	11	6	11	11
Minimum	70	2.0	38	0.010	0.005	20	1.5		0.002	0.008	0.38	0.004		0.001	60.0	0.008	0.003	0.005	34.0
Maximum	92	14	92	0.50	0.050	40	5.0		0.005	6.0	1.2	0.005		0.017	110	0.025	0.012	0.080	73.0
Mean	82	6.7	75	0.16	0.025	32	2.6		0.004	0.92	0.57	0.004		0.003	90.0	0.016	0.008	0.016	56.4
St. Dev	9.0	5.7	16	0.16	0.023	10	1.3		0.001	1.9	0.26	0.001		0.005	19.7	0.008	0.003	0.023	12.0

[illegible]	Kjeldahl-N (mg/L)	Organic-N (mg/L)	Ammonia-N (mg/L)	Nitrate-N (mg/L)	Nitrite-N (mg/L)	Silica (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Calcium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Iron (mg/L)
# of Samples	4	4	20	20	3	6	20	0	18	18	16	18	0	18	6	18	7	18	20
Minimum	44	0.7	21	0.010	0.01	24	1.2		0.002	0.026	0.15	0.001		0.001	100	0.003	0.002	0.005	5.80
Maximum	60	25	64	4.8	0.05	40	206		0.1	0.49	0.9	0.005		0.007	110	0.025	0.025	0.030	64.7
Mean	51	7.6	47	0.41	0.02	37	49		0.026	0.22	0.33	0.003		0.003	107	0.016	0.006	0.011	38.3
Std. Dev.	7.6	11	12	1.0	0.03	6.5	74		0.035	0.16	0.18	0.001		0.002	5.16	0.010	0.008	0.006	19.3

[illegible]	Kjeldahl-N (mg/L)	Organic-N (mg/L)	Ammonia-N (mg/L)	Nitrate-N (mg/L)	Nitrite-N (mg/L)	Silica (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Calcium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Iron (mg/L)
# of Samples	4	4	17	17	3	6	17	0	17	17	16	17	0	17	6	17	6	17	17
Minimum	20	1.0	12	0.010	0.010	34	0.25		0.002	0.001	0.050	0.002		0.001	87.0	0.015	0.003	0.005	7.12
Maximum	39	8.1	40	0.50	0.010	64	240		0.10	0.030	0.14	0.005		0.005	99.0	0.025	0.008	0.015	66.0
Mean	31	4.6	31	0.18	0.010	43	63		0.023	0.009	0.084	0.003		0.002	93.7	0.022	0.004	0.010	31.4
St. Dev	9.3	2.9	8.0	0.13	0.000	11	80		0.032	0.010	0.029	0.001		0.001	5.39	0.004	0.002	0.004	19.6

GENERALIZED COLUMBIA FORMATION	Kjeldahl-N (mg/L)	Organic-N (mg/L)	Ammonia-N (mg/L)	Nitrate-N (mg/L)	Nitrite-N (mg/L)	Silica (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Calcium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Iron (mg/L)
[illegible]	44	39	321	321	62	67	320	1	209	213	193	210	1	210	57	213	62	211	321
Minimum	0.50	0.2	[illegible]	[illegible]	[illegible]	10	[illegible]	0.5	0.002	0.000	0.010	0.001	0.11	0.001	22.0	0.003	0.002	0.005	0.050
Maximum	92	25	92	15	1.3	80	[illegible]	0.5	0.20	6.0	1.2	0.010	0.11	0.029	110.0	0.050	0.060	0.170	133
Weighted Mean	[illegible]	5.1	17	0.45	0.17	33	[illegible]	0.50	0.026	0.074	0.133	0.003	0.110	0.003	62.9	0.021	0.013	0.011	[illegible]
Weighted St. Dev.	15.5	4.0	[illegible]	0.58	0.34	14	48	0.000	0.031	[illegible]	0.073	0.001	0.000	0.003	9.19	0.008	0.009	[illegible]	[illegible]

APPENDIX D
TABLE D.6
STATISTICS DERIVED FROM HISTORICAL COLUMBIA AQUIFER DATA

CHERRY ISLAND LANDFILL
WILMINGTON, DELAWARE

[illegible]	Lead (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Potassium (mg/L)	Selenium (mg/L)	Silver (mg/L)	Sodium (mg/L)	Thallium (mg/L)	Tin (mg/L)	Vanadium (mg/L)	Zinc (mg/L)	Phenols (mg/L)	Hydroxide (mg/L)	Cyanide (mg/L)	[illegible] (mg/L)
# of Samples	26	6	44	21	2	26	6	26	27	6	26	0	7	26	5	2	6	7
Minimum	0.003	34.0	5.00	0.000	0.055	0.020	4.60	0.001	0.001	17.0	0.005		0.003	0.005	0.002	0.50	0.003	2.0
Maximum	0.05	57.0	20.1	0.001	0.055	0.025	6.20	0.005	0.010	200	0.250		0.008	0.140	0.005	0.50	0.006	25
Mean	0.025	42.5	10.9	0.000	0.055	0.022	5.20	0.003	0.005	135	0.068		0.004	0.046	0.004	0.50	0.003	8.8
St. Dev.	0.015	8.57	3.53	0.000	0	0.002	0.607	0.001	0.003	61.7	0.066		0.002	0.039	0.001	0.000	0.001	7.8
[illegible]	Lead (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Potassium (mg/L)	Selenium (mg/L)	Silver (mg/L)	Sodium (mg/L)	Thallium (mg/L)	Tin (mg/L)	Vanadium (mg/L)	Zinc (mg/L)	Phenols (mg/L)	Hydroxide (mg/L)	Cyanide (mg/L)	[illegible] (mg/L)
# of Samples	20	6	33	16	2	20	6	20	19	7	19	0	6	20	10	2	11	6
Minimum	0.003	38.0	0.050	0.001	0.110	0.040	4.00	0.004	0.001	150	0.005		0.003	0.005	0.002	0.50	0.003	2.0
Maximum	0.025	48.0	17.0	0.002	0.110	0.050	104	0.010	0.005	240	0.050		0.007	0.200	0.012	0.50	0.003	10
Mean	0.019	40.5	2.73	0.001	0.110	0.043	25.4	0.007	0.004	212	0.038		0.004	0.035	0.005	0.50	0.003	6.1
St. Dev	0.010	3.89	2.66	0.000	0.000	0.005	39.7	0.003	0.002	31.9	0.019		0.002	0.049	0.003	0.000	0.000	3.3
[illegible]	Lead (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Potassium (mg/L)	Selenium (mg/L)	Silver (mg/L)	Sodium (mg/L)	Thallium (mg/L)	Tin (mg/L)	Vanadium (mg/L)	Zinc (mg/L)	Phenols (mg/L)	Hydroxide (mg/L)	Cyanide (mg/L)	[illegible] (mg/L)
# of Samples	14	3	17	12	1	14	3	14	14	3	14	1	3	14	2	2	2	3
Minimum	0.003	17.0	0.003	0.0001	0.011	0.01	21.0	0.001	0.001	210	0.005	0.005	0.003	0.005	0.005	0.50	0.0025	2.0
Maximum	0.05	84.0	25.2	0.0005	0.011	0.27	529	0.005	0.010	340	0.250	0.005	0.008	8.69	0.005	0.50	0.0025	25
Mean	0.028	39.7	5.26	0.000	0.011	0.042	201	0.003	0.006	253	0.079	0.005	0.005	0.751	0.005	0.50	0.0025	12
St. Dev.	0.014	38.4	6.31	0.000		0.066	285	0.001	0.003	75.1	0.079		0.003	2.293	0.000	0.000	0.000	12
[illegible]	Lead (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Potassium (mg/L)	Selenium (mg/L)	Silver (mg/L)	Sodium (mg/L)	Thallium (mg/L)	Tin (mg/L)	Vanadium (mg/L)	Zinc (mg/L)	Phenols (mg/L)	Hydroxide (mg/L)	Cyanide (mg/L)	[illegible] (mg/L)
# of Samples	19	6	21	14	2	19	6	19	18	7	18	0	7	19	4	2	4	7
Minimum	0.002	33.0	0.080	0.000	0.050	0.020	6.50	0.002	0.001	200	0.010		0.002	0.005	0.005	0.50	0.003	2.0
Maximum	0.050	69.0	0.240	0.005	0.110	0.050	11.0	0.010	0.020	310	0.500		0.010	0.080	0.005	0.50	0.003	40
Mean	0.022	46.5	0.151	0.001	0.080	0.043	8.43	0.006	0.009	233	0.126		0.004	0.024	0.005	0.50	0.003	13
St. Dev	0.016	13.5	13.7	0.001	0.042	0.007	1.53	0.003	0.006	38.3	0.153		0.003	0.027	0.000	0.000	0.000	14
[illegible]	Lead (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Potassium (mg/L)	Selenium (mg/L)	Silver (mg/L)	Sodium (mg/L)	Thallium (mg/L)	Tin (mg/L)	Vanadium (mg/L)	Zinc (mg/L)	Phenols (mg/L)	Hydroxide (mg/L)	Cyanide (mg/L)	[illegible] (mg/L)
# of Samples	19	0	39	18	0	19	0	19	19	0	19	0	1	19	0	2	0	1
Minimum	0.025		2.51	0.0001		0.020		0.001	0.005		0.050		0.008	0.005		0.50		25
Maximum	0.060		4.05	0.005		0.070		0.030	0.010		0.250		0.008	0.070		0.50		25
Mean	0.033		3.40	0.001		0.025		0.005	0.006		0.087		0.008	0.031		0.50		25
Std. Dev.	0.013		0.351	0.002		0.011		0.007	0.002		0.068			0.020		0		
[illegible]	Lead (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Potassium (mg/L)	Selenium (mg/L)	Silver (mg/L)	Sodium (mg/L)	Thallium (mg/L)	Tin (mg/L)	Vanadium (mg/L)	Zinc (mg/L)	Phenols (mg/L)	Hydroxide (mg/L)	Cyanide (mg/L)	[illegible] (mg/L)
# of Samples	18	0	36	18	0	18	0	18	18	0	18	0	0	18	8	2	8	0
Minimum	0.025		0.210	0.000		0.02		0.001	0.005		0.050			0.005	0.002	0.50	0.003	
Maximum	0.050		1.49	0.001		0.025		0.025	0.010		0.150			0.040	0.017	0.50	0.003	
Mean	0.029		1.22	0.000		0.022		0.004	0.006		0.067			0.019	0.006	0.50	0.003	
Std. Dev.	0.010		0.221	0.000		0.003		0.006	0.002		0.038			0.014	0.005	0	0.000	
[illegible]	Lead (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Potassium (mg/L)	Selenium (mg/L)	Silver (mg/L)	Sodium (mg/L)	Thallium (mg/L)	Tin (mg/L)	Vanadium (mg/L)	Zinc (mg/L)	Phenols (mg/L)	Hydroxide (mg/L)	Cyanide (mg/L)	[illegible] (mg/L)
# of Samples	13	0	25	13	0	13	0	13	13	0	13	0	0	13	6	2	6	0
Minimum	0.025		0.970	0.000		0.02		0.002	0.005		0.050			0.005	0.002	0.50	0.003	
Maximum	0.13		2.15	0.001		0.025		0.025	0.005		0.050			0.700	0.005	0.50	0.003	
Mean	0.033		1.73	0.000		0.022		0.005	0.005		0.050			0.070	0.003	0.50	0.003	
Std. Dev.	0.029		0.256	0.000		0.003		0.006	0.000		0.000			0.190	0.001	0.000	0.000	
[illegible]	Lead (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Potassium (mg/L)	Selenium (mg/L)	Silver (mg/L)	Sodium (mg/L)	Thallium (mg/L)	Tin (mg/L)	Vanadium (mg/L)	Zinc (mg/L)	Phenols (mg/L)	Hydroxide (mg/L)	Cyanide (mg/L)	[illegible] (mg/L)
# of Samples	6	6	6	0	2	6	6	6	6	6	6	0	6	6	3	0	3	6
Minimum	0.003	0.910	0.056		0.110	0.020	6.50	0.010	0.001	250	0.005		0.003	0.020	0.005		0.003	2.0
Maximum	0.014	25.0	2.30		0.110	0.100	540	0.010	0.003	530	0.010		0.027	0.020	0.19		0.009	260
Mean	0.007	15.7	1.30		0.110	0.042	142	0.010	0.001	342	0.006		0.012	0.020	0.078		0.006	71
St. Dev.	0.005	11.4	0.985		0.000	0.035	223	0.000	0.001	122	0.002		0.009	0.000	0.098		0.003	105
[illegible]	Lead (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Potassium (mg/L)	Selenium (mg/L)	Silver (mg/L)	Sodium (mg/L)	Thallium (mg/L)	Tin (mg/L)	Vanadium (mg/L)	Zinc (mg/L)	Phenols (mg/L)	Hydroxide (mg/L)	Cyanide (mg/L)	[illegible] (mg/L)
# of Samples	6	6	6	2	2	6	6	6	6	6	6	0	6	6	4	0	4	6
Minimum	0.035	9.20	0.003	0.00	0.055	0.02	5.70	0.005	0.001	29.0	0.005		0.003	0.010	0.005		0.003	2.0
Maximum	0.32	10.0	0.01	0.00	0.055	0.02	7.00	0.005	0.001	39.0	0.005		0.003	0.020	0.005		0.003	10
Mean	0.14	9.43	0.006	0.00	0.055	0.02	6.45	0.005	0.001	34.5	0.005		0.003	0.012	0.005		0.003	6.1
Std. Dev.	0.10	0.320	0.003	0	0	0	0.459	0	0	3.67	0		0.000	0.004	0.000		0.000	3.3
[illegible]	Lead (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Potassium (mg/L)	Selenium (mg/L)	Silver (mg/L)	Sodium (mg/L)	Thallium (mg/L)	Tin (mg/L)	Vanadium (mg/L)	Zinc (mg/L)	Phenols (mg/L)	Hydroxide (mg/L)	Cyanide (mg/L)	[illegible] (mg/L)
# of Samples	26	6	45	21	2	26	6	26	26	6	26	0	7	26	12	2	14	7
Minimum	0.003	23.0	1.86	0.000	0.055	0.020	7.70	0.001	0.001	100	0.005		0.003	0.010	0.002	0.50	0.003	2.0
Maximum	0.050	31.0	8.35	0.001	0.055	0.025	12.0	0.005	0.010	1300	0.250		0.008	0.210	0.005	0.50	0.003	25
Mean	0.026	28.3	5.75	0.000	0.055	0.022	8.63	0.003	0.005	388	0.068		0.004	0.110	0.003	0.50	0.003	8.8
Std. Dev.	0.015	3.08	1.26	0.000	0	0.002	1.67	0.001	0.003	450	0.067		0.002	0.067	0.001	0	0.000	7.8
[illegible]	Lead (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Potassium (mg/L)	Selenium (mg/L)	Silver (mg/L)	Sodium (mg/L)	Thallium (mg/L)	Tin (mg/L)	Vanadium (mg/L)	Zinc (mg/L)	Phenols (mg/L)	Hydroxide (mg/L)	Cyanide (mg/L)	[illegible] (mg/L)
# of Samples	11	6	11	7	2	11	6	11	10	7	10	0	6	11	4	2	4	6
Minimum	0.003	61.0	0.260	0.001	0.110	0.040	28.0	0.004	0.002	360	0.005		0.003	0.010	0.005	0.50	0.003	2.0
Maximum	0.025	110	0.900	0.010	0.110	0.050	78.0	0.050	0.010	470	0.050		0.011	0.180	0.020	0.50	0.003	48
Mean	0.016	94.0	0.561	0.002	0.110	0.044	45.8	0.012	0.005	410	0.024		0.005	0.043	0.009	0.50	0.003	12
St. Dev	0.010	21.6	0.201	0.004	0.000	0.005	21.2	0.014	0.004	37.9	0.023		0.004	0.054	0.008	0.000	0.000	18
[illegible]	Lead (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Potassium (mg/L)	Selenium (mg/L)	Silver (mg/L)	Sodium (mg/L)	Thallium (mg/L)	Tin (mg/L)	Vanadium (mg/L)	Zinc (mg/L)	Phenols (mg/L)	Hydroxide (mg/L)	Cyanide (mg/L)	[illegible] (mg/L)
# of Samples	18	6	20	13	3	18	6	18	18	6	18	0	7	18	3	2	3	7
Minimum	0.0015	83.0	0.960	0.0001	0.005	0.01	15.0	0.001	0.001	200	0.005		0.002	0.005	0.005	0.50	0.0025	2.0
Maximum	0.05	94.0	3.80	0.005	0.055	0.025	17.0	0.025	0.010	280	0.500		0.008	0.070	0.005	0.50	0.0025	25
Mean	0.022	89.2	2.53	0.001	0.028	0.021	16.0	0.006	0.005	238	0.088		0.003	0.01903	0.005	0.50	0.0025	8.8
Std. Dev.	0.016	4.36	1.02	0.001	0.025	0.004	0.894	0.006	0.003	33.7	0.128		0.002	0.020	0.000	0.000	0.000	7.8
[illegible]	Lead (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Potassium (mg/L)	Selenium (mg/L)	Silver (mg/L)	Sodium (mg/L)	Thallium (mg/L)	Tin (mg/L)	Vanadium (mg/L)	Zinc (mg/L)	Phenols (mg/L)	Hydroxide (mg/L)	Cyanide (mg/L)	[illegible] (mg/L)
# of Samples	17	6	17	13	2	17	6	17	17	6	17	0	6	17	2	2	2	6
Minimum	0.003	73.0	4.26	0.000	0.110	0.020	17.0	0.001	0.001	170	0.005		0.013	0.005	0.005	0.50	0.003	2.0
Maximum	0.050	90.0	11.7	0.005	0.110	0.025	20.0	0.010	0.010	240	0.250		0.020	0.070	0.005	0.50	0.003	17
Mean	0.021	82.7	7.52	0.001	0.110	0.022	18.0	0.004	0.004	203	0.053		0.016	0.021	0.005	0.50	0.003	7.7
St. Dev	0.014	6.71	2.59	0.002	0.000	0.002	1.10	0.003	0.003	27.3	0.061		0.003	0.020	0.000	0.000	0.000	5.6

GENERALIZED COLUMBIA FORMATION	Lead (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Potassium (mg/L)	Selenium (mg/L)	Silver (mg/L)	Sodium (mg/L)	Thallium (mg/L)	Tin (mg/L)	Vanadium (mg/L)	Zinc (mg/L)	Phenols (mg/L)	Hydroxide (mg/L)	Cyanide (mg/L)	[illegible] (mg/L)
# of Samples	213	57	320	108	20	213	57	213	211	60	210	1	62	213	63	2	[illegible]	[illegible]
Minimum	0.002	0.910	0.003	0.000	0.005	0.010	4.00	0.001	0.001	17.0	0.005	0.005	0.002	0.005	0.002	0.50	[illegible]	[illegible]
Maximum	0.320	110	25.2	0.010	0.110	0.270	540	0.050	0.020	1300	0.500	0.005	0.027	8.69	0.19	0.50	[illegible]	[illegible]
Weighted Mean	0.028	49.5	4.16	0.001	0.073	0.028	39.7	0.005	0.005	246	0.066	0.005	0.006	0.089	0.008	0.50	[illegible]	[illegible]
Weighted St. Dev	0.017	9.3	2.49	0.001	0.006	0.009	45.6	0.004	0.003	86.2	0.063	0.000	0.003	0.192	0.007	0.000	[illegible]	[illegible]

APPENDIX D
TABLE D.6
STATISTICS DERIVED FROM HISTORICAL COLUMBIA AQUIFER DATA

CHERRY ISLAND LANDFILL
WILMINGTON, DELAWARE

	Acrolein (ug/L)	Acrylonitrile (ug/L)	Benzene (ug/L)	Bromochloromethane (ug/L)	Bromodichloromethane (ug/L)	Bromoform (ug/L)	Bromomethane (ug/L)	2-Butanone (ug/L)	1,4-Dichlorobutane (ug/L)	Carbon Disulfide (ug/L)	Carbon Tetrachloride (ug/L)
# of Samples	3	10	23	7	23	23	23	7	7	7	23
Minimum	2.5	2.0	0.50	0.50	0.50	0.50	1.0	2.0	1.0	0.50	0.50
Maximum	400	125	2.5	2.5	2.5	2.5	5.0	5.0	25	2.5	2.5
Mean	151	25	0.67	0.79	0.67	1.0	2.3	4.1	6.4	0.79	0.67
St. Dev.	217	40	0.58	0.76	0.58	0.52	0.79	1.5	8.4	0.76	0.58

	Acrolein (ug/L)	Acrylonitrile (ug/L)	Benzene (ug/L)	Bromochloromethane (ug/L)	Bromodichloromethane (ug/L)	Bromoform (ug/L)	Bromomethane (ug/L)	2-Butanone (ug/L)	1,4-Dichlorobutane (ug/L)	Carbon Disulfide (ug/L)	Carbon Tetrachloride (ug/L)
# of Samples	5	11	17	6	17	17	17	6	6	6	17
Minimum	38	2.0	0.50	0.50	0.50	0.50	1.0	2.0	1.0	0.50	0.50
Maximum	50	50	2.5	0.50	2.5	5.0	13	5.0	5.0	0.50	2.5
Mean	48	21	1.1	0.50	1.1	1.4	3.3	4.0	3.3	0.50	1.1
St. Dev	5.5	23	0.94	0.000	0.94	1.2	2.8	1.5	1.9	0.000	0.94

	Acrolein (ug/L)	Acrylonitrile (ug/L)	Benzene (ug/L)	Bromochloromethane (ug/L)	Bromodichloromethane (ug/L)	Bromoform (ug/L)	Bromomethane (ug/L)	2-Butanone (ug/L)	1,4-Dichlorobutane (ug/L)	Carbon Disulfide (ug/L)	Carbon Tetrachloride (ug/L)
# of Samples	3	5	12	3	12	12	12	3	3	3	12
Minimum	5	2.0	0.50	0.50	0.50	0.50	1.0	2.0	1.0	2.5	0.50
Maximum	1000	50	2.5	2.5	2.5	2.5	5.0	5.0	25	12	2.5
Mean	352	31	0.83	1.2	0.83	1.2	2.5	4.0	10	5.7	0.83
St. Dev.	562	25	0.78	1.2	0.78	0.85	0.93	1.7	13	5.5	0.78

	Acrolein (ug/L)	Acrylonitrile (ug/L)	Benzene (ug/L)	Bromochloromethane (ug/L)	Bromodichloromethane (ug/L)	Bromoform (ug/L)	Bromomethane (ug/L)	2-Butanone (ug/L)	1,4-Dichlorobutane (ug/L)	Carbon Disulfide (ug/L)	Carbon Tetrachloride (ug/L)
# of Samples	1	8	16	7	16	16	16	7	7	7	16
Minimum	1,750	2.0	0.50	0.50	0.50	0.50	1.0	2.0	1.0	0.50	0.50
Maximum	1,750	250	2.5	2.5	2.5	2.5	2.5	5.0	25	2.5	2.5
Mean	1,750	41	0.61	0.79	0.61	0.91	2.1	4.1	6.4	0.79	0.61
St. Dev		86	0.50	0.76	0.50	0.49	0.60	1.5	8.4	0.76	0.50

	Acrolein (ug/L)	Acrylonitrile (ug/L)	Benzene (ug/L)	Bromochloromethane (ug/L)	Bromodichloromethane (ug/L)	Bromoform (ug/L)	Bromomethane (ug/L)	2-Butanone (ug/L)	1,4-Dichlorobutane (ug/L)	Carbon Disulfide (ug/L)	Carbon Tetrachloride (ug/L)
# of Samples	3	4	18	1	18	18	18	1	1	1	18
Minimum	4.0	2.5	0.5	2.5	0.50	1.0	2.5	5.0	25	2.5	0.50
Maximum	600	125	2.5	2.5	2.5	5.0	15	5.0	25	2.5	2.5
Mean	218	57	0.94	2.5	0.94	1.6	4.0	5.0	25	2.5	0.94
Std. Dev.	332	51	0.86		0.86	1.3	4.0				0.86

	Acrolein (ug/L)	Acrylonitrile (ug/L)	Benzene (ug/L)	Bromochloromethane (ug/L)	Bromodichloromethane (ug/L)	Bromoform (ug/L)	Bromomethane (ug/L)	2-Butanone (ug/L)	1,4-Dichlorobutane (ug/L)	Carbon Disulfide (ug/L)	Carbon Tetrachloride (ug/L)
# of Samples	7	7	15	0	15	15	15	0	0	0	15
Minimum	2.5	2.5	0.50		0.50	1.0	2.5				0.50
Maximum	50	50	2.5		2.5	2.5	5.0				2.5
Mean	43	43	1.3		1.3	1.6	3.5				1.3
Std. Dev.	18	18	1.0		1.0	0.76	1.3				1.0

	Acrolein (ug/L)	Acrylonitrile (ug/L)	Benzene (ug/L)	Bromochloromethane (ug/L)	Bromodichloromethane (ug/L)	Bromoform (ug/L)	Bromomethane (ug/L)	2-Butanone (ug/L)	1,4-Dichlorobutane (ug/L)	Carbon Disulfide (ug/L)	Carbon Tetrachloride (ug/L)
# of Samples	5	5	11	0	11	11	11	0	0	0	11
Minimum	2.5	2.5	0.50		0.50	1.0	2.5				0.50
Maximum	50	50	8.0		2.5	2.5	5				2.5
Mean	41	41	1.9		1.2	1.5	3.4				1.2
Std. Dev.	21	21	2.2		1.0	0.76	1.3				1.0

	Acrolein (ug/L)	Acrylonitrile (ug/L)	Benzene (ug/L)	Bromochloromethane (ug/L)	Bromodichloromethane (ug/L)	Bromoform (ug/L)	Bromomethane (ug/L)	2-Butanone (ug/L)	1,4-Dichlorobutane (ug/L)	Carbon Disulfide (ug/L)	Carbon Tetrachloride (ug/L)
# of Samples	0	6	6	6	6	6	6	6	6	6	6
Minimum		2.0	0.50	0.50	0.50	0.50	0.50	2.0	1.0	0.50	0.50
Maximum		5.0	0.50	0.50	0.50	0.50	1.5	20	5.0	0.50	0.50
Mean		4.0	0.50	0.50	0.50	0.50	1.0	8.5	3.5	0.50	0.50
St. Dev.		1.0	0.000	0.000	0.000	0.000	0.62	7.9	2.0	0.000	0.000

	Acrolein (ug/L)	Acrylonitrile (ug/L)	Benzene (ug/L)	Bromochloromethane (ug/L)	Bromodichloromethane (ug/L)	Bromoform (ug/L)	Bromomethane (ug/L)	2-Butanone (ug/L)	1,4-Dichlorobutane (ug/L)	Carbon Disulfide (ug/L)	Carbon Tetrachloride (ug/L)
# of Samples	0	6	6	6	6	6	6	6	6	6	6
Minimum		2.0	0.50	0.5	2.6	0.50	1.0	2.0	1.0	0.50	0.50
Maximum		5.0	0.50	0.5	12	0.50	1.5	5.0	5.0	0.50	0.50
Mean		4.0	0.50	0.5	7.4	0.50	1.3	4.0	3.3	0.50	0.50
Std. Dev.		1.5	0.000	0	3.5	0	0.26	1.5	2.0	0	0

	Acrolein (ug/L)	Acrylonitrile (ug/L)	Benzene (ug/L)	Bromochloromethane (ug/L)	Bromodichloromethane (ug/L)	Bromoform (ug/L)	Bromomethane (ug/L)	2-Butanone (ug/L)	1,4-Dichlorobutane (ug/L)	Carbon Disulfide (ug/L)	Carbon Tetrachloride (ug/L)
# of Samples	8	15	23	7	23	23	23	7	7	7	23
Minimum	2.5	2.0	0.50	0.50	0.50	0.50	1.0	2.0	1.0	0.50	0.50
Maximum	50	50	2.5	2.5	2.5	2.5	5.0	5.0	25	2.5	2.5
Mean	44	28	1.2	0.79	1.2	1.4	3.0	4.1	6.4	0.79	1.2
Std. Dev.	17	24	1.0	0.76	0.97	0.85	1.5	1.5	8.4	0.76	0.97

	Acrolein (ug/L)	Acrylonitrile (ug/L)	Benzene (ug/L)	Bromochloromethane (ug/L)	Bromodichloromethane (ug/L)	Bromoform (ug/L)	Bromomethane (ug/L)	2-Butanone (ug/L)	1,4-Dichlorobutane (ug/L)	Carbon Disulfide (ug/L)	Carbon Tetrachloride (ug/L)
# of Samples	0	6	9	6	9	9	9	6	6	6	9
Minimum		2.0	0.50	0.50	0.50	0.50	1.0	2.0	1.0	0.50	0.50
Maximum		5.0	0.50	0.50	0.50	1.0	2.5	5.0	5.0	0.50	0.50
Mean		4.0	0.50	0.50	0.50	0.67	1.7	4.0	3.3	0.50	0.50
St. Dev		1.0	0.000	0.000	0.000	0.25	0.62	1.55	2.0	0.000	0.000

	Acrolein (ug/L)	Acrylonitrile (ug/L)	Benzene (ug/L)	Bromochloromethane (ug/L)	Bromodichloromethane (ug/L)	Bromoform (ug/L)	Bromomethane (ug/L)	2-Butanone (ug/L)	1,4-Dichlorobutane (ug/L)	Carbon Disulfide (ug/L)	Carbon Tetrachloride (ug/L)
# of Samples	1	8	16	7	16	16	16	7	7	7	16
Minimum	1250	2.0	0.50	0.50	0.50	0.5	1.0	2.0	1.0	0.50	0.50
Maximum	1250	250	2.5	2.5	5.0	5.0	15	5.0	25	3.0	5.0
Mean	1250	41	0.75	0.79	1.03	1.2	2.8	4.1	6.4	1.4	1.0
Std. Dev.		86	0.68	0.76	1.26	1.1	3.3	1.5	8.4	1.2	1.3

	Acrolein (ug/L)	Acrylonitrile (ug/L)	Benzene (ug/L)	Bromochloromethane (ug/L)	Bromodichloromethane (ug/L)	Bromoform (ug/L)	Bromomethane (ug/L)	2-Butanone (ug/L)	1,4-Dichlorobutane (ug/L)	Carbon Disulfide (ug/L)	Carbon Tetrachloride (ug/L)
# of Samples	1	7	15	6	15	15	15	6	6	6	15
Minimum	600	2.0	0.50	0.50	0.50	0.50	1.0	2.0	1.0	0.50	0.50
Maximum	600	125	0.50	0.50	0.50	1.0	2.5	5.0	5.0	0.50	0.50
Mean	600	41	0.50	0.50	0.50	0.80	1.9	4.0	3.3	0.50	0.50
St. Dev		46	0.000	0.000	0.000	0.25	1.2	1.5	2.0	0.000	0.000

	Acrolein (ug/L)	Acrylonitrile (ug/L)	Benzene (ug/L)	Bromochloromethane (ug/L)	Bromodichloromethane (ug/L)	Bromoform (ug/L)	Bromomethane (ug/L)	2-Butanone (ug/L)	1,4-Dichlorobutane (ug/L)	Carbon Disulfide (ug/L)	Carbon Tetrachloride (ug/L)
GENERAL STATISTICS											
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

APPENDIX D
TABLE D.6
STATISTICS DERIVED FROM HISTORICAL COLUMBIA AQUIFER DATA

CHERRY ISLAND LANDFILL
WILMINGTON, DELAWARE

	Chlorobenzene (ug/L)	Chloroethane (ug/L)	Chloroform (ug/L)	Chloromethane (ug/L)	1,2-Dibromo-3-chloropropane (ug/L)	Dibromochloromethane (ug/L)	Dibromomethane (ug/L)	1,1-DCA (ug/L)	1,2-DCA (ug/L)	1,1-DCE (ug/L)	cis-1,2-Dichloroethene (ug/L)
# of Samples	23	23	23	23	7	23	7	23	23	23	7
Minimum	0.50	0.50	0.50	0.50	1.0	0.50	0.50	0.50	0.50	0.50	0.50
Maximum	2.5	5	2.5	5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Mean	0.67	0.87	0.67	2.2	1.9	0.67	1.5	0.67	0.74	0.70	1.0
St. Dev.	0.58	1.0	0.58	0.90	0.80	0.58	0.82	0.58	0.58	0.58	0.71
	Chlorobenzene (ug/L)	Chloroethane (ug/L)	Chloroform (ug/L)	Chloromethane (ug/L)	1,2-Dibromo-3-chloropropane (ug/L)	Dibromochloromethane (ug/L)	Dibromomethane (ug/L)	1,1-DCA (ug/L)	1,2-DCA (ug/L)	1,1-DCE (ug/L)	cis-1,2-Dichloroethene (ug/L)
# of Samples	17	17	17	17	6	17	6	17	17	17	6
Minimum	0.50	0.50	0.50	0.50	1.0	0.50	0.50	0.50	0.50	0.50	0.50
Maximum	2.5	5	2.5	12.5	2.5	2.5	2.5	2.5	2.5	2.5	1.0
Mean	1.1	2.2	1.1	3.2	1.8	1.1	1.3	1.1	1.2	1.1	0.75
St. Dev	0.94	2.0	0.94	2.9	0.82	0.94	0.75	0.94	0.90	0.93	0.27
	Chlorobenzene (ug/L)	Chloroethane (ug/L)	Chloroform (ug/L)	Chloromethane (ug/L)	1,2-Dibromo-3-chloropropane (ug/L)	Dibromochloromethane (ug/L)	Dibromomethane (ug/L)	1,1-DCA (ug/L)	1,2-DCA (ug/L)	1,1-DCE (ug/L)	cis-1,2-Dichloroethene (ug/L)
# of Samples	12	12	12	12	3	12	3	12	12	12	3
Minimum	0.50	0.50	0.50	0.50	1.0	0.50	0.50	0.50	0.50	0.50	0.50
Maximum	2.5	5.0	2.5	5.0	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Mean	0.83	1.1	0.93	2.5	2.0	0.83	1.5	0.83	0.88	0.83	1.3
St. Dev.	0.78	1.4	0.80	1.0	0.87	0.78	1.0	0.78	0.77	0.78	1.0
	Chlorobenzene (ug/L)	Chloroethane (ug/L)	Chloroform (ug/L)	Chloromethane (ug/L)	1,2-Dibromo-3-chloropropane (ug/L)	Dibromochloromethane (ug/L)	Dibromomethane (ug/L)	1,1-DCA (ug/L)	1,2-DCA (ug/L)	1,1-DCE (ug/L)	cis-1,2-Dichloroethene (ug/L)
# of Samples	16	16	16	16	7	16	7	16	16	16	7
Minimum	0.50	0.50	0.50	0.50	1.0	0.50	0.50	0.50	0.50	0.50	0.50
Maximum	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Mean	0.61	0.75	0.61	2.0	1.9	0.61	1.5	0.61	0.72	0.66	1.0
St. Dev	0.5	0.52	0.50	0.76	0.80	0.50	0.82	0.50	0.50	0.51	0.71
	Chlorobenzene (ug/L)	Chloroethane (ug/L)	Chloroform (ug/L)	Chloromethane (ug/L)	1,2-Dibromo-3-chloropropane (ug/L)	Dibromochloromethane (ug/L)	Dibromomethane (ug/L)	1,1-DCA (ug/L)	1,2-DCA (ug/L)	1,1-DCE (ug/L)	cis-1,2-Dichloroethene (ug/L)
# of Samples	18	18	18	18	1	18	1	18	18	18	1
Minimum	0.50	0.50	0.50	2.5	2.5	0.50	2.5	0.50	0.50	0.50	2.5
Maximum	2.5	5.0	2.5	15	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Mean	0.94	1.1	0.94	4.0	2.5	0.94	2.5	0.94	0.94	0.94	2.5
Std. Dev.	0.86	1.2	0.86	4.0		0.86		0.86	0.86	0.86	
	Chlorobenzene (ug/L)	Chloroethane (ug/L)	Chloroform (ug/L)	Chloromethane (ug/L)	1,2-Dibromo-3-chloropropane (ug/L)	Dibromochloromethane (ug/L)	Dibromomethane (ug/L)	1,1-DCA (ug/L)	1,2-DCA (ug/L)	1,1-DCE (ug/L)	cis-1,2-Dichloroethene (ug/L)
# of Samples	15	15	15	15	0	15	0	15	15	15	0
Minimum	0.5	0.5	0.5	2.5		0.50		0.50	0.50	0.50	
Maximum	2.5	5.0	2.5	5.0		2.5		2.5	2.5	2.5	
Mean	1.3	2.3	1.3	3.5		1.3		1.3	1.3	1.3	
Std. Dev.	1.0	2.3	1.0	1.3		1.0		1.0	1.0	1.0	
	Chlorobenzene (ug/L)	Chloroethane (ug/L)	Chloroform (ug/L)	Chloromethane (ug/L)	1,2-Dibromo-3-chloropropane (ug/L)	Dibromochloromethane (ug/L)	Dibromomethane (ug/L)	1,1-DCA (ug/L)	1,2-DCA (ug/L)	1,1-DCE (ug/L)	cis-1,2-Dichloroethene (ug/L)
# of Samples	11	11	11	11	0	11	0	11	11	11	0
Minimum	0.50	0.50	0.50	2.5		0.50		0.50	0.50	0.50	
Maximum	2.5	5.0	2.5	5.0		2.5		2.5	2.5	2.5	
Mean	1.2	2.1	1.2	3.4		1.2		1.2	1.2	1.2	
Std. Dev.	1.0	2.3	1.0	1.3		1.0		1.0	1.0	1.0	
	Chlorobenzene (ug/L)	Chloroethane (ug/L)	Chloroform (ug/L)	Chloromethane (ug/L)	1,2-Dibromo-3-chloropropane (ug/L)	Dibromochloromethane (ug/L)	Dibromomethane (ug/L)	1,1-DCA (ug/L)	1,2-DCA (ug/L)	1,1-DCE (ug/L)	cis-1,2-Dichloroethene (ug/L)
# of Samples	6	6	6	6	6	6	6	6	6	6	6
Minimum	0.50	0.50	0.50	0.50	1.0	0.50	0.50	0.50	0.50	0.50	0.50
Maximum	0.50	1.0	0.50	1.5	2.5	0.50	2.5	0.50	1.0	1.0	1.0
Mean	0.50	0.83	0.50	1.1	1.8	0.50	1.3	0.50	0.75	0.55	0.75
St. Dev.	0.000	0.26	0.000	0.49	0.82	0.000	0.75	0.000	0.28	0.20	0.27
	Chlorobenzene (ug/L)	Chloroethane (ug/L)	Chloroform (ug/L)	Chloromethane (ug/L)	1,2-Dibromo-3-chloropropane (ug/L)	Dibromochloromethane (ug/L)	Dibromomethane (ug/L)	1,1-DCA (ug/L)	1,2-DCA (ug/L)	1,1-DCE (ug/L)	cis-1,2-Dichloroethene (ug/L)
# of Samples	6	6	6	6	6	6	6	6	6	6	6
Minimum	0.50	0.50	5.3	0.50	1.0	1.3	0.50	0.50	0.50	0.50	0.50
Maximum	0.50	1.0	35	1.5	2.5	4.0	2.5	0.5	1.0	1.0	1.0
Mean	0.50	0.83	20	1.1	1.8	2.8	1.3	0.5	0.75	0.58	0.75
Std. Dev.	0	0.26	11	0.49	0.82	1.1	0.75	0.000	0.27	0.20	0.27
	Chlorobenzene (ug/L)	Chloroethane (ug/L)	Chloroform (ug/L)	Chloromethane (ug/L)	1,2-Dibromo-3-chloropropane (ug/L)	Dibromochloromethane (ug/L)	Dibromomethane (ug/L)	1,1-DCA (ug/L)	1,2-DCA (ug/L)	1,1-DCE (ug/L)	cis-1,2-Dichloroethene (ug/L)
# of Samples	23	23	23	23	7	23	7	23	23	23	7
Minimum	0.50	0.50	0.50	0.50	1.0	0.50	0.50	0.50	0.50	0.50	0.50
Maximum	2.5	5.0	2.5	5.0	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Mean	1.1	2.0	1.2	2.9	1.9	1.2	1.5	1.2	1.3	1.2	1.0
Std. Dev.	0.94	2.0	0.97	1.6	0.80	0.97	0.82	0.97	0.94	0.96	0.71
	Chlorobenzene (ug/L)	Chloroethane (ug/L)	Chloroform (ug/L)	Chloromethane (ug/L)	1,2-Dibromo-3-chloropropane (ug/L)	Dibromochloromethane (ug/L)	Dibromomethane (ug/L)	1,1-DCA (ug/L)	1,2-DCA (ug/L)	1,1-DCE (ug/L)	cis-1,2-Dichloroethene (ug/L)
# of Samples	9	9	9	9	6	9	6	9	9	9	6
Minimum	0.50	0.50	0.50	0.50	1.0	0.50	0.50	0.50	0.50	0.50	0.50
Maximum	0.50	1.0	0.50	2.5	2.5	0.50	2.5	0.50	1.0	1.0	1.0
Mean	0.50	0.72	0.50	1.6	1.8	0.50	1.3	0.50	0.67	0.56	0.75
St. Dev	0.000	0.26	0.000	0.81	0.82	0.000	0.75	0.000	0.25	0.17	0.27
	Chlorobenzene (ug/L)	Chloroethane (ug/L)	Chloroform (ug/L)	Chloromethane (ug/L)	1,2-Dibromo-3-chloropropane (ug/L)	Dibromochloromethane (ug/L)	Dibromomethane (ug/L)	1,1-DCA (ug/L)	1,2-DCA (ug/L)	1,1-DCE (ug/L)	cis-1,2-Dichloroethene (ug/L)
# of Samples	16	16	16	16	7	16	7	16	16	16	7
Minimum	0.50	0.50	0.50	0.50	1.0	0.50	0.50	0.50	0.50	0.50	0.50
Maximum	2.5	2.5	2.5	15	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Mean	0.75	0.88	0.75	2.8	1.9	0.75	1.5	0.75	0.84	0.78	1.0
Std. Dev.	0.68	0.67	0.68	3.4	0.80	0.68	0.82	0.68	0.68	0.68	0.71
	Chlorobenzene (ug/L)	Chloroethane (ug/L)	Chloroform (ug/L)	Chloromethane (ug/L)	1,2-Dibromo-3-chloropropane (ug/L)	Dibromochloromethane (ug/L)	Dibromomethane (ug/L)	1,1-DCA (ug/L)	1,2-DCA (ug/L)	1,1-DCE (ug/L)	cis-1,2-Dichloroethene (ug/L)
# of Samples	15	15	15	15	6	15	6	15	15	15	6
Minimum	0.50	0.50	0.50	0.50	1.0	0.50	0.50	0.50	0.50	0.50	0.50
Maximum	0.50	1.0	0.50	2.5	2.5	0.50	2.5	0.50	1.0	1.0	1.0
Mean	0.50	0.63	0.50	1.8	1.8	0.50	1.3	0.50	0.60	0.53	0.75
St. Dev	0.000	0.23	0.000	0.79	0.82	0.000	0.75	0.000	0.21	0.13	0.27
GENERALIZED COLUMBIA FORMATION	Chlorobenzene (ug/L)	Chloroethane (ug/L)	Chloroform (ug/L)	Chloromethane (ug/L)	1,2-Dibromo-3-chloropropane (ug/L)	Dibromochloromethane (ug/L)	Dibromomethane (ug/L)	1,1-DCA (ug/L)	1,2-DCA (ug/L)	1,1-DCE (ug/L)	cis-1,2-Dichloroethene (ug/L)
# of Samples	187	187	187	187	62	187	62	187	187	187	62
Minimum	0.50	0.50	0.50	0.50	1.0	0.50	0.50	0.50	0.50	0.50	0.50
Maximum	2.5	5.0	2.5	15	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Mean	0.94	1.2	0.94	2.6	1.9	0.94	1.5	0.94	0.94	0.94	1.2
Std. Dev.	0.83	1.5	0.83	1.5	0.82	0.83	0.82	0.83	0.83	0.83	0.82

APPENDIX D
TABLE D.8
STATISTICS DERIVED FROM HISTORICAL COLUMBIA AQUIFER DATA

CHERRY ISLAND LANDFILL
WILMINGTON, DELAWARE

[illegible]	1,2-Dichloroethane (ug/L)	1,2-Dichloropropane (ug/L)	1,3-Dichloropropane (ug/L)	1,3-Dichloropropene (ug/L)	Ethylbenzene (ug/L)	Ethylene dibromide (ug/L)	2-Hexanone (ug/L)	Iodomethane (ug/L)	Methylene chloride (ug/L)
# of Samples	7	23	23	23	23	7	7	7	23
Minimum	0.50	0.50	0.50	0.50	0.50	0.50	2.0	1.5	0.50
Maximum	2.5	2.5	2.5	2.5	2.5	2.5	5.0	2.5	2.5
Mean	0.79	0.74	0.67	0.67	0.67	0.79	3.1	2.4	0.83
St. Dev.	0.76	0.58	0.58	0.58	0.58	0.76	1.3	0.38	0.60
[illegible]	1,2-Dichloroethane (ug/L)	1,2-Dichloropropane (ug/L)	1,3-Dichloropropane (ug/L)	1,3-Dichloropropene (ug/L)	Ethylbenzene (ug/L)	Ethylene dibromide (ug/L)	2-Hexanone (ug/L)	Iodomethane (ug/L)	Methylene chloride (ug/L)
# of Samples	6	6	17	17	17	6	6	6	17
Minimum	0.50	0.50	0.50	0.50	0.50	0.50	2.0	1.5	0.50
Maximum	0.50	1.0	2.5	2.5	2.5	0.50	5.0	8.0	2.5
Mean	0.50	0.75	1.1	1.1	1.1	0.50	2.8	3.3	1.29
St. Dev	0.000	0.27	0.94	0.94	0.94	0.000	2.3	2.4	0.85
[illegible]	1,2-Dichloroethane (ug/L)	1,2-Dichloropropane (ug/L)	1,3-Dichloropropane (ug/L)	1,3-Dichloropropene (ug/L)	Ethylbenzene (ug/L)	Ethylene dibromide (ug/L)	2-Hexanone (ug/L)	Iodomethane (ug/L)	Methylene chloride (ug/L)
# of Samples	3	12	12	12	12	3	3	3	12
Minimum	0.50	0.50	0.50	0.50	0.50	0.50	2.0	0.50	0.50
Maximum	2.5	2.5	2.5	2.5	2.5	2.5	5.0	2.5	2.5
Mean	1.2	0.88	0.83	0.83	0.83	1.2	3.2	1.8	0.92
St. Dev.	1.2	0.77	0.78	0.78	0.78	1.2	1.6	1.2	0.76
[illegible]	1,2-Dichloroethane (ug/L)	1,2-Dichloropropane (ug/L)	1,3-Dichloropropane (ug/L)	1,3-Dichloropropene (ug/L)	Ethylbenzene (ug/L)	Ethylene dibromide (ug/L)	2-Hexanone (ug/L)	Iodomethane (ug/L)	Methylene chloride (ug/L)
# of Samples	7	16	16	16	16	7	7	7	16
Minimum	0.50	0.50	0.50	0.50	0.50	0.50	2.0	0.75	0.50
Maximum	2.5	2.5	2.5	2.5	2.5	2.5	5.0	4.0	2.5
Mean	0.79	0.72	0.61	0.61	0.61	0.79	3.1	1.6	0.84
St. Dev	0.76	0.52	0.50	0.50	0.50	0.76	1.3	1.1	0.54
[illegible]	1,2-Dichloroethane (ug/L)	1,2-Dichloropropane (ug/L)	1,3-Dichloropropane (ug/L)	1,3-Dichloropropene (ug/L)	Ethylbenzene (ug/L)	Ethylene dibromide (ug/L)	2-Hexanone (ug/L)	Iodomethane (ug/L)	Methylene chloride (ug/L)
# of Samples	1	18	18	18	18	1	1	1	18
Minimum	2.5	0.50	0.50	0.50	0.50	2.5	5.0	2.5	0.50
Maximum	2.5	2.5	2.5	2.5	2.5	2.5	5.0	2.5	2.5
Mean	2.5	0.94	0.94	0.94	0.94	2.5	5.0	2.5	1.0
Std. Dev.		0.86	0.86	0.86	0.86				0.88
[illegible]	1,2-Dichloroethane (ug/L)	1,2-Dichloropropane (ug/L)	1,3-Dichloropropane (ug/L)	1,3-Dichloropropene (ug/L)	Ethylbenzene (ug/L)	Ethylene dibromide (ug/L)	2-Hexanone (ug/L)	Iodomethane (ug/L)	Methylene chloride (ug/L)
# of Samples	0	15	15	15	15	0	0	0	15
Minimum		0.50	0.50	0.50	0.50				0.50
Maximum		2.5	2.5	2.5	2.5				2.5
Mean		1.3	1.3	1.3	1.3				1.3
Std. Dev.		1.0	1.0	1.0	1.0				0.99
[illegible]	1,2-Dichloroethane (ug/L)	1,2-Dichloropropane (ug/L)	1,3-Dichloropropane (ug/L)	1,3-Dichloropropene (ug/L)	Ethylbenzene (ug/L)	Ethylene dibromide (ug/L)	2-Hexanone (ug/L)	Iodomethane (ug/L)	Methylene chloride (ug/L)
# of Samples	0	11	11	11	11	0	0	0	11
Minimum		0.50	0.50	0.50	0.50				0.50
Maximum		2.5	2.5	2.5	2.5				2.5
Mean		1.23	1.23	1.23	1.23				1.2
Std. Dev.		1.01	1.01	1.01	1.01				1.0
[illegible]	1,2-Dichloroethane (ug/L)	1,2-Dichloropropane (ug/L)	1,3-Dichloropropane (ug/L)	1,3-Dichloropropene (ug/L)	Ethylbenzene (ug/L)	Ethylene dibromide (ug/L)	2-Hexanone (ug/L)	Iodomethane (ug/L)	Methylene chloride (ug/L)
# of Samples	6	6	6	6	6	6	6	6	6
Minimum	0.50	0.50	0.50	0.50	0.50	0.50	2.0	1.5	1.0
Maximum	0.50	1.0	0.50	0.50	0.50	0.50	5.0	7.0	1.5
Mean	0.50	0.75	0.50	0.50	0.50	0.50	2.8	3.1	1.1
St. Dev.	0.000	0.27	0.000	0.000	0.000	0.000	1.1	2.0	0.20
[illegible]	1,2-Dichloroethane (ug/L)	1,2-Dichloropropane (ug/L)	1,3-Dichloropropane (ug/L)	1,3-Dichloropropene (ug/L)	Ethylbenzene (ug/L)	Ethylene dibromide (ug/L)	2-Hexanone (ug/L)	Iodomethane (ug/L)	Methylene chloride (ug/L)
# of Samples	6	6	6	6	6	6	6	6	6
Minimum	0.50	0.50	0.50	0.50	0.50	0.50	2.0	1.5	1.0
Maximum	0.50	1.0	0.50	0.50	0.50	0.50	5.0	2.5	1.5
Mean	0.50	0.75	0.50	0.50	0.50	0.50	2.8	2.3	1.1
Std. Dev.	0	0.27	0	0	0	0	1.1	0.41	0.20
[illegible]	1,2-Dichloroethane (ug/L)	1,2-Dichloropropane (ug/L)	1,3-Dichloropropane (ug/L)	1,3-Dichloropropene (ug/L)	Ethylbenzene (ug/L)	Ethylene dibromide (ug/L)	2-Hexanone (ug/L)	Iodomethane (ug/L)	Methylene chloride (ug/L)
# of Samples	7	23	23	23	23	7	7	7	23
Minimum	0.50	0.50	0.50	0.50	0.50	0.50	2.0	1.5	0.50
Maximum	2.5	2.5	2.5	2.5	2.5	2.5	5.0	2.5	2.5
Mean	0.79	1.3	1.2	1.2	1.1	0.79	3.1	2.4	1.3
Std. Dev.	0.76	0.94	0.97	0.97	0.94	0.76	1.3	0.38	0.90
[illegible]	1,2-Dichloroethane (ug/L)	1,2-Dichloropropane (ug/L)	1,3-Dichloropropane (ug/L)	1,3-Dichloropropene (ug/L)	Ethylbenzene (ug/L)	Ethylene dibromide (ug/L)	2-Hexanone (ug/L)	Iodomethane (ug/L)	Methylene chloride (ug/L)
# of Samples	6	9	9	9	9	6	6	6	9
Minimum	0.50	0.50	0.50	0.50	0.50	0.50	2.0	1.5	0.50
Maximum	0.50	1.0	0.50	0.50	0.50	0.50	5.0	7.0	1.5
Mean	0.50	0.67	0.50	0.50	0.50	0.50	2.8	3.1	0.89
St. Dev	0.000	0.25	0.000	0.000	0.000	0.000	1.1	2.0	0.33
[illegible]	1,2-Dichloroethane (ug/L)	1,2-Dichloropropane (ug/L)	1,3-Dichloropropane (ug/L)	1,3-Dichloropropene (ug/L)	Ethylbenzene (ug/L)	Ethylene dibromide (ug/L)	2-Hexanone (ug/L)	Iodomethane (ug/L)	Methylene chloride (ug/L)
# of Samples	7	16	16	16	16	7	7	7	16
Minimum	0.50	0.50	0.50	0.50	0.50	0.50	2.0	1.5	0.50
Maximum	2.5	5	2.5	2.5	13	2.5	5.0	7.0	2.5
Mean	0.79	1.1	0.75	0.75	1.4	0.79	3.1	3.0	0.97
Std. Dev.	0.76	1.2	0.68	0.68	3.1	0.76	1.3	1.8	0.67
[illegible]	1,2-Dichloroethane (ug/L)	1,2-Dichloropropane (ug/L)	1,3-Dichloropropane (ug/L)	1,3-Dichloropropene (ug/L)	Ethylbenzene (ug/L)	Ethylene dibromide (ug/L)	2-Hexanone (ug/L)	Iodomethane (ug/L)	Methylene chloride (ug/L)
# of Samples	15	15	15	6	15	6	6	6	15
Minimum	0.50	0.50	0.50	0.50	0.50	0.50	2.0	1.5	0.50
Maximum	0.50	1.0	0.50	0.50	0.50	0.50	5.0	2.5	1.5
Mean	0.50	0.60	0.50	0.50	0.50	0.50	2.8	2.3	0.80
St. Dev	0.000	0.21	0.000	0.000	0.000	0.000	1.1	0.41	0.37
[illegible]	1,2-Dichloroethane (ug/L)	1,2-Dichloropropane (ug/L)	1,3-Dichloropropane (ug/L)	1,3-Dichloropropene (ug/L)	Ethylbenzene (ug/L)	Ethylene dibromide (ug/L)	2-Hexanone (ug/L)	Iodomethane (ug/L)	Methylene chloride (ug/L)
# of Samples	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Minimum	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Maximum	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Mean	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Std. Dev.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

APPENDIX D
TABLE D.6
STATISTICS DERIVED FROM HISTORICAL COLUMBIA AQUIFER DATA

CHERRY ISLAND LANDFILL
WILMINGTON, DELAWARE

5100	2-Dichlorobenzene (ug/L)	1,4-Dichlorobenzene (ug/L)	4-Methyl-2-pentanone (ug/L)	Styrene (ug/L)	1,1,2,2-Tetrachloroethane (ug/L)	1,1,2-Trichlorethane (ug/L)	Trichloroethene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)
# of Samples	7	7	7	7	7	23	23	23	7	23
Minimum	0.50	0.50	2.0	0.50	0.50	0.50	0.50	0.50	1.0	0.50
Maximum	2.5	2.5	5.0	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Mean	0.79	0.79	3.1	0.79	0.79	1.0	0.67	0.67	1.6	0.67
St. Dev.	0.76	0.76	1.3	0.76	0.76	0.52	0.58	0.58	0.45	0.58
5700	2-Dichlorobenzene (ug/L)	1,4-Dichlorobenzene (ug/L)	4-Methyl-2-pentanone (ug/L)	Styrene (ug/L)	1,1,2,2-Tetrachloroethane (ug/L)	1,1,2-Trichlorethane (ug/L)	Trichloroethene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)
# of Samples	6	6	6	6	6	17	17	17	6	17
Minimum	0.50	0.50	2.0	0.50	0.50	0.50	0.50	0.50	1.0	0.50
Maximum	0.50	0.50	5.0	0.50	0.50	5.0	2.5	2.5	1.5	2.5
Mean	0.50	0.50	2.8	0.50	0.50	1.4	1.1	1.1	1.4	1.1
St. Dev	0.000	0.000	1.1	0.000	0.000	1.2	0.94	0.94	0.20	0.94
5900	2-Dichlorobenzene (ug/L)	1,4-Dichlorobenzene (ug/L)	4-Methyl-2-pentanone (ug/L)	Styrene (ug/L)	1,1,2,2-Tetrachloroethane (ug/L)	1,1,2-Trichlorethane (ug/L)	Trichloroethene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)
# of Samples	3	3	3	3	3	12	12	12	3	12
Minimum	0.50	0.50	2.0	0.50	0.50	0.50	0.50	0.50	1.5	0.50
Maximum	13	13	5.0	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Mean	5.2	5.2	3.2	1.2	1.2	1.2	0.83	0.83	1.8	0.83
St. Dev.	6.4	6.4	1.6	1.2	1.2	0.65	0.78	0.78	0.58	0.78
6100	2-Dichlorobenzene (ug/L)	1,4-Dichlorobenzene (ug/L)	4-Methyl-2-pentanone (ug/L)	Styrene (ug/L)	1,1,2,2-Tetrachloroethane (ug/L)	1,1,2-Trichlorethane (ug/L)	Trichloroethene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)
# of Samples	7	7	7	7	7	16	16	16	7	16
Minimum	0.50	0.50	2.0	0.50	0.50	0.50	0.50	0.50	1.0	0.50
Maximum	2.5	2.5	5.0	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Mean	0.79	0.79	3.1	0.79	0.79	0.91	0.61	0.61	1.6	0.61
St. Dev	0.76	0.76	1.3	0.76	0.76	0.49	0.50	0.50	0.45	0.50
6107	2-Dichlorobenzene (ug/L)	1,4-Dichlorobenzene (ug/L)	4-Methyl-2-pentanone (ug/L)	Styrene (ug/L)	1,1,2,2-Tetrachloroethane (ug/L)	1,1,2-Trichlorethane (ug/L)	Trichloroethene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)
# of Samples	1	1	1	1	1	18	18	18	1	18
Minimum	2.5	2.5	5.0	2.5	2.5	1.0	0.50	0.50	2.5	0.50
Maximum	2.5	2.5	5	2.5	2.5	5.0	2.5	8.0	2.5	2.5
Mean	2.5	2.5	5	2.5	2.5	1.6	0.94	1.4	2.5	0.94
Std. Dev.						1.3	0.86	1.9		0.86
6500	2-Dichlorobenzene (ug/L)	1,4-Dichlorobenzene (ug/L)	4-Methyl-2-pentanone (ug/L)	Styrene (ug/L)	1,1,2,2-Tetrachloroethane (ug/L)	1,1,2-Trichlorethane (ug/L)	Trichloroethene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)
# of Samples	0	0	0	0	0	15	15	15	0	15
Minimum						1	0.50	0.50		0.50
Maximum						2.5	2.5	2.5		2.5
Mean						1.6	1.3	1.3		1.3
Std. Dev.						0.76	1.0	1.0		1.0
6510	2-Dichlorobenzene (ug/L)	1,4-Dichlorobenzene (ug/L)	4-Methyl-2-pentanone (ug/L)	Styrene (ug/L)	1,1,2,2-Tetrachloroethane (ug/L)	1,1,2-Trichlorethane (ug/L)	Trichloroethene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)
# of Samples	0	0	0	0	0	11	11	11	0	11
Minimum						1.0	0.50	0.50		0.50
Maximum						2.5	2.5	5.0		2.5
Mean						1.5	1.2	1.6		1.2
Std. Dev.						0.76	1.0	1.5		1.0
6700	2-Dichlorobenzene (ug/L)	1,4-Dichlorobenzene (ug/L)	4-Methyl-2-pentanone (ug/L)	Styrene (ug/L)	1,1,2,2-Tetrachloroethane (ug/L)	1,1,2-Trichlorethane (ug/L)	Trichloroethene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)
# of Samples	6	6	6	6	6	6	6	6	6	6
Minimum	0.50	0.50	2.0	0.50	0.50	0.50	0.50	0.50	1.0	0.50
Maximum	0.50	0.50	5.0	0.50	0.50	0.50	0.50	4.0	1.5	0.50
Mean	0.50	0.50	2.8	0.50	0.50	0.50	0.50	1.1	1.4	0.50
St. Dev.	0.000	0.000	1.1	0.000	0.000	0.000	0.000	1.4	0.41	0.000
6710	2-Dichlorobenzene (ug/L)	1,4-Dichlorobenzene (ug/L)	4-Methyl-2-pentanone (ug/L)	Styrene (ug/L)	1,1,2,2-Tetrachloroethane (ug/L)	1,1,2-Trichlorethane (ug/L)	Trichloroethene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)
# of Samples	6	6	6	6	6	6	6	6	6	6
Minimum	0.50	0.50	2.0	0.50	0.50	0.50	0.50	0.50	1.0	0.50
Maximum	0.5	0.5	5	0.5	0.50	0.50	1.0	0.50	1.5	0.50
Mean	0.50	0.50	2.8	0.50	0.50	0.50	0.58	0.50	1.4	0.50
Std. Dev.	0.000	0.000	1.1	0.000	0.000	0.000	0.20	0.000	0.20	0.000
6900	2-Dichlorobenzene (ug/L)	1,4-Dichlorobenzene (ug/L)	4-Methyl-2-pentanone (ug/L)	Styrene (ug/L)	1,1,2,2-Tetrachloroethane (ug/L)	1,1,2-Trichlorethane (ug/L)	Trichloroethene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)
# of Samples	7	7	7	7	7	23	23	23	7	23
Minimum	0.50	0.50	2.0	0.50	0.50	0.50	0.50	0.50	1.0	0.50
Maximum	2.5	2.5	5.0	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Mean	0.79	0.79	3.1	0.79	0.79	1.3	1.2	1.2	1.6	1.2
Std. Dev.	0.76	0.76	1.3	0.76	0.76	0.93	1.0	1.0	0.45	0.97
7100	2-Dichlorobenzene (ug/L)	1,4-Dichlorobenzene (ug/L)	4-Methyl-2-pentanone (ug/L)	Styrene (ug/L)	1,1,2,2-Tetrachloroethane (ug/L)	1,1,2-Trichlorethane (ug/L)	Trichloroethene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)
# of Samples	6	6	6	6	6	9	9	9	6	9
Minimum	0.50	0.50	2.0	0.50	0.50	0.50	0.50	0.50	1.0	0.50
Maximum	0.50	0.50	5.0	0.50	0.50	1.0	0.50	0.50	1.5	0.50
Mean	0.50	0.50	2.8	0.50	0.50	0.67	0.50	0.50	1.4	0.50
St. Dev	0.000	0.000	1.1	0.000	0.000	0.25	0.000	0.000	0.20	0.000
7500	2-Dichlorobenzene (ug/L)	1,4-Dichlorobenzene (ug/L)	4-Methyl-2-pentanone (ug/L)	Styrene (ug/L)	1,1,2,2-Tetrachloroethane (ug/L)	1,1,2-Trichlorethane (ug/L)	Trichloroethene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)
# of Samples	7	7	7	7	7	16	16	16	7	16
Minimum	0.50	0.50	2.0	0.50	0.50	0.50	0.50	0.50	1.0	0.50
Maximum	2.5	2.5	5.0	2.5	2.5	5.0	23	2.5	2.5	5.0
Mean	0.79	0.79	3.1	0.79	0.79	1.2	2.0	0.75	1.6	1.0
Std. Dev.	0.76	0.76	1.3	0.76	0.76	1.1	5.6	0.68	0.45	1.3
7700	2-Dichlorobenzene (ug/L)	1,4-Dichlorobenzene (ug/L)	4-Methyl-2-pentanone (ug/L)	Styrene (ug/L)	1,1,2,2-Tetrachloroethane (ug/L)	1,1,2-Trichlorethane (ug/L)	Trichloroethene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)
# of Samples	6	6	6	6	6	15	15	15	6	15
Minimum	0.50	0.50	2.0	0.50	0.50	0.50	0.50	0.50	1.0	0.50
Maximum	0.50	0.50	5.0	0.50	0.50	1.0	0.50	0.50	1.5	0.50
Mean	0.50	0.50	2.8	0.50	0.50	0.80	0.50	0.50	1.4	0.50
St. Dev.	0.000	0.000	1.1	0.000	0.000	0.25	0.000	0.000	0.12	0.000
GENERALIZED COLUMBIA FORMATION	2-Dichlorobenzene (ug/L)	1,4-Dichlorobenzene (ug/L)	4-Methyl-2-pentanone (ug/L)	Styrene (ug/L)	1,1,2,2-Tetrachloroethane (ug/L)	1,1,2-Trichlorethane (ug/L)	Trichloroethene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)
# of Samples	62	62	62	62	62	187	187	187	62	187
Minimum	0.50	0.50	2.0	0.50	0.50	0.50	0.50	0.50	1.0	0.50
Maximum	13	13	5.0	2.5	2.5	23	23	23	2.5	23
Mean	0.79	0.79	3.1	0.79	0.79	1.2	1.0	1.0	1.6	1.0
Std. Dev.	0.76	0.76	1.3	0.76	0.76	1.0	1.0	1.0	0.45	1.0

APPE D
TABL 5.6
STATISTICS DERIVED FROM HISTORICAL COLUMBIA AQUIFER DATA

CHERRY ISLAND LANDFILL
WILMINGTON, DELAWARE

Parameter	1,1,1-TCA (ug/L)	TCE (ug/L)	Trichlorofluoromethane (ug/L)	1,2,3-Trichloropropane (ug/L)	Vinyl acetate (ug/L)	Vinyl chloride (ug/L)	2-Chloroethyl vinyl ether (ug/L)	Bis(2-ethylhexyl)phthalate (ug/L)	1,2-DCE (ug/L)
# of Samples	23	23	8	7	7	23	7	0	16
Minimum	0.50	0.50	0.50	0.50	0.50	0.50	5.0		0.50
Maximum	2.5	2.5	2.5	2.5	5	5	5.0		2.5
Mean	0.74	0.67	1.0	1.1	2.6	0.89	5.0		0.63
St. Dev.	0.58	0.58	0.93	0.67	1.8	1.0	0		0.50
MW-2D	**1,1,1-TCA (ug/L)**	**TCE (ug/L)**	**Trichlorofluoromethane (ug/L)**	**1,2,3-Trichloropropane (ug/L)**	**Vinyl acetate (ug/L)**	**Vinyl chloride (ug/L)**	**2-Chloroethyl vinyl ether (ug/L)**	**Bis(2-ethylhexyl)phthalate (ug/L)**	**1,2-DCE (ug/L)**
# of Samples	17	17	11	6	6	17	10	3	11
Minimum	0.50	0.50	0.50	0.50	0.50	0.50	5.0	5.0	0.50
Maximum	2.5	2.5	2.5	1.0	5.0	5.0	25	670	2.5
Mean	1.2	1.1	1.2	0.83	2.3	2.2	7.0	233	1.4
St. Dev	0.90	0.94	1.0	0.26	1.7	1.5	6.3	378	1.0
MW-3D	**1,1,1-TCA (ug/L)**	**TCE (ug/L)**	**Trichlorofluoromethane (ug/L)**	**1,2,3-Trichloropropane (ug/L)**	**Vinyl acetate (ug/L)**	**Vinyl chloride (ug/L)**	**2-Chloroethyl vinyl ether (ug/L)**	**Bis(2-ethylhexyl)phthalate (ug/L)**	**1,2-DCE (ug/L)**
# of Samples	12	12	4	3	3	12	4	0	9
Minimum	0.50	0.50	0.50	0.50	0.50	0.50	5.0		0.50
Maximum	2.5	2.5	2.5	2.5	5.0	5.0	5.0		2.5
Mean	0.88	0.83	1.5	1.3	2.7	1.1	5.0		0.72
St. Dev.	0.77	0.78	1.2	1.0	2.3	1.4	0		0.67
MW-4D	**1,1,1-TCA (ug/L)**	**TCE (ug/L)**	**Trichlorofluoromethane (ug/L)**	**1,2,3-Trichloropropane (ug/L)**	**Vinyl acetate (ug/L)**	**Vinyl chloride (ug/L)**	**2-Chloroethyl vinyl ether (ug/L)**	**Bis(2-ethylhexyl)phthalate (ug/L)**	**1,2-DCE (ug/L)**
# of Samples	16	16	7	7	7	16	4	0	9
Minimum	0.50	0.50	0.50	0.50	0.50	0.50	5.0		0.50
Maximum	2.5	2.5	2.5	2.5	5.0	2.5	5.0		0.50
Mean	0.72	0.61	0.79	1.1	2.6	0.78	5.0		0.50
St. Dev	0.52	0.50	0.76	0.67	1.8	0.52	0.000		0.000
MW-5D	**1,1,1-TCA (ug/L)**	**TCE (ug/L)**	**Trichlorofluoromethane (ug/L)**	**1,2,3-Trichloropropane (ug/L)**	**Vinyl acetate (ug/L)**	**Vinyl chloride (ug/L)**	**2-Chloroethyl vinyl ether (ug/L)**	**Bis(2-ethylhexyl)phthalate (ug/L)**	**1,2-DCE (ug/L)**
# of Samples	18	18	2	1	1	18	6	0	17
Minimum	0.50	0.50	2.5	2.5	5.0	0.50	5.0		0.50
Maximum	2.5	2.5	2.5	2.5	5.0	5.0	5.0		2.5
Mean	0.94	0.94	2.5	2.5	5.0	1.1	5.0		0.85
Std. Dev.	0.86	0.86	0.000			1.2	0.000		0.79
MW-6D	**1,1,1-TCA (ug/L)**	**TCE (ug/L)**	**Trichlorofluoromethane (ug/L)**	**1,2,3-Trichloropropane (ug/L)**	**Vinyl acetate (ug/L)**	**Vinyl chloride (ug/L)**	**2-Chloroethyl vinyl ether (ug/L)**	**Bis(2-ethylhexyl)phthalate (ug/L)**	**1,2-DCE (ug/L)**
# of Samples	15	15	5	0	0	15	9	3	15
Minimum	0.50	0.50	2.5			0.50	5.0	5.0	0.50
Maximum	2.5	2.5	2.5			5	5.0	110	2.5
Mean	1.3	1.3	2.5			2.3	5.0	40	1.3
Std. Dev.	1.0	1.0	0			2.3	0	61	1.0
MW-10D	**1,1,1-TCA (ug/L)**	**TCE (ug/L)**	**Trichlorofluoromethane (ug/L)**	**1,2,3-Trichloropropane (ug/L)**	**Vinyl acetate (ug/L)**	**Vinyl chloride (ug/L)**	**2-Chloroethyl vinyl ether (ug/L)**	**Bis(2-ethylhexyl)phthalate (ug/L)**	**1,2-DCE (ug/L)**
# of Samples	11	11	4	0	0	11	9	0	11
Minimum	0.50	0.50	2.5			0.50	5.0		0.50
Maximum	2.5	2.5	2.5			5	5.0		2.5
Mean	1.2	1.2	2.5			2.1	5.0		1.2
Std. Dev.	1.0	1.0	0.000			2.3	0.000		1.0
MW-11D	**1,1,1-TCA (ug/L)**	**TCE (ug/L)**	**Trichlorofluoromethane (ug/L)**	**1,2,3-Trichloropropane (ug/L)**	**Vinyl acetate (ug/L)**	**Vinyl chloride (ug/L)**	**2-Chloroethyl vinyl ether (ug/L)**	**Bis(2-ethylhexyl)phthalate (ug/L)**	**1,2-DCE (ug/L)**
# of Samples	6	6	6	6	6	6	0	0	0
Minimum	0.50	0.50	0.50	0.50	0.50	0.50			
Maximum	1.0	0.50	0.50	1.0	5.0	1.0			
Mean	0.75	0.50	0.50	0.83	2.3	0.92			
St. Dev.	0.55	0.000	0.000	0.26	1.7	0.20			
MW-12D	**1,1,1-TCA (ug/L)**	**TCE (ug/L)**	**Trichlorofluoromethane (ug/L)**	**1,2,3-Trichloropropane (ug/L)**	**Vinyl acetate (ug/L)**	**Vinyl chloride (ug/L)**	**2-Chloroethyl vinyl ether (ug/L)**	**Bis(2-ethylhexyl)phthalate (ug/L)**	**1,2-DCE (ug/L)**
# of Samples	6	6	6	6	6	6	0	0	0
Minimum	0.50	0.50	0.50	0.50	0.50	1.0			
Maximum	1.0	0.50	0.50	1.0	5.0	1.0			
Mean	0.75	0.50	0.50	0.83	2.3	1.0			
Std. Dev.	0.27	0.000	0.000	0.26	1.7	0.000			
MW-13D	**1,1,1-TCA (ug/L)**	**TCE (ug/L)**	**Trichlorofluoromethane (ug/L)**	**1,2,3-Trichloropropane (ug/L)**	**Vinyl acetate (ug/L)**	**Vinyl chloride (ug/L)**	**2-Chloroethyl vinyl ether (ug/L)**	**Bis(2-ethylhexyl)phthalate (ug/L)**	**1,2-DCE (ug/L)**
# of Samples	23	23	12	7	7	23	15	5	16
Minimum	0.50	0.50	0.50	0.50	0.50	0.50	5.0	5.0	0.50
Maximum	2.5	2.5	2.5	2.5	5	5	5.0	20	2.5
Mean	1.3	1.1957	1.5	1.1	2.6	2.1	5.0	11.6	1.4
Std. Dev.	0.94	0.974	1.0	0.67	1.8	2.0	0.000	5.4	1.0
MW-14D	**1,1,1-TCA (ug/L)**	**TCE (ug/L)**	**Trichlorofluoromethane (ug/L)**	**1,2,3-Trichloropropane (ug/L)**	**Vinyl acetate (ug/L)**	**Vinyl chloride (ug/L)**	**2-Chloroethyl vinyl ether (ug/L)**	**Bis(2-ethylhexyl)phthalate (ug/L)**	**1,2-DCE (ug/L)**
# of Samples	9	9	6	6	6	9	3	0	3
Minimum	0.50	0.50	0.50	0.50	0.50	0.50	5.0		0.50
Maximum	1.0	0.50	0.50	1.0	5.0	1.0	5.0		0.50
Mean	0.67	0.50	0.50	0.83	2.3	0.78	5.0		0.50
St. Dev	0.25	0.000	0.000	0.26	1.67	0.28	0.000		0.000
MW-15D	**1,1,1-TCA (ug/L)**	**TCE (ug/L)**	**Trichlorofluoromethane (ug/L)**	**1,2,3-Trichloropropane (ug/L)**	**Vinyl acetate (ug/L)**	**Vinyl chloride (ug/L)**	**2-Chloroethyl vinyl ether (ug/L)**	**Bis(2-ethylhexyl)phthalate (ug/L)**	**1,2-DCE (ug/L)**
# of Samples	16	16	7	7	7	16	4	0	9
Minimum	0.50	0.50	0.50	0.50	0.50	0.50	5.0		0.50
Maximum	2.5	2.5	2.5	2.5	5.0	2.5	5.0		2.5
Mean	0.64	0.75	0.79	1.1	2.6	0.91	5.0		0.72
Std. Dev.	0.68	0.68	0.76	0.69	1.8	0.66	0		0.67
MW-16D	**1,1,1-TCA (ug/L)**	**TCE (ug/L)**	**Trichlorofluoromethane (ug/L)**	**1,2,3-Trichloropropane (ug/L)**	**Vinyl acetate (ug/L)**	**Vinyl chloride (ug/L)**	**2-Chloroethyl vinyl ether (ug/L)**	**Bis(2-ethylhexyl)phthalate (ug/L)**	**1,2-DCE (ug/L)**
# of Samples	15	15	6	6	6	15	4	0	9
Minimum	0.50	0.50	0.50	0.50	0.50	0.50	5.0		0.50
Maximum	1.0	0.50	0.50	1.0	5.0	1.0	5.0		0.50
Mean	0.60	0.50	0.50	0.83	2.3	0.67	5.0		0.50
St. Dev	0.21	0.000	0.000	0.56	1.7	0.24	0.000		0.000
GENERALIZED COLUMBIA FORMATION	**1,1,1-TCA (ug/L)**	**TCE (ug/L)**	**Trichlorofluoromethane (ug/L)**	**1,2,3-Trichloropropane (ug/L)**	**Vinyl acetate (ug/L)**	**Vinyl chloride (ug/L)**	**2-Chloroethyl vinyl ether (ug/L)**	**Bis(2-ethylhexyl)phthalate (ug/L)**	**1,2-DCE (ug/L)**
# of Samples	187	187	64	63	63	187	76	11	125
Minimum	0.50	0.50	0.50	0.50	0.50	0.50	5.0	5.0	0.50
Maximum	2.5	2.5	2.5	2.5	5.0	5.0	25	670	2.5
Mean	0.84	0.86	1.1	1.0	2.3	1.3	5.0	170	1.1
Std. Dev.	0.80	0.85	0.9	0.63	1.7	1.4	0.9	412	0.85

APPENDIX D
TABLE D.6
STATISTICS DERIVED FROM HISTORICAL COLUMBIA AQUIFER DATA

CHERRY ISLAND LANDFILL
WILMINGTON, DELAWARE

Notes:

1 Statistical mean values include the substitution of concentrations set at 1/2 the Method Detection Limit where the laboratory or historical data records report non-detections of substances.

2 The historical means and standard deviations are weighted means calculated with historical data from wells lc-101,uc-102,lc-105,uc-108 (May 1985 - January 2002) and lc-113 (April 1996 - January 2002). The weighted means were calculated with the following algebraic formula:

$$\text{weighted mean} = \frac{\Sigma (n^*x)}{N}$$

n = Number of samples for well
x = Average concentration of substance in well
N = Total number of samples

When calculating the weighted mean standard deviation, the "x" value is the standard deviation for the well.

3 This table is part of a report titled, "Dredged Material Pore Water Quality Assessment, DSWA Cherry Island Landfill, Wilmington, Delaware," dated March 2003, and should only be viewed in the context of that report.

APPENDIX E

EXAMPLE CALCULATIONS OF MANN-WHITNEY TEST FOR DATA SET COMPARISON

APPENDIX E
EXAMPLE CALCULATIONS OF MANN-WHITNEY TEST FOR DATA SET COMPARISON
CHERRY ISLAND LANDFILL
WILMINGTON, DE

Analyte of Interest: **Bicarbonate**

Pore Water Samples		Historical Columbia Data	
mg/L	Rank	mg/L	Rank
306	5	62.5	1
333	8	133.8	2
543	12	155.4	3
778	17	287	4
795	18	307	6
838	19	320.1	7
909	20	340.25	9
916	21	361.5	10
946	22	489	11
1050	23	571.8	13
		633.9	14
		714.8	15
		734.1	16
W (sum of ranks) =	165		

If $\mu - 1.96\delta < U < \mu + 1.96\delta$ (alpha = 0.05 level of significance)
Then the pore water data and Columbia aquifer data are statistically similar

W (sum of ranks) =	165	Largest Possible W = (n*m) + ((n*(n+1))/2)	
n (count of porewater data points) =	10	Largest W	185
m (count of Columbia data points) =	13	U=Largest W- W	20
		μ= 1/2 * n *m	65
		δ=sqrt((1/12)*n*m*(n+m+1)	16.1245155
		$\mu \pm 1.96\delta$ =	33.39594963
			96.60405037

U is not within the constraints

Therefore, the pore water data is statistically different from the Columbia aquifer data

APPENDIX F

LANCASTER LABORATORIES ANALYSIS REPORTS

Lancaster Laboratories
Where quality is a science.

ANALYTICAL RESULTS

Prepared for:

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

302-239-6634

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425

SAMPLE GROUP

The sample group for this submittal is 828431. Samples arrived at the laboratory on Friday, October 25, 2002. The PO# for this group is 4685.ED.

Client Description	Lancaster Labs Number
DR 2 Grab Water Sample	3928360
DR 2 Grab Water Sample	3928361
DR 2 DUP Grab Water Sample	3928362
DR 2 DUP Grab Water Sample	3928363
DR 4 Grab Water Sample	3928364
DR 4 Grab Water Sample	3928365
P5 12A Grab Water Sample	3928366
P5 12A Grab Water Sample	3928367
P4-4 Grab Water Sample	3928368
P4-4 Grab Water Sample	3928369

METHODOLOGY

The specific methodologies used in obtaining the enclosed analytical results are indicated on the laboratory chronicles.

1 COPY TO	Duffield Associates, Inc.	Attn: Mr. Rick Beringer
1 COPY TO	Data Package Group	

Lancaster Laboratories
Where quality is a science.

Questions? Contact your Client Services Representative
Carrie A Fleming at (717) 656-2300.

Respectfully Submitted,

Elizabeth A. Smith
Senior Chemist

MEMBER
Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681

ANALYSIS REPORT

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3928360

Collected:10/25/2002 15:30 by RKS

Account Number: 01963

Submitted: 10/25/2002 18:45
Reported: 11/26/2002 at 15:21
Discard: 12/04/2002
DR 2 Grab Water Sample
4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

DRXX2 SDG#: DUF01-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
00937	TCL Pesticides in Waters					
00938	Endrin Ketone	53494-70-5	N.D.	0.019	ug/l	1
01361	Alpha Chlordane	5103-71-9	N.D.	0.0095	ug/l	1
01362	Gamma Chlordane	5103-74-2	N.D.	0.0095	ug/l	1
01600	Alpha BHC	319-04-6	N.D.	0.0095	ug/l	1
01601	Beta BHC	319-85-7	0.021	0.0095	ug/l	1
01602	Gamma BHC - Lindane	58-89-9	0.0050 J	0.0095	ug/l	1
01603	Delta BHC	319-86-8	N.D.	0.0095	ug/l	1
01604	Heptachlor	76-44-8	N.D.	0.0095	ug/l	1
01605	Aldrin	309-00-2	N.D.	0.024	ug/l	1
01606	Heptachlor Epoxide	1024-57-3	N.D.	0.0095	ug/l	1
01607	p,p-DDE	72-55-9	N.D.	0.019	ug/l	1
01608	p,p-DDD	72-54-8	N.D.	0.019	ug/l	1
01609	p,p-DDT	50-29-3	N.D.	0.019	ug/l	1
01610	Dieldrin	60-57-1	N.D.	0.019	ug/l	1
01611	Endrin	72-20-8	0.010 J	0.019	ug/l	1
01613	Toxaphene	8001-35-2	N.D.	1.0	ug/l	1
01615	Endosulfan II	33213-65-9	N.D.	0.019	ug/l	1
01616	Endosulfan I	959-98-8	N.D.	0.0095	ug/l	1
01617	Endosulfan Sulfate	1031-07-8	N.D.	0.019	ug/l	1
01618	Endrin Aldehyde	7421-93-4	N.D.	0.095	ug/l	1
01619	PCB-1016	12674-11-2	N.D.	0.48	ug/l	1
01620	PCB-1221	11104-28-2	N.D.	0.48	ug/l	1
01621	PCB-1232	11141-16-5	N.D.	0.48	ug/l	1
01622	PCB-1242	53469-21-9	N.D.	0.48	ug/l	1
01623	PCB-1248	12672-29-6	N.D.	0.48	ug/l	1
01624	PCB-1254	11097-69-1	N.D.	0.48	ug/l	1
01626	PCB-1260	11096-82-5	N.D.	0.48	ug/l	1
01860	Methoxychlor	72-43-5	N.D.	0.095	ug/l	1

Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.

05088	PCB Congeners-Full List-water					
07994	PCB 1	2051-60-7	N.D.	0.095	ug/l	1
07996	PCB 8	34883-43-7	N.D.	0.019	ug/l	1
07997	PCB 18	37680-65-2	N.D.	0.019	ug/l	1
08002	PCB 49	41464-40-8	N.D.	0.019	ug/l	1

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3928360

Collected:10/25/2002 15:30 by RKS

Account Number: 01963

Submitted: 10/25/2002 18:45
Reported: 11/26/2002 at 15:21
Discard: 12/04/2002
DR 2 Grab Water Sample
4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

DRXX2 SDG#: DUF01-01

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation	Units	Dilution Factor
08009	PCB 87	38380-02-8	N.D.		0.019	ug/l	1
08020	PCB 128	38380-07-3	N.D.		0.019	ug/l	1
08033	PCB 180	35066-29-3	N.D.		0.019	ug/l	1
08038	PCB 194	35694-08-7	N.D.		0.019	ug/l	1
08041	PCB 206	40186-72-9	N.D.		0.019	ug/l	1
08042	PCB 209	2051-24-3	N.D.		0.019	ug/l	1

PCB-002 was detected in the blank at a concentration of 0.6 ug/l. The blank is not subtracted from the sample concentration.

04678 TCL SW846 Semivolatiles/Waters

03871	4-Chloroaniline	106-47-8	2.	J	10.	ug/l	1
03905	2-Methylnaphthalene	91-57-6	N.D.		10.	ug/l	1
03907	2-Nitroaniline	88-74-4	N.D.		10.	ug/l	1
03922	2,4,5-Trichlorophenol	95-95-4	N.D.		10.	ug/l	1
03924	2-Chlorophenol	95-57-8	N.D.		10.	ug/l	1
03925	Phenol	108-95-2	N.D.		10.	ug/l	1
03926	2-Nitrophenol	88-75-5	N.D.		10.	ug/l	1
03927	2,4-Dimethylphenol	105-67-9	N.D.		10.	ug/l	1
03928	2,4-Dichlorophenol	120-83-2	N.D.		10.	ug/l	1
03929	4-Chloro-3-methylphenol	59-50-7	N.D.		10.	ug/l	1
03930	2,4,6-Trichlorophenol	88-06-2	N.D.		10.	ug/l	1
03936	bis(2-Chloroethyl)ether	111-44-4	N.D.		10.	ug/l	1
03937	1,3-Dichlorobenzene	541-73-1	N.D.		10.	ug/l	1
03938	1,4-Dichlorobenzene	106-46-7	N.D.		10.	ug/l	1
03939	1,2-Dichlorobenzene	95-50-1	N.D.		10.	ug/l	1
03941	Hexachloroethane	67-72-1	N.D.		10.	ug/l	1
03942	N-Nitroso-di-n-propylamine	621-64-7	N.D.		10.	ug/l	1
03943	Nitrobenzene	98-95-3	N.D.		10.	ug/l	1
03944	Isophorone	78-59-1	N.D.		10.	ug/l	1
03945	bis(2-Chloroethoxy)methane	111-91-1	N.D.		10.	ug/l	1
03946	1,2,4-Trichlorobenzene	120-82-1	N.D.		10.	ug/l	1
03947	Naphthalene	91-20-3	N.D.		10.	ug/l	1
03948	Hexachlorobutadiene	87-68-3	N.D.		10.	ug/l	1
03949	Hexachlorocyclopentadiene	77-47-4	N.D.		24.	ug/l	1
03950	2-Chloronaphthalene	91-58-7	N.D.		10.	ug/l	1
03951	Acenaphthylene	208-96-8	N.D.		10.	ug/l	1
03952	Dimethylphthalate	131-11-3	N.D.		10.	ug/l	1
04680	2-Methylphenol	95-48-7	N.D.		10.	ug/l	1
04681	2,2'-oxybis(1-Chloropropane)	108-60-1	N.D.		10.	ug/l	1
04682	4-Methylphenol	106-44-5	N.D.		10.	ug/l	1

3-Methylphenol and 4-methylphenol cannot be resolved under the

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Lancaster Laboratories Sample No. WW 3928360

Collected:10/25/2002 15:30 by RKS

Account Number: 01963

Submitted: 10/25/2002 18:45
Reported: 11/26/2002 at 15:21
Discard: 12/04/2002
DR 2 Grab Water Sample
4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

DRXX2 SDG#: DUF01-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
	chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
04679	TCL SW846 Semivolatiles/Waters					
03879	Dibenzofuran	132-64-9	N.D.	10.	ug/l	1
03908	3-Nitroaniline	99-09-2	N.D.	10.	ug/l	1
03909	4-Nitroaniline	100-01-6	N.D.	10.	ug/l	1
03931	2,4-Dinitrophenol	51-28-5	N.D.	57.	ug/l	1
03932	4-Nitrophenol	100-02-7	N.D.	48.	ug/l	1
03933	4,6-Dinitro-2-methylphenol	534-52-1	N.D.	24.	ug/l	1
03934	Pentachlorophenol	87-06-5	N.D.	24.	ug/l	1
03953	2,6-Dinitrotoluene	606-20-2	N.D.	10.	ug/l	1
03954	Acenaphthene	83-32-9	N.D.	10.	ug/l	1
03955	2,4-Dinitrotoluene	121-14-2	N.D.	10.	ug/l	1
03956	Fluorene	86-73-7	N.D.	10.	ug/l	1
03957	4-Chlorophenyl-phenylether	7005-72-3	N.D.	10.	ug/l	1
03958	Diethylphthalate	84-66-2	N.D.	10.	ug/l	1
03960	N-Nitrosodiphenylamine	86-30-6	N.D.	10.	ug/l	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
03961	4-Bromophenyl-phenylether	101-55-3	N.D.	10.	ug/l	1
03962	Hexachlorobenzene	118-74-1	N.D.	10.	ug/l	1
03963	Phenanthrene	85-01-8	N.D.	10.	ug/l	1
03964	Anthracene	120-12-7	N.D.	10.	ug/l	1
03965	Di-n-butylphthalate	84-74-2	N.D.	10.	ug/l	1
03966	Fluoranthene	206-44-0	N.D.	10.	ug/l	1
03967	Pyrene	129-00-0	N.D.	10.	ug/l	1
03969	Butylbenzylphthalate	85-68-7	N.D.	10.	ug/l	1
03970	Benzo(a)anthracene	56-55-3	N.D.	10.	ug/l	1
03971	Chrysene	218-01-9	N.D.	10.	ug/l	1
03972	3,3'-Dichlorobenzidine	91-94-1	N.D.	10.	ug/l	1
03973	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	10.	ug/l	1
03974	Di-n-octylphthalate	117-84-0	N.D.	10.	ug/l	1
03975	Benzo(b)fluoranthene	205-99-2	N.D.	10.	ug/l	1
03976	Benzo(k)fluoranthene	207-08-9	N.D.	10.	ug/l	1
03977	Benzo(a)pyrene	50-32-8	N.D.	10.	ug/l	1
03978	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	10.	ug/l	1
03979	Dibenz(a,h)anthracene	53-70-3	N.D.	10.	ug/l	1
03980	Benzo(g,h,i)perylene	191-24-2	N.D.	10.	ug/l	1
04684	Carbazole	86-74-8	N.D.	10.	ug/l	1

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DRXX2 SDG#: DUF01-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
06872	Appendix I by SW846/8260-water					
05385	Chloromethane	74-87-3	N.D.	5.	ug/l	1
05386	Vinyl Chloride	75-01-4	N.D.	5.	ug/l	1
05387	Bromomethane	74-83-9	N.D.	5.	ug/l	1
05388	Chloroethane	75-00-3	N.D.	5.	ug/l	1
05389	Trichlorofluoromethane	75-69-4	N.D.	5.	ug/l	1
05390	1,1-Dichloroethene	75-35-4	N.D.	5.	ug/l	1
05391	Methylene Chloride	75-09-2	N.D.	5.	ug/l	1
05392	trans-1,2-Dichloroethene	156-60-5	N.D.	5.	ug/l	1
05393	1,1-Dichloroethane	75-34-3	N.D.	5.	ug/l	1
05395	cis-1,2-Dichloroethene	156-59-2	N.D.	5.	ug/l	1
05396	Chloroform	67-66-3	N.D.	5.	ug/l	1
05397	Bromochloromethane	74-97-5	N.D.	5.	ug/l	1
05398	1,1,1-Trichloroethane	71-55-6	N.D.	5.	ug/l	1
05399	Carbon Tetrachloride	56-23-5	N.D.	5.	ug/l	1
05401	Benzene	71-43-2	N.D.	5.	ug/l	1
05402	1,2-Dichloroethane	107-06-2	N.D.	5.	ug/l	1
05403	Trichloroethene	79-01-6	N.D.	5.	ug/l	1
05404	1,2-Dichloropropane	78-87-5	N.D.	5.	ug/l	1
05405	Dibromomethane	74-95-3	N.D.	5.	ug/l	1
05406	Bromodichloromethane	75-27-4	N.D.	5.	ug/l	1
05407	Toluene	108-88-3	N.D.	5.	ug/l	1
06302	Acetone	67-64-1	N.D.	20.	ug/l	1
06303	Carbon Disulfide	75-15-0	N.D.	5.	ug/l	1
06305	2-Butanone	78-93-3	N.D.	10.	ug/l	1
06306	trans-1,3-Dichloropropene	10061-02-6	N.D.	5.	ug/l	1
06307	cis-1,3-Dichloropropene	10061-01-5	N.D.	5.	ug/l	1
06308	4-Methyl-2-pentanone	108-10-1	N.D.	10.	ug/l	1
06874	Methyl Iodide	74-88-4	N.D.	5.	ug/l	1
06875	Acrylonitrile	107-13-1	N.D.	20.	ug/l	1
06876	Vinyl Acetate	108-05-4	N.D.	10.	ug/l	1
06873	Appendix I by SW846/8260-cont					
05408	1,1,2-Trichloroethane	79-00-5	N.D.	5.	ug/l	1
05409	Tetrachloroethene	127-18-4	N.D.	5.	ug/l	1
05411	Dibromochloromethane	124-48-1	N.D.	5.	ug/l	1
05412	1,2-Dibromoethane	106-93-4	N.D.	5.	ug/l	1
05413	Chlorobenzene	108-90-7	N.D.	5.	ug/l	1
05414	1,1,1,2-Tetrachloroethane	630-20-6	N.D.	5.	ug/l	1
05415	Ethylbenzene	100-41-4	N.D.	5.	ug/l	1

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DRXX2 SDG#: DUF01-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
05418	Styrene	100-42-5	N.D.	5.	ug/l	1
05419	Bromoform	75-25-2	N.D.	5.	ug/l	1
05421	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	5.	ug/l	1
05423	1,2,3-Trichloropropane	96-18-4	N.D.	5.	ug/l	1
05433	1,4-Dichlorobenzene	106-46-7	N.D.	5.	ug/l	1
05435	1,2-Dichlorobenzene	95-50-1	N.D.	5.	ug/l	1
05436	1,2-Dibromo-3-chloropropaue	96-12-8	N.D.	5.	ug/l	1
06309	2-Hexanone	591-78-6	N.D.	10.	ug/l	1
06310	Xylene (Total)	1330-20-7	N.D.	5.	ug/l	1
06877	trans-1,4-Dichloro-2-butene	110-57-6	N.D.	50.	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00937	TCL Pesticides in Waters	SW-846 8081A/8082	1	10/30/2002 01:07	Anita M Dale	1
05088	PCB Congeners-Full List-water	SW-846 8082 (modified)	1	11/08/2002 02:07	Tiffany A Leyda	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	11/02/2002 02:08	Linda M Hartenstine	1
04679	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	11/02/2002 02:08	Linda M Hartenstine	1
06872	Appendix I by SW846/8260-water	SW-846 8260B	1	10/29/2002 00:30	Nicole S Lamoreaux	1
06873	Appendix I by SW846/8260-cont	SW-846 8260B	1	10/29/2002 00:30	Nicole S Lamoreaux	1
00813	BNA Water Extraction	SW-846 3510C	2	10/31/2002 16:30	Elia R Botrous	1
00817	Water Sample Pest. Extraction	SW-846 3510C	2	10/28/2002 23:00	Sharon L Jones	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	10/29/2002 00:30	Nicole S Lamoreaux	n.a.

Analysis Report

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CONTINUATION OF PREVIOUS
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5400 Limestone Road
Wilmington DE 19808-1296

DRXX2 SDG#: DUF01-01CONT

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
00259	Mercury	7439-97-6	N.D.	0.00020	mg/l	1
01743	Aluminum	7429-90-5	N.D.	0.200	mg/l	1
01744	Antimony	7440-36-0	N.D.	0.200	mg/l	1
01746	Barium	7440-39-3	0.151	0.100	mg/l	1
01747	Beryllium	7440-41-7	N.D.	0.0100	mg/l	1
01749	Cadmium	7440-43-9	N.D.	0.0100	mg/l	1
01750	Calcium	7440-70-2	123.	0.200	mg/l	1
01751	Chromium	7440-47-3	0.0123 J	0.0300	mg/l	1
01752	Cobalt	7440-48-4	0.0054 J	0.0500	mg/l	1
01753	Copper	7440-50-8	N.D.	0.0250	mg/l	1
01754	Iron	7439-89-6	66.1	0.100	mg/l	1
01757	Magnesium	7439-95-4	105.	0.100	mg/l	1
01758	Manganese	7439-96-5	4.40	0.0100	mg/l	1
01761	Nickel	7440-02-0	0.0048 J	0.0500	mg/l	1
01762	Potassium	7440-09-7	23.4	0.500	mg/l	1
01766	Silver	7440-22-4	N.D.	0.0200	mg/l	1
01767	Sodium	7440-23-5	179.	3.00	mg/l	5
01771	Vanadium	7440-62-2	0.0120 J	0.0200	mg/l	1
01772	Zinc	7440-66-6	0.0060 J	0.0250	mg/l	1
07022	Thallium TR	7440-28-0	N.D.	0.0200	mg/l	1
07035	Arsenic TR	7440-38-2	N.D.	0.0100	mg/l	1
07036	Selenium TR	7782-49-2	N.D.	0.0100	mg/l	1
07055	Lead TR	7439-92-1	N.D.	0.0200	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a.	795.	2.0	mg/l as CaCO3	1
00212	Total Dissolved Solids	n.a.	1,500.	120.	mg/l	1
00217	Kjeldahl Nitrogen	7727-37-9	47.	10.	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	0.085	0.050	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.10	mg/l	1
00223	Organic Nitrogen	n.a.	12.1	1.0	mg/l	1
00224	Chloride	16887-00-6	343.	40.	mg/l	100
00228	Sulfate	14808-79-8	N.D.	5.0	mg/l	5
00273	Total Organic Carbon	n.a.	97.6	10.0	mg/l	5
00345	Total Phosphorus as PO4 water	14265-44-2	5.33	0.20	mg/l	1
01333	Sulfide	18496-25-8	N.D.	2.0	mg/l	1
01454	Bicarbonate	71-52-3	795.	2.0	mg/l as CaCO3	1
04001	Chemical Oxygen Demand	n.a.	318.	50.	mg/l	1
06914	Ammonia-Nitrogen	7664-41-7	34.6	1.0	mg/l	10
08255	Total Cyanide (water)	57-12-5	N.D.	0.0050	mg/l	1

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DRXX2 SDG#: DUF01-01CONT

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00259	Mercury	SW-846 7470A	1	10/30/2002 07:22	Deborah A Krady	1
01743	Aluminum	SW-846 6010B	1	11/02/2002 11:17	Eric W Cuba	1
01744	Antimony	SW-846 6010B	1	11/02/2002 11:17	Eric W Cuba	1
01746	Barium	SW-846 6010B	1	11/02/2002 11:17	Eric W Cuba	1
01747	Beryllium	SW-846 6010B	1	11/02/2002 11:17	Eric W Cuba	1
01749	Cadmium	SW-846 6010B	1	11/02/2002 11:17	Eric W Cuba	1
01750	Calcium	SW-846 6010B	1	11/02/2002 11:17	Eric W Cuba	1
01751	Chromium	SW-846 6010B	1	11/02/2002 11:17	Eric W Cuba	1
01752	Cobalt	SW-846 6010B	1	11/02/2002 11:17	Eric W Cuba	1
01753	Copper	SW-846 6010B	1	11/07/2002 08:11	Joanne M Gates	1
01754	Iron	SW-846 6010B	1	11/02/2002 11:17	Eric W Cuba	1
01757	Magnesium	SW-846 6010B	1	11/02/2002 11:17	Eric W Cuba	1
01758	Manganese	SW-846 6010B	1	11/02/2002 11:17	Eric W Cuba	1
01761	Nickel	SW-846 6010B	1	11/02/2002 11:17	Eric W Cuba	1
01762	Potassium	SW-846 6010B	1	11/02/2002 11:17	Eric W Cuba	1
01766	Silver	SW-846 6010B	1	11/02/2002 11:17	Eric W Cuba	1
01767	Sodium	SW-846 6010B	1	11/07/2002 08:16	Joanne M Gates	5
01771	Vanadium	SW-846 6010B	1	11/02/2002 11:17	Eric W Cuba	1
01772	Zinc	SW-846 6010B	1	11/02/2002 11:17	Eric W Cuba	1
07022	Thallium TR	SW-846 6010B	1	11/02/2002 11:17	Eric W Cuba	1
07035	Arsenic TR	SW-846 6010B	1	11/02/2002 11:17	Eric W Cuba	1
07036	Selenium TR	SW-846 6010B	1	11/02/2002 11:17	Eric W Cuba	1
07055	Lead TR	SW-846 6010B	1	11/02/2002 11:17	Eric W Cuba	1
00201	Alkalinity to pH 8.3	EPA 310.1	1	10/30/2002 06:21	Susan A Engle	1
00202	Alkalinity to pH 4.5	EPA 310.1	1	10/30/2002 06:21	Susan A Engle	1
00212	Total Dissolved Solids	EPA 160.1	1	10/29/2002 10:40	Anne L Kuenzli	1
00217	Kjeldahl Nitrogen	EPA 351.2	2	11/21/2002 20:49	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	10/26/2002 09:34	Christian C Ehrhart	1
00220	Nitrate Nitrogen	EPA 353.2	1	11/07/2002 15:30	Nicole M Kepley	1
00223	Organic Nitrogen	Std. Meth. 18th Ed., 4500-NORG	1	11/21/2002 20:49	Venia B McFadden	1
00224	Chloride	EPA 300.0	1	11/04/2002 17:09	Shannon L Phillips	100
00228	Sulfate	EPA 300.0	1	11/01/2002 13:25	Shannon L Phillips	5
00273	Total Organic Carbon	EPA 415.1	1	10/29/2002 15:00	Timothy M Petree	5
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/05/2002 18:07	Venia B McFadden	1
01333	Sulfide	EPA 376.1	1	10/31/2002 11:15	Susan E Hibner	1
01454	Bicarbonate	SM-18 2320B	1	10/30/2002 06:21	Susan A Engle	1
04001	Chemical Oxygen Demand	EPA 410.4	1	10/30/2002 10:56	Susan A Engle	1

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DRXX2 SDG#: DUF01-01CONT

06914	Ammonia-Nitrogen	EPA 350.3	1	11/04/2002 07:47	Michele L Graham	10
08255	Total Cyanide (water)	SW-846 9012A	1	11/04/2002 16:10	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	2	11/07/2002 08:25	James S Mathiot	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	10/30/2002 11:15	Christine Conlin	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	10/29/2002 19:01	Nelli S Markaryan	1
08256	Cyanide Water Distillation	SW-846 9012A	1	11/01/2002 09:25	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	11/01/2002 14:50	Nancy J Shoop	1

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Lancaster Laboratories Sample No. WW 3928362

Collected:10/25/2002 15:30 by RKS

Account Number: 01963

Submitted: 10/25/2002 18:45
Reported: 11/26/2002 at 15:21
Discard: 12/04/2002
DR 2 DUP Grab Water Sample
4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

DR2DP SDG#: DUF01-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
00937	TCL Pesticides in Waters					
00938	Endrin Ketone	53494-70-5	N.D.	0.019	ug/l	1
01361	Alpha Chlordane	5103-71-9	N.D.	0.0096	ug/l	1
01362	Gamma Chlordane	5103-74-2	N.D.	0.0096	ug/l	1
01600	Alpha BHC	319-84-6	N.D.	0.0096	ug/l	1
01601	Beta BHC	319-85-7	N.D.	0.0096	ug/l	1
01602	Gamma BHC - Lindane	58-89-9	0.0038 J	0.0096	ug/l	1
01603	Delta BHC	319-86-8	0.018	0.0096	ug/l	1
01604	Heptachlor	76-44-8	N.D.	0.0096	ug/l	1
01605	Aldrin	309-00-2	N.D.	0.024	ug/l	1
01606	Heptachlor Epoxide	1024-57-3	N.D.	0.0096	ug/l	1
01607	p,p-DDE	72-55-9	N.D.	0.019	ug/l	1
01608	p,p-DDD	72-54-8	N.D.	0.019	ug/l	1
01609	p,p-DDT	50-29-3	N.D.	0.019	ug/l	1
01610	Dieldrin	60-57-1	N.D.	0.019	ug/l	1
01611	Endrin	72-20-8	0.0052 J	0.019	ug/l	1
01613	Toxaphene	8001-35-2	N.D.	1.0	ug/l	1
01615	Endosulfan II	33213-65-9	N.D.	0.019	ug/l	1
01616	Endosulfan I	959-98-8	N.D.	0.0096	ug/l	1
01617	Endosulfan Sulfate	1031-07-8	N.D.	0.019	ug/l	1
01618	Endrin Aldehyde	7421-93-4	N.D.	0.096	ug/l	1
01619	PCB-1016	12674-11-2	N.D.	0.48	ug/l	1
01620	PCB-1221	11104-28-2	N.D.	0.48	ug/l	1
01621	PCB-1232	11141-16-5	N.D.	0.48	ug/l	1
01622	PCB-1242	53469-21-9	N.D.	0.48	ug/l	1
01623	PCB-1248	12672-29-6	N.D.	0.48	ug/l	1
01624	PCB-1254	11097-69-1	N.D.	0.48	ug/l	1
01626	PCB-1260	11096-82-5	N.D.	0.48	ug/l	1
01860	Methoxychlor	72-43-5	N.D.	0.096	ug/l	1

Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.

05088	PCB Congeners-Full List-water					
07994	PCB 1	2051-60-7	N.D.	0.095	ug/l	1
07996	PCB 8	34883-43-7	N.D.	0.019	ug/l	1
07997	PCB 18	37680-65-2	N.D.	0.019	ug/l	1
08002	PCB 49	41464-40-8	N.D.	0.019	ug/l	1

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CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
08009	PCB 87	38380-02-8	N.D.	0.019	ug/l	1
08020	PCB 128	38380-07-3	N.D.	0.019	ug/l	1
08033	PCB 180	35066-29-3	N.D.	0.019	ug/l	1
08038	PCB 194	35694-08-7	N.D.	0.019	ug/l	1
08041	PCB 206	40186-72-9	N.D.	0.019	ug/l	1
08042	PCB 209	2051-24-3	N.D.	0.019	ug/l	1

PCB-002 was detected in the blank at a concentration of 0.6 ug/l. The blank is not subtracted from the sample concentration.

04678 TCL SW846 Semivolatiles/Waters

03871	4-Chloroaniline	106-47-8	N.D.	10.	ug/l	1
03905	2-Methylnaphthalene	91-57-6	N.D.	10.	ug/l	1
03907	2-Nitroaniline	88-74-4	N.D.	10.	ug/l	1
03922	2,4,5-Trichlorophenol	95-95-4	N.D.	10.	ug/l	1
03924	2-Chlorophenol	95-57-8	N.D.	10.	ug/l	1
03925	Phenol	108-95-2	N.D.	10.	ug/l	1
03926	2-Nitrophenol	88-75-5	N.D.	10.	ug/l	1
03927	2,4-Dimethylphenol	105-67-9	N.D.	10.	ug/l	1
03928	2,4-Dichlorophenol	120-83-2	N.D.	10.	ug/l	1
03929	4-Chloro-3-methylphenol	59-50-7	N.D.	10.	ug/l	1
03930	2,4,6-Trichlorophenol	88-06-2	N.D.	10.	ug/l	1
03936	bis(2-Chloroethyl)ether	111-44-4	N.D.	10.	ug/l	1
03937	1,3-Dichlorobenzene	541-73-1	N.D.	10.	ug/l	1
03938	1,4-Dichlorobenzene	106-46-7	N.D.	10.	ug/l	1
03939	1,2-Dichlorobenzene	95-50-1	N.D.	10.	ug/l	1
03941	Hexachloroethane	67-72-1	N.D.	10.	ug/l	1
03942	N-Nitroso-di-n-propylamine	621-64-7	N.D.	10.	ug/l	1
03943	Nitrobenzene	98-95-3	N.D.	10.	ug/l	1
03944	Isophorone	78-59-1	N.D.	10.	ug/l	1
03945	bis(2-Chloroethoxy)methane	111-91-1	N.D.	10.	ug/l	1
03946	1,2,4-Trichlorobenzene	120-82-1	N.D.	10.	ug/l	1
03947	Naphthalene	91-20-3	N.D.	10.	ug/l	1
03948	Hexachlorobutadiene	87-68-3	N.D.	10.	ug/l	1
03949	Hexachlorocyclopentadiene	77-47-4	N.D.	24.	ug/l	1
03950	2-Chloronaphthalene	91-58-7	N.D.	10.	ug/l	1
03951	Acenaphthylene	208-96-8	N.D.	10.	ug/l	1
03952	Dimethylphthalate	131-11-3	N.D.	10.	ug/l	1
04680	2-Methylphenol	95-48-7	N.D.	10.	ug/l	1
04681	2,2'-oxybis(1-Chloropropane)	108-60-1	N.D.	10.	ug/l	1
04682	4-Methylphenol	106-44-5	N.D.	10.	ug/l	1

3-Methylphenol and 4-methylphenol cannot be resolved under the

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5400 Limestone Road
Wilmington DE 19808-1296

DR2DP SDG#: DUF01-02

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation	Units	Dilution Factor
	chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.						
04679	TCL SW846 Semivolatiles/Waters						
03879	Dibenzofuran	132-64-9	N.D.		10.	ug/l	1
03908	3-Nitroaniline	99-09-2	N.D.		10.	ug/l	1
03909	4-Nitroaniline	100-01-6	N.D.		10.	ug/l	1
03931	2,4-Dinitrophenol	51-28-5	N.D.		57.	ug/l	1
03932	4-Nitrophenol	100-02-7	N.D.		48.	ug/l	1
03933	4,6-Dinitro-2-methylphenol	534-52-1	N.D.		24.	ug/l	1
03934	Pentachlorophenol	87-86-5	N.D.		24.	ug/l	1
03953	2,6-Dinitrotoluene	606-20-2	N.D.		10.	ug/l	1
03954	Acenaphthene	83-32-9	N.D.		10.	ug/l	1
03955	2,4-Dinitrotoluene	121-14-2	N.D.		10.	ug/l	1
03956	Fluorene	86-73-7	N.D.		10.	ug/l	1
03957	4-Chlorophenyl-phenylether	7005-72-3	N.D.		10.	ug/l	1
03958	Diethylphthalate	84-66-2	N.D.		10.	ug/l	1
03960	N-Nitrosodiphenylamine	86-30-6	N.D.		10.	ug/l	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.						
03961	4-Bromophenyl-phenylether	101-55-3	N.D.		10.	ug/l	1
03962	Hexachlorobenzene	118-74-1	N.D.		10.	ug/l	1
03963	Phenanthrene	85-01-8	N.D.		10.	ug/l	1
03964	Anthracene	120-12-7	N.D.		10.	ug/l	1
03965	Di-n-butylphthalate	84-74-2	N.D.		10.	ug/l	1
03966	Fluoranthene	206-44-0	N.D.		10.	ug/l	1
03967	Pyrene	129-00-0	N.D.		10.	ug/l	1
03969	Butylbenzylphthalate	85-68-7	N.D.		10.	ug/l	1
03970	Benzo(a)anthracene	56-55-3	N.D.		10.	ug/l	1
03971	Chrysene	218-01-9	N.D.		10.	ug/l	1
03972	3,3'-Dichlorobenzidine	91-94-1	N.D.		10.	ug/l	1
03973	bis(2-Ethylhexyl)phthalate	117-81-7	3.	J	10.	ug/l	1
03974	Di-n-octylphthalate	117-84-0	N.D.		10.	ug/l	1
03975	Benzo(b)fluoranthene	205-99-2	N.D.		10.	ug/l	1
03976	Benzo(k)fluoranthene	207-08-9	N.D.		10.	ug/l	1
03977	Benzo(a)pyrene	50-32-8	N.D.		10.	ug/l	1
03978	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		10.	ug/l	1
03979	Dibenz(a,h)anthracene	53-70-3	N.D.		10.	ug/l	1
03980	Benzo(g,h,i)perylene	191-24-2	N.D.		10.	ug/l	1
04684	Carbazole	86-74-8	N.D.		10.	ug/l	1

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DR2DP SDG#: DUF01-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
06872	Appendix I by SW846/8260-water					
05385	Chloromethane	74-87-3	N.D.	5.	ug/l	1
05386	Vinyl Chloride	75-01-4	N.D.	5.	ug/l	1
05387	Bromomethane	74-83-9	N.D.	5.	ug/l	1
05388	Chloroethane	75-00-3	N.D.	5.	ug/l	1
05389	Trichlorofluoromethane	75-69-4	N.D.	5.	ug/l	1
05390	1,1-Dichloroethene	75-35-4	N.D.	5.	ug/l	1
05391	Methylene Chloride	75-09-2	N.D.	5.	ug/l	1
05392	trans-1,2-Dichloroethene	156-60-5	N.D.	5.	ug/l	1
05393	1,1-Dichloroethane	75-34-3	N.D.	5.	ug/l	1
05395	cis-1,2-Dichloroethene	156-59-2	N.D.	5.	ug/l	1
05396	Chloroform	67-66-3	N.D.	5.	ug/l	1
05397	Bromochloromethane	74-97-5	N.D.	5.	ug/l	1
05398	1,1,1-Trichloroethane	71-55-6	N.D.	5.	ug/l	1
05399	Carbon Tetrachloride	56-23-5	N.D.	5.	ug/l	1
05401	Benzene	71-43-2	N.D.	5.	ug/l	1
05402	1,2-Dichloroethane	107-06-2	N.D.	5.	ug/l	1
05403	Trichloroethene	79-01-6	N.D.	5.	ug/l	1
05404	1,2-Dichloropropane	78-87-5	N.D.	5.	ug/l	1
05405	Dibromomethane	74-95-3	N.D.	5.	ug/l	1
05406	Bromodichloromethane	75-27-4	N.D.	5.	ug/l	1
05407	Toluene	108-88-3	N.D.	5.	ug/l	1
06302	Acetone	67-64-1	N.D.	20.	ug/l	1
06303	Carbon Disulfide	75-15-0	N.D.	5.	ug/l	1
06305	2-Butanone	78-93-3	N.D.	10.	ug/l	1
06306	trans-1,3-Dichloropropene	10061-02-6	N.D.	5.	ug/l	1
06307	cis-1,3-Dichloropropene	10061-01-5	N.D.	5.	ug/l	1
06308	4-Methyl-2-pentanone	108-10-1	N.D.	10.	ug/l	1
06874	Methyl Iodide	74-88-4	N.D.	5.	ug/l	1
06875	Acrylonitrile	107-13-1	N.D.	20.	ug/l	1
06876	Vinyl Acetate	108-05-4	N.D.	10.	ug/l	1
06873	Appendix I by SW846/8260-cont					
05408	1,1,2-Trichloroethane	79-00-5	N.D.	5.	ug/l	1
05409	Tetrachloroethene	127-18-4	N.D.	5.	ug/l	1
05411	Dibromochloromethane	124-48-1	N.D.	5.	ug/l	1
05412	1,2-Dibromoethane	106-93-4	N.D.	5.	ug/l	1
05413	Chlorobenzene	108-90-7	N.D.	5.	ug/l	1
05414	1,1,1,2-Tetrachloroethane	630-20-6	N.D.	5.	ug/l	1
05415	Ethylbenzene	100-41-4	N.D.	5.	ug/l	1

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DR2DP SDG#: DUF01-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
05418	Styrene	100-42-5	N.D.	5.	ug/l	1
05419	Bromoform	75-25-2	N.D.	5.	ug/l	1
05421	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	5.	ug/l	1
05423	1,2,3-Trichloropropane	96-18-4	N.D.	5.	ug/l	1
05433	1,4-Dichlorobenzene	106-46-7	N.D.	5.	ug/l	1
05435	1,2-Dichlorobenzene	95-50-1	N.D.	5.	ug/l	1
05436	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	5.	ug/l	1
06309	2-Hexanone	591-78-6	N.D.	10.	ug/l	1
06310	Xylene (Total)	1330-20-7	N.D.	5.	ug/l	1
06877	trans-1,4-Dichloro-2-butene	110-57-6	N.D.	50.	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00937	TCL Pesticides in Waters	SW-846 8081A/8082	1	10/30/2002 01:28	Anita M Dale	1
05088	PCB Congeners-Full List-water	SW-846 8082 (modified)	1	11/08/2002 03:10	Tiffany A Leyda	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	11/02/2002 02:57	Linda M Hartenstine	1
04679	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	11/02/2002 02:57	Linda M Hartenstine	1
06872	Appendix I by SW846/8260-water	SW-846 8260B	1	10/29/2002 00:55	Nicole S Lamoreaux	1
06873	Appendix I by SW846/8260-cont	SW-846 8260B	1	10/29/2002 00:55	Nicole S Lamoreaux	1
00813	BNA Water Extraction	SW-846 3510C	2	10/31/2002 16:30	Elia R Botrous	1
00817	Water Sample Pest. Extraction	SW-846 3510C	2	10/28/2002 23:00	Sharon L Jones	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	10/29/2002 00:55	Nicole S Lamoreaux	n.a.

Analysis Report

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DR2DP SDG#: DUF01-02CONT

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
00259	Mercury	7439-97-6	N.D.	0.00020	mg/l	1
01743	Aluminum	7429-90-5	N.D.	0.200	mg/l	1
01744	Antimony	7440-36-0	N.D.	0.200	mg/l	1
01746	Barium	7440-39-3	0.156	0.100	mg/l	1
01747	Beryllium	7440-41-7	N.D.	0.0100	mg/l	1
01749	Cadmium	7440-43-9	N.D.	0.0100	mg/l	1
01750	Calcium	7440-70-2	125.	0.200	mg/l	1
01751	Chromium	7440-47-3	0.0121 J	0.0300	mg/l	1
01752	Cobalt	7440-48-4	0.0048 J	0.0500	mg/l	1
01753	Copper	7440-50-8	0.0039 J	0.0250	mg/l	1
01754	Iron	7439-89-6	67.4	0.100	mg/l	1
01757	Magnesium	7439-95-4	106.	0.100	mg/l	1
01758	Manganese	7439-96-5	4.49	0.0100	mg/l	1
01761	Nickel	7440-02-0	0.0063 J	0.0500	mg/l	1
01762	Potassium	7440-09-7	24.2	0.500	mg/l	1
01766	Silver	7440-22-4	N.D.	0.0200	mg/l	1
01767	Sodium	7440-23-5	176.	3.00	mg/l	5
01771	Vanadium	7440-62-2	0.0118 J	0.0200	mg/l	1
01772	Zinc	7440-66-6	0.0097 J	0.0250	mg/l	1
07022	Thallium TR	7440-28-0	N.D.	0.0200	mg/l	1
07035	Arsenic TR	7440-38-2	0.0055 J	0.0100	mg/l	1
07036	Selenium TR	7782-49-2	N.D.	0.0100	mg/l	1
07055	Lead TR	7439-92-1	N.D.	0.0200	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a.	811.	2.0	mg/l as CaCO3	1
00212	Total Dissolved Solids	n.a.	1,510.	120.	mg/l	1
00217	Kjeldahl Nitrogen	7727-37-9	47.	10.	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	0.034 J	0.050	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.10	mg/l	1
00223	Organic Nitrogen	n.a.	12.0	1.0	mg/l	1
00224	Chloride	16887-00-6	349.	40.	mg/l	100
00228	Sulfate	14808-79-8	N.D.	5.0	mg/l	5
00273	Total Organic Carbon	n.a.	96.7	10.0	mg/l	5
00345	Total Phosphorus as PO4 water	14265-44-2	8.01	0.20	mg/l	1
01333	Sulfide	18496-25-8	N.D.	2.0	mg/l	1
01454	Bicarbonate	71-52-3	811.	2.0	mg/l as CaCO3	1
04001	Chemical Oxygen Demand	n.a.	325.	50.	mg/l	1
06914	Ammonia-Nitrogen	7664-41-7	35.0	1.0	mg/l	10
08255	Total Cyanide (water)	57-12-5	N.D.	0.0050	mg/l	1

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DR2DP SDG#: DUF01-02CONT

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00259	Mercury	SW-846 7470A	1	10/30/2002 07:24	Deborah A Krady	1
01743	Aluminum	SW-846 6010B	1	11/02/2002 11:22	Eric W Cuba	1
01744	Antimony	SW-846 6010B	1	11/02/2002 11:22	Eric W Cuba	1
01746	Barium	SW-846 6010B	1	11/02/2002 11:22	Eric W Cuba	1
01747	Beryllium	SW-846 6010B	1	11/02/2002 11:22	Eric W Cuba	1
01749	Cadmium	SW-846 6010B	1	11/02/2002 11:22	Eric W Cuba	1
01750	Calcium	SW-846 6010B	1	11/02/2002 11:22	Eric W Cuba	1
01751	Chromium	SW-846 6010B	1	11/02/2002 11:22	Eric W Cuba	1
01752	Cobalt	SW-846 6010B	1	11/02/2002 11:22	Eric W Cuba	1
01753	Copper	SW-846 6010B	1	11/02/2002 11:22	Eric W Cuba	1
01754	Iron	SW-846 6010B	1	11/07/2002 08:21	Joanne M Gates	1
01757	Magnesium	SW-846 6010B	1	11/02/2002 11:22	Eric W Cuba	1
01758	Manganese	SW-846 6010B	1	11/02/2002 11:22	Eric W Cuba	1
01761	Nickel	SW-846 6010B	1	11/02/2002 11:22	Eric W Cuba	1
01762	Potassium	SW-846 6010B	1	11/02/2002 11:22	Eric W Cuba	1
01766	Silver	SW-846 6010B	1	11/02/2002 11:22	Eric W Cuba	1
01767	Sodium	SW-846 6010B	1	11/02/2002 11:22	Eric W Cuba	1
01771	Vanadium	SW-846 6010B	1	11/02/2002 11:22	Eric W Cuba	1
01772	Zinc	SW-846 6010B	1	11/02/2002 11:22	Eric W Cuba	1
07022	Thallium TR	SW-846 6010B	1	11/02/2002 11:22	Eric W Cuba	1
07035	Arsenic TR	SW-846 6010B	1	11/02/2002 11:22	Eric W Cuba	1
07036	Selenium TR	SW-846 6010B	1	11/02/2002 11:22	Eric W Cuba	1
07055	Lead TR	SW-846 6010B	1	11/02/2002 11:22	Eric W Cuba	1
00201	Alkalinity to pH 8.3	EPA 310.1	1	10/30/2002 06:21	Susan A Engle	1
00202	Alkalinity to pH 4.5	EPA 310.1	1	10/30/2002 06:21	Susan A Engle	1
00212	Total Dissolved Solids	EPA 160.1	1	10/29/2002 10:40	Anne L Kuenzli	1
00217	Kjeldahl Nitrogen	EPA 351.2	2	11/21/2002 20:50	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	10/26/2002 09:35	Christian C Ehrhart	1
00220	Nitrate Nitrogen	EPA 353.2	1	11/07/2002 15:31	Nicole M Kepley	1
00223	Organic Nitrogen	Std. Meth. 18th Ed., 4500-NORG	1	11/21/2002 20:49	Venia B McFadden	1
00224	Chloride	EPA 300.0	1	11/04/2002 17:56	Shannon L Phillips	100
00228	Sulfate	EPA 300.0	1	11/01/2002 14:11	Shannon L Phillips	5
00273	Total Organic Carbon	EPA 415.1	1	10/29/2002 15:24	Timothy M Petree	5
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/05/2002 18:08	Venia B McFadden	1
01333	Sulfide	EPA 376.1	1	10/31/2002 11:15	Susan E Hibner	1
01454	Bicarbonate	SM-18 2320B	1	10/30/2002 06:21	Susan A Engle	1
04001	Chemical Oxygen Demand	EPA 410.4	1	10/30/2002 10:56	Susan A Engle	1

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Collected:10/25/2002 15:30 by RKS

Account Number: 01963

Duffield Associates, Inc.
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Wilmington DE 19808-1296

Submitted: 10/25/2002 18:45
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DR 2 DUP Grab Water Sample
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DR2DP SDG#: DUF01-02CONT

06914	Ammonia-Nitrogen	EPA 350.3	1	11/04/2002 07:47	Michele L Graham	10
08255	Total Cyanide (water)	SW-846 9012A	1	11/04/2002 16:11	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	2	11/07/2002 08:25	James S Mathiot	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	10/30/2002 11:15	Christine Conlin	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	10/29/2002 19:01	Nelli S Markaryan	1
08256	Cyanide Water Distillation	SW-846 9012A	1	11/01/2002 09:25	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	11/01/2002 14:50	Nancy J Shoop	1

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Collected:10/25/2002 14:00 by RKS

Account Number: 01963

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Discard: 12/04/2002
DR 4 Grab Water Sample
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Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

DRXX4 SDG#: DUF01-03

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
00937	TCL Pesticides in Waters					
00938	Endrin Ketone	53494-70-5	N.D.	0.019	ug/l	1
01361	Alpha Chlordane	5103-71-9	N.D.	0.0095	ug/l	1
01362	Gamma Chlordane	5103-74-2	N.D.	0.0095	ug/l	1
01600	Alpha BHC	319-84-6	N.D.	0.0095	ug/l	1
01601	Beta BHC	319-85-7	0.013	0.0095	ug/l	1
01602	Gamma BHC - Lindane	58-89-9	N.D.	0.0095	ug/l	1
01603	Delta BHC	319-86-8	N.D.	0.0095	ug/l	1
01604	Heptachlor	76-44-8	N.D.	0.0095	ug/l	1
01605	Aldrin	309-00-2	N.D.	0.024	ug/l	1
01606	Heptachlor Epoxide	1024-57-3	N.D.	0.0095	ug/l	1
01607	p,p-DDE	72-55-9	N.D.	0.019	ug/l	1
01608	p,p-DDD	72-54-8	N.D.	0.019	ug/l	1
01609	p,p-DDT	50-29-3	N.D.	0.019	ug/l	1
01610	Dieldrin	60-57-1	N.D.	0.019	ug/l	1
01611	Endrin	72-20-8	N.D.	0.019	ug/l	1
01613	Toxaphene	8001-35-2	N.D.	1.0	ug/l	1
01615	Endosulfan II	33213-65-9	N.D.	0.019	ug/l	1
01616	Endosulfan I	959-98-8	N.D.	0.0095	ug/l	1
01617	Endosulfan Sulfate	1031-07-8	N.D.	0.019	ug/l	1
01618	Endrin Aldehyde	7421-93-4	N.D.	0.095	ug/l	1
01619	PCB-1016	12674-11-2	N.D.	0.48	ug/l	1
01620	PCB-1221	11104-28-2	N.D.	0.48	ug/l	1
01621	PCB-1232	11141-16-5	N.D.	0.48	ug/l	1
01622	PCB-1242	53469-21-9	N.D.	0.48	ug/l	1
01623	PCB-1248	12672-29-6	N.D.	0.48	ug/l	1
01624	PCB-1254	11097-69-1	N.D.	0.48	ug/l	1
01626	PCB-1260	11096-82-5	N.D.	0.48	ug/l	1
01860	Methoxychlor	72-43-5	N.D.	0.095	ug/l	1

Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.

05088	PCB Congeners-Full List-water					
07994	PCB 1	2051-60-7	N.D.	0.095	ug/l	1
07996	PCB 8	34883-43-7	N.D.	0.019	ug/l	1
07997	PCB 18	37680-65-2	N.D.	0.019	ug/l	1
08002	PCB 49	41464-40-8	N.D.	0.019	ug/l	1

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DR 4 Grab Water Sample
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Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

DRXX4 SDG#: DUF01-03

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation	Units	Dilution Factor
08009	PCB 87	38380-02-8	N.D.		0.019	ug/l	1
08020	PCB 128	38380-07-3	N.D.		0.019	ug/l	1
08033	PCB 180	35066-29-3	N.D.		0.019	ug/l	1
08038	PCB 194	35694-08-7	N.D.		0.019	ug/l	1
08041	PCB 206	40186-72-9	N.D.		0.019	ug/l	1
08042	PCB 209	2051-24-3	N.D.		0.019	ug/l	1

PCB-002 was detected in the blank at a concentration of 0.6 ug/l. The blank is not subtracted from the sample concentration.

04678 TCL SW846 Semivolatiles/Waters

03871	4-Chloroaniline	106-47-8	N.D.		10.	ug/l	1
03905	2-Methylnaphthalene	91-57-6	N.D.		10.	ug/l	1
03907	2-Nitroaniline	88-74-4	N.D.		10.	ug/l	1
03922	2,4,5-Trichlorophenol	95-95-4	N.D.		10.	ug/l	1
03924	2-Chlorophenol	95-57-8	N.D.		10.	ug/l	1
03925	Phenol	108-95-2	3.	J	10.	ug/l	1
03926	2-Nitrophenol	88-75-5	N.D.		10.	ug/l	1
03927	2,4-Dimethylphenol	105-67-9	N.D.		10.	ug/l	1
03928	2,4-Dichlorophenol	120-83-2	N.D.		10.	ug/l	1
03929	4-Chloro-3-methylphenol	59-50-7	N.D.		10.	ug/l	1
03930	2,4,6-Trichlorophenol	88-06-2	N.D.		10.	ug/l	1
03936	bis(2-Chloroethyl)ether	111-44-4	N.D.		10.	ug/l	1
03937	1,3-Dichlorobenzene	541-73-1	N.D.		10.	ug/l	1
03938	1,4-Dichlorobenzene	106-46-7	N.D.		10.	ug/l	1
03939	1,2-Dichlorobenzene	95-50-1	N.D.		10.	ug/l	1
03941	Hexachloroethane	67-72-1	N.D.		10.	ug/l	1
03942	N-Nitroso-di-n-propylamine	621-64-7	N.D.		10.	ug/l	1
03943	Nitrobenzene	98-95-3	N.D.		10.	ug/l	1
03944	Isophorone	78-59-1	N.D.		10.	ug/l	1
03945	bis(2-Chloroethoxy)methane	111-91-1	N.D.		10.	ug/l	1
03946	1,2,4-Trichlorobenzene	120-82-1	N.D.		10.	ug/l	1
03947	Naphthalene	91-20-3	N.D.		10.	ug/l	1
03948	Hexachlorobutadiene	87-68-3	N.D.		10.	ug/l	1
03949	Hexachlorocyclopentadiene	77-47-4	N.D.		24.	ug/l	1
03950	2-Chloronaphthalene	91-58-7	N.D.		10.	ug/l	1
03951	Acenaphthylene	208-96-8	N.D.		10.	ug/l	1
03952	Dimethylphthalate	131-11-3	N.D.		10.	ug/l	1
04680	2-Methylphenol	95-48-7	N.D.		10.	ug/l	1
04681	2,2'-oxybis(1-Chloropropane)	108-60-1	N.D.		10.	ug/l	1
04682	4-Methylphenol	106-44-5	2.	J	10.	ug/l	1

3-Methylphenol and 4-methylphenol cannot be resolved under the

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Lancaster Laboratories Sample No. WW 3928364

Collected:10/25/2002 14:00 by RKS

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Discard: 12/04/2002
DR 4 Grab Water Sample
4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

DRXX4 SDG#: DUF01-03

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
	chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
04679	TCL SW846 Semivolatiles/Waters					
03879	Dibenzofuran	132-64-9	N.D.	10.	ug/l	1
03908	3-Nitroaniline	99-09-2	N.D.	10.	ug/l	1
03909	4-Nitroaniline	100-01-6	N.D.	10.	ug/l	1
03931	2,4-Dinitrophenol	51-28-5	N.D.	58.	ug/l	1
03932	4-Nitrophenol	100-02-7	N.D.	48.	ug/l	1
03933	4,6-Dinitro-2-methylphenol	534-52-1	N.D.	24.	ug/l	1
03934	Pentachlorophenol	87-86-5	N.D.	24.	ug/l	1
03953	2,6-Dinitrotoluene	606-20-2	N.D.	10.	ug/l	1
03954	Acenaphthene	83-32-9	N.D.	10.	ug/l	1
03955	2,4-Dinitrotoluene	121-14-2	N.D.	10.	ug/l	1
03956	Fluorene	86-73-7	N.D.	10.	ug/l	1
03957	4-Chlorophenyl-phenylether	7005-72-3	N.D.	10.	ug/l	1
03958	Diethylphthalate	84-66-2	N.D.	10.	ug/l	1
03960	N-Nitrosodiphenylamine	86-30-6	N.D.	10.	ug/l	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
03961	4-Bromophenyl-phenylether	101-55-3	N.D.	10.	ug/l	1
03962	Hexachlorobenzene	118-74-1	N.D.	10.	ug/l	1
03963	Phenanthrene	85-01-8	N.D.	10.	ug/l	1
03964	Anthracene	120-12-7	N.D.	10.	ug/l	1
03965	Di-n-butylphthalate	84-74-2	N.D.	10.	ug/l	1
03966	Fluoranthene	206-44-0	N.D.	10.	ug/l	1
03967	Pyrene	129-00-0	N.D.	10.	ug/l	1
03969	Butylbenzylphrhalate	85-68-7	N.D.	10.	ug/l	1
03970	Benzo(a)anthracene	56-55-3	N.D.	10.	ug/l	1
03971	Chrysene	218-01-9	N.D.	10.	ug/l	1
03972	3,3'-Dichlorobenzidine	91-94-1	N.D.	10.	ug/l	1
03973	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	10.	ug/l	1
03974	Di-n-octylphthalate	117-84-0	N.D.	10.	ug/l	1
03975	Benzo(b)fluoranthene	205-99-2	N.D.	10.	ug/l	1
03976	Benzo(k)fluoranthene	207-08-9	N.D.	10.	ug/l	1
03977	Benzo(a)pyrene	50-32-8	N.D.	10.	ug/l	1
03978	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	10.	ug/l	1
03979	Dibenz(a,h)anthracene	53-70-3	N.D.	10.	ug/l	1
03980	Benzo(g,h,i)perylene	191-24-2	N.D.	10.	ug/l	1
04684	Carbazole	86-74-8	N.D.	10.	ug/l	1

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DR 4 Grab Water Sample
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Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

DRXX4 SDG#: DUF01-03

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation	Units	Dilution Factor
06872	Appendix I by SW846/8260-water						
05385	Chloromethane	74-87-3	N.D.		5.	ug/l	1
05386	Vinyl Chloride	75-01-4	N.D.		5.	ug/l	1
05387	Bromomethane	74-83-9	N.D.		5.	ug/l	1
05388	Chloroethane	75-00-3	N.D.		5.	ug/l	1
05389	Trichlorofluoromethane	75-69-4	N.D.		5.	ug/l	1
05390	1,1-Dichloroethene	75-35-4	N.D.		5.	ug/l	1
05391	Methylene Chloride	75-09-2	N.D.		5.	ug/l	1
05392	trans-1,2-Dichloroethene	156-60-5	N.D.		5.	ug/l	1
05393	1,1-Dichloroethane	75-34-3	N.D.		5.	ug/l	1
05395	cis-1,2-Dichloroethene	156-59-2	N.D.		5.	ug/l	1
05396	Chloroform	67-66-3	N.D.		5.	ug/l	1
05397	Bromochloromethane	74-97-5	N.D.		5.	ug/l	1
05398	1,1,1-Trichloroethane	71-55-6	N.D.		5.	ug/l	1
05399	Carbon Tetrachloride	56-23-5	N.D.		5.	ug/l	1
05401	Benzene	71-43-2	N.D.		5.	ug/l	1
05402	1,2-Dichloroethane	107-06-2	N.D.		5.	ug/l	1
05403	Trichloroethene	79-01-6	N.D.		5.	ug/l	1
05404	1,2-Dichloropropane	78-87-5	N.D.		5.	ug/l	1
05405	Dibromomethane	74-95-3	N.D.		5.	ug/l	1
05406	Bromodichloromethane	75-27-4	N.D.		5.	ug/l	1
05407	Toluene	108-88-3	1.	J	5.	ug/l	1
06302	Acetone	67-64-1	12.	J	20.	ug/l	1
06303	Carbon Disulfide	75-15-0	N.D.		5.	ug/l	1
06305	2-Butanone	78-93-3	N.D.		10.	ug/l	1
06306	trans-1,3-Dichloropropene	10061-02-6	N.D.		5.	ug/l	1
06307	cis-1,3-Dichloropropene	10061-01-5	N.D.		5.	ug/l	1
06308	4-Methyl-2-pentanone	108-10-1	N.D.		10.	ug/l	1
06874	Methyl Iodide	74-88-4	N.D.		5.	ug/l	1
06875	Acrylonitrile	107-13-1	N.D.		20.	ug/l	1
06876	Vinyl Acetate	108-05-4	N.D.		10.	ng/l	1
06873	Appendix I by SW846/8260-cont						
05408	1,1,2-Trichloroethane	79-00-5	N.D.		5.	ug/l	1
05409	Tetrachloroethene	127-18-4	N.D.		5.	ug/l	1
05411	Dibromochloromethane	124-48-1	N.D.		5.	ug/l	1
05412	1,2-Dibromoethane	106-93-4	N.D.		5.	ug/l	1
05413	Chlorobenzene	108-90-7	N.D.		5.	ug/l	1
05414	1,1,1,2-Tetrachloroethane	630-20-6	N.D.		5.	ug/l	1
05415	Ethylbenzene	100-41-4	N.D.		5.	ug/l	1

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Discard: 12/04/2002
DR 4 Grab Water Sample
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Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

DRXX4 SDG#: DUF01-03

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
05418	Styrene	100-42-5	N.D.	5.	ug/l	1
05419	Bromoform	75-25-2	N.D.	5.	ug/l	1
05421	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	5.	ug/l	1
05423	1,2,3-Trichloropropane	96-18-4	N.D.	5.	ug/l	1
05433	1,4-Dichlorobenzene	106-46-7	N.D.	5.	ug/l	1
05435	1,2-Dichlorobenzene	95-50-1	N.D.	5.	ug/l	1
05436	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	5.	ug/l	1
06309	2-Hexanone	591-78-6	N.D.	10.	ug/l	1
06310	Xylene (Total)	1330-20-7	N.D.	5.	ug/l	1
06877	trans-1,4-Dichloro-2-butene	110-57-6	N.D.	50.	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00937	TCL Pesticides in Waters	SW-846 8081A/8082	1	10/30/2002 01:49	Anita M Dale	1
05088	PCB Congeners-Full List-water	SW-846 8082 (modified)	1	11/08/2002 04:13	Tiffany A Leyda	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	11/02/2002 03:45	Linda M Hartenstine	1
04679	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	11/02/2002 03:45	Linda M Hartenstine	1
06872	Appendix I by SW846/8260-water	SW-846 8260B	1	10/29/2002 01:21	Nicole S Lamoreaux	1
06873	Appendix I by SW846/8260-cont	SW-846 8260B	1	10/29/2002 01:21	Nicole S Lamoreaux	1
00813	BNA Water Extraction	SW-846 3510C	2	10/31/2002 16:30	Elia R Botrous	1
00817	Water Sample Pest. Extraction	SW-846 3510C	2	10/28/2002 23:00	Sharon L Jones	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	10/29/2002 01:21	Nicole S Lamoreaux	n.a.

Analysis Report

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Lancaster Laboratories Sample No. WW 3928365

Collected:10/25/2002 14:00 by RKS

Account Number: 01963

Submitted: 10/25/2002 18:45
Reported: 11/26/2002 at 15:23
Discard: 12/04/2002
DR 4 Grab Water Sample
CONTINUATION OF PREVIOUS
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Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

DRXX4 SDG#: DUF01-03CONT

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
00259	Mercury	7439-97-6	N.D.	0.00020	mg/l	1
01743	Aluminum	7429-90-5	9.04	0.200	mg/l	1
01744	Antimony	7440-36-0	N.D.	0.200	mg/l	1
01746	Barium	7440-39-3	0.481	0.100	mg/l	1
01747	Beryllium	7440-41-7	0.00065J	0.0100	mg/l	1
01749	Cadmium	7440-43-9	0.0014 J	0.0100	mg/l	1
01750	Calcium	7440-70-2	108.	0.200	mg/l	1
01751	Chromium	7440-47-3	0.0945	0.0300	mg/l	1
01752	Cobalt	7440-48-4	0.0239 J	0.0500	mg/l	1
01753	Copper	7440-50-8	0.0838	0.0250	mg/l	1
01754	Iron	7439-89-6	121.	0.100	mg/l	1
01757	Magnesium	7439-95-4	115.	0.100	mg/l	1
01758	Manganese	7439-96-5	1.71	0.0100	mg/l	1
01761	Nickel	7440-02-0	0.0334 J	0.0500	mg/l	1
01762	Potassium	7440-09-7	86.8	2.50	mg/l	5
01766	Silver	7440-22-4	N.D.	0.0200	mg/l	1
01767	Sodium	7440-23-5	587.	12.0	mg/l	20
01771	Vanadium	7440-62-2	0.0392	0.0200	mg/l	1
01772	Zinc	7440-66-6	0.582	0.0250	mg/l	1
07022	Thallium TR	7440-28-0	N.D.	0.0200	mg/l	1
07035	Arsenic TR	7440-38-2	0.0575	0.0100	mg/l	1
07036	Selenium TR	7782-49-2	N.D.	0.0100	mg/l	1
07055	Lead TR	7439-92-1	0.119	0.0200	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a.	946.	2.0	mg/l as CaCO3	1
00212	Total Dissolved Solids	n.a.	2,730.	240.	mg/l	1
00217	Kjeldahl Nitrogen	7727-37-9	75.	10.	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	0.082	0.050	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.10	mg/l	1
00223	Organic Nitrogen	n.a.	14.5	1.0	mg/l	1
00224	Chloride	16887-00-6	1,080.	100.	mg/l	250
00228	Sulfate	14808-79-8	2.5 J	5.0	mg/l	5
00273	Total Organic Carbon	n.a.	111.	10.0	mg/l	5
00345	Total Phosphorus as PO4 water	14265-44-2	0.36	0.20	mg/l	1
01333	Sulfide	18496-25-8	N.D.	2.0	mg/l	1
01454	Bicarbonate	71-52-3	946.	2.0	mg/l as CaCO3	1
04001	Chemical Oxygen Demand	n.a.	368.	50.	mg/l	1
06914	Ammonia-Nitrogen	7664-41-7	60.4	2.0	mg/l	20
08255	Total Cyanide (water)	57-12-5	N.D.	0.0050	mg/l	1

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Lancaster Laboratories Sample No. WW 3928365

Collected:10/25/2002 14:00 by RKS

Account Number: 01963

Submitted: 10/25/2002 18:45
Reported: 11/26/2002 at 15:23
Discard: 12/04/2002
DR 4 Grab Water Sample
CONTINUATION OF PREVIOUS
4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

DRXX4 SDG#: DUF01-03CONT

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00259	Mercury	SW-846 7470A	1	10/30/2002 07:26	Deborah A Krady	1
01743	Aluminum	SW-846 6010B	1	11/02/2002 11:27	Eric W Cuba	1
01744	Antimony	SW-846 6010B	1	11/02/2002 11:27	Eric W Cuba	1
01746	Barium	SW-846 6010B	1	11/02/2002 11:27	Eric W Cuba	1
01747	Beryllium	SW-846 6010B	1	11/02/2002 11:27	Eric W Cuba	1
01749	Cadmium	SW-846 6010B	1	11/02/2002 11:27	Eric W Cuba	1
01750	Calcium	SW-846 6010B	1	11/02/2002 11:27	Eric W Cuba	1
01751	Chromium	SW-846 6010B	1	11/02/2002 11:27	Eric W Cuba	1
01752	Cobalt	SW-846 6010B	1	11/02/2002 11:27	Eric W Cuba	1
01753	Copper	SW-846 6010B	1	11/02/2002 11:27	Eric W Cuba	1
01754	Iron	SW-846 6010B	1	11/02/2002 11:27	Eric W Cuba	1
01757	Magnesium	SW-846 6010B	1	11/02/2002 11:27	Eric W Cuba	1
01758	Manganese	SW-846 6010B	1	11/02/2002 11:27	Eric W Cuba	1
01761	Nickel	SW-846 6010B	1	11/02/2002 11:27	Eric W Cuba	1
01762	Potassium	SW-846 6010B	1	11/07/2002 08:40	Joanne M Gates	5
01766	Silver	SW-846 6010B	1	11/02/2002 11:27	Eric W Cuba	1
01767	Sodium	SW-846 6010B	1	11/07/2002 08:45	Joanne M Gates	20
01771	Vanadium	SW-846 6010B	1	11/02/2002 11:27	Eric W Cuba	1
01772	Zinc	SW-846 6010B	1	11/02/2002 11:27	Eric W Cuba	1
07022	Thallium TR	SW-846 6010B	1	11/02/2002 11:27	Eric W Cuba	1
07035	Arsenic TR	SW-846 6010B	1	11/02/2002 11:27	Eric W Cuba	1
07036	Selenium TR	SW-846 6010B	1	11/02/2002 11:27	Eric W Cuba	1
07055	Lead TR	SW-846 6010B	1	11/02/2002 11:27	Eric W Cuba	1
00201	Alkalinity to pH 8.3	EPA 310.1	1	10/30/2002 06:21	Susan A Engle	1
00202	Alkalinity to pH 4.5	EPA 310.1	1	10/30/2002 06:21	Susan A Engle	1
00212	Total Dissolved Solids	EPA 160.1	1	10/29/2002 10:40	Anne L Kuenzli	1
00217	Kjeldahl Nitrogen	EPA 351.2	2	11/21/2002 20:51	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	10/26/2002 09:36	Christian C Ehrhart	1
00220	Nitrate Nitrogen	EPA 353.2	1	11/07/2002 15:32	Nicole M Kepley	1
00223	Organic Nitrogen	Std. Meth. 18th Ed., 4500-NORG	1	11/21/2002 20:49	Venia B McFadden	1
00224	Chloride	EPA 300.0	1	11/04/2002 18:11	Shannon L Phillips	250
00228	Sulfate	EPA 300.0	1	11/01/2002 14:27	Shannon L Phillips	5
00273	Total Organic Carbon	EPA 415.1	1	10/29/2002 15:32	Timothy M Petree	5
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/05/2002 18:09	Venia B McFadden	1
01313	Sulfide	EPA 376.1	1	10/31/2002 11:15	Susan E Hibner	1
01454	Bicarbonate	SM-18 2320B	1	10/30/2002 06:21	Susan A Engle	1
04001	Chemical Oxygen Demand	EPA 410.4	1	10/30/2002 10:56	Susan A Engle	1

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Lancaster Laboratories Sample No. WW 3928365

Collected:10/25/2002 14:00 by RKS

Account Number: 01963

Submitted: 10/25/2002 18:45
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Discard: 12/04/2002
DR 4 Grab Water Sample
CONTINUATION OF PREVIOUS
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5400 Limestone Road
Wilmington DE 19808-1296

DRXX4 SDG#: DUF01-03CONT

06914	Ammonia-Nitrogen	EPA 350.3	1	11/04/2002 07:47	Michele L Graham	20
08255	Total Cyanide (water)	SW-846 9012A	1	11/04/2002 16:12	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	2	11/07/2002 08:25	James S Mathiot	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	10/30/2002 11:15	Christine Conlin	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	10/29/2002 19:01	Nelli S Markaryan	1
08256	Cyanide Water Distillation	SW-846 9012A	1	11/01/2002 09:25	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	11/01/2002 14:50	Nancy J Shoop	1

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Lancaster Laboratories Sample No. WW 3928366

Collected:10/25/2002 09:20 by RKS

Account Number: 01963

Submitted: 10/25/2002 18:45
Reported: 11/26/2002 at 15:23
Discard: 12/04/2002
P5 12A Grab Water Sample
4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

P512A SDG#: DUF01-04

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
00937	TCL Pesticides in Waters					
00938	Endrin Ketone	53494-70-5	N.D.	0.019	ug/l	1
01361	Alpha Chlordane	5103-71-9	N.D.	0.0095	ug/l	1
01362	Gamma Chlordane	5103-74-2	N.D.	0.0095	ug/l	1
01600	Alpha BHC	319-84-6	N.D.	0.0095	ug/l	1
01601	Beta BHC	319-85-7	0.0034 J	0.0095	ug/l	1
01602	Gamma BHC - Lindane	50-89-9	N.D.	0.0095	ug/l	1
01603	Delta BHC	319-86-8	0.0062 J	0.0095	ug/l	1
01604	Heptachlor	76-44-8	N.D.	0.0095	ug/l	1
01605	Aldrin	309-00-2	N.D.	0.024	ug/l	1
01606	Heptachlor Epoxide	1024-57-3	N.D.	0.0095	ug/l	1
01607	p,p-DDE	72-55-9	N.D.	0.019	ug/l	1
01608	p,p-DDD	72-54-8	N.D.	0.019	ug/l	1
01609	p,p-DDT	50-29-3	N.D.	0.019	ug/l	1
01610	Dieldrin	60-57-1	N.D.	0.019	ug/l	1
01611	Endrin	72-20-8	0.0049 J	0.019	ug/l	1
01613	Toxaphene	8001-35-2	N.D.	1.0	ug/l	1
01615	Endosulfan II	33213-65-9	N.D.	0.019	ug/l	1
01616	Endosulfan I	959-98-8	N.D.	0.0095	ug/l	1
01617	Endosulfan Sulfate	1031-07-8	N.D.	0.019	ug/l	1
01618	Endrin Aldehyde	7421-93-4	N.D.	0.095	ug/l	1
01619	PCB-1016	12674-11-2	N.D.	0.48	ug/l	1
01620	PCB-1221	11104-28-2	N.D.	0.48	ug/l	1
01621	PCB-1232	11141-16-5	N.D.	0.48	ug/l	1
01622	PCB-1242	53469-21-9	N.D.	0.48	ug/l	1
01623	PCB-1248	12672-29-6	N.D.	0.48	ug/l	1
01624	PCB-1254	11097-69-1	N.D.	0.48	ug/l	1
01626	PCB-1260	11096-82-5	N.D.	0.48	ug/l	1
01860	Methoxychlor	72-43-5	N.D.	0.095	ug/l	1

Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.

05088	PCB Congeners-Full List-water					
07994	PCB 1	2051-60-7	N.D.	0.095	ug/l	1
07996	PCB 8	34883-43-7	N.D.	0.019	ug/l	1
07997	PCB 18	37680-65-2	N.D.	0.019	ug/l	1
08002	PCB 49	41464-40-8	N.D.	0.019	ug/l	1

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Lancaster Laboratories Sample No. WW 3929659

Collected:10/28/2002 10:45 by RKS

Account Number: 01963

Submitted: 10/29/2002 17:30
Reported: 11/22/2002 at 14:39
Discard: 12/23/2002
DR-1-R Grab Water Sample .
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

DR-1R SDG#: DUF01-06

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
00937	TCL Pesticides in Waters					
00938	Endrin Ketone	53494-70-5	N.D.	0.019	ug/l	1
01361	Alpha Chlordane	5103-71-9	N.D.	0.0097	ug/l	1
01362	Gamma Chlordane	5103-74-2	N.D.	0.0097	ug/l	1
01600	Alpha BHC	319-84-6	N.D.	0.0097	ug/l	1
01601	Beta BHC	319-85-7	N.D.	0.0097	ug/l	1
01602	Gamma BHC - Lindane	58-89-9	0.0037 J	0.0097	ug/l	1
01603	Delta BHC	319-86-8	0.0068 J	0.0097	ug/l	1
01604	Heptachlor	76-44-8	N.D.	0.0097	ug/l	1
01605	Aldrin	309-00-2	N.D.	0.024	ug/l	1
01606	Heptachlor Epoxide	1024-57-3	N.D.	0.0097	ug/l	1
01607	p,p-DDE	72-55-9	N.D.	0.019	ug/l	1
01608	p,p-DDD	72-54-8	N.D.	0.019	ug/l	1
01609	p,p-DDT	50-29-3	N.D.	0.019	ug/l	1
01610	Dieldrin	60-57-1	N.D.	0.019	ug/l	1
01611	Endrin	72-20-8	0.014 J	0.019	ug/l	1
01613	Toxaphene	8001-35-2	N.D.	1.0	ug/l	1
01615	Endosulfan II	33213-65-9	N.D.	0.019	ug/l	1
01616	Endosulfan I	959-98-8	N.D.	0.0097	ug/l	1
01617	Endosulfan Sulfate	1031-07-8	N.D.	0.019	ug/l	1
01618	Endrin Aldehyde	7421-93-4	N.D.	0.097	ug/l	1
01619	PCB-1016	12674-11-2	N.D.	0.49	ug/l	1
01620	PCB-1221	11104-28-2	N.D.	0.49	ug/l	1
01621	PCB-1232	11141-16-5	N.D.	0.49	ug/l	1
01622	PCB-1242	53469-21-9	N.D.	0.49	ug/l	1
01623	PCB-1248	12672-29-6	N.D.	0.49	ug/l	1
01624	PCB-1254	11097-69-1	N.D.	0.49	ug/l	1
01626	PCB-1260	11096-82-5	N.D.	0.49	ug/l	1
01860	Methoxychlor	72-43-5	N.D.	0.097	ug/l	1
	Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
05088	PCB Congeners-Full List-water					
07994	PCB 1	2051-60-7	N.D.	0.097	ug/l	1
07996	PCB 8	34883-43-7	N.D.	0.019	ug/l	1
07997	PCB 18	37680-65-2	N.D.	0.019	ug/l	1
08002	PCB 49	41464-40-8	N.D.	0.019	ug/l	1

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Lancaster Laboratories Sample No. WW 3929659

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DR-1-R Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

DR-1R SDG#: DUF01-06

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
08009	PCB 87	38380-02-8	N.D.	0.019	ug/l	1
08020	PCB 128	38380-07-3	N.D.	0.019	ug/l	1
08033	PCB 180	35065-29-3	N.D.	0.019	ug/l	1
08038	PCB 194	35694-08-7	N.D.	0.019	ug/l	1
08041	PCB 206	40186-72-9	N.D.	0.019	ug/l	1
08042	PCB 209	2051-24-3	N.D.	0.019	ug/l	1

PCB-002 was detected in the blank at a concentration of 0.42 ug/l. The blank is not subtracted from the sample concentration.

04678 TCL SW846 Semivolatiles/Waters

03871	4-Chloroaniline	106-47-8	N.D.	10.	ug/l	1
03905	2-Methylnaphthalene	91-57-6	N.D.	10.	ug/l	1
03907	2-Nitroaniline	88-74-4	N.D.	10.	ug/l	1
03922	2,4,5-Trichlorophenol	95-95-4	N.D.	10.	ug/l	1
03924	2-Chlorophenol	95-57-8	N.D.	10.	ug/l	1
03925	Phenol	108-95-2	N.D.	10.	ug/l	1
03926	2-Nitrophenol	88-75-5	N.D.	10.	ug/l	1
03927	2,4-Dimethylphenol	105-67-9	N.D.	10.	ug/l	1
03928	2,4-Dichlorophenol	120-83-2	N.D.	10.	ug/l	1
03929	4-Chloro-3-methylphenol	59-50-7	N.D.	10.	ug/l	1
03930	2,4,6-Trichlorophenol	88-06-2	N.D.	10.	ug/l	1
03936	bis(2-Chloroethyl)ether	111-44-4	N.D.	10.	ug/l	1
03937	1,3-Dichlorobenzene	541-73-1	N.D.	10.	ug/l	1
03938	1,4-Dichlorobenzene	106-46-7	N.D.	10.	ug/l	1
03939	1,2-Dichlorobenzene	95-50-1	N.D.	10.	ug/l	1
03941	Hexachloroethane	67-72-1	N.D.	10.	ug/l	1
03942	N-Nitroso-di-n-propylamine	621-64-7	N.D.	10.	ug/l	1
03943	Nitrobenzene	98-95-3	N.D.	10.	ug/l	1
03944	Isophorone	78-59-1	N.D.	10.	ug/l	1
03945	bis(2-Chloroethoxy)methane	111-91-1	N.D.	10.	ug/l	1
03946	1,2,4-Trichlorobenzene	120-82-1	N.D.	10.	ug/l	1
03947	Naphthalene	91-20-3	N.D.	10.	ug/l	1
03948	Hexachlorobutadiene	87-68-3	N.D.	10.	ug/l	1
03949	Hexachlorocyclopentadiene	77-47-4	N.D.	24.	ug/l	1
03950	2-Chloronaphthalene	91-58-7	N.D.	10.	ug/l	1
03951	Acenaphthylene	208-96-8	N.D.	10.	ug/l	1
03952	Dimethylphthalate	131-11-3	N.D.	10.	ug/l	1
04680	2-Methylphenol	95-48-7	N.D.	10.	ug/l	1
04681	2,2'-oxybis(1-Chloropropane)	108-60-1	N.D.	10.	ug/l	1
04682	4-Methylphenol	106-44-5	N.D.	10.	ug/l	1

3-Methylphenol and 4-methylphenol cannot be resolved under the

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Lancaster Laboratories Sample No. WW 3928366

Collected:10/25/2002 09:20 by RKS

Account Number: 01963

Submitted: 10/25/2002 18:45
Reported: 11/26/2002 at 15:23
Discard: 12/04/2002
P5 12A Grab Water Sample
4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

P512A SDG#: DUF01-04

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
08009	PCB 87	38380-02-8	N.D.	0.019	ug/l	1
08020	PCB 128	38380-07-3	N.D.	0.019	ug/l	1
08033	PCB 180	35066-29-3	N.D.	0.019	ug/l	1
08038	PCB 194	35694-08-7	N.D.	0.019	ug/l	1
08041	PCB 206	40186-72-9	N.D.	0.019	ug/l	1
08042	PCB 209	2051-24-3	N.D.	0.019	ug/l	1

PCB-002 was detected in the blank at a concentration of 0.6 ug/l. The blank is not subtracted from the sample concentration.

04678 TCL SW846 Semivolatiles/Waters

03871	4-Chloroaniline	106-47-8	N.D.	10.	ug/l	1
03905	2-Methylnaphthalene	91-57-6	N.D.	10.	ug/l	1
03907	2-Nitroaniline	88-74-4	N.D.	10.	ug/l	1
03922	2,4,5-Trichlorophenol	95-95-4	N.D.	10.	ug/l	1
03924	2-Chlorophenol	95-57-8	N.D.	10.	ug/l	1
03925	Phenol	108-95-2	N.D.	10.	ug/l	1
03926	2-Nitrophenol	88-75-5	N.D.	10.	ug/l	1
03927	2,4-Dimethylphenol	105-67-9	N.D.	10.	ug/l	1
03928	2,4-Dichlorophenol	120-83-2	N.D.	10.	ug/l	1
03929	4-Chloro-3-methylphenol	59-50-7	N.D.	10.	ug/l	1
03930	2,4,6-Trichlorophenol	88-06-2	N.D.	10.	ug/l	1
03936	bis(2-Chloroethyl)ether	111-44-4	N.D.	10.	ug/l	1
03937	1,3-Dichlorobenzene	541-73-1	N.D.	10.	ug/l	1
03938	1,4-Dichlorobenzene	106-46-7	N.D.	10.	ug/l	1
03939	1,2-Dichlorobenzene	95-50-1	N.D.	10.	ug/l	1
03941	Hexachloroethane	67-72-1	N.D.	10.	ug/l	1
03942	N-Nitroso-di-n-propylamine	621-64-7	N.D.	10.	ug/l	1
03943	Nitrobenzene	98-95-3	N.D.	10.	ug/l	1
03944	Isophorone	78-59-1	N.D.	10.	ug/l	1
03945	bis(2-Chloroethoxy)methane	111-91-1	N.D.	10.	ug/l	1
03946	1,2,4-Trichlorobenzene	120-82-1	N.D.	10.	ug/l	1
03947	Naphthalene	91-20-3	N.D.	10.	ug/l	1
03948	Hexachlorobutadiene	87-68-3	N.D.	10.	ug/l	1
03949	Hexachlorocyclopentadiene	77-47-4	N.D.	24.	ug/l	1
03950	2-Chloronaphthalene	91-58-7	N.D.	10.	ug/l	1
03951	Acenaphrhylene	208-96-8	N.D.	10.	ug/l	1
03952	Dimethylphthalate	131-11-3	N.D.	10.	ug/l	1
04680	2-Methylphenol	95-48-7	N.D.	10.	ug/l	1
04681	2,2'-oxybis(1-Chloropropane)	108-60-1	N.D.	10.	ug/l	1
04682	4-Methylphenol	106-44-5	N.D.	10.	ug/l	1

3-Methylphenol and 4-methylphenol cannot be resolved under the

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Lancaster Laboratories Sample No. WW 3928366

Collected:10/25/2002 09:20 by RKS

Account Number: 01963

Submitted: 10/25/2002 18:45
Reported: 11/26/2002 at 15:23
Discard: 12/04/2002
P5 12A Grab Water Sample
4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

P512A SDG#: DUF01-04

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation	Units	Dilution Factor
	chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.						
04679	TCL SW846 Semivolatiles/Waters						
03879	Dibenzofuran	132-64-9	N.D.		10.	ug/l	1
03908	3-Nitroaniline	99-09-2	N.D.		10.	ug/l	1
03909	4-Nitroaniline	100-01-6	N.D.		10.	ug/l	1
03931	2,4-Dinitrophenol	51-28-5	N.D.		57.	ug/l	1
03932	4-Nitrophenol	100-02-7	N.D.		48.	ug/l	1
03933	4,6-Dinitro-2-methylphenol	534-52-1	N.D.		24.	ug/l	1
03934	Pentachlorophenol	87-86-5	N.D.		24.	ug/l	1
03953	2,6-Dinitrotoluene	606-20-2	N.D.		10.	ug/l	1
03954	Acenaphthene	83-32-9	N.D.		10.	ug/l	1
03955	2,4-Dinitrotoluene	121-14-2	N.D.		10.	ug/l	1
03956	Fluorene	86-73-7	N.D.		10.	ug/l	1
03957	4-Chlorophenyl-phenylether	7005-72-3	N.D.		10.	ug/l	1
03958	Diethylphthalate	84-66-2	N.D.		10.	ug/l	1
03960	N-Nitrosodiphenylamine	86-30-6	N.D.		10.	ug/l	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.						
03961	4-Bromophenyl-phenylether	101-55-3	N.D.		10.	ug/l	1
03962	Hexachlorobenzene	118-74-1	N.D.		10.	ug/l	1
03963	Phenanthrene	85-01-8	N.D.		10.	ug/l	1
03964	Anthracene	120-12-7	N.D.		10.	ug/l	1
03965	Di-n-butylphthalate	84-74-2	N.D.		10.	ug/l	1
03966	Fluoranthene	206-44-0	N.D.		10.	ug/l	1
03967	Pyrene	129-00-0	N.D.		10.	ug/l	1
03969	Butylbenzylphthalate	85-68-7	N.D.		10.	ug/l	1
03970	Benzo(a)anthracene	56-55-3	N.D.		10.	ug/l	1
03971	Chrysene	218-01-9	N.D.		10.	ug/l	1
03972	3,3'-Dichlorobenzidine	91-94-1	N.D.		10.	ug/l	1
03973	bis(2-Ethylhexyl)phthalate	117-81-7	2.	J	10.	ug/l	1
03974	Di-n-octylphthalate	117-84-0	N.D.		10.	ug/l	1
03975	Benzo(b)fluoranthene	205-99-2	N.D.		10.	ug/l	1
03976	Benzo(k)fluoranthene	207-08-9	N.D.		10.	ug/l	1
03977	Benzo(a)pyrene	50-32-8	N.D.		10.	ug/l	1
03978	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.		10.	ug/l	1
03979	Dibenz(a,h)anthracene	53-70-3	N.D.		10.	ug/l	1
03980	Benzo(g,h,i)perylene	191-24-2	N.D.		10.	ug/l	1
04684	Carbazole	86-74-8	N.D.		10.	ug/l	1

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Lancaster Laboratories Sample No. WW 3928368

Collected:10/25/2002 15:30 by RKS

Account Number: 01963

Submitted: 10/25/2002 18:45
Reported: 11/26/2002 at 15:24
Discard: 12/04/2002
P4-4 Grab Water Sample
4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

P4--4 SDG#: DUF01-05

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
05418	Styrene	100-42-5	N.D.	5.	ug/l	1
05419	Bromoform	75-25-2	N.D.	5.	ug/l	1
05421	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	5.	ug/l	1
05423	1,2,3-Trichloropropane	96-18-4	N.D.	5.	ug/l	1
05433	1,4-Dichlorobenzene	106-46-7	N.D.	5.	ug/l	1
05435	1,2-Dichlorobenzene	95-50-1	N.D.	5.	ug/l	1
05436	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	5.	ug/l	1
06309	2-Hexanone	591-78-6	N.D.	10.	ug/l	1
06310	Xylene (Total)	1330-20-7	N.D.	5.	ug/l	1
06877	trans-1,4-Dichloro-2-butene	110-57-6	N.D.	50.	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00937	TCL Pesticides in Waters	SW-846 8081A/8082	1	10/30/2002 02:30	Anita M Dale	1
05088	PCB Congeners-Full List-water	SW-846 8082 (modified)	1	11/08/2002 06:19	Tiffany A Leyda	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	11/02/2002 05:21	Linda M Hartenstine	1
04679	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	11/02/2002 05:21	Linda M Hartenstine	1
06872	Appendix I by SW846/8260-water	SW-846 8260B	1	10/29/2002 02:12	Nicole S Lamoreaux	1
06873	Appendix I by SW846/8260-cont	SW-846 8260B	1	10/29/2002 02:12	Nicole S Lamoreaux	1
00813	BNA Water Extraction	SW-846 3510C	2	10/31/2002 16:30	Elia R Botrous	1
00817	Water Sample Pest. Extraction	SW-846 3510C	2	10/28/2002 23:00	Sharon L Jones	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	10/29/2002 02:12	Nicole S Lamoreaux	n.a.

ANALYSIS REPORT

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Lancaster Laboratories Sample No. WW 3928369

Collected:10/25/2002 15:30 by RKS

Account Number: 01963

Submitted: 10/25/2002 18:45
Reported: 11/26/2002 at 15:24
Discard: 12/04/2002
P4-4 Grab Water Sample
CONTINUATION OF PREVIOUS
4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

P4--4 SDG#: DUF01-05CONT*

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
00259	Mercury	7439-97-6	N.D.	0.00020	mg/l	1
01743	Aluminum	7429-90-5	N.D.	0.200	mg/l	1
01744	Antimony	7440-36-0	N.D.	0.200	mg/l	1
01746	Barium	7440-39-3	0.121	0.100	mg/l	1
01747	Beryllium	7440-41-7	N.D.	0.0100	mg/l	1
01749	Cadmium	7440-43-9	N.D.	0.0100	mg/l	1
01750	Calcium	7440-70-2	155.	0.200	mg/l	1
01751	Chromium	7440-47-3	0.0021 J	0.0300	mg/l	1
01752	Cobalt	7440-48-4	0.0022 J	0.0500	mg/l	1
01753	Copper	7440-50-8	N.D.	0.0250	mg/l	1
01754	Iron	7439-89-6	42.0	0.100	mg/l	1
01757	Magnesium	7439-95-4	139.	0.100	mg/l	1
01758	Manganese	7439-96-5	7.55	0.0100	mg/l	1
01761	Nickel	7440-02-0	0.0026 J	0.0500	mg/l	1
01762	Potassium	7440-09-7	17.5	0.500	mg/l	1
01766	Silver	7440-22-4	N.D.	0.0200	mg/l	1
01767	Sodium	7440-23-5	215.	3.00	mg/l	5
01771	Vanadium	7440-62-2	0.0030 J	0.0200	mg/l	1
01772	Zinc	7440-66-6	0.0116 J	0.0250	mg/l	1
07022	Thallium TR	7440-28-0	N.D.	0.0200	mg/l	1
07035	Arsenic TR	7440-38-2	0.0080 J	0.0100	mg/l	1
07036	Selenium TR	7782-49-2	N.D.	0.0100	mg/l	1
07055	Lead TR	7439-92-1	N.D.	0.0200	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a.	916.	2.0	mg/l as CaCO3	1
00212	Total Dissolved Solids	n.a.	1,960.	240.	mg/l	1
00217	Kjeldahl Nitrogen	7727-37-9	28.	10.	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	0.101	0.050	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.10	mg/l	1
00223	Organic Nitrogen	n.a.	12.6	1.0	mg/l	1
00224	Chloride	16887-00-6	551.	40.	mg/l	100
00228	Sulfate	14808-79-8	31.0	5.0	mg/l	5
00273	Total Organic Carbon	n.a.	63.7	10.0	mg/l	5
00345	Total Phosphorus as PO4 water	14265-44-2	2.39	0.20	mg/l	1
01333	Sulfide	18496-25-8	N.D.	2.0	mg/l	1
01454	Bicarbonate	71-52-3	916.	2.0	mg/l as CaCO3	1
04001	Chemical Oxygen Demand	n.a.	209.	50.	mg/l	1
06914	Ammonia-Nitrogen	7664-41-7	15.2	0.10	mg/l	1
08255	Total Cyanide (water)	57-12-5	N.D.	0.0050	mg/l	1

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Lancaster Laboratories Sample No. WW 3928369

Collected:10/25/2002 15:30 by RKS

Account Number: 01963

Submitted: 10/25/2002 18:45
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Discard: 12/04/2002
P4-4 Grab Water Sample
CONTINUATION OF PREVIOUS
4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

P4--4 SDG#: DUF01-05CONT*

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00259	Mercury	SW-846 7470A	1	10/30/2002 07:29	Deborah A Krady	1
01743	Aluminum	SW-846 6010B	1	11/02/2002 11:38	Eric W Cuba	1
01744	Antimony	SW-846 6010B	1	11/02/2002 11:38	Eric W Cuba	1
01746	Barium	SW-846 6010B	1	11/02/2002 11:38	Eric W Cuba	1
01747	Beryllium	SW-846 6010B	1	11/02/2002 11:38	Eric W Cuba	1
01749	Cadmium	SW-846 6010B	1	11/02/2002 11:38	Eric W Cuba	1
01750	Calcium	SW-846 6010B	1	11/02/2002 11:38	Eric W Cuba	1
01751	Chromium	SW-846 6010B	1	11/02/2002 11:38	Eric W Cuba	1
01752	Cobalt	SW-846 6010B	1	11/02/2002 11:38	Eric W Cuba	1
01753	Copper	SW-846 6010B	1	11/07/2002 09:00	Joanne M Gates	1
01754	Iron	SW-846 6010B	1	11/02/2002 11:38	Eric W Cuba	1
01757	Magnesium	SW-846 6010B	1	11/02/2002 11:38	Eric W Cuba	1
01758	Manganese	SW-846 6010B	1	11/07/2002 09:00	Joanne M Gates	1
01761	Nickel	SW-846 6010B	1	11/02/2002 11:38	Eric W Cuba	1
01762	Potassium	SW-046 6010B	1	11/02/2002 11:38	Eric W Cuba	1
01766	Silver	SW-846 6010B	1	11/02/2002 11:38	Eric W Cuba	1
01767	Sodium	SW-846 6010B	1	11/07/2002 09:05	Joanne M Gates	5
01771	Vanadium	SW-846 6010B	1	11/02/2002 11:38	Eric W Cuba	1
01772	Zinc	SW-846 6010B	1	11/02/2002 11:38	Eric W Cuba	1
07022	Thallium TR	SW-846 6010B	1	11/02/2002 11:38	Eric W Cuba	1
07035	Arsenic TR	SW-846 6010B	1	11/02/2002 11:38	Eric W Cuba	1
07036	Selenium TR	SW-846 6010B	1	11/02/2002 11:38	Eric W Cuba	1
07055	Lead TR	SW-846 6010B	1	11/02/2002 11:38	Eric W Cuba	1
00201	Alkalinity to pH 8.3	EPA 310.1	1	10/30/2002 06:21	Susan A Engle	1
00202	Alkalinity to pH 4.5	EPA 310.1	1	10/30/2002 06:21	Susan A Engle	1
00212	Total Dissolved Solids	EPA 160.1	1	10/29/2002 10:40	Anne L Kuenzli	1
00217	Kjeldahl Nitrogen	EPA 351.2	2	11/21/2002 20:54	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	10/26/2002 09:44	Christian C Ehrhart	1
00220	Nitrate Nitrogen	EPA 353.2	1	11/07/2002 15:37	Nicole M Kepley	1
00223	Organic Nitrogen	Std. Meth. 18th Ed., 4500-NORG	1	11/21/2002 20:49	Venia B McFadden	1
00224	Chloride	EPA 300.0	1	11/02/2002 05:13	Shannon L Phillips	100
00228	Sulfate	EPA 300.0	1	11/01/2002 14:58	Shannon L Phillips	5
00273	Total Organic Carbon	EPA 415.1	1	10/29/2002 15:49	Timothy M Petree	5
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/05/2002 18:10	Venia B McFadden	1
01333	Sulfide	EPA 376.1	1	10/31/2002 11:15	Susan E Hibner	1
01454	Bicarbonate	SM-18 2320B	1	10/30/2002 06:21	Susan A Engle	1
04001	Chemical Oxygen Demand	EPA 410.4	1	10/30/2002 10:56	Susan A Engle	1

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Lancaster Laboratories Sample No. WW 3928369

Collected:10/25/2002 15:30 by RKS

Account Number: 01963

Submitted: 10/25/2002 18:45
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Discard: 12/04/2002
P4-4 Grab Water Sample
CONTINUATION OF PREVIOUS
4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

P4--4 SDG#: DUF01-05CONT*

06914	Ammonia-Nitrogen	EPA 350.3	1	11/04/2002 07:47	Michele L Graham	1
08255	Total Cyanide (water)	SW-846 9012A	1	11/04/2002 16:17	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	2	11/07/2002 08:25	James S Mathiot	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	10/30/2002 11:15	Christine Conlin	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	10/29/2002 19:01	Nelli S Markaryan	1
08256	Cyanide Water Distillation	SW-846 9012A	1	11/01/2002 09:25	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	11/01/2002 14:50	Nancy J Shoop	1

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209 PCB CONGENER REPORT

DF	1	Date Rec'd		SDG No.	DUF01	Sample Wt	1000
Client ID:	PELKSR	Date Ext.	10/28/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	BLANKA	Date Inj	11/7/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
1	2-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.10	0.020
2	3-Chlorobiphenyl	0.5999		0.10	0.020	0.60	0.10	0.020
3	4-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.10	0.020
4	2,2'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
5	2,3-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
6	2,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
7	2,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
8	2,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
9	2,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
10	2,6-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
11	3,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
12	3,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
13	3,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
14	3,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
15	4,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
16	2,2',3-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
17	2,2',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
18	2,2',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
19	2,2',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
20	2,3,3'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
21	2,3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
22	2,3,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
23	2,3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
24	2,3,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
25	2,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
26	2,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
27	2,3',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
28	2,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
29	2,4,5-Trichlorbiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
30	2,4,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
31	2,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
32	2,4',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
33	2',3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
34	2',3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
35	3,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
36	3,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
37	3,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
38	3,4,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
39	3,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
40	2,2',3,3'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
41	2,2',3,4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
42	2,2',3,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
43	2,2',3,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
44	2,2',3,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
45	2,2',3,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
46	2,2',3,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
47	2,2',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050

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209 PCB CONGENER REPORT

OF	1	Date Recd		SDG No.	OUFD1	Sample Wt	1000
Client ID:	PILKER	Date Ext	10/29/02	Seed/Sex	Sonc	F.Vol. ml	10000
Sample No:	BLANKA	Date Inj	11/7/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
48	2,2',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
49	2,2',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
50	2,2',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
51	2,2',4,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
52	2,2',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
53	2,2',5,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
54	2,2',6,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
55	2,3,3',4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
56	2,3,3',4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
57	2,3,3',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
58	2,3,3',5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
59	2,3,3',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
60	2,3,4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
61	2,3,4,5,-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
62	2,3,4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
63	2,3,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
64	2,3,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
65	2,3,5,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
66	2,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
67	2,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
68	2,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
69	2,3',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
70	2,3',4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
71	2,3',4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
72	2,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
73	2,3',5',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
74	2,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
75	2,4,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
76	2',3,4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
77	3,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
78	3,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
79	3,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
80	3,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
81	3,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
82	2,2',3,3',4-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
83	2,2',3,3',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
84	2,2',3,3',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
85	2,2',3,4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
86	2,2',3,4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
87	2,2',3,4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
88	2,2',3,4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
89	2,2',3,4,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
90	2,2',3,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
91	2,2',3,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
92	2,2',3,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
93	2,2',3,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
94	2,2',3,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050

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209 PCB CONGENER REPORT

DF	1	Date Recd		SDG No.	DUF01	Sample Wt	1000	
Client ID:	P9UX8R	Date Ext.	10/29/02	Sonc/Sox	Sonc	F.Vol. ul	10000	
Sample No:	BLANKA	Date Inj	11/7/02	Metrac	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
95	2,2',3,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
96	2,2',3,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
97	2,2',3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
98	2,2',3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
99	2,2',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
100	2,2',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
101	2,2',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
102	2,2',4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
103	2,2',4,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
104	2,2',4,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
105	2,3,3',4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
106	2,3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
107	2,3,3',4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
108	2,3,3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
109	2,3,3',4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
110	2,3,3',4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
111	2,3,3',5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
112	2,3,3',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
113	2,3,3',5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
114	2,3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
115	2,3,4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
116	2,3,4,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
117	2,3,4',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
118	2,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
119	2,3',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
120	2,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
121	2,3',4,5',6-Pentachlorbiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
122	2',3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
123	2',3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
124	2',3,4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
125	2',3,4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
126	3,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
127	3,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
128	2,2',3,3',4,4'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
129	2,2',3,3',4,5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
130	2,2',3,3',4,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
131	2,2',3,3',4,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
132	2,2',3,3',4,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
133	2,2',3,3',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
134	2,2',3,3',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
135	2,2',3,3',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
136	2,2',3,3',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
137	2,2',3,4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
138	2,2',3,4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
139	2,2',3,4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
140	2,2',3,4,4',6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
141	2,2',3,4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050

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209 PCB CONGENER REPORT

DF	1		Date Rec'd		SDG No.	DUF01	Sample Wt	1000	
Client ID:	PBLKSR		Date Ext.	10/28/02	Sonc/Sox	Sonc	F.Vol. ul	10000	
Sample No:	BLANKA		Date Inj	11/7/02	Matrix	Water	Moisture	NA	
IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL	
142	2,2',3,4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050	
143	2,2',3,4,5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050	
144	2,2',3,4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050	
145	2,2',3,4,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050	
146	2,2',3,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050	
147	2,2',3,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050	
148	2,2',3,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050	
149	2,2',3,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050	
150	2,2',3,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050	
151	2,2',3,5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050	
152	2,2',3,5,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050	
153	2,2',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050	
154	2,2',4,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050	
155	2,2',4,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050	
156	2,3,3',4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050	
157	2,3,3',4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050	
158	2,3,3',4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050	
159	2,3,3',4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050	
160	2,3,3',4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050	
161	2,3,3',4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050	
162	2,3,3',4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050	
163	2,3,3',4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050	
164	2,3,3',4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050	
165	2,3,3',5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050	
166	2,3,4,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050	
167	2,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050	
168	2,3',4,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050	
169	3,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050	
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050	
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050	
172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050	
173	2,2',3,3',4,5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050	
174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050	
175	2,2',3,3',4,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050	
176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050	
177	2,2',3,3',4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050	
178	2,2',3,3',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050	
179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050	
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050	
181	2,2',3,4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050	
182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050	
183	2,2',3,4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050	
184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050	
185	2,2',3,4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050	
186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050	
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050	
188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050	

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209 PCB CONGENER REPORT

DF	1	Date Recd		SDG No.	DUF01	Sample Wt	1000
Client ID:	PELKER	Date Ext.	10/29/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	BLANK4	Date Inj	11/7/02	Metrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
190	2,3,3',4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
191	2,3,3',4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
192	2,3,3',4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
193	2,3,3',4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
196	2,2',3,3',4,4',5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
202	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
209	Decachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050

HOMOLOG	TOTAL UG/L	WEIGHT %
Monochlorobiphenyls	0.5	100
Dichlorobiphenyls	0.0000	0.0000
Trichlorobiphenyls	0.0000	0.0000
Tetrachlorobiphenyls	0.0000	0.0000
Pentachlorobiphenyls	0.0000	0.0000
Hexachlorobiphenyls	0.0000	0.0000
Heptachlorobiphenyls	0.0000	0.0000
Octachlorobiphenyls	0.0000	0.0000
Nonachlorobiphenyls	0.0000	0.0000
Decachlorobiphenyls	0.0000	0.0000

TOTAL PCB 0.50 UG/L

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/25/02	SDG No.	DUF01	Sample Wt	1051
Client ID:	DF002	Date Ext.	10/28/02	Conc/Size	Conc	F.Vol. ul	10000
Sample No:	3928260	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
1	2-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.035	0.019
2	3-Chlorobiphenyl	0.345		0.10	0.020	0.35	0.035	0.019
3	4-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.035	0.019
4	2,2'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
5	2,3-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
6	2,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
7	2,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
8	2,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
9	2,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
10	2,6-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
11	3,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
12	3,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
13	3,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
14	3,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
15	4,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
16	2,2',3-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
17	2,2',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
18	2,2',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
19	2,2',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
20	2,3,3'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
21	2,3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
22	2,3,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
23	2,3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
24	2,3,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
25	2,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
26	2,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
27	2,3',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
28	2,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
29	2,4,5-Trichlorbiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
30	2,4,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
31	2,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
32	2,4',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
33	2',3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
34	2',3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
35	3,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
36	3,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
37	3,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
38	3,4,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
39	3,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
40	2,2',3,3'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
41	2,2',3,4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
42	2,2',3,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
43	2,2',3,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
44	2,2',3,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
45	2,2',3,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
46	2,2',3,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
47	2,2',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/25/02	SDG No.	DUF01	Sample Wt	1051
Client ID:	DF002	Date Ext.	10/28/02	Spec/Sec	Spec	F.Vol. ul	10000
Sample No:	3928350	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	pg/l	Corrected LOQ	Corrected MDL
48	2,2',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
49	2,2',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
50	2,2',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
51	2,2',4,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
52	2,2',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
53	2,2',5,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
54	2,2',6,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
55	2,3,3',4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
56	2,3,3',4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
57	2,3,3',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
58	2,3,3',5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
59	2,3,3',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
60	2,3,4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
61	2,3,4,5,-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
62	2,3,4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
63	2,3,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
64	2,3,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
65	2,3,5,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
66	2,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
67	2,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
68	2,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
69	2,3',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
70	2,3',4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
71	2,3',4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
72	2,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
73	2,3',5',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
74	2,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
75	2,4,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
76	2',3,4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
77	3,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
78	3,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
79	3,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
80	3,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
81	3,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
82	2,2',3,3',4-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
83	2,2',3,3',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
84	2,2',3,3',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
85	2,2',3,4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
86	2,2',3,4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
87	2,2',3,4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
88	2,2',3,4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
89	2,2',3,4,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
90	2,2',3,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
91	2,2',3,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
92	2,2',3,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
93	2,2',3,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
94	2,2',3,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/25/02	SDG No.	DUF01	Sample Wt	1051
Client ID:	DPXXZ	Date Ext.	10/28/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3928360	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
95	2,2',3,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
96	2,2',3,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
97	2,2',3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
98	2,2',3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
99	2,2',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
100	2,2',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
101	2,2',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
102	2,2',4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
103	2,2',4,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
104	2,2',4,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
105	2,3,3',4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
106	2,3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
107	2,3,3',4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
108	2,3,3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
109	2,3,3',4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
110	2,3,3',4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
111	2,3,3',5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
112	2,3,3',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
113	2,3,3',5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
114	2,3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
115	2,3,4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
116	2,3,4,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
117	2,3,4',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
118	2,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
119	2,3',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
120	2,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
121	2,3',4,5',6-Pentachlorbiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
122	2',3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
123	2',3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
124	2',3,4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
125	2',3,4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
126	3,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
127	3,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
128	2,2',3,3',4,4'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
129	2,2',3,3',4,5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
130	2,2',3,3',4,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
131	2,2',3,3',4,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
132	2,2',3,3',4,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
133	2,2',3,3',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
134	2,2',3,3',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
135	2,2',3,3',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
136	2,2',3,3',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
137	2,2',3,4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
138	2,2',3,4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
139	2,2',3,4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
140	2,2',3,4,4',6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
141	2,2',3,4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Recd	10/25/02	SDG No.	DUF01	Sample Wt	1051
Client ID:	DP002	Date Ext.	10/28/02	Sample/Size	Sample	F.Vol. ul	10000
Sample No:	3928360	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
142	2,2',3,4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
143	2,2',3,4,5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
144	2,2',3,4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
145	2,2',3,4,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
146	2,2',3,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
147	2,2',3,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
148	2,2',3,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
149	2,2',3,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
150	2,2',3,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
151	2,2',3,5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
152	2,2',3,5,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
153	2,2',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
154	2,2',4,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
155	2,2',4,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
156	2,3,3',4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
157	2,3,3',4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
158	2,3,3',4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
159	2,3,3',4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
160	2,3,3',4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
161	2,3,3',4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
162	2,3,3',4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
163	2,3,3',4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
164	2,3,3',4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
165	2,3,3',5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
166	2,3,4,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
167	2,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
168	2,3',4,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
169	3,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
173	2,2',3,3',4,5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
175	2,2',3,3',4,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
177	2,2',3,3',4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
178	2,2',3,3',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
181	2,2',3,4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
183	2,2',3,4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
185	2,2',3,4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/25/02	SDG No.	DUF01	Sample Wt	1051
Client ID:	DF002	Date Ext.	10/25/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3928360	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
190	2,3,3',4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
191	2,3,3',4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
192	2,3,3',4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
193	2,3,3',4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
196	2,2',3,3',4,4',5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
202	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
209	Decachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048

HOMOLOG	TOTAL UG/L	WEIGHT %
Monochlorobiphenyls	0.35	100
Dichlorobiphenyls	0.0000	0.0000
Trichlorobiphenyls	0.0000	0.0000
Tetrachlorobiphenyls	0.0000	0.0000
Pentachlorobiphenyls	0.0000	0.0000
Hexachlorobiphenyls	0.0000	0.0000
Heptachlorobiphenyls	0.0000	0.0000
Octachlorobiphenyls	0.0000	0.0000
Nonachlorobiphenyls	0.0000	0.0000
Decachlorobiphenyls	0.0000	0.0000

TOTAL PCB 0.35 UG/L

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/25/02	SDG No.	DUF01	Sample Wt	1051
Client ID:	DR2DP	Date Ext.	10/28/02	Samp/Size	Samp	F.Vol. ul	10000
Sample No:	3528362	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
1	2-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.095	0.019
2	3-Chlorobiphenyl	0.522		0.10	0.020	0.52	0.095	0.019
3	4-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.095	0.019
4	2,2'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
5	2,3-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
6	2,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
7	2,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
8	2,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
9	2,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
10	2,6-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
11	3,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
12	3,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
13	3,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
14	3,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
15	4,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
16	2,2',3-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
17	2,2',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
18	2,2',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
19	2,2',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
20	2,3,3'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
21	2,3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
22	2,3,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
23	2,3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
24	2,3,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
25	2,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
26	2,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
27	2,3',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
28	2,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
29	2,4,5-Trichlorbiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
30	2,4,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
31	2,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
32	2,4',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
33	2',3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
34	2',3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
35	3,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
36	3,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
37	3,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
38	3,4,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
39	3,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
40	2,2',3,3'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
41	2,2',3,4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
42	2,2',3,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
43	2,2',3,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
44	2,2',3,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
45	2,2',3,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
46	2,2',3,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
47	2,2',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/25/02	SDG No.	DUF01	Sample Wt	1051
Client ID:	DR2DP	Date Ext.	10/25/02	Conc/Size	Conc	F.Vol. ul	10000
Sample No:	3928352	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
48	2,2',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
49	2,2',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
50	2,2',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
51	2,2',4,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
52	2,2',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
53	2,2',5,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
54	2,2',6,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
55	2,3,3',4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
56	2,3,3',4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
57	2,3,3',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
58	2,3,3',5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
59	2,3,3',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
60	2,3,4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
61	2,3,4,5,-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
62	2,3,4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
63	2,3,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
64	2,3,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
65	2,3,5,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
66	2,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
67	2,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
68	2,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
69	2,3',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
70	2,3',4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
71	2,3',4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
72	2,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
73	2,3',5',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
74	2,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
75	2,4,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
76	2',3,4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
77	3,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
78	3,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
79	3,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
80	3,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
81	3,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
82	2,2',3,3',4-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
83	2,2',3,3',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
84	2,2',3,3',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
85	2,2',3,4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
86	2,2',3,4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
87	2,2',3,4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
88	2,2',3,4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
89	2,2',3,4,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
90	2,2',3,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
91	2,2',3,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
92	2,2',3,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
93	2,2',3,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
94	2,2',3,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/25/02	SDG No.	DUF01	Sample Wt	1051
Client ID:	DR2DP	Date Ext.	10/28/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3928352	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
95	2,2',3,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
96	2,2',3,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
97	2,2',3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
98	2,2',3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
99	2,2',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
100	2,2',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
101	2,2',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
102	2,2',4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
103	2,2',4,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
104	2,2',4,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
105	2,3,3',4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
106	2,3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
107	2,3,3',4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
108	2,3,3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
109	2,3,3',4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
110	2,3,3',4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
111	2,3,3',5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
112	2,3,3',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
113	2,3,3',5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
114	2,3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
115	2,3,4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
116	2,3,4,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
117	2,3,4',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
118	2,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
119	2,3',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
120	2,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
121	2,3',4,5',6-Pentachlorbiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
122	2',3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
123	2',3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
124	2',3,4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
125	2',3,4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
126	3,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
127	3,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
128	2,2',3,3',4,4'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
129	2,2',3,3',4,5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
130	2,2',3,3',4,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
131	2,2',3,3',4,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
132	2,2',3,3',4,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
133	2,2',3,3',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
134	2,2',3,3',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
135	2,2',3,3',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
136	2,2',3,3',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
137	2,2',3,4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
138	2,2',3,4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
139	2,2',3,4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
140	2,2',3,4,4',6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
141	2,2',3,4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/25/02	SDG No.	DUFOI	Sample Wt	1051
Client ID:	DR2DP	Date Ext.	10/28/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3928362	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
142	2,2',3,4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
143	2,2',3,4,5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
144	2,2',3,4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
145	2,2',3,4,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
146	2,2',3,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
147	2,2',3,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
148	2,2',3,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
149	2,2',3,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
150	2,2',3,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
151	2,2',3,5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
152	2,2',3,5,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
153	2,2',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
154	2,2',4,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
155	2,2',4,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
156	2,3,3',4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
157	2,3,3',4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
158	2,3,3',4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
159	2,3,3',4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
160	2,3,3',4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
161	2,3,3',4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
162	2,3,3',4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
163	2,3,3',4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
164	2,3,3',4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
165	2,3,3',5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
166	2,3,4,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
167	2,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
168	2,3',4,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
169	3,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
173	2,2',3,3',4,5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
175	2,2',3,3',4,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
177	2,2',3,3',4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
178	2,2',3,3',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
181	2,2',3,4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
183	2,2',3,4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
185	2,2',3,4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

OF	1	Date Recd	10/25/02	SDG No.	DUF01	Sample Wt	1051
Client ID:	DR2DP	Date Ext.	10/28/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3928362	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
190	2,3,3',4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
191	2,3,3',4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
192	2,3,3',4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
193	2,3,3',4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
196	2,2',3,3',4,4',5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
202	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
209	Decachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

HOMOLOG	TOTAL UG/L	WEIGHT %
Monochlorobiphenyls	0.52	100
Dichlorobiphenyls	0.0000	0.0000
Trichlorobiphenyls	0.0000	0.0000
Tetrachlorobiphenyls	0.0000	0.0000
Pentachlorobiphenyls	0.0000	0.0000
Hexachlorobiphenyls	0.0000	0.0000
Heptachlorobiphenyls	0.0000	0.0000
Octachlorobiphenyls	0.0000	0.0000
Nonachlorobiphenyls	0.0000	0.0000
Decachlorobiphenyls	0.0000	0.0000

TOTAL PCB 0.52 UG/L

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/25/02	SDG No.	DUF01	Sample Wt	1051
Client ID:	DF0004	Date Ext.	10/28/02	Sanc/Sox	Sanc	F.Vol. ul	10000
Sample No:	3928364	Date Inj	11/8/02	Metric	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
1	2-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.055	0.019
2	3-Chlorobiphenyl	0.647		0.10	0.020	0.55	0.055	0.019
3	4-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.055	0.019
4	2,2'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
5	2,3-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
6	2,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
7	2,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
8	2,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
9	2,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
10	2,6-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
11	3,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
12	3,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
13	3,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
14	3,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
15	4,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
16	2,2',3-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
17	2,2',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
18	2,2',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
19	2,2',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
20	2,3,3'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
21	2,3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
22	2,3,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
23	2,3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
24	2,3,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
25	2,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
26	2,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
27	2,3',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
28	2,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
29	2,4,5-Trichlorbiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
30	2,4,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
31	2,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
32	2,4',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
33	2',3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
34	2',3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
35	3,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
36	3,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
37	3,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
38	3,4,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
39	3,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
40	2,2',3,3'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
41	2,2',3,4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
42	2,2',3,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
43	2,2',3,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
44	2,2',3,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
45	2,2',3,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
46	2,2',3,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
47	2,2',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/25/02	SDG No.	DUF01	Sample Wt	1051
Client ID:	DR0X4	Date Ext.	10/28/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3928364	Date Inj	11/6/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
43	2,2',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
45	2,2',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
50	2,2',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
51	2,2',4,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
52	2,2',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
53	2,2',5,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
54	2,2',6,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
55	2,3,3',4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
56	2,3,3',4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
57	2,3,3',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
58	2,3,3',5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
59	2,3,3',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
60	2,3,4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
61	2,3,4,5,-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
62	2,3,4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
63	2,3,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
64	2,3,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
65	2,3,5,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
66	2,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
67	2,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
68	2,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
69	2,3',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
70	2,3',4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
71	2,3',4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
72	2,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
73	2,3',5',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
74	2,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
75	2,4,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
76	2',3,4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
77	3,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
78	3,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
79	3,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
80	3,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
81	3,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
82	2,2',3,3',4-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
83	2,2',3,3',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
84	2,2',3,3',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
85	2,2',3,4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
86	2,2',3,4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
87	2,2',3,4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
88	2,2',3,4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
89	2,2',3,4,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
90	2,2',3,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
91	2,2',3,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
92	2,2',3,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
93	2,2',3,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
94	2,2',3,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Recd	10/25/02	SDG No.	DUF01	Sample Wt	1051
Client ID:	DPxxx	Date Ext.	10/28/02	Soxc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3928354	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
95	2,2',3,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
96	2,2',3,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
97	2,2',3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
98	2,2',3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
99	2,2',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
100	2,2',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
101	2,2',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
102	2,2',4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
103	2,2',4,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
104	2,2',4,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
105	2,3,3',4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
106	2,3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
107	2,3,3',4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
108	2,3,3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
109	2,3,3',4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
110	2,3,3',4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
111	2,3,3',5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
112	2,3,3',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
113	2,3,3',5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
114	2,3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
115	2,3,4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
116	2,3,4,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
117	2,3,4',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
118	2,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
119	2,3',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
120	2,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
121	2,3',4,5',6-Pentachlorbiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
122	2',3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
123	2',3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
124	2',3,4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
125	2',3,4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
126	3,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
127	3,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
128	2,2',3,3',4,4'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
129	2,2',3,3',4,5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
130	2,2',3,3',4,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
131	2,2',3,3',4,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
132	2,2',3,3',4,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
133	2,2',3,3',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
134	2,2',3,3',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
135	2,2',3,3',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
136	2,2',3,3',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
137	2,2',3,4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
138	2,2',3,4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
139	2,2',3,4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
140	2,2',3,4,4',6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
141	2,2',3,4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/25/02	SDG No.	DUFD1	Sample Wt	1051
Client ID:	DRXX4	Date Ext.	10/28/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3928354	Date Inj	11/5/02	Metric	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
142	2,2',3,4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
143	2,2',3,4,5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
144	2,2',3,4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
145	2,2',3,4,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
146	2,2',3,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
147	2,2',3,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
148	2,2',3,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
149	2,2',3,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
150	2,2',3,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
151	2,2',3,5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
152	2,2',3,5,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
153	2,2',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
154	2,2',4,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
155	2,2',4,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
156	2,3,3',4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
157	2,3,3',4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
158	2,3,3',4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
159	2,3,3',4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
160	2,3,3',4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
161	2,3,3',4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
162	2,3,3',4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
163	2,3,3',4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
164	2,3,3',4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
165	2,3,3',5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
166	2,3,4,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
167	2,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
168	2,3',4,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
169	3,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
173	2,2',3,3',4,5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
175	2,2',3,3',4,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
177	2,2',3,3',4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
178	2,2',3,3',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
181	2,2',3,4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
183	2,2',3,4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
185	2,2',3,4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/25/02	SDG No.	DUF01	Sample Wt	1051
Client ID:	DR004	Date Ext.	10/25/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3928364	Date Inj	11/8/02	Metric	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
190	2,3,3',4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
191	2,3,3',4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
192	2,3,3',4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
193	2,3,3',4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
196	2,2',3,3',4,4',5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
202	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
209	Decachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

HOMOLOG	TOTAL UG/L	WEIGHT %
Monochlorobiphenyls	0.65	100
Dichlorobiphenyls	0.0000	0.0000
Trichlorobiphenyls	0.0000	0.0000
Tetrachlorobiphenyls	0.0000	0.0000
Pentachlorobiphenyls	0.0000	0.0000
Hexachlorobiphenyls	0.0000	0.0000
Heptachlorobiphenyls	0.0000	0.0000
Octachlorobiphenyls	0.0000	0.0000
Nonachlorobiphenyls	0.0000	0.0000
Decachlorobiphenyls	0.0000	0.0000

TOTAL PCB 0.65 UG/L

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209 PCB CONGENER REPORT

DF	1		Date Recd	10/25/02	SDG No.	DUF01	Sample Wt	1091
Client ID:	P512A		Date Ext.	10/28/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3928356		Date Inj	11/2/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
1	2-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.095	0.019
2	3-Chlorobiphenyl	0.540253		0.10	0.020	0.54	0.095	0.019
3	4-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.095	0.019
4	2,2'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
5	2,3-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
6	2,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
7	2,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
8	2,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
9	2,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
10	2,6-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
11	3,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
12	3,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
13	3,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
14	3,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
15	4,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
16	2,2',3-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
17	2,2',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
18	2,2',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
19	2,2',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
20	2,3,3'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
21	2,3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
22	2,3,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
23	2,3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
24	2,3,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
25	2,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
26	2,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
27	2,3',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
28	2,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
29	2,4,5-Trichlorbiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
30	2,4,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
31	2,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
32	2,4',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
33	2',3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
34	2',3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
35	3,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
36	3,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
37	3,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
38	3,4,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
39	3,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
40	2,2',3,3'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
41	2,2',3,4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
42	2,2',3,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
43	2,2',3,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
44	2,2',3,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
45	2,2',3,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
46	2,2',3,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
47	2,2',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/25/02	SDG No.	DUP01	Sample Wt	1051
Client ID:	P512A	Date Ext.	10/28/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3928366	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
48	2,2',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
49	2,2',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
50	2,2',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
51	2,2',4,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
52	2,2',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
53	2,2',5,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
54	2,2',6,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
55	2,3,3',4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
56	2,3,3',4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
57	2,3,3',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
58	2,3,3',5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
59	2,3,3',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
60	2,3,4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
61	2,3,4,5,-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
62	2,3,4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
63	2,3,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
64	2,3,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
65	2,3,5,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
66	2,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
67	2,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
68	2,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
69	2,3',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
70	2,3',4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
71	2,3',4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
72	2,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
73	2,3',5',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
74	2,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
75	2,4,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
76	2',3,4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
77	3,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
78	3,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
79	3,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
80	3,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
81	3,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
82	2,2',3,3',4-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
83	2,2',3,3',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
84	2,2',3,3',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
85	2,2',3,4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
86	2,2',3,4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
87	2,2',3,4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
88	2,2',3,4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
89	2,2',3,4,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
90	2,2',3,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
91	2,2',3,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
92	2,2',3,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
93	2,2',3,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
94	2,2',3,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/25/02	SDG No.	DUP01	Sample Wt	1051
Client ID:	PS12A	Date Ext.	10/28/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3928366	Date Inj	11/9/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
95	2,2',3,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
96	2,2',3,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
97	2,2',3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
98	2,2',3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
99	2,2',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
100	2,2',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
101	2,2',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
102	2,2',4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
103	2,2',4,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
104	2,2',4,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
105	2,3,3',4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
106	2,3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
107	2,3,3',4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
108	2,3,3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
109	2,3,3',4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
110	2,3,3',4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
111	2,3,3',5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
112	2,3,3',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
113	2,3,3',5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
114	2,3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
115	2,3,4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
116	2,3,4,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
117	2,3,4',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
118	2,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
119	2,3',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
120	2,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
121	2,3',4,5',6-Pentachlorbiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
122	2',3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
123	2',3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
124	2',3,4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
125	2',3,4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
126	3,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
127	3,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
128	2,2',3,3',4,4'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
129	2,2',3,3',4,5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
130	2,2',3,3',4,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
131	2,2',3,3',4,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
132	2,2',3,3',4,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
133	2,2',3,3',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
134	2,2',3,3',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
135	2,2',3,3',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
136	2,2',3,3',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
137	2,2',3,4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
138	2,2',3,4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
139	2,2',3,4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
140	2,2',3,4,4',6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
141	2,2',3,4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/25/02	SDG No.	DUF01	Sample Wt	1051
Client ID:	PS12A	Date Ext.	10/25/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3928366	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
142	2,2',3,4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
143	2,2',3,4,5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
144	2,2',3,4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
145	2,2',3,4,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
146	2,2',3,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
147	2,2',3,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
148	2,2',3,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
149	2,2',3,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
150	2,2',3,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
151	2,2',3,5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
152	2,2',3,5,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
153	2,2',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
154	2,2',4,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
155	2,2',4,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
156	2,3,3',4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
157	2,3,3',4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
158	2,3,3',4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
159	2,3,3',4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
160	2,3,3',4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
161	2,3,3',4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
162	2,3,3',4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
163	2,3,3',4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
164	2,3,3',4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
165	2,3,3',5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
166	2,3,4,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
167	2,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
168	2,3',4,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
169	3,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
173	2,2',3,3',4,5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
175	2,2',3,3',4,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
177	2,2',3,3',4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
178	2,2',3,3',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
181	2,2',3,4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
183	2,2',3,4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
185	2,2',3,4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/25/02	SDG No.	DUFD1	Sample Wt	1051
Client ID:	P512A	Date Ext.	10/28/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	1928366	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
190	2,3,3',4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
191	2,3,3',4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
192	2,3,3',4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
193	2,3,3',4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
196	2,2',3,3',4,4',5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
202	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
209	Decachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

HOMOLOG	TOTAL UG/L	WEIGHT %
Monochlorobiphenyls	0.54	100
Dichlorobiphenyls	0.0000	0.0000
Trichlorobiphenyls	0.0000	0.0000
Tetrachlorobiphenyls	0.0000	0.0000
Pentachlorobiphenyls	0.0000	0.0000
Hexachlorobiphenyls	0.0000	0.0000
Heptachlorobiphenyls	0.0000	0.0000
Octachlorobiphenyls	0.0000	0.0000
Nonachlorobiphenyls	0.0000	0.0000
Decachlorobiphenyls	0.0000	0.0000

TOTAL PCB 0.54 UG/L

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/25/02	SDG No.	DUF01	Sample Wt	1043
Client ID:	P4-4	Date Ext.	10/28/02	Samp/Sex	Samp	F.Vol. ul	10000
Sample No:	3928358	Date Inj	11/6/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
1	2-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.095	0.019
2	3-Chlorobiphenyl	0.504425		0.10	0.020	0.50	0.095	0.019
3	4-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.095	0.019
4	2,2'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
5	2,3-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
6	2,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
7	2,4-Dichlorobiphenyl	0.005135	J	0.020	0.0050	0.0052	0.019	0.0049
8	2,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
9	2,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
10	2,6-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
11	3,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
12	3,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
13	3,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
14	3,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
15	4,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
16	2,2',3-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
17	2,2',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
18	2,2',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
19	2,2',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
20	2,3,3'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
21	2,3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
22	2,3,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
23	2,3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
24	2,3,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
25	2,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
26	2,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
27	2,3',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
28	2,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
29	2,4,5-Trichlorbiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
30	2,4,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
31	2,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
32	2,4',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
33	2',3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
34	2',3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
35	3,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
36	3,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
37	3,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
38	3,4,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
39	3,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
40	2,2',3,3'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
41	2,2',3,4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
42	2,2',3,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
43	2,2',3,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
44	2,2',3,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
45	2,2',3,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
46	2,2',3,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
47	2,2',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Recd	10/25/02	SDG No.	DUF01	Sample Wt	1040
Client ID:	P4-4	Date Ext.	10/28/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3928358	Date Inj	11/5/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
48	2,2',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
49	2,2',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
50	2,2',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
51	2,2',4,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
52	2,2',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
53	2,2',5,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
54	2,2',6,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
55	2,3,3',4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
56	2,3,3',4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
57	2,3,3',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
58	2,3,3',5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
59	2,3,3',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
60	2,3,4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
61	2,3,4,5,-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
62	2,3,4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
63	2,3,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
64	2,3,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
65	2,3,5,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
66	2,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
67	2,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
68	2,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
69	2,3',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
70	2,3',4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
71	2,3',4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
72	2,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
73	2,3',5',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
74	2,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
75	2,4,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
76	2',3,4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
77	3,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
78	3,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
79	3,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
80	3,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
81	3,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
82	2,2',3,3',4-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
83	2,2',3,3',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
84	2,2',3,3',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
85	2,2',3,4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
86	2,2',3,4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
87	2,2',3,4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
88	2,2',3,4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
89	2,2',3,4,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
90	2,2',3,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
91	2,2',3,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
92	2,2',3,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
93	2,2',3,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
94	2,2',3,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/25/02	SDG No.	DUF01	Sample Wt	1043
Client ID:	P4-4	Date Ext.	10/29/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3928358	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
95	2,2',3,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
96	2,2',3,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
97	2,2',3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
98	2,2',3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
99	2,2',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
100	2,2',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
101	2,2',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
102	2,2',4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
103	2,2',4,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
104	2,2',4,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
105	2,3,3',4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
106	2,3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
107	2,3,3',4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
108	2,3,3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
109	2,3,3',4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
110	2,3,3',4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
111	2,3,3',5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
112	2,3,3',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
113	2,3,3',5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
114	2,3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
115	2,3,4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
116	2,3,4,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
117	2,3,4',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
118	2,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
119	2,3',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
120	2,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
121	2,3',4,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
122	2',3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
123	2',3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
124	2',3,4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
125	2',3,4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
126	3,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
127	3,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
128	2,2',3,3',4,4'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
129	2,2',3,3',4,5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
130	2,2',3,3',4,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
131	2,2',3,3',4,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
132	2,2',3,3',4,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
133	2,2',3,3',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
134	2,2',3,3',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
135	2,2',3,3',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
136	2,2',3,3',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
137	2,2',3,4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
138	2,2',3,4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
139	2,2',3,4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
140	2,2',3,4,4',6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
141	2,2',3,4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/25/02	SDG No.	DUF01	Sample Wt	1043
Client ID:	P4-4	Date Ext.	10/29/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3928368	Date Inj	11/8/02	Metric	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
142	2,2',3,4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
143	2,2',3,4,5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
144	2,2',3,4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
145	2,2',3,4,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
146	2,2',3,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
147	2,2',3,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
148	2,2',3,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
149	2,2',3,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
150	2,2',3,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
151	2,2',3,5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
152	2,2',3,5,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
153	2,2',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
154	2,2',4,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
155	2,2',4,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
156	2,3,3',4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
157	2,3,3',4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
158	2,3,3',4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
159	2,3,3',4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
160	2,3,3',4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
161	2,3,3',4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
162	2,3,3',4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
163	2,3,3',4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
164	2,3,3',4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
165	2,3,3',5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
166	2,3,4,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
167	2,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
168	2,3',4,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
169	3,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
173	2,2',3,3',4,5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
175	2,2',3,3',4,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
177	2,2',3,3',4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
178	2,2',3,3',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
181	2,2',3,4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
183	2,2',3,4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
185	2,2',3,4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Recd	10/25/02	SDG No.	DUF01	Sample Wt	1043
Client ID:	P4—4	Date Ext.	10/28/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3928358	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
190	2,3,3',4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
191	2,3,3',4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
192	2,3,3',4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
193	2,3,3',4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
196	2,2',3,3',4,4',5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
202	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
209	Decachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

HOMOLOG	TOTAL UG/L	WEIGHT %
Monochlorobiphenyls	0.50	99.0
Dichlorobiphenyls	0.0052	1.0
Trichlorobiphenyls	0.0000	0.0000
Tetrachlorobiphenyls	0.0000	0.0000
Pentachlorobiphenyls	0.0000	0.0000
Hexachlorobiphenyls	0.0000	0.0000
Heptachlorobiphenyls	0.0000	0.0000
Octachlorobiphenyls	0.0000	0.0000
Nonachlorobiphenyls	0.0000	0.0000
Decachlorobiphenyls	0.0000	0.0000

TOTAL PCB 0.51 UG/L

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ANALYTICAL RESULTS

Prepared for:

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

302-239-6634

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425

SAMPLE GROUP

The sample group for this submittal is 828706. Samples arrived at the laboratory on Tuesday, October 29, 2002. The PO# for this group is 4685.ED.

Client Description	Lancaster Labs Number
DR-1-R Grab Water Sample	3929659
DR-1-R Grab Water Sample	3929660
DR-1-R-DUP Grab Water Sample	3929661
DR-1-R-DUP Grab Water Sample	3929662
Rinse Blk (10/25/02) Grab Water Sample	3929663
Rinse Blk (10/25/02) Grab Water Sample	3929664
Rinse Blank (10/28) Grab Water Sample	3929665
LC-105 Grab Water Sample	3929666
LC-102 Grab Water Sample	3929667
DR-5 Grab Water Sample	3929668
DR-5 Grab Water Sample	3929669
DR-3 Grab Water Sample	3929670
DR-3 Grab Water Sample	3929671
Trip Blank Water Sample	3929672

METHODOLOGY

The specific methodologies used in obtaining the enclosed analytical results are indicated on the laboratory chronicles.

1 COPY TO	Duffield Associates, Inc.	Attn: Mr. Rick Beringer
1 COPY TO	Data Package Group	

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Questions? Contact your Client Services Representative
Carrie A Fleming at (717) 656-2300.

Respectfully Submitted,

[illegible]
[illegible]
[illegible]

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Lancaster Laboratories Sample No. WW 3929659

Collected:10/28/2002 10:45 by RKS

Account Number: 01963

Submitted: 10/29/2002 17:30
Reported: 11/22/2002 at 14:39
Discard: 12/23/2002
DR-1-R Grab Water Sample .
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

DR-1R SDG#: DUF01-06

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
00937	TCL Pesticides in Waters					
00938	Endrin Ketone	53494-70-5	N.D.	0.019	ug/l	1
01361	Alpha Chlordane	5103-71-9	N.D.	0.0097	ug/l	1
01362	Gamma Chlordane	5103-74-2	N.D.	0.0097	ug/l	1
01600	Alpha BHC	319-84-6	N.D.	0.0097	ug/l	1
01601	Beta BHC	319-85-7	N.D.	0.0097	ug/l	1
01602	Gamma BHC - Lindane	58-89-9	0.0037 J	0.0097	ug/l	1
01603	Delta BHC	319-86-8	0.0068 J	0.0097	ug/l	1
01604	Heptachlor	76-44-8	N.D.	0.0097	ug/l	1
01605	Aldrin	309-00-2	N.D.	0.024	ug/l	1
01606	Heptachlor Epoxide	1024-57-3	N.D.	0.0097	ug/l	1
01607	p,p-DDE	72-55-9	N.D.	0.019	ug/l	1
01608	p,p-DDD	72-54-8	N.D.	0.019	ug/l	1
01609	p,p-DDT	50-29-3	N.D.	0.019	ug/l	1
01610	Dieldrin	60-57-1	N.D.	0.019	ug/l	1
01611	Endrin	72-20-8	0.014 J	0.019	ug/l	1
01613	Toxaphene	8001-35-2	N.D.	1.0	ug/l	1
01615	Endosulfan II	33213-65-9	N.D.	0.019	ug/l	1
01616	Endosulfan I	959-98-8	N.D.	0.0097	ug/l	1
01617	Endosulfan Sulfate	1031-07-8	N.D.	0.019	ug/l	1
01618	Endrin Aldehyde	7421-93-4	N.D.	0.097	ug/l	1
01619	PCB-1016	12674-11-2	N.D.	0.49	ug/l	1
01620	PCB-1221	11104-28-2	N.D.	0.49	ug/l	1
01621	PCB-1232	11141-16-5	N.D.	0.49	ug/l	1
01622	PCB-1242	53469-21-9	N.D.	0.49	ug/l	1
01623	PCB-1248	12672-29-6	N.D.	0.49	ug/l	1
01624	PCB-1254	11097-69-1	N.D.	0.49	ug/l	1
01626	PCB-1260	11096-82-5	N.D.	0.49	ug/l	1
01860	Methoxychlor	72-43-5	N.D.	0.097	ug/l	1
	Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
05088	PCB Congeners-Full List-water					
07994	PCB 1	2051-60-7	N.D.	0.097	ug/l	1
07996	PCB 8	34883-43-7	N.D.	0.019	ug/l	1
07997	PCB 18	37680-65-2	N.D.	0.019	ug/l	1
08002	PCB 49	41464-40-8	N.D.	0.019	ug/l	1

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Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

DR-1R SDG#: DUF01-06

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
08009	PCB 87	38380-02-8	N.D.	0.019	ug/l	1
08020	PCB 128	38380-07-3	N.D.	0.019	ug/l	1
08033	PCB 180	35066-29-3	N.D.	0.019	ug/l	1
08038	PCB 194	35694-08-7	N.D.	0.019	ug/l	1
08041	PCB 206	40186-72-9	N.D.	0.019	ug/l	1
08042	PCB 209	2051-24-3	N.D.	0.019	ug/l	1

PCB-002 was detected in the blank at a concentration of 0.42 ug/l. The blank is not subtracted from the sample concentration.

04678 TCL SW846 Semivolatiles/Waters

03871	4-Chloroaniline	106-47-8	N.D.	10.	ug/l	1
03905	2-Methylnaphthalene	91-57-6	N.D.	10.	ug/l	1
03907	2-Nitroaniline	88-74-4	N.D.	10.	ug/l	1
03922	2,4,5-Trichlorophenol	95-95-4	N.D.	10.	ug/l	1
03924	2-Chlorophenol	95-57-8	N.D.	10.	ug/l	1
03925	Phenol	108-95-2	N.D.	10.	ug/l	1
03926	2-Nitrophenol	88-75-5	N.D.	10.	ug/l	1
03927	2,4-Dimethylphenol	105-67-9	N.D.	10.	ug/l	1
03928	2,4-Dichlorophenol	120-83-2	N.D.	10.	ug/l	1
03929	4-Chloro-3-methylphenol	59-50-7	N.D.	10.	ug/l	1
03930	2,4,6-Trichlorophenol	88-06-2	N.D.	10.	ug/l	1
03936	bis(2-Chloroethyl)ether	111-44-4	N.D.	10.	ug/l	1
03937	1,3-Dichlorobenzene	541-73-1	N.D.	10.	ug/l	1
03938	1,4-Dichlorobenzene	106-46-7	N.D.	10.	ug/l	1
03939	1,2-Dichlorobenzene	95-50-1	N.D.	10.	ug/l	1
03941	Hexachloroethane	67-72-1	N.D.	10.	ug/l	1
03942	N-Nitroso-di-n-propylamine	621-64-7	N.D.	10.	ug/l	1
03943	Nitrobenzene	98-95-3	N.D.	10.	ug/l	1
03944	Isophorone	78-59-1	N.D.	10.	ug/l	1
03945	bis(2-Chloroethoxy)methane	111-91-1	N.D.	10.	ug/l	1
03946	1,2,4-Trichlorobenzene	120-82-1	N.D.	10.	ug/l	1
03947	Naphthalene	91-20-3	N.D.	10.	ug/l	1
03948	Hexachlorobutadiene	87-68-3	N.D.	10.	ug/l	1
03949	Hexachlorocyclopentadiene	77-47-4	N.D.	24.	ug/l	1
03950	2-Chloronaphthalene	91-58-7	N.D.	10.	ug/l	1
03951	Acenaphthylene	208-96-8	N.D.	10.	ug/l	1
03952	Dimethylphthalate	131-11-3	N.D.	10.	ug/l	1
04680	2-Methylphenol	95-48-7	N.D.	10.	ug/l	1
04681	2,2'-oxybis(1-Chloropropane)	108-60-1	N.D.	10.	ug/l	1
04682	4-Methylphenol	106-44-5	N.D.	10.	ug/l	1

3-Methylphenol and 4-methylphenol cannot be resolved under the

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Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

DR-1R SDG#: DUF01-06

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
	chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
04679	TCL SW846 Semivolatiles/Waters					
03879	Dibenzofuran	132-64-9	N.D.	10.	ug/l	1
03908	3-Nitroaniline	99-09-2	N.D.	10.	ug/l	1
03909	4-Nitroaniline	100-01-6	N.D.	10.	ug/l	1
03931	2,4-Dinitrophenol	51-28-5	N.D.	58.	ug/l	1
03932	4-Nitrophenol	100-02-7	N.D.	48.	ug/l	1
03933	4,6-Dinitro-2-methylphenol	534-52-1	N.D.	24.	ug/l	1
03934	Pentachlorophenol	87-86-5	N.D.	24.	ug/l	1
03953	2,6-Dinitrotoluene	606-20-2	N.D.	10.	ug/l	1
03954	Acenaphthene	83-32-9	N.D.	10.	ug/l	1
03955	2,4-Dinitrotoluene	121-14-2	N.D.	10.	ug/l	1
03956	Fluorene	86-73-7	N.D.	10.	ug/l	1
03957	4-Chlorophenyl-phenylether	7005-72-3	N.D.	10.	ug/l	1
03958	Diethylphthalate	84-66-2	N.D.	10.	ug/l	1
03960	N-Nitrosodiphenylamine	86-30-6	N.D.	10.	ug/l	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
03961	4-Bromophenyl-phenylether	101-55-3	N.D.	10.	ug/l	1
03962	Hexachlorobenzene	118-74-1	N.D.	10.	ug/l	1
03963	Phenanthrene	85-01-8	N.D.	10.	ug/l	1
03964	Anthracene	120-12-7	N.D.	10.	ug/l	1
03965	Di-n-butylphthalate	84-74-2	N.D.	10.	ug/l	1
03966	Fluoranthene	206-44-0	N.D.	10.	ug/l	1
03967	Pyrene	129-00-0	N.D.	10.	ug/l	1
03969	Butylbenzylphthalate	85-68-7	N.D.	10.	ug/l	1
03970	Benzo(a)anthracene	56-55-3	N.D.	10.	ug/l	1
03971	Chrysene	218-01-9	N.D.	10.	ug/l	1
03972	3,3'-Dichlorobenzidine	91-94-1	N.D.	10.	ug/l	1
03973	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	10.	ug/l	1
03974	Di-n-octylphthalate	117-84-0	N.D.	10.	ug/l	1
03975	Benzo(b)fluoranthene	205-99-2	N.D.	10.	ug/l	1
03976	Benzo(k)fluoranthene	207-08-9	N.D.	10.	ug/l	1
03977	Benzo(a)pyrene	50-32-8	N.D.	10.	ug/l	1
03978	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	10.	ug/l	1
03979	Dibenz(a,h)anthracene	53-70-3	N.D.	10.	ug/l	1
03980	Benzo(g,h,i)perylene	191-24-2	N.D.	10.	ug/l	1
04684	Carbazole	86-74-8	N.D.	10.	ug/l	1

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DR-1-R Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

DR-1R SDG#: DUF01-06

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation	Units	Dilution Factor
06872	Appendix I by SW846/8260-water						
05385	Chloromethane	74-87-3	N.D.		5.	ug/l	1
05386	Vinyl Chloride	75-01-4	N.D.		5.	ug/l	1
05387	Bromomethane	74-83-9	N.D.		5.	ug/l	1
05388	Chloroethane	75-00-3	N.D.		5.	ug/l	1
05389	Trichlorofluoromethane	75-69-4	N.D.		5.	ug/l	1
05390	1,1-Dichloroethene	75-35-4	N.D.		5.	ug/l	1
05391	Methylene Chloride	75-09-2	N.D.		5.	ug/l	1
05392	trans-1,2-Dichloroethene	156-60-5	N.D.		5.	ug/l	1
05393	1,1-Dichloroethane	75-34-3	N.D.		5.	ug/l	1
05395	cis-1,2-Dichloroethene	156-59-2	N.D.		5.	ug/l	1
05396	Chloroform	67-66-3	N.D.		5.	ug/l	1
05397	Bromochloromethane	74-97-5	N.D.		5.	ug/l	1
05398	1,1,1-Trichloroethane	71-55-6	N.D.		5.	ug/l	1
05399	Carbon Tetrachloride	56-23-5	N.D.		5.	ug/l	1
05401	Benzene	71-43-2	N.D.		5.	ug/l	1
05402	1,2-Dichloroethane	107-06-2	N.D.		5.	ug/l	1
05403	Trichloroethene	79-01-6	N.D.		5.	ug/l	1
05404	1,2-Dichloropropane	78-87-5	N.D.		5.	ug/l	1
05405	Dibromomethane	74-95-3	N.D.		5.	ug/l	1
05406	Bromodichloromethane	75-27-4	N.D.		5.	ug/l	1
05407	Toluene	108-88-3	N.D.		5.	ug/l	1
06302	Acetone	67-64-1	8.	J	20.	ug/l	1
06303	Carbon Disulfide	75-15-0	N.D.		5.	ug/l	1
06305	2-Butanone	78-93-3	N.D.		10.	ug/l	1
06306	trans-1,3-Dichloropropene	10061-02-6	N.D.		5.	ug/l	1
06307	cis-1,3-Dichloropropene	10061-01-5	N.D.		5.	ug/l	1
06308	4-Methyl-2-pentanone	108-10-1	N.D.		10.	ug/l	1
06874	Methyl Iodide	74-88-4	N.D.		5.	ug/l	1
06875	Acrylonitrile	107-13-1	N.D.		20.	ug/l	1
06876	Vinyl Acetate	108-05-4	N.D.		10.	ug/l	1
06873	Appendix I by SW846/8260-cont						
05408	1,1,2-Trichloroethane	79-00-5	N.D.		5.	ug/l	1
05409	Tetrachloroethene	127-18-4	N.D.		5.	ug/l	1
05411	Dibromochloromethane	124-48-1	N.D.		5.	ug/l	1
05412	1,2-Dibromoethane	106-93-4	N.D.		5.	ug/l	1
05413	Chlorobenzene	108-90-7	N.D.		5.	ug/l	1
05414	1,1,1,2-Tetrachloroethane	630-20-6	N.D.		5.	ug/l	1
05415	Ethylbenzene	100-41-4	N.D.		5.	ug/l	1

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Project# 4685.ED

Duffield Associates, Inc.
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DR-1R SDG#: DUF01-06

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
05418	Styrene	100-42-5	N.D.	5.	ug/l	1
05419	Bromoform	75-25-2	N.D.	5.	ug/l	1
05421	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	5.	ug/l	1
05423	1,2,3-Trichloropropane	96-18-4	N.D.	5.	ug/l	1
05433	1,4-Dichlorobenzene	106-46-7	N.D.	5.	ug/l	1
05435	1,2-Dichlorobenzene	95-50-1	N.D.	5.	ug/l	1
05436	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	5.	ug/l	1
06309	2-Hexanone	591-78-6	N.D.	10.	ug/l	1
06310	Xylene (Total)	1330-20-7	N.D.	5.	ug/l	1
06877	trans-1,4-Dichloro-2-butene	110-57-6	N.D.	50.	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00937	TCL Pesticides in Waters	SW-846 8081A/8082	1	11/05/2002 18:34	Anita M Dale	1
05088	PCB Congeners-Full List-water	SW-846 8082 (modified)	1	11/08/2002 11:35	Tiffany A Leyda	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	11/04/2002 10:26	Jason C Arnold	1
04679	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	11/04/2002 10:26	Jason C Arnold	1
06872	Appendix I by SW846/8260-water	SW-846 8260B	1	11/01/2002 19:20	Marc S Neal	1
06873	Appendix I by SW846/8260-cont	SW-846 8260B	1	11/01/2002 19:20	Marc S Neal	1
00813	BNA Water Extraction	SW-846 3510C	1	10/31/2002 16:30	Elia R Botrous	1
00817	Water Sample Pest. Extraction	SW-846 3510C	1	10/31/2002 22:15	Sharon L Jones	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	11/01/2002 19:20	Marc S Neal	n.a.

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Lancaster Laboratories Sample No. WW 3929660

Collected:10/28/2002 10:45 by RKS

Account Number: 01963

Submitted: 10/29/2002 17:30
Reported: 11/22/2002 at 14:40
Discard: 12/23/2002
DR-1-R Grab Water Sample
CONTINUATION OF PREVIOUS SAMPLE
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

DR-1R SDG#: DUF01-06CON

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
00259	Mercury	7439-97-6	N.D.	0.00020	mg/l	1
01743	Aluminum	7429-90-5	N.D.	0.200	mg/l	1
01744	Antimony	7440-36-0	N.D.	0.200	mg/l	1
01746	Barium	7440-39-3	0.149	0.100	mg/l	1
01747	Beryllium	7440-41-7	N.D.	0.0100	mg/l	1
01749	Cadmium	7440-43-9	N.D.	0.0100	mg/l	1
01750	Calcium	7440-70-2	80.8	0.200	mg/l	1
01751	Chromium	7440-47-3	0.0110 J	0.0300	mg/l	1
01752	Cobalt	7440-48-4	0.0105 J	0.0500	mg/l	1
01753	Copper	7440-50-8	0.0150 J	0.0250	mg/l	1
01754	Iron	7439-89-6	3.11	0.100	mg/l	1
01757	Magnesium	7439-95-4	87.2	0.100	mg/l	1
01758	Manganese	7439-96-5	1.17	0.0100	mg/l	1
01761	Nickel	7440-02-0	0.0126 J	0.0500	mg/l	1
01762	Potassium	7440-09-7	60.9	2.50	mg/l	5
01766	Silver	7440-22-4	N.D.	0.0200	mg/l	1
01767	Sodium	7440-23-5	303.	6.00	mg/l	10
01771	Vanadium	7440-62-2	N.D.	0.0200	mg/l	1
01772	Zinc	7440-66-6	0.0559	0.0250	mg/l	1
07022	Thallium TR	7440-28-0	N.D.	0.0200	mg/l	1
07035	Arsenic TR	7440-38-2	0.0067 J	0.0100	mg/l	1
07036	Selenium TR	7782-49-2	N.D.	0.0100	mg/l	1
07055	Lead TR	7439-92-1	N.D.	0.0200	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a.	838.	2.0	mg/l as CaCO3	1
00212	Total Dissolved Solids	n.a.	1,620.	120.	mg/l	1
00217	Kjeldahl Nitrogen	7727-37-9	66.	20.	mg/l	20
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.050	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.10	mg/l	1
00223	Organic Nitrogen	n.a.	14.3	1.0	mg/l	1
00224	Chloride	16887-00-6	463.	40.	mg/l	100
00228	Sulfate	14808-79-8	6.3	5.0	mg/l	5
00273	Total Organic Carbon	n.a.	94.1	20.0	mg/l	10
00345	Total Phosphorus as PO4 water	14265-44-2	0.28	0.20	mg/l	1
01333	Sulfide	18496-25-8	N.D.	2.0	mg/l	1
01454	Bicarbonate	71-52-3	838.	2.0	mg/l as CaCO3	1
04001	Chemical Oxygen Demand	n.a.	301.	50.	mg/l	1
06914	Ammonia-Nitrogen	7664-41-7	51.2	1.0	mg/l	10
08255	Total Cyanide (water)	57-12-5	N.D.	0.0050	mg/l	1

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DR-1-R Grab Water Sample
CONTINUATION OF PREVIOUS SAMPLE
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

DR-1R SDG#: DUF01-06CON

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00259	Mercury	SW-846 7470A	1	11/07/2002 08:20	Deborah A Krady	1
01743	Aluminum	SW-846 6010B	1	11/02/2002 11:09	Eric W Cuba	1
01744	Antimony	SW-846 6010B	1	11/02/2002 11:09	Eric W Cuba	1
01746	Barium	SW-846 6010B	1	11/02/2002 11:09	Eric W Cuba	1
01747	Beryllium	SW-846 6010B	1	11/02/2002 11:09	Eric W Cuba	1
01749	Cadmium	SW-846 6010B	1	11/02/2002 11:09	Eric W Cuba	1
01750	Calcium	SW-846 6010B	1	11/02/2002 11:09	Eric W Cuba	1
01751	Chromium	SW-846 6010B	1	11/02/2002 11:09	Eric W Cuba	1
01752	Cobalt	SW-846 6010B	1	11/02/2002 11:09	Eric W Cuba	1
01753	Copper	SW-846 6010B	1	11/02/2002 11:09	Eric W Cuba	1
01754	Iron	SW-846 6010B	1	11/02/2002 11:09	Eric W Cuba	1
01757	Magnesium	SW-846 6010B	1	11/02/2002 11:09	Eric W Cuba	1
01758	Manganese	SW-846 6010B	1	11/02/2002 11:09	Eric W Cuba	1
01761	Nickel	SW-846 6010B	1	11/02/2002 11:09	Eric W Cuba	1
01762	Potassium	SW-846 6010B	1	11/05/2002 02:24	Donna R Sackett	5
01766	Silver	SW-846 6010B	1	11/02/2002 11:09	Eric W Cuba	1
01767	Sodium	SW-846 6010B	1	11/05/2002 02:29	Donna R Sackett	10
01771	Vanadium	SW-846 6010B	1	11/02/2002 11:09	Eric W Cuba	1
01772	Zinc	SW-846 6010B	1	11/02/2002 11:09	Eric W Cuba	1
07022	Thallium TR	SW-846 6010B	1	11/02/2002 11:09	Eric W Cuba	1
07035	Arsenic TR	SW-846 6010B	1	11/02/2002 11:09	Eric W Cuba	1
07036	Selenium TR	SW-846 6010B	1	11/02/2002 11:09	Eric W Cuba	1
07055	Lead TR	SW-846 6010B	1	11/02/2002 11:09	Eric W Cuba	1
00201	Alkalinity to pH 8.3	EPA 310.1	1	10/30/2002 11:02	Susan A Engle	1
00202	Alkalinity to pH 4.5	EPA 310.1	1	10/30/2002 11:02	Susan A Engle	1
00212	Total Dissolved Solids	EPA 160.1	1	10/30/2002 10:29	Anne L Kuenzli	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	11/06/2002 18:31	Venia B McFadden	20
00219	Nitrite Nitrogen	EPA 353.2	1	10/29/2002 19:44	Nicole M Kepley	1
00220	Nitrate Nitrogen	EPA 353.2	1	11/07/2002 16:08	Nicole M Kepley	1
00223	Organic Nitrogen	Std. Meth. 18th Ed., 4500-NORG	1	11/06/2002 18:31	Venia B McFadden	1
00224	Chloride	EPA 300.0	1	11/06/2002 06:22	Shannon L Phillips	100
00228	Sulfate	EPA 300.0	1	11/01/2002 16:47	Shannon L Phillips	5
00273	Total Organic Carbon	EPA 415.1	1	10/31/2002 10:36	Timothy M Petree	10
00345	Total Phosphorus as PO4 Water	EPA 365.1	1	11/05/2002 18:11	Venia B McFadden	1
01333	Sulfide	EPA 376.1	1	10/31/2002 11:15	Susan E Hibner	1
01484	Bicarbonate	SM-18 2320B	1	10/30/2002 11:02	Susan A Engle	1
04001	Chemical Oxygen Demand	EPA 410.4	1	10/30/2002 10:56	Susan A Engle	1

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Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

DR-1R SDG#: DUF01-06CON

06914	Ammonia-Nitrogen	EPA 350.3	1	11/04/2002 07:47	Michele L Graham	10
08255	Total Cyanide (water)	SW-846 9012A	1	11/04/2002 16:18	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/01/2002 09:37	James S Mathiot	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	10/30/2002 22:40	Annamaria Stipkovits	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	10/30/2002 19:17	Nelli S Markaryan	1
08256	Cyanide Water Distillation	SW-846 9012A	1	11/01/2002 09:25	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	11/01/2002 14:50	Nancy J Shoop	1

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Lancaster Laboratories Sample No. WW 3929661

Collected:10/28/2002 10:45 by RKS

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Discard: 12/23/2002
DR-1-R-DUP Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

DR1RD SDG#: DUF01-07FD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
00937	TCL Pesticides in Waters					
00938	Endrin Ketone	53494-70-5	N.D.	0.019	ug/l	1
01361	Alpha Chlordane	5103-71-9	N.D.	0.0096	ug/l	1
01362	Gamma Chlordane	5103-74-2	N.D.	0.0096	ug/l	1
01600	Alpha BHC	319-84-6	N.D.	0.0096	ug/l	1
01601	Beta BHC	319-85-7	N.D.	0.0096	ug/l	1
01602	Gamma BHC - Lindane	58-89-9	N.D.	0.0096	ug/l	1
01603	Delta BHC	319-86-8	0.0074 J	0.0096	ug/l	1
01604	Heptachlor	76-44-8	N.D.	0.0096	ug/l	1
01605	Aldrin	309-00-2	N.D.	0.024	ug/l	1
01606	Heptachlor Epoxide	1024-57-3	N.D.	0.0096	ug/l	1
01607	p,p-DDE	72-55-9	N.D.	0.019	ug/l	1
01608	p,p-DDD	72-54-8	N.D.	0.019	ug/l	1
01609	p,p-DDT	50-29-3	N.D.	0.019	ug/l	1
01610	Dieldrin	60-57-1	N.D.	0.019	ug/l	1
01611	Endrin	72-20-8	0.012 J	0.019	ug/l	1
01613	Toxaphene	8001-35-2	N.D.	1.0	ug/l	1
01615	Endosulfan II	33213-65-9	N.D.	0.019	ug/l	1
01616	Endosulfan I	959-98-8	N.D.	0.0096	ug/l	1
01617	Endosulfan Sulfate	1031-07-8	N.D.	0.019	ug/l	1
01618	Endrin Aldehyde	7421-93-4	N.D.	0.096	ug/l	1
01619	PCB-1016	12674-11-2	N.D.	0.48	ug/l	1
01620	PCB-1221	11104-28-2	N.D.	0.48	ug/l	1
01621	PCB-1232	11141-16-5	N.D.	0.48	ug/l	1
01622	PCB-1242	53469-21-9	N.D.	0.48	ug/l	1
01623	PCB-1248	12672-29-6	N.D.	0.48	ug/l	1
01624	PCB-1254	11097-69-1	N.D.	0.48	ug/l	1
01626	PCB-1260	11096-82-5	N.D.	0.48	ug/l	1
01860	Methoxychlor	72-43-5	N.D.	0.096	ug/l	1
	Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
05088	PCB Congeners-Full List-water					
07994	PCB 1	2051-60-7	N.D.	0.095	ug/l	1
07996	PCB 8	34883-43-7	N.D.	0.019	ug/l	1
07997	PCB 18	37680-65-2	N.D.	0.019	ug/l	1
08002	PCB 49	41464-40-8	N.D.	0.019	ug/l	1

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Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

DR1RD SDG#: DUF01-07FD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
08009	PCB 87	38380-02-8	N.D.	0.019	ug/l	1
08020	PCB 128	38380-07-3	N.D.	0.019	ug/l	1
08033	PCB 180	35065-29-3	N.D.	0.019	ug/l	1
08038	PCB 194	35694-08-7	N.D.	0.019	ug/l	1
08041	PCB 206	40186-72-9	N.D.	0.019	ug/l	1
08042	PCB 209	2051-24-3	N.D.	0.019	ug/l	1

PCB-002 was detected in the blank at a concentration of 0.42 ug/l. The blank is not subtracted from the sample concentration.

04678 TCL SW846 Semivolatiles/Waters

03871	4-Chloroaniline	106-47-8	N.D.	10.	ug/l	1
03905	2-Methylnaphthalene	91-57-6	N.D.	10.	ug/l	1
03907	2-Nitroaniline	88-74-4	N.D.	10.	ug/l	1
03922	2,4,5-Trichlorophenol	95-95-4	N.D.	10.	ug/l	1
03924	2-Chlorophenol	95-57-8	N.D.	10.	ug/l	1
03925	Phenol	108-95-2	N.D.	10.	ug/l	1
03926	2-Nitrophenol	88-75-5	N.D.	10.	ug/l	1
03927	2,4-Dimethylphenol	105-67-9	N.D.	10.	ug/l	1
03928	2,4-Dichlorophenol	120-83-2	N.D.	10.	ug/l	1
03929	4-Chloro-3-methylphenol	59-50-7	N.D.	10.	ug/l	1
03930	2,4,6-Trichlorophenol	88-06-2	N.D.	10.	ug/l	1
03936	bis(2-Chloroethyl)ether	111-44-4	N.D.	10.	ug/l	1
03937	1,3-Dichlorobenzene	541-73-1	N.D.	10.	ug/l	1
03938	1,4-Dichlorobenzene	106-46-7	N.D.	10.	ug/l	1
03939	1,2-Dichlorobenzene	95-50-1	N.D.	10.	ug/l	1
03941	Hexachloroethane	67-72-1	N.D.	10.	ug/l	1
03942	N-Nitroso-di-n-propylamine	621-64-7	N.D.	10.	ug/l	1
03943	Nitrobenzene	98-95-3	N.D.	10.	ug/l	1
03944	Isophorone	78-59-1	N.D.	10.	ug/l	1
03945	bis(2-Chloroethoxy)methane	111-91-1	N.D.	10.	ug/l	1
03946	1,2,4-Trichlorobenzene	120-82-1	N.D.	10.	ug/l	1
03947	Naphthalene	91-20-3	N.D.	10.	ug/l	1
03948	Hexachlorobutadiene	87-68-3	N.D.	10.	ug/l	1
03949	Hexachlorocyclopentadiene	77-47-4	N.D.	24.	ug/l	1
03950	2-Chloronaphthalene	91-58-7	N.D.	10.	ug/l	1
03951	Acenaphthylene	208-96-8	N.D.	10.	ug/l	1
03952	Dimethylphthalate	131-11-3	N.D.	10.	ug/l	1
04680	2-Methylphenol	95-48-7	N.D.	10.	ug/l	1
04681	2,2'-oxybis(1-Chloropropane)	108-60-1	N.D.	10.	ug/l	1
04682	4-Methylphenol	106-44-5	N.D.	10.	ug/l	1

3-Methylphenol and 4-methylphenol cannot be resolved under the

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Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

DR1RD SDG#: DUF01-07FD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
	chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
04679	TCL SW846 Semivolatiles/Waters					
03879	Dibenzofuran	132-64-9	N.D.	10.	ug/l	1
03908	3-Nitroaniline	99-09-2	N.D.	10.	ug/l	1
03909	4-Nitroaniline	100-01-6	N.D.	10.	ug/l	1
03931	2,4-Dinitrophenol	51-28-5	N.D.	58.	ug/l	1
03932	4-Nitrophenol	100-02-7	N.D.	48.	ug/l	1
03933	4,6-Dinitro-2-methylphenol	534-52-1	N.D.	24.	ug/l	1
03934	Pentachlorophenol	87-86-5	N.D.	24.	ug/l	1
03953	2,6-Dinitrotoluene	606-20-2	N.D.	10.	ug/l	1
03954	Acenaphthene	83-32-9	N.D.	10.	ug/l	1
03955	2,4-Dinitrotoluene	121-14-2	N.D.	10.	ug/l	1
03956	Fluorene	86-73-7	N.D.	10.	ug/l	1
03957	4-Chlorophenyl-phenylether	7005-72-3	N.D.	10.	ug/l	1
03958	Diethylphthalate	84-66-2	N.D.	10.	ug/l	1
03960	N-Nitrosodiphenylamine	86-30-6	N.D.	10.	ug/l	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
03961	4-Bromopheuyl-phenylether	101-55-3	N.D.	10.	ug/l	1
03962	Hexachlorobenzene	118-74-1	N.D.	10.	ug/l	1
03963	Phenanthrene	85-01-8	N.D.	10.	ug/l	1
03964	Anthracene	120-12-7	N.D.	10.	ug/l	1
03965	Di-n-butylphthalate	84-74-2	N.D.	10.	ug/l	1
03966	Fluoranthene	206-44-0	N.D.	10.	ug/l	1
03967	Pyrene	129-00-0	N.D.	10.	ug/l	1
03969	Butylbenzylphthalate	85-68-7	N.D.	10.	ug/l	1
03970	Benzo(a)anthracene	56-55-3	N.D.	10.	ug/l	1
03971	Chrysene	218-01-9	N.D.	10.	ug/l	1
03972	3,3'-Dichlorobenzidine	91-94-1	N.D.	10.	ug/l	1
03973	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	10.	ug/l	1
03974	Di-n-octylphthalate	117-84-0	N.D.	10.	ug/l	1
03975	Benzo(b)fluoranthene	205-99-2	N.D.	10.	ug/l	1
03976	Benzo(k)fluoranthene	207-08-9	N.D.	10.	ug/l	1
03977	Benzo(a)pyrene	50-32-8	N.D.	10.	ug/l	1
03978	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	10.	ug/l	1
03979	Dibenz(a,h)anthracene	53-70-3	N.D.	10.	ug/l	1
03980	Benzo(g,h,i)perylene	191-24-2	N.D.	10.	ug/l	1
04684	Carbazole	86-74-8	N.D.	10.	ug/l	1

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DR1RD SDG#: DUF01-07FD

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation	Units	Dilution Factor
06872	Appendix I by SW846/8260-water						
05385	Chloromethane	74-87-3	N.D.		5.	ug/l	1
05386	Vinyl Chloride	75-01-4	N.D.		5.	ug/l	1
05387	Bromomethane	74-83-9	N.D.		5.	ug/l	1
05388	Chloroethane	75-00-3	N.D.		5.	ug/l	1
05389	Trichlorofluoromethane	75-69-4	N.D.		5.	ug/l	1
05390	1,1-Dichloroethene	75-35-4	N.D.		5.	ug/l	1
05391	Methylene Chloride	75-09-2	N.D.		5.	ug/l	1
05392	trans-1,2-Dichloroethene	156-60-5	N.D.		5.	ng/l	1
05393	1,1-Dichloroethane	75-34-3	N.D.		5.	ug/l	1
05395	cis-1,2-Dichloroethene	156-59-2	N.D.		5.	ug/l	1
05396	Chloroform	67-66-3	N.D.		5.	ug/l	1
05397	Bromochloromethane	74-97-5	N.D.		5.	ug/l	1
05398	1,1,1-Trichloroethane	71-55-6	N.D.		5.	ug/l	1
05399	Carbon Tetrachloride	56-23-5	N.D.		5.	ug/l	1
05401	Benzene	71-43-2	N.D.		5.	ug/l	1
05402	1,2-Dichloroethane	107-06-2	N.D.		5.	ug/l	1
05403	Trichloroethene	79-01-6	N.D.		5.	ug/l	1
05404	1,2-Dichloropropane	78-87-5	N.D.		5.	ug/l	1
05405	Dibromomethane	74-95-3	N.D.		5.	ug/l	1
05406	Bromodichloromethane	75-27-4	N.D.		5.	ug/l	1
05407	Toluene	108-88-3	N.D.		5.	ug/l	1
06302	Acetone	67-64-1	8.	J	20.	ug/l	1
06303	Carbon Disulfide	75-15-0	N.D.		5.	ug/l	1
06305	2-Butanone	78-93-3	N.D.		10.	ug/l	1
06306	trans-1,3-Dichloropropene	10061-02-6	N.D.		5.	ug/l	1
06307	cis-1,3-Dichloropropene	10061-01-5	N.D.		5.	ug/l	1
06308	4-Methyl-2-pentanone	108-10-1	N.D.		10.	ug/l	1
06874	Methyl Iodide	74-88-4	N.D.		5.	ug/l	1
06875	Acrylonitrile	107-13-1	N.D.		20.	ug/l	1
06876	Vinyl Acetate	108-05-4	N.D.		10.	ug/l	1
06873	Appendix I by SW846/8260-cont						
05408	1,1,2-Trichloroethane	79-00-5	N.D.		5.	ug/l	1
05409	Tetrachloroethene	127-18-4	N.D.		5.	ug/l	1
05411	Dibromochloromethane	124-48-1	N.D.		5.	ug/l	1
05412	1,2-Dibromoethane	106-93-4	N.D.		5.	ug/l	1
05413	Chlorobenzene	108-90-7	N.D.		5.	ug/l	1
05414	1,1,1,2-Tetrachloroethane	630-20-6	N.D.		5.	ug/l	1
05415	Ethylbenzene	100-41-4	N.D.		5.	ug/l	1

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Lancaster Laboratories Sample No. WW 3929661

Collected:10/28/2002 10:45 by RKS

Account Number: 01963

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

Submitted: 10/29/2002 17:30
Reported: 11/22/2002 at 14:40
Discard: 12/23/2002
DR-1-R-DUP Grab Water Sample
Project# 4685.ED

DR1RD SDG#: DUF01-07FD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
05418	Styrene	100-42-5	N.D.	5.	ug/l	1
05419	Bromoform	75-25-2	N.D.	5.	ug/l	1
05421	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	5.	ug/l	1
05423	1,2,3-Trichloropropane	96-18-4	N.D.	5.	ug/l	1
05433	1,4-Dichlorobenzene	106-46-7	N.D.	5.	ug/l	1
05435	1,2-Dichlorobenzene	95-50-1	N.D.	5.	ug/l	1
05436	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	5.	ug/l	1
06309	2-Hexanone	591-78-6	N.D.	10.	ug/l	1
06310	Xylene (Total)	1330-20-7	N.D.	5.	ug/l	1
06877	trans-1,4-Dichloro-2-butene	110-57-6	N.D.	50.	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00937	TCL Pesticides in Waters	SW-846 8081A/8082	1	11/05/2002 18:54	Anita M Dale	1
05088	PCB Congeners-Full List-water	SW-846 8082 (modified)	1	11/08/2002 12:38	Tiffany A Leyda	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	11/02/2002 06:57	Linda M Hartenstine	1
04679	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	11/02/2002 06:57	Linda M Hartenstine	1
06872	Appendix I by SW846/8260-water	SW-846 8260B	1	11/01/2002 19:46	Marc S Neal	1
06873	Appendix I by SW846/8260-cont	SW-846 8260B	1	11/01/2002 19:46	Marc S Neal	1
00813	BNA Water Extraction	SW-846 3510C	1	10/31/2002 16:30	Elia R Botrous	1
00817	Water Sample Pest. Extraction	SW-846 3510C	1	10/31/2002 22:15	Sharon L Jones	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	11/01/2002 19:46	Marc S Neal	n.a.

Analysis Report

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DR-1-R-DUP Grab Water Sample
CONTINUATION OF PREVIOUS SAMPLE
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

DR1RD SDG#: DUF01-07FDCON

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
00259	Mercury	7439-97-6	N.D.	0.00020	mg/l	1
01743	Aluminum	7429-90-5	N.D.	0.200	mg/l	1
01744	Antimony	7440-36-0	N.D.	0.200	mg/l	1
01746	Barium	7440-39-3	0.148	0.100	mg/l	1
01747	Beryllium	7440-41-7	N.D.	0.0100	mg/l	1
01749	Cadmium	7440-43-9	N.D.	0.0100	mg/l	1
01750	Calcium	7440-70-2	80.8	0.200	mg/l	1
01751	Chromium	7440-47-3	0.0105 J	0.0300	mg/l	1
01752	Cobalt	7440-48-4	0.0102 J	0.0500	mg/l	1
01753	Copper	7440-50-8	0.0129 J	0.0250	mg/l	1
01754	Iron	7439-89-6	4.82	0.100	mg/l	1
01757	Magnesium	7439-95-4	86.2	0.100	mg/l	1
01758	Manganese	7439-96-5	1.18	0.0100	mg/l	1
01761	Nickel	7440-02-0	0.0120 J	0.0500	mg/l	1
01762	Potassium	7440-09-7	54.3	2.50	mg/l	5
01766	Silver	7440-22-4	N.D.	0.0200	mg/l	1
01767	Sodium	7440-23-5	283.	6.00	mg/l	10
01771	Vanadium	7440-62-2	N.D.	0.0200	mg/l	1
01772	Zinc	7440-66-6	0.0460	0.0250	mg/l	1
07022	Thallium TR	7440-28-0	N.D.	0.0200	mg/l	1
07035	Arsenic TR	7440-38-2	0.0078 J	0.0100	mg/l	1
07036	Selenium TR	7782-49-2	N.D.	0.0100	mg/l	1
07055	Lead TR	7439-92-1	N.D.	0.0200	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a.	826.	2.0	mg/l as CaCO3	1
00212	Total Dissolved Solids	n.a.	1,590.	120.	mg/l	1
00217	Kjeldahl Nitrogen	7727-37-9	63.	20.	mg/l	20
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.050	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.10	mg/l	1
00223	Organic Nitrogen	n.a.	11.0	1.0	mg/l	1
00224	Chloride	16887-00-6	418.	40.	mg/l	100
00228	Sulfate	14808-79-8	5.8	5.0	mg/l	5
00273	Total Organic Carbon	n.a.	93.4	20.0	mg/l	10
00345	Total Phosphorus as PO4 water	14265-44-2	0.27	0.20	mg/l	1
01333	Sulfide	18496-25-8	N.D.	2.0	mg/l	1
01454	Bicarbonate	71-52-3	826.	2.0	mg/l as CaCO3	1
04001	Chemical Oxygen Demand	n.a.	299.	50.	mg/l	1
06914	Ammonia-Nitrogen	7664-41-7	52.3	1.0	mg/l	10
08255	Total Cyanide (water)	57-12-5	N.D.	0.0050	mg/l	1

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DR-1-R-DUP Grab Water Sample
CONTINUATION OF PREVIOUS SAMPLE
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

DR1RD SDG#: DUF01-07FDCON

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00259	Mercury	SW-846 7470A	1	11/07/2002 08:25	Deborah A Krady	1
01743	Aluminum	SW-846 6010B	1	11/02/2002 11:14	Eric W Cuba	1
01744	Antimony	SW-846 6010B	1	11/02/2002 11:14	Eric W Cuba	1
01746	Barium	SW-846 6010B	1	11/02/2002 11:14	Eric W Cuba	1
01747	Beryllium	SW-846 6010B	1	11/02/2002 11:14	Eric W Cuba	1
01749	Cadmium	SW-846 6010B	1	11/02/2002 11:14	Eric W Cuba	1
01750	Calcium	SW-846 6010B	1	11/02/2002 11:14	Eric W Cuba	1
01751	Chromium	SW-846 6010B	1	11/02/2002 11:14	Eric W Cuba	1
01752	Cobalt	SW-846 6010B	1	11/02/2002 11:14	Eric W Cuba	1
01753	Copper	SW-846 6010B	1	11/02/2002 11:14	Eric W Cuba	1
01754	Iron	SW-846 6010B	1	11/02/2002 11:14	Eric W Cuba	1
01757	Magnesium	SW-846 6010B	1	11/02/2002 11:14	Eric W Cuba	1
01758	Manganese	SW-846 6010B	1	11/02/2002 11:14	Eric W Cuba	1
01761	Nickel	SW-846 6010B	1	11/02/2002 11:14	Eric W Cuba	1
01762	Potassium	SW-846 6010B	1	11/05/2002 02:34	Donna R Sackett	5
01766	Silver	SW-846 6010B	1	11/02/2002 11:14	Eric W Cuba	1
01767	Sodium	SW-846 6010B	1	11/05/2002 02:39	Donna R Sackett	10
01771	Vanadium	SW-846 6010B	1	11/02/2002 11:14	Eric W Cuba	1
01772	Zinc	SW-046 6010B	1	11/02/2002 11:14	Eric W Cuba	1
07022	Thallium TR	SW-846 6010B	1	11/02/2002 11:14	Eric W Cuba	1
07035	Arsenic TR	SW-846 6010B	1	11/02/2002 11:14	Eric W Cuba	1
07036	Selenium TR	SW-846 6010B	1	11/02/2002 11:14	Eric W Cuba	1
07055	Lead TR	SW-846 6010B	1	11/02/2002 11:14	Eric W Cuba	1
00201	Alkalinity to pH 8.3	EPA 310.1	1	10/30/2002 11:02	Susan A Engle	1
00202	Alkalinity to pH 4.5	EPA 310.1	1	10/30/2002 11:02	Susan A Engle	1
00212	Total Dissolved Solids	EPA 160.1	1	10/30/2002 10:29	Anne L Kuenzli	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	11/06/2002 18:32	Venia B McFadden	20
00219	Nitrite Nitrogen	EPA 353.2	2	10/29/2002 19:45	Nicole M Kepley	1
00220	Nitrate Nitrogen	EPA 353.2	1	11/07/2002 16:12	Nicole M Kepley	1
00223	Organic Nitrogen	Std. Meth. 18th Ed., 4500-NORG	1	11/06/2002 18:32	Venia B McFadden	1
00224	Chloride	EPA 300.0	1	11/06/2002 06:37	Shannon L Phillips	100
00228	Sulfate	EPA 300.0	1	11/01/2002 17:02	Shannon L Phillips	5
00273	Total Organic Carbon	EPA 415.1	1	10/31/2002 10:44	Timothy M Petree	10
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/05/2002 18:12	Venia B McFadden	1
01333	Sulfide	EPA 376.1	1	10/31/2002 11:15	Susan E Hibner	1
01454	Bicarbonate	SM-18 2320B	1	10/30/2002 11:02	Susan A Engle	1
04001	Chemical Oxygen Demand	EPA 410.4	1	10/30/2002 10:56	Susan A Engle	1

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Wilmington DE 19808-1296

Submitted: 10/29/2002 17:30
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DR-1-R-DUP Grab Water Sample
CONTINUATION OF PREVIOUS SAMPLE
Project# 4685.ED

DR1RD SDG#: DUF01-07FDCON

06914	Ammonia-Nitrogen	EPA 350.3	1	11/04/2002 07:47	Michele L Graham	10
08255	Total Cyanide (water)	SW-846 9012A	2	11/07/2002 15:10	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/01/2002 09:37	James S Mathiot	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	10/30/2002 22:40	Annamaria Stipkovits	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	10/30/2002 19:17	Nelli S Markaryan	1
08256	Cyanide Water Distillation	SW-846 9012A	2	11/06/2002 09:30	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	11/01/2002 14:50	Nancy J Shoop	1

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Rinse Blk (10/25/02) Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

1025R SDG#: DUF01-08RB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
00937	TCL Pesticides in Waters					
00938	Endrin Ketone	53494-70-5	N.D.	0.019	ug/l	1
01361	Alpha Chlordane	5103-71-9	N.D.	0.0096	ug/l	1
01362	Gamma Chlordane	5103-74-2	N.D.	0.0096	ug/l	1
01600	Alpha BHC	319-84-6	N.D.	0.0096	ug/l	1
01601	Beta BHC	319-85-7	N.D.	0.0096	ug/l	1
01602	Gamma BHC - Lindane	58-89-9	N.D.	0.0096	ug/l	1
01603	Delta BHC	319-86-8	N.D.	0.0096	ug/l	1
01604	Heptachlor	76-44-8	N.D.	0.0096	ug/l	1
01605	Aldrin	309-00-2	N.D.	0.024	ug/l	1
01606	Heptachlor Epoxide	1024-57-3	N.D.	0.0096	ug/l	1
01607	p,p-DDE	72-55-9	N.D.	0.019	ug/l	1
01608	p,p-DDD	72-54-8	N.D.	0.019	ug/l	1
01609	p,p-DDT	50-29-3	N.D.	0.019	ug/l	1
01610	Dieldrin	60-57-1	N.D.	0.019	ug/l	1
01611	Endrin	72-20-8	N.D.	0.019	ug/l	1
01613	Toxaphene	8001-35-2	N.D.	1.0	ug/l	1
01615	Endosulfan II	33213-65-9	N.D.	0.019	ug/l	1
01616	Endosulfan I	959-98-8	N.D.	0.0096	ug/l	1
01617	Endosulfan Sulfate	1031-07-8	N.D.	0.019	ug/l	1
01618	Endrin Aldehyde	7421-93-4	N.D.	0.096	ug/l	1
01619	PCB-1016	12674-11-2	N.D.	0.48	ug/l	1
01620	PCB-1221	11104-28-2	N.D.	0.48	ug/l	1
01621	PCB-1232	11141-16-5	N.D.	0.48	ug/l	1
01622	PCB-1242	53469-21-9	N.D.	0.48	ug/l	1
01623	PCB-1248	12672-29-6	N.D.	0.48	ug/l	1
01624	PCB-1254	11097-69-1	N.D.	0.48	ug/l	1
01626	PCB-1260	11096-82-5	N.D.	0.48	ug/l	1
01860	Methoxychlor	72-43-5	N.D.	0.096	ug/l	1

Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.

05088	PCB Congeners-Full List-water					
07994	PCB 1	2051-60-7	N.D.	0.095	ug/l	1
07996	PCB 8	34883-43-7	N.D.	0.019	ug/l	1
07997	PCB 18	37680-65-2	N.D.	0.019	ug/l	1
08002	PCB 49	41464-40-8	N.D.	0.019	ug/l	1

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Rinse Blk (10/25/02) Grab Water Sample
Project# 4685.ED

1025R SDG#: DUF01-08RB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
08009	PCB 87	38380-02-8	N.D.	0.019	ug/l	1
08020	PCB 128	38380-07-3	N.D.	0.019	ug/l	1
08033	PCB 180	35066-29-3	N.D.	0.019	ug/l	1
08038	PCB 194	35694-08-7	N.D.	0.019	ug/l	1
08041	PCB 206	40186-72-9	N.D.	0.019	ug/l	1
08042	PCB 209	2051-24-3	N.D.	0.019	ug/l	1

PCB-002 was detected in the blank at a concentration of 0.42 ug/l. The blank is not subtracted from the sample concentration.

04678 TCL SW846 Semivolatiles/Waters

03871	4-Chloroaniline	106-47-8	N.D.	10.	ug/l	1
03905	2-Methylnaphthalene	91-57-6	N.D.	10.	ug/l	1
03907	2-Nitroaniline	88-74-4	N.D.	10.	ug/l	1
03922	2,4,5-Trichlorophenol	95-95-4	N.D.	10.	ug/l	1
03924	2-Chlorophenol	95-57-8	N.D.	10.	ug/l	1
03925	Phenol	108-95-2	N.D.	10.	ug/l	1
03926	2-Nitrophenol	88-75-5	N.D.	10.	ug/l	1
03927	2,4-Dimethylphenol	105-67-9	N.D.	10.	ug/l	1
03928	2,4-Dichlorophenol	120-83-2	N.D.	10.	ug/l	1
03929	4-Chloro-3-methylphenol	59-50-7	N.D.	10.	ug/l	1
03930	2,4,6-Trichlorophenol	88-06-2	N.D.	10.	ug/l	1
03936	bis(2-Chloroethyl)ether	111-44-4	N.D.	10.	ug/l	1
03937	1,3-Dichlorobenzene	541-73-1	N.D.	10.	ug/l	1
03938	1,4-Dichlorobenzene	106-46-7	N.D.	10.	ug/l	1
03939	1,2-Dichlorobenzene	95-50-1	N.D.	10.	ug/l	1
03941	Hexachloroethane	67-72-1	N.D.	10.	ug/l	1
03942	N-Nitroso-di-n-propylamine	621-64-7	N.D.	10.	ug/l	1
03943	Nitrobenzene	98-95-3	N.D.	10.	ug/l	1
03944	Isophorone	78-59-1	N.D.	10.	ug/l	1
03945	bis(2-Chloroethoxy)methane	111-91-1	N.D.	10.	ug/l	1
03946	1,2,4-Trichlorobenzene	120-82-1	N.D.	10.	ug/l	1
03947	Naphthalene	91-20-3	N.D.	10.	ug/l	1
03948	Hexachlorobutadiene	87-68-3	N.D.	10.	ug/l	1
03949	Hexachlorocyclopentadiene	77-47-4	N.D.	24.	ug/l	1
03950	2-Chloronaphthalene	91-58-7	N.D.	10.	ug/l	1
03951	Acenaphthylene	208-96-8	N.D.	10.	ug/l	1
03952	Dimethylphthalate	131-11-3	N.D.	10.	ug/l	1
04680	2-Methylphenol	95-48-7	N.D.	10.	ug/l	1
04681	2,2'-oxybis(1-Chloropropane)	108-60-1	N.D.	10.	ug/l	1
04682	4-Methylphenol	106-44-5	N.D.	10.	ug/l	1

3-Methylphenol and 4-methylphenol cannot be resolved under the

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Account Number: 01963

Submitted: 10/29/2002 17:30
Reported: 11/22/2002 at 14:41
Discard: 12/23/2002
Rinse Blk (10/25/02) Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

1025R SDG#: DUF01-08RB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
	chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
04679	TCL SW846 Semivolatiles/Waters					
03879	Dibenzofuran	132-64-9	N.D.	10.	ug/l	1
03908	3-Nitroaniline	99-09-2	N.D.	10.	ug/l	1
03909	4-Nitroaniline	100-01-6	N.D.	10.	ug/l	1
03931	2,4-Dinitrophenol	51-28-5	N.D.	58.	ug/l	1
03932	4-Nitrophenol	100-02-7	N.D.	48.	ug/l	1
03933	4,6-Dinitro-2-methylphenol	534-52-1	N.D.	24.	ug/l	1
03934	Pentachlorophenol	87-86-5	N.D.	24.	ug/l	1
03953	2,6-Dinitrotoluene	606-20-2	N.D.	10.	ug/l	1
03954	Acenaphthene	83-32-9	N.D.	10.	ug/l	1
03955	2,4-Dinitrotoluene	121-14-2	N.D.	10.	ug/l	1
03956	Fluorene	86-73-7	N.D.	10.	ug/l	1
03957	4-Chlorophenyl-phenylether	7005-72-3	N.D.	10.	ug/l	1
03958	Diethylphthalate	84-66-2	N.D.	10.	ug/l	1
03960	N-Nitrosodiphenylamine	86-30-6	N.D.	10.	ug/l	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
03961	4-Bromophenyl-phenylether	101-55-3	N.D.	10.	ug/l	1
03962	Hexachlorobenzene	118-74-1	N.D.	10.	ug/l	1
03963	Phenanthrene	85-01-8	N.D.	10.	ug/l	1
03964	Anthracene	120-12-7	N.D.	10.	ug/l	1
03965	Di-n-butylphthalate	84-74-2	N.D.	10.	ug/l	1
03966	Fluoranthene	206-44-0	N.D.	10.	ug/l	1
03967	Pyrene	129-00-0	N.D.	10.	ug/l	1
03969	Butylbenzylphthalate	85-68-7	N.D.	10.	ug/l	1
03970	Benzo(a)anthracene	56-55-3	N.D.	10.	ug/l	1
03971	Chrysene	218-01-9	N.D.	10.	ug/l	1
03972	3,3'-Dichlorobenzidine	91-94-1	N.D.	10.	ug/l	1
03973	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	10.	ug/l	1
03974	Di-n-octylphthalate	117-84-0	N.D.	10.	ug/l	1
03975	Benzo(b)fluoranthene	205-99-2	N.D.	10.	ug/l	1
03976	Benzo(k)fluoranthene	207-08-9	N.D.	10.	ug/l	1
03977	Benzo(a)pyrene	50-32-8	N.D.	10.	ug/l	1
03978	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	10.	ug/l	1
03979	Dibenz(a,h)anthracene	53-70-3	N.D.	10.	ug/l	1
03980	Benzo(g,h,i)perylene	191-24-2	N.D.	10.	ug/l	1
04684	Carbazole	86-74-8	N.D.	10.	ug/l	1

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Lancaster Laboratories Sample No. WW 3929663

Collected:10/28/2002 09:45 by RKS

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Rinse Blk (10/25/02) Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

1025R SDG#: DUF01-08RB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
06872	Appendix I by SW846/8260-water					
05385	Chloromethane	74-87-3	N.D.	5.	ug/l	1
05386	Vinyl Chloride	75-01-4	N.D.	5.	ug/l	1
05387	Bromomethane	74-83-9	N.D.	5.	ug/l	1
05388	Chloroethane	75-00-3	N.D.	5.	ug/l	1
05389	Trichlorofluoromethane	75-69-4	N.D.	5.	ug/l	1
05390	1,1-Dichloroethene	75-35-4	N.D.	5.	ug/l	1
05391	Methylene Chloride	75-09-2	N.D.	5.	ug/l	1
05392	trans-1,2-Dichloroethene	156-60-5	N.D.	5.	ug/l	1
05393	1,1-Dichloroethane	75-34-3	N.D.	5.	ug/l	1
05395	cis-1,2-Dichloroethene	156-59-2	N.D.	5.	ug/l	1
05396	Chloroform	67-66-3	N.D.	5.	ug/l	1
05397	Bromochloromethane	74-97-5	N.D.	5.	ug/l	1
05398	1,1,1-Trichloroethane	71-55-6	N.D.	5.	ug/l	1
05399	Carbon Tetrachloride	56-23-5	N.D.	5.	ug/l	1
05401	Benzene	71-43-2	N.D.	5.	ug/l	1
05402	1,2-Dichloroethane	107-06-2	N.D.	5.	ug/l	1
05403	Trichloroethene	79-01-6	N.D.	5.	ug/l	1
05404	1,2-Dichloropropane	78-87-5	N.D.	5.	ug/l	1
05405	Dibromomethane	74-95-3	N.D.	5.	ug/l	1
05406	Bromodichloromethane	75-27-4	N.D.	5.	ug/l	1
05407	Toluene	108-88-3	N.D.	5.	ug/l	1
06302	Acetone	67-64-1	N.D.	20.	ug/l	1
06303	Carbon Disulfide	75-15-0	N.D.	5.	ug/l	1
06305	2-Butanone	78-93-3	N.D.	10.	ug/l	1
06306	trans-1,3-Dichloropropene	10061-02-6	N.D.	5.	ug/l	1
06307	cis-1,3-Dichloropropene	10061-01-5	N.D.	5.	ug/l	1
06308	4-Methyl-2-pentanone	108-10-1	N.D.	10.	ug/l	1
06874	Methyl Iodide	74-88-4	N.D.	5.	ug/l	1
06875	Acrylonitrile	107-13-1	N.D.	20.	ug/l	1
06876	Vinyl Acetate	108-05-4	N.D.	10.	ug/l	1
06873	Appendix I by SW846/8260-cont					
05408	1,1,2-Trichloroethane	79-00-5	N.D.	5.	ug/l	1
05409	Tetrachloroethene	127-18-4	N.D.	5.	ug/l	1
05411	Dibromochloromethane	124-48-1	N.D.	5.	ug/l	1
05412	1,2-Dibromoethane	106-93-4	N.D.	5.	ug/l	1
05413	Chlorobenzene	108-90-7	N.D.	5.	ug/l	1
05414	1,1,1,2-Tetrachloroethane	630-20-6	N.D.	5.	ug/l	1
05415	Ethylbenzene	100-41-4	N.D.	5.	ug/l	1

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Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

1025R SDG#: DUF01-08RB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
05418	Styrene	100-42-5	N.D.	5.	ug/l	1
05419	Bromoform	75-25-2	N.D.	5.	ug/l	1
05421	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	5.	ug/l	1
05423	1,2,3-Trichloropropane	96-18-4	N.D.	5.	ug/l	1
05433	1,4-Dichlorobenzene	106-46-7	N.D.	5.	ug/l	1
05435	1,2-Dichlorobenzene	95-50-1	N.D.	5.	ug/l	1
05436	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	5.	ug/l	1
06309	2-Hexanone	591-78-6	N.D.	10.	ug/l	1
06310	Xylene (Total)	1330-20-7	N.D.	5.	ug/l	1
06877	trans-1,4-Dichloro-2-butene	110-57-6	N.D.	50.	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00937	TCL Pesticides in Waters	SW-846 8081A/8082	1	11/05/2002 19:14	Anita M Dale	1
05088	PCB Congeners-Full List-water	SW-846 8082 (modified)	1	11/08/2002 13:42	Tiffany A Leyda	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	11/04/2002 11:14	Jason C Arnold	1
04679	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	11/04/2002 11:14	Jason C Arnold	1
06872	Appendix I by SW846/8260-water	SW-846 8260B	1	11/01/2002 20:12	Marc S Neal	1
06873	Appendix I by SW846/8260-cont	SW-846 8260B	1	11/01/2002 20:12	Marc S Neal	1
00813	BNA Water Extraction	SW-846 3510C	1	10/31/2002 16:30	Elia R Botrous	1
00817	Water Sample Pest. Extraction	SW-846 3510C	1	10/31/2002 22:15	Sharon L Jones	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	11/01/2002 20:12	Marc S Neal	n.a.

Analysis Report

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Lancaster Laboratories Sample No. WW 3929664

Collected:10/28/2002 09:45 by RKS

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Rinse Blk (10/25/02) Grab Water Sample
CONTINUATION OF PREVIOUS SAMPLE
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

1025R SDG#: DUF01-08RBCON

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
00259	Mercury	7439-97-6	N.D.	0.00020	mg/l	1
01743	Aluminum	7429-90-5	N.D.	0.200	mg/l	1
01744	Antimony	7440-36-0	N.D.	0.200	mg/l	1
01746	Barium	7440-39-3	N.D.	0.100	mg/l	1
01747	Beryllium	7440-41-7	N.D.	0.0100	mg/l	1
01749	Cadmium	7440-43-9	N.D.	0.0100	mg/l	1
01750	Calcium	7440-70-2	0.0506 J	0.200	mg/l	1
01751	Chromium	7440-47-3	N.D.	0.0300	mg/l	1
01752	Cobalt	7440-48-4	N.D.	0.0500	mg/l	1
01753	Copper	7440-50-8	N.D.	0.0250	mg/l	1
01754	Iron	7439-89-6	N.D.	0.100	mg/l	1
01757	Magnesium	7439-95-4	0.0358 J	0.100	mg/l	1
01758	Manganese	7439-96-5	0.00054J	0.0100	mg/l	1
01761	Nickel	7440-02-0	N.D.	0.0500	mg/l	1
01762	Potassium	7440-09-7	0.0962 J	0.500	mg/l	1
01766	Silver	7440-22-4	N.D.	0.0200	mg/l	1
01767	Sodium	7440-23-5	N.D.	0.600	mg/l	1
01771	Vanadium	7440-62-2	N.D.	0.0200	mg/l	1
01772	Zinc	7440-66-6	N.D.	0.0250	mg/l	1
07022	Thallium TR	7440-28-0	N.D.	0.0200	mg/l	1
07035	Arsenic TR	7440-38-2	N.D.	0.0100	mg/l	1
07036	Seleninm TR	7782-49-2	N.D.	0.0100	mg/l	1
07055	Lead TR	7439-92-1	N.D.	0.0200	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a.	0.58 J	2.0	mg/l as CaCO3	1
00212	Total Dissolved Solids	n.a.	N.D.	30.	mg/l	1
00217	Kjeldahl Nitrogen	7727-37-9	N.D.	1.0	mg/l	1
00219	Nitrite Nitrogen	14797-65-0	N.D.	0.050	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.10	mg/l	1
00223	Organic Nitrogen	n.a.	N.D.	1.0	mg/l	1
00224	Chloride	16887-00-6	N.D.	0.40	mg/l	1
00228	Sulfate	14808-79-8	N.D.	1.0	mg/l	1
00273	Total Organic Carbon	n.a.	0.642 J	2.00	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	N.D.	0.20	mg/l	1
01333	Sulfide	18496-25-8	N.D.	2.0	mg/l	1
01454	Bicarbonate	71-52-3	0.58 J	2.0	mg/l as CaCO3	1
04001	Chemical Oxygen Demand	n.a.	N.D.	50.	mg/l	1
06914	Ammonia-Nitrogen	7664-41-7	N.D.	0.10	mg/l	1
08255	Total Cyanide (water)	57-12-5	N.D.	0.0050	mg/l	1

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Wilmington DE 19808-1296

Submitted: 10/29/2002 17:30
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Rinse Blk (10/25/02) Grab Water Sample
CONTINUATION OF PREVIOUS SAMPLE
Project# 4685.ED

1025R SDG#: DUF01-08RBCON

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00259	Mercury	SW-846 7470A	1	11/07/2002 08:29	Deborah A Krady	1
01743	Aluminum	SW-846 6010B	1	11/02/2002 11:19	Eric W Cuba	1
01744	Antimony	SW-846 6010B	1	11/02/2002 11:19	Eric W Cuba	1
01746	Barium	SW-846 6010B	1	11/02/2002 11:19	Eric W Cuba	1
01747	Beryllium	SW-846 6010B	1	11/02/2002 11:19	Eric W Cuba	1
01749	Cadmium	SW-846 6010B	1	11/02/2002 11:19	Eric W Cuba	1
01750	Calcium	SW-846 6010B	1	11/02/2002 11:19	Eric W Cuba	1
01751	Chromium	SW-846 6010B	1	11/02/2002 11:19	Eric W Cuba	1
01752	Cobalt	SW-846 6010B	1	11/02/2002 11:19	Eric W Cuba	1
01753	Copper	SW-846 6010B	1	11/02/2002 11:19	Eric W Cuba	1
01754	Iron	SW-846 6010B	1	11/02/2002 11:19	Eric W Cuba	1
01757	Magnesium	SW-846 6010B	1	11/02/2002 11:19	Eric W Cuba	1
01758	Manganese	SW-846 6010B	1	11/02/2002 11:19	Eric W Cuba	1
01761	Nickel	SW-846 6010B	1	11/02/2002 11:19	Eric W Cuba	1
01762	Potassium	SW-846 6010B	1	11/02/2002 11:19	Eric W Cuba	1
01766	Silver	SW-846 6010B	1	11/02/2002 11:19	Eric W Cuba	1
01767	Sodium	SW-846 6010B	1	11/02/2002 11:19	Eric W Cuba	1
01771	Vanadium	SW-846 6010B	1	11/02/2002 11:19	Eric W Cuba	1
01772	Zinc	SW-846 6010B	1	11/02/2002 11:19	Eric W Cuba	1
07022	Thallium TR	SW-846 6010B	1	11/02/2002 11:19	Eric W Cuba	1
07035	Arsenic TR	SW-846 6010B	1	11/02/2002 11:19	Eric W Cuba	1
07036	Selenium TR	SW-846 6010B	1	11/02/2002 11:19	Eric W Cuba	1
07055	Lead TR	SW-846 6010B	1	11/02/2002 11:19	Eric W Cuba	1
00201	Alkalinity to pH 8.3	EPA 310.1	1	10/30/2002 11:02	Susan A Engle	1
00202	Alkalinity to pH 4.5	EPA 310.1	1	10/30/2002 11:02	Susan A Engle	1
00212	Total Dissolved Solids	EPA 160.1	1	10/30/2002 10:29	Anne L Kuenzli	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	11/06/2002 17:31	Venia B McFadden	1
00219	Nitrite Nitrogen	EPA 353.2	1	10/29/2002 19:40	Nicole M Kepley	1
00220	Nitrate Nitrogen	EPA 353.2	1	11/07/2002 16:13	Nicole M Kepley	1
00223	Organic Nitrogen	Std. Meth. 18th Ed., 4500-NORG	1	11/06/2002 18:32	Venia B McFadden	1
00224	Chloride	EPA 300.0	1	11/01/2002 17:49	Shannon L Phillips	1
00228	Sulfate	EPA 300.0	1	11/01/2002 17:49	Shannon L Phillips	1
00273	Total Organic Carbon	EPA 415.1	1	10/30/2002 16:58	Timothy M Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/05/2002 17:05	Venia B McFadden	1
01333	Sulfide	EPA 376.1	1	10/31/2002 11:15	Susan E Hibner	1
01454	Bicarbonate	SM-18 2320B	1	10/30/2002 11:02	Susan A Engle	1
04001	Chemical Oxygen Demand	EPA 410.4	1	10/30/2002 10:56	Susan A Engle	1

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Project# 4685.ED

1025R SDG#: DUF01-08RBCON

06914	Ammonia-Nitrogen	EPA 350.3	1	11/04/2002 07:47	Michele L Graham	1
08255	Total Cyanide (water)	SW-846 9012A	2	11/07/2002 15:13	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/01/2002 09:37	James S Mathiot	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	10/30/2002 22:40	Annamaria Stipkovits	1
05713	WW SW846 Hg Digest	SW-846 7470A	2	11/06/2002 21:37	Nelli S Markaryan	1
08256	Cyanide Water Distillation	SW-846 9012A	2	11/06/2002 09:30	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	11/01/2002 14:50	Nancy J Shoop	1

Analysis Report

Lancaster Laboratories
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Collected:10/28/2002 15:45 by RKS

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Submitted: 10/29/2002 17:30
Reported: 11/22/2002 at 14:42
Discard: 12/23/2002
Rinse Blank (10/28) Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

102BR SDG#: DUF01-09RB

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Limit of Quantitation	Units	Dilution Factor
01754	Iron	7439-89-6	N.D.		0.100	mg/l	1
01758	Manganese	7439-96-5	N.D.		0.0100	mg/l	1
00206	Total Suspended Solids	n.a.	N.D.		12.	mg/l	1
	This sample was analyzed past the 7-day hold time for TSS at the client's request.						
00212	Total Dissolved Solids	n.a.	11.0	J	30.	mg/l	1
05088	PCB Congeners-Full List-water						
07994	PCB 1	2051-60-7	N.D.		0.095	ug/l	1
07996	PCB 8	34883-43-7	N.D.		0.019	ug/l	1
07997	PCB 18	37680-65-2	N.D.		0.019	ug/l	1
08002	PCB 49	41464-40-8	N.D.		0.019	ug/l	1
08009	PCB 87	38380-02-8	N.D.		0.019	ug/l	1
08020	PCB 128	38380-07-3	N.D.		0.019	ug/l	1
08033	PCB 180	35066-29-3	N.D.		0.019	ug/l	1
08038	PCB 194	35694-08-7	N.D.		0.019	ug/l	1
08041	PCB 206	40186-72-9	N.D.		0.019	ug/l	1
08042	PCB 209	2051-24-3	N.D.		0.019	ug/l	1
	PCB-002 was detected in the blank at a concentration of 0.42 ug/l. The blank is not subtracted from the sample concentration.						

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	11/02/2002 11:24	Eric W Cuba	1
01758	Manganese	SW-846 6010B	1	11/02/2002 11:24	Eric W Cuba	1
00206	Total Suspended Solids	EPA 160.2	1	11/20/2002 14:27	Anne L Kuenzli	1
00212	Total Dissolved Solids	EPA 160.1	1	10/30/2002 10:29	Anne L Kuenzli	1
05088	PCB Congeners-Full List-water	SW-846 8082 (modified)	1	11/08/2002 14:45	Tiffany A Leyda	1
00817	Water Sample Pest. Extraction	SW-846 3510C	1	11/01/2002 08:00	Deborah M Zimmerman	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	10/30/2002 22:40	Annamaria Stipkovits	1

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Lancaster Laboratories Sample No. WW 3929666

Collected:10/28/2002 16:00 by RKS

Account Number: 01963

Submitted: 10/29/2002 17:30
Reported: 11/22/2002 at 14:42
Discard: 12/23/2002
LC-105 Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

LC105 SDG#: DUF01-10

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
01754	Iron	7439-89-6	38.6	0.100	mg/l	1
01758	Manganese	7439-96-5	0.537	0.0100	mg/l	1
00206	Total Suspended Solids	n.a.	102.	20.	mg/l	1
	This sample was analyzed past the 7-day hold time for TSS at the client's request.					
00212	Total Dissolved Solids	n.a.	1,320.	120.	mg/l	1
05088	PCB Congeners-Full List-water					
07994	PCB 1	2051-60-7	N.D.	0.096	ug/l	1
07996	PCB 8	34883-43-7	N.D.	0.019	ug/l	1
07997	PCB 18	37680-65-2	N.D.	0.019	ug/l	1
08002	PCB 49	41464-40-8	N.D.	0.019	ug/l	1
08009	PCB 87	38380-02-8	N.D.	0.019	ug/l	1
08020	PCB 128	38380-07-3	N.D.	0.019	ug/l	1
08033	PCB 180	35066-29-3	N.D.	0.019	ug/l	1
08038	PCB 194	35694-08-7	N.D.	0.019	ug/l	1
08041	PCB 206	40186-72-9	N.D.	0.019	ug/l	1
08042	PCB 209	2051-24-3	N.D.	0.019	ug/l	1
	PCB-002 was detected in the blank at a concentration of 0.42 ug/l. The blank is not subtracted from the sample concentration.					

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	11/02/2002 11:29	Eric W Cuba	1
01758	Manganese	SW-846 6010B	1	11/02/2002 11:29	Eric W Cuba	1
00206	Total Suspended Solids	EPA 160.2	1	11/20/2002 14:27	Anne L Kuenzli	1
00212	Total Dissolved Solids	EPA 160.1	1	10/30/2002 10:29	Anne L Kuenzli	1
05088	PCB Congeners-Full List-water	SW-846 8082 (modified)	1	11/08/2002 15:48	Tiffany A Leyda	1
00817	Water Sample Pest. Extraction	SW-846 3510C	1	11/01/2002 08:00	Deborah M Zimmerman	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	10/30/2002 22:40	Annamaria Stipkovits	1

Analysis Report

Lancaster Laboratories
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Lancaster Laboratories Sample No. WW 3929667

Collected:10/28/2002 10:30 by RKS

Account Number: 01963

Submitted: 10/29/2002 17:30
Reported: 11/22/2002 at 14:42
Discard: 12/23/2002
LC-102 Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

LC102 SDG#: DUF01-11

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
01754	Iron	7439-89-6	25.8	0.100	mg/l	1
01758	Manganese	7439-96-5	1.72	0.0100	mg/l	1
00206	Total Suspended Solids	n.a.	83.	20.	mg/l	1
	This sample was analyzed past the 7-day hold time for TSS at the client's request.					
00212	Total Dissolved Solids	n.a.	870.	120.	mg/l	1
05088	PCB Congeners-Full List-water					
07994	PCB 1	2051-60-7	N.D.	0.096	ug/l	1
07996	PCB 8	34883-43-7	N.D.	0.019	ug/l	1
07997	PCB 18	37680-65-2	N.D.	0.019	ug/l	1
08002	PCB 49	41464-40-8	N.D.	0.019	ug/l	1
08009	PCB 87	38380-02-8	N.D.	0.019	ug/l	1
08020	PCB 128	38380-07-3	N.D.	0.019	ug/l	1
08033	PCB 180	35066-29-3	N.D.	0.019	ug/l	1
08038	PCB 194	35694-08-7	N.D.	0.019	ug/l	1
08041	PCB 206	40186-72-9	N.D.	0.019	ug/l	1
08042	PCB 209	2051-24-3	N.D.	0.019	ug/l	1
	PCB-002 was detected in the blank at a concentration of 0.42 ug/l. The blank is not subtracted from the sample concentration.					

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	11/02/2002 11:34	Eric W Cuba	1
01758	Manganese	SW-846 6010B	1	11/02/2002 11:34	Eric W Cuba	1
00206	Total Suspended Solids	EPA 160.2	1	11/20/2002 14:27	Anne L Kuenzli	1
00212	Total Dissolved Solids	EPA 160.1	1	10/30/2002 10:29	Anne L Kuenzli	1
05088	PCB Congeners-Full List-water	SW-846 8082 (modified)	1	11/08/2002 16:51	Tiffany A Leyda	1
00817	Water Sample Pest. Extraction	SW-846 3510C	1	11/01/2002 08:00	Deborah M Zimmerman	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	10/30/2002 22:40	Annamaria Stipkovits	1

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Lancaster Laboratories Sample No. WW 3929668

Collected:10/28/2002 13:30 by RKS

Account Number: 01963

Submitted: 10/29/2002 17:30
Reported: 11/22/2002 at 14:42
Discard: 12/23/2002
DR-5 Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

DR-5- SDG#: DUF01-12

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
00937	TCL Pesticides in Waters					
00938	Endrin Ketone	53494-70-5	N.D.	0.020	ug/l	1
01361	Alpha Chlordane	5103-71-9	N.D.	0.0099	ug/l	1
01362	Gamma Chlordane	5103-74-2	N.D.	0.0099	ug/l	1
01600	Alpha BHC	319-84-6	N.D.	0.0099	ug/l	1
01601	Beta BHC	319-85-7	N.D.	0.0099	ug/l	1
01602	Gamma BHC - Lindane	58-89-9	N.D.	0.0099	ug/l	1
01603	Delta BHC	319-86-8	0.0061 J	0.0099	ug/l	1
01604	Heptachlor	76-44-8	N.D.	0.0099	ug/l	1
01605	Aldrin	309-00-2	N.D.	0.025	ug/l	1
01606	Heptachlor Epoxide	1024-57-3	N.D.	0.0099	ug/l	1
01607	p,p-DDE	72-55-9	N.D.	0.020	ug/l	1
01608	p,p-DDD	72-54-8	N.D.	0.020	ug/l	1
01609	p,p-DDT	50-29-3	N.D.	0.020	ug/l	1
01610	Dieldrin	60-57-1	N.D.	0.020	ug/l	1
01611	Endrin	72-20-8	0.0072 J	0.020	ug/l	1
01613	Toxaphene	8001-35-2	N.D.	1.0	ug/l	1
01615	Endosulfan II	33213-65-9	N.D.	0.020	ug/l	1
01616	Endosulfan I	959-98-8	N.D.	0.0099	ug/l	1
01617	Endosulfan Sulfate	1031-07-8	N.D.	0.020	ug/l	1
01618	Endrin Aldehyde	7421-93-4	N.D.	0.099	ug/l	1
01619	PCB-1016	12674-11-2	N.D.	0.50	ug/l	1
01620	PCB-1221	11104-28-2	N.D.	0.50	ug/l	1
01621	PCB-1232	11141-16-5	N.D.	0.50	ug/l	1
01622	PCB-1242	53469-21-9	N.D.	0.50	ug/l	1
01623	PCB-1248	12672-29-6	N.D.	0.50	ug/l	1
01624	PCB-1254	11097-69-1	N.D.	0.50	ug/l	1
01626	PCB-1260	11096-82-5	N.D.	0.50	ug/l	1
01860	Methoxychlor	72-43-5	N.D.	0.099	ug/l	1

Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.

05088	PCB Congeners-Full List-water					
07994	PCB 1	2051-60-7	N.D.	0.10	ug/l	1
07996	PCB 8	34883-43-7	N.D.	0.020	ug/l	1
07997	PCB 18	37680-65-2	N.D.	0.020	ug/l	1
08002	PCB 49	41464-40-8	N.D.	0.020	ug/l	1

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Lancaster Laboratories Sample No. WW 3929668

Collected:10/28/2002 13:30 by RKS

Account Number: 01963

Submitted: 10/29/2002 17:30
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Discard: 12/23/2002
DR-5 Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

DR-5- SDG#: DUF01-12

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
08009	PCB 87	38380-02-8	N.D.	0.020	ug/l	1
08020	PCB 128	38380-07-3	N.D.	0.020	ug/l	1
08033	PCB 180	35066-29-3	N.D.	0.020	ug/l	1
08038	PCB 194	35694-08-7	N.D.	0.020	ug/l	1
08041	PCB 206	40186-72-9	N.D.	0.020	ug/l	1
08042	PCB 209	2051-24-3	N.D.	0.020	ug/l	1

PCB-002 was detected in the blank at a concentration of 0.42 ug/l. The blank is not subtracted from the sample concentration.

04678 TCL SW846 Semivolatiles/Waters

03871	4-Chloroaniline	106-47-8	N.D.	10.	ug/l	1
03905	2-Methylnaphthalene	91-57-6	N.D.	10.	ug/l	1
03907	2-Nitroaniline	88-74-4	N.D.	10.	ug/l	1
03922	2,4,5-Trichlorophenol	95-95-4	N.D.	10.	ug/l	1
03924	2-Chlorophenol	95-57-8	N.D.	10.	ug/l	1
03925	Phenol	108-95-2	N.D.	10.	ug/l	1
03926	2-Nitrophenol	88-75-5	N.D.	10.	ug/l	1
03927	2,4-Dimethylphenol	105-67-9	N.D.	10.	ug/l	1
03928	2,4-Dichlorophenol	120-83-2	N.D.	10.	ug/l	1
03929	4-Chloro-3-methylphenol	59-50-7	N.D.	10.	ug/l	1
03930	2,4,6-Trichlorophenol	88-06-2	N.D.	10.	ug/l	1
03936	bis(2-Chloroethyl)ether	111-44-4	N.D.	10.	ug/l	1
03937	1,3-Dichlorobenzene	541-73-1	N.D.	10.	ug/l	1
03938	1,4-Dichlorobenzene	106-46-7	N.D.	10.	ug/l	1
03939	1,2-Dichlorobenzene	95-50-1	N.D.	10.	ug/l	1
03941	Hexachloroethane	67-72-1	N.D.	10.	ug/l	1
03942	N-Nitroso-di-n-propylamine	621-64-7	N.D.	10.	ug/l	1
03943	Nitrobenzene	98-95-3	N.D.	10.	ug/l	1
03944	Isophorone	78-59-1	N.D.	10.	ug/l	1
03945	bis(2-Chloroethoxy)methane	111-91-1	N.D.	10.	ug/l	1
03946	1,2,4-Trichlorobenzene	120-82-1	N.D.	10.	ug/l	1
03947	Naphthalene	91-20-3	N.D.	10.	ug/l	1
03948	Hexachlorobutadiene	87-68-3	N.D.	10.	ug/l	1
03949	Hexachlorocyclopentadiene	77-47-4	N.D.	25.	ug/l	1
03950	2-Chloronaphthalene	91-58-7	N.D.	10.	ug/l	1
03951	Acenaphthylene	208-96-8	N.D.	10.	ug/l	1
03952	Dimethylphthalate	131-11-3	N.D.	10.	ug/l	1
04680	2-Methylphenol	95-48-7	N.D.	10.	ug/l	1
04681	2,2'-oxybis(1-Chloropropane)	108-60-1	N.D.	10.	ug/l	1
04682	4-Methylphenol	106-44-5	N.D.	10.	ug/l	1

3-Methylphenol and 4-methylphenol cannot be resolved under the

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Lancaster Laboratories Sample No. WW 3929668

Collected:10/28/2002 13:30 by RKS

Account Number: 01963

Submitted: 10/29/2002 17:30
Reported: 11/22/2002 at 14:42
Discard: 12/23/2002
DR-5 Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

DR-5- SDG#: DUF01-12

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
	chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
04679	TCL SW846 Semivolatiles/Waters					
03879	Dibenzofuran	132-64-9	N.D.	10.	ug/l	1
03908	3-Nitroaniline	99-09-2	N.D.	10.	ug/l	1
03909	4-Nitroaniline	100-01-6	N.D.	10.	ug/l	1
03931	2,4-Dinitrophenol	51-28-5	N.D.	60.	ug/l	1
03932	4-Nitrophenol	100-02-7	N.D.	50.	ug/l	1
03933	4,6-Dinitro-2-methylphenol	534-52-1	N.D.	25.	ug/l	1
03934	Pentachlorophenol	87-86-5	N.D.	25.	ug/l	1
03953	2,6-Dinitrotoluene	606-20-2	N.D.	10.	ug/l	1
03954	Acenaphthene	83-32-9	N.D.	10.	ug/l	1
03955	2,4-Dinitrotoluene	121-14-2	N.D.	10.	ug/l	1
03956	Fluorene	86-73-7	N.D.	10.	ug/l	1
03957	4-Chlorophenyl-phenylether	7005-72-3	N.D.	10.	ug/l	1
03958	Diethylphthalate	84-66-2	N.D.	10.	ug/l	1
03960	N-Nitrosodiphenylamine	86-30-6	N.D.	10.	ug/l	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
03961	4-Bromophenyl-phenylether	101-55-3	N.D.	10.	ug/l	1
03962	Hexachlorobenzene	118-74-1	N.D.	10.	ug/l	1
03963	Phenanthrene	85-01-8	N.D.	10.	ug/l	1
03964	Anthracene	120-12-7	N.D.	10.	ug/l	1
03965	Di-n-butylphthalate	84-74-2	N.D.	10.	ug/l	1
03966	Fluoranthene	206-44-0	N.D.	10.	ug/l	1
03967	Pyrene	129-00-0	N.D.	10.	ug/l	1
03969	Butylbenzylphthalate	85-68-7	N.D.	10.	ug/l	1
03970	Benzo(a)anthracene	56-55-3	N.D.	10.	ug/l	1
03971	Chrysene	218-01-9	N.D.	10.	ug/l	1
03972	3,3'-Dichlorobenzidine	91-94-1	N.D.	10.	ug/l	1
03973	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	10.	ug/l	1
03974	Di-n-octylphthalate	117-84-0	N.D.	10.	ug/l	1
03975	Benzo(b)fluoranthene	205-99-2	N.D.	10.	ug/l	1
03976	Benzo(k)fluoranthene	207-08-9	N.D.	10.	ug/l	1
03977	Benzo(a)pyrene	50-32-8	N.D.	10.	ug/l	1
03978	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	10.	ug/l	1
03979	Dibenz(a,h)anthracene	53-70-3	N.D.	10.	ug/l	1
03980	Benzo(g,h,i)perylene	191-24-2	N.D.	10.	ug/l	1
04684	Carbazole	86-74-8	N.D.	10.	ug/l	1

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Lancaster Laboratories Sample No. WW 3929668

Collected:10/28/2002 13:30 by RKS

Account Number: 01963

Submitted: 10/29/2002 17:30
Reported: 11/22/2002 at 14:42
Discard: 12/23/2002
DR-5 Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

DR-5- SDG#: DUF01-12

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
06872	Appendix I by SW846/8260-water					
05385	Chloromethane	74-87-3	N.D.	5.	ug/l	1
05386	Vinyl Chloride	75-01-4	N.D.	5.	ug/l	1
05387	Bromomethane	74-83-9	N.D.	5.	ug/l	1
05388	Chloroethane	75-00-3	N.D.	5.	ug/l	1
05389	Trichlorofluoromethane	75-69-4	N.D.	5.	ug/l	1
05390	1,1-Dichloroethene	75-35-4	N.D.	5.	ug/l	1
05391	Methylene Chloride	75-09-2	N.D.	5.	ug/l	1
05392	trans-1,2-Dichloroethene	156-60-5	N.D.	5.	ug/l	1
05393	1,1-Dichloroethane	75-34-3	N.D.	5.	ug/l	1
05395	cis-1,2-Dichloroethene	156-59-2	N.D.	5.	ug/l	1
05396	Chloroform	67-66-3	N.D.	5.	ug/l	1
05397	Bromochloromethane	74-97-5	N.D.	5.	ug/l	1
05398	1,1,1-Trichloroethane	71-55-6	N.D.	5.	ug/l	1
05399	Carbon Tetrachloride	56-23-5	N.D.	5.	ug/l	1
05401	Benzene	71-43-2	N.D.	5.	ug/l	1
05402	1,2-Dichloroethane	107-06-2	N.D.	5.	ug/l	1
05403	Trichloroethene	79-01-6	N.D.	5.	ug/l	1
05404	1,2-Dichloropropane	78-87-5	N.D.	5.	ug/l	1
05405	Dibromomethane	74-95-3	N.D.	5.	ug/l	1
05406	Bromodichloromethane	75-27-4	N.D.	5.	ug/l	1
05407	Toluene	108-88-3	N.D.	5.	ug/l	1
06302	Acetone	67-64-1	N.D.	20.	ug/l	1
06303	Carbon Disulfide	75-15-0	N.D.	5.	ug/l	1
06305	2-Butanone	78-93-3	N.D.	10.	ug/l	1
06306	trans-1,3-Dichloropropene	10061-02-6	N.D.	5.	ug/l	1
06307	cis-1,3-Dichloropropene	10061-01-5	N.D.	5.	ug/l	1
06308	4-Methyl-2-pentanone	108-10-1	N.D.	10.	ug/l	1
06874	Methyl Iodide	74-88-4	N.D.	5.	ug/l	1
06875	Acrylonitrile	107-13-1	N.D.	20.	ug/l	1
06876	Vinyl Acetate	108-05-4	N.D.	10.	ug/l	1
06873	Appendix I by SW846/8260-cont					
05408	1,1,2-Trichloroethane	79-00-5	N.D.	5.	ug/l	1
05409	Tetrachloroethene	127-18-4	N.D.	5.	ug/l	1
05411	Dibromochloromethane	124-48-1	N.D.	5.	ug/l	1
05412	1,2-Dibromoethane	106-93-4	N.D.	5.	ug/l	1
05413	Chlorobenzene	108-90-7	N.D.	5.	ug/l	1
05414	1,1,1,2-Tetrachloroethane	630-20-6	N.D.	5.	ug/l	1
05415	Ethylbenzene	100-41-4	N.D.	5.	ug/l	1

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Lancaster Laboratories Sample No. WW 3929668

Collected:10/28/2002 13:30 by RKS

Account Number: 01963

Submitted: 10/29/2002 17:30
Reported: 11/22/2002 at 14:42
Discard: 12/23/2002
DR-5 Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

DR-5- SDG#: DUF01-12

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
05418	Styrene	100-42-5	N.D.	5.	ug/l	1
05419	Bromoform	75-25-2	N.D.	5.	ug/l	1
05421	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	5.	ug/l	1
05423	1,2,3-Trichloropropane	96-18-4	N.D.	5.	ug/l	1
05433	1,4-Dichlorobenzene	106-46-7	N.D.	5.	ug/l	1
05435	1,2-Dichlorobenzene	95-50-1	N.D.	5.	ug/l	1
05436	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	5.	ug/l	1
06309	2-Hexanone	591-78-6	N.D.	10.	ug/l	1
06310	Xylene (Total)	1330-20-7	N.D.	5.	ug/l	1
06877	trans-1,4-Dichloro-2-butene	110-57-6	N.D.	50.	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00937	TCL Pesticides in Waters	SW-846 8081A/8082	1	11/05/2002 19:34	Anita M Dale	1
05088	PCB Congeners-Full List-water	SW-846 8082 (modified)	1	11/08/2002 17:55	Tiffany A Leyda	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	11/04/2002 12:02	Jason C Arnold	1
04679	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	11/04/2002 12:02	Jason C Arnold	1
06872	Appendix I by SW846/8260-water	SW-846 8260B	1	11/01/2002 20:38	Marc S Neal	1
06873	Appendix I by SW846/8260-cont	SW-846 8260B	1	11/01/2002 20:38	Marc S Neal	1
00813	BNA Water Extraction	SW-846 3510C	1	10/31/2002 16:30	Elia R Botrous	1
00817	Water Sample Pest. Extraction	SW-846 3510C	1	10/31/2002 22:15	Sharon L Jones	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	11/01/2002 20:38	Marc S Neal	n.a.

Analysis Report

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3929669

Collected:10/28/2002 13:30 by RKS

Account Number: 01963

Submitted: 10/29/2002 17:30
Reported: 11/22/2002 at 14:43
Discard: 12/23/2002
DR-5 Grab Water Sample
CONTINUATION OF PREVIOUS SAMPLE
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

DR-5- SDG#: DUF01-12CON

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
00259	Mercury	7439-97-6	N.D.	0.00020	mg/l	1
01743	Aluminum	7429-90-5	N.D.	0.200	mg/l	1
01744	Antimony	7440-36-0	N.D.	0.200	mg/l	1
01746	Barium	7440-39-3	0.272	0.100	mg/l	1
01747	Beryllium	7440-41-7	N.D.	0.0100	mg/l	1
01749	Cadmium	7440-43-9	0.0025 J	0.0100	mg/l	1
01750	Calcium	7440-70-2	201.	0.200	mg/l	1
01751	Chromium	7440-47-3	0.0239 J	0.0300	mg/l	1
01752	Cobalt	7440-48-4	N.D.	0.0500	mg/l	1
01753	Copper	7440-50-8	N.D.	0.0250	mg/l	1
01754	Iron	7439-89-6	148.	0.100	mg/l	1
01757	Magnesium	7439-95-4	250.	0.100	mg/l	1
01758	Manganese	7439-96-5	5.97	0.0100	mg/l	1
01761	Nickel	7440-02-0	N.D.	0.0500	mg/l	1
01762	Potassium	7440-09-7	27.6	0.500	mg/l	1
01766	Silver	7440-22-4	N.D.	0.0200	mg/l	1
01767	Sodium	7440-23-5	289.	6.00	mg/l	10
01771	Vanadium	7440-62-2	0.0123 J	0.0200	mg/l	1
01772	Zinc	7440-66-6	N.D.	0.0250	mg/l	1
07022	Thallium TR	7440-28-0	0.0248	0.0200	mg/l	1
07035	Arsenic TR	7440-38-2	0.0831	0.0100	mg/l	1
07036	Selenium TR	7782-49-2	0.0060 J	0.0100	mg/l	1
07055	Lead TR	7439-92-1	N.D.	0.0200	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a.	593.	2.0	mg/l as CaCO3	1
00212	Total Dissolved Solids	n.a.	2,920.	240.	mg/l	1
00217	Kjeldahl Nitrogen	7727-37-9	36.8	5.0	mg/l	5
00219	Nitrite Nitrogen	14797-65-0	0.050 J	0.050	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.10	mg/l	1
00223	Organic Nitrogen	n.a.	11.1	1.0	mg/l	1
00224	Chloride	16887-00-6	596.	80.	mg/l	200
00228	Sulfate	14808-79-8	830.	100.	mg/l	100
00273	Total Organic Carbon	n.a.	93.8	20.0	mg/l	10
00345	Total Phosphorus as PO4 water	14265-44-2	3.38	0.20	mg/l	1
01333	Sulfide	18496-25-8	N.D.	2.0	mg/l	1
01454	Bicarbonate	71-52-3	593.	2.0	mg/l as CaCO3	1
04001	Chemical Oxygen Demand	n.a.	303.	50.	mg/l	1
06914	Ammonia-Nitrogen	7664-41-7	25.7	1.0	mg/l	10
08255	Total Cyanide (water)	57-12-5	0.0090	0.0050	mg/l	1

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Lancaster Laboratories Sample No. WW 3929669

Collected:10/28/2002 13:30 by RKS

Account Number: 01963

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Discard: 12/23/2002
DR-5 Grab Water Sample
CONTINUATION OF PREVIOUS SAMPLE
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

DR-5- SDG#: DUF01-12CON

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00259	Mercury	SW-846 7470A	1	11/07/2002 08:30	Deborah A Krady	1
01743	Aluminum	SW-846 6010B	1	11/02/2002 11:39	Eric W Cuba	1
01744	Antimony	SW-846 6010B	1	11/02/2002 11:39	Eric W Cuba	1
01746	Barium	SW-846 6010B	1	11/02/2002 11:39	Eric W Cuba	1
01747	Beryllium	SW-846 6010B	1	11/02/2002 11:39	Eric W Cuba	1
01749	Cadmium	SW-846 6010B	1	11/02/2002 11:39	Eric W Cuba	1
01750	Calcium	SW-846 6010B	1	11/02/2002 11:39	Eric W Cuba	1
01751	Chromium	SW-846 6010B	1	11/02/2002 11:39	Eric W Cuba	1
01752	Cobalt	SW-846 6010B	1	11/02/2002 11:39	Eric W Cuba	1
01753	Copper	SW-846 6010B	1	11/02/2002 11:39	Eric W Cuba	1
01754	Iron	SW-846 6010B	1	11/02/2002 11:39	Eric W Cuba	1
01757	Magnesium	SW-846 6010B	1	11/02/2002 11:39	Eric W Cuba	1
01758	Manganese	SW-846 6010B	1	11/02/2002 11:39	Eric W Cuba	1
01761	Nickel	SW-846 6010B	1	11/02/2002 11:39	Eric W Cuba	1
01762	Potassium	SW-846 6010B	1	11/02/2002 11:39	Eric W Cuba	1
01766	Silver	SW-846 6010B	1	11/02/2002 11:39	Eric W Cuba	1
01767	Sodium	SW-846 6010B	1	11/05/2002 02:54	Donna R Sackett	10
01771	Vanadium	SW-846 6010B	1	11/02/2002 11:39	Eric W Cuba	1
01772	Zinc	SW-846 6010B	1	11/02/2002 11:39	Eric W Cuba	1
07022	Thallium TR	SW-846 6010B	1	11/02/2002 11:39	Eric W Cuba	1
07035	Arsenic TR	SW-846 6010B	1	11/02/2002 11:39	Eric W Cuba	1
07036	Selenium TR	SW-846 6010B	1	11/02/2002 11:39	Eric W Cuba	1
07055	Lead TR	SW-846 6010B	1	11/02/2002 11:39	Eric W Cuba	1
00201	Alkalinity to pH 8.3	EPA 310.1	1	10/30/2002 11:02	Susan A Engle	1
00202	Alkalinity to pH 4.5	EPA 310.1	1	10/30/2002 11:02	Susan A Engle	1
00212	Total Dissolved Solids	EPA 160.1	1	10/30/2002 10:29	Anne L Kuenzli	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	11/06/2002 17:32	Venia B McFadden	5
00219	Nitrite Nitrogen	EPA 353.2	1	10/29/2002 19:43	Nicole M Kepley	1
00220	Nitrate Nitrogen	EPA 353.2	1	11/07/2002 16:15	Nicole M Kepley	1
00223	Organic Nitrogen	Std. Meth. 18th Ed., 4500-NORG	1	11/06/2002 18:32	Venia B McFadden	1
00224	Chloride	EPA 300.0	1	11/06/2002 07:24	Shannon L Phillips	200
00228	Sulfate	EPA 300.0	1	11/04/2002 20:31	Shannon L Phillips	100
00273	Total Organic Carbon	EPA 415.1	1	10/31/2002 10:52	Timothy M Petree	10
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/05/2002 18:13	Venia B McFadden	1
01333	Sulfide	EPA 376.1	1	10/31/2002 11:15	Susan E Hibner	1
01454	Bicarbonate	SM-18 2320B	1	10/30/2002 11:02	Susan A Engle	1
04001	Chemical Oxygen Demand	EPA 410.4	1	10/30/2002 10:56	Susan A Engle	1

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Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

DR-5- SDG#: DUF01-12CON

06914	Ammonia-Nitrogen	EPA 350.3	1	11/04/2002 07:47	Michele L Graham	10
08255	Total Cyanide (water)	SW-846 9012A	2	11/07/2002 15:14	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/01/2002 09:37	James S Mathiot	1
01048	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	10/30/2002 22:40	Annamaria Stipkovits	1
05713	WW SW846 Hg Digest	SW-846 7470A	2	11/06/2002 21:37	Nelli S Markaryan	1
08256	Cyanide Water Distillation	SW-846 9012A	2	11/06/2002 09:30	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	11/01/2002 14:50	Nancy J Shoop	1

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DR-3 Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

DR-3- SDG#: DUF01-13

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
00937	TCL Pesticides in Waters					
00938	Endrin Ketone	53494-70-5	N.D.	0.019	ug/l	1
01361	Alpha Chlordane	5103-71-9	N.D.	0.0096	ug/l	1
01362	Gamma Chlordane	5103-74-2	N.D.	0.0096	ug/l	1
01600	Alpha BHC	319-84-6	N.D.	0.0096	ug/l	1
01601	Beta BHC	319-85-7	0.0040 J	0.0096	ug/l	1
01602	Gamma BHC - Lindane	58-89-9	N.D.	0.0096	ug/l	1
01603	Delta BHC	319-86-8	0.011	0.0096	ug/l	1
01604	Heptachlor	76-44-8	N.D.	0.0096	ug/l	1
01605	Aldrin	309-00-2	N.D.	0.024	ug/l	1
01606	Heptachlor Epoxide	1024-57-3	N.D.	0.0096	ug/l	1
01607	p,p-DDE	72-55-9	N.D.	0.019	ug/l	1
01608	p,p-DDD	72-54-8	N.D.	0.019	ug/l	1
01609	p,p-DDT	50-29-3	N.D.	0.019	ug/l	1
01610	Dieldrin	60-57-1	N.D.	0.019	ug/l	1
01611	Endrin	72-20-8	N.D.	0.019	ug/l	1
01613	Toxaphene	8001-35-2	N.D.	1.0	ug/l	1
01615	Endosulfan II	33213-65-9	N.D.	0.019	ug/l	1
01616	Endosulfan I	959-98-8	N.D.	0.0096	ug/l	1
01617	Endosulfan Sulfate	1031-07-8	N.D.	0.019	ug/l	1
01618	Endrin Aldehyde	7421-93-4	N.D.	0.096	ug/l	1
01619	PCB-1016	12674-11-2	N.D.	0.48	ug/l	1
01620	PCB-1221	11104-28-2	N.D.	0.48	ug/l	1
01621	PCB-1232	11141-16-5	N.D.	0.48	ug/l	1
01622	PCB-1242	53469-21-9	N.D.	0.48	ug/l	1
01623	PCB-1248	12672-29-6	N.D.	0.48	ug/l	1
01624	PCB-1254	11097-69-1	N.D.	0.48	ug/l	1
01626	PCB-1260	11096-82-5	N.D.	0.48	ug/l	1
01860	Methoxychlor	72-43-5	N.D.	0.096	ug/l	1
	Sufficient sample volume was not available to perform a MS/MSD for this analysis. Therefore, a LCS/LCSD was performed to demonstrate precision and accuracy at a batch level.					
05088	PCB Congeners-Full List-water					
07994	PCB 1	2051-60-7	N.D.	0.097	ug/l	1
07996	PCB 8	34883-43-7	N.D.	0.019	ug/l	1
07997	PCB 18	37680-65-2	N.D.	0.019	ug/l	1
08002	PCB 49	41464-40-8	N.D.	0.019	ug/l	1

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Duffield Associates, Inc.
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Wilmington DE 19808-1296

DR-3- SDG#: DUF01-13

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
08009	PCB 87	38380-02-8	N.D.	0.019	ug/l	1
08020	PCB 128	38380-07-3	N.D.	0.019	ug/l	1
08033	PCB 180	35066-29-3	N.D.	0.019	ug/l	1
08038	PCB 194	35694-08-7	N.D.	0.019	ug/l	1
08041	PCB 206	40186-72-9	N.D.	0.019	ug/l	1
08042	PCB 209	2051-24-3	N.D.	0.019	ug/l	1

PCB-002 was detected in the blank at a concentration of 0.42 ug/l. The blank is not subtracted from the sample concentration.

04678 TCL SW846 Semivolatiles/Waters

03871	4-Chloroaniline	106-47-8	N.D.	10.	ug/l	1
03905	2-Methylnaphthalene	91-57-6	N.D.	10.	ug/l	1
03907	2-Nitroaniline	88-74-4	N.D.	10.	ug/l	1
03922	2,4,5-Trichlorophenol	95-95-4	N.D.	10.	ug/l	1
03924	2-Chlorophenol	95-57-8	N.D.	10.	ug/l	1
03925	Phenol	108-95-2	N.D.	10.	ug/l	1
03926	2-Nitrophenol	88-75-5	N.D.	10.	ug/l	1
03927	2,4-Dimethylphenol	105-67-9	N.D.	10.	ug/l	1
03928	2,4-Dichlorophenol	120-83-2	N.D.	10.	ug/l	1
03929	4-Chloro-3-methylphenol	59-50-7	N.D.	10.	ug/l	1
03930	2,4,6-Trichlorophenol	88-06-2	N.D.	10.	ug/l	1
03936	bis(2-Chloroethyl)ether	111-44-4	N.D.	10.	ug/l	1
03937	1,3-Dichlorobenzene	541-73-1	N.D.	10.	ug/l	1
03938	1,4-Dichlorobenzene	106-46-7	N.D.	10.	ug/l	1
03939	1,2-Dichlorobenzene	95-50-1	N.D.	10.	ug/l	1
03941	Hexachloroethane	67-72-1	N.D.	10.	ug/l	1
03942	N-Nitroso-di-n-propylamine	621-64-7	N.D.	10.	ug/l	1
03943	Nitrobenzene	98-95-3	N.D.	10.	ug/l	1
03944	Isophorone	78-59-1	N.D.	10.	ug/l	1
03945	bis(2-Chloroethoxy)methane	111-91-1	N.D.	10.	ug/l	1
03946	1,2,4-Trichlorobenzene	120-82-1	N.D.	10.	ug/l	1
03947	Naphthalene	91-20-3	N.D.	10.	ug/l	1
03948	Hexachlorobutadiene	87-68-3	N.D.	10.	ug/l	1
03949	Hexachlorocyclopentadiene	77-47-4	N.D.	24.	ug/l	1
03950	2-Chloronaphthalene	91-58-7	N.D.	10.	ug/l	1
03951	Acenaphthylene	208-96-8	N.D.	10.	ug/l	1
03952	Dimethylphthalate	131-11-3	N.D.	10.	ug/l	1
04680	2-Methylphenol	95-48-7	N.D.	10.	ug/l	1
04681	2,2'-oxybis(1-Chloropropane)	108-60-1	N.D.	10.	ug/l	1
04682	4-Methylphenol	106-44-5	N.D.	10.	ug/l	1

3-Methylphenol and 4-methylphenol cannot be resolved under the

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DR-3 Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

DR-3- SDG#: DUF01-13

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
	chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
04679	TCL SW846 Semivolatiles/Waters					
03879	Dibenzofuran	132-64-9	N.D.	10.	ug/l	1
03908	3-Nitroaniline	99-09-2	N.D.	10.	ug/l	1
03909	4-Nitroaniline	100-01-6	N.D.	10.	ug/l	1
03931	2,4-Dinitrophenol	51-28-5	N.D.	57.	ug/l	1
03932	4-Nitrophenol	100-02-7	N.D.	48.	ug/l	1
03933	4,6-Dinitro-2-methylphenol	534-52-1	N.D.	24.	ug/l	1
03934	Pentachlorophenol	87-86-5	N.D.	24.	ug/l	1
03953	2,6-Dinitrotoluene	606-20-2	N.D.	10.	ug/l	1
03954	Acenaphthene	83-32-9	N.D.	10.	ug/l	1
03955	2,4-Dinitrotoluene	121-14-2	N.D.	10.	ug/l	1
03956	Fluorene	86-73-7	N.D.	10.	ug/l	1
03957	4-Chlorophenyl-phenylether	7005-72-3	N.D.	10.	ug/l	1
03958	Diethylphthalate	84-66-2	N.D.	10.	ug/l	1
03960	N-Nitrosodiphenylamine	86-30-6	N.D.	10.	ug/l	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
03961	4-Bromophenyl-phenylether	101-55-3	N.D.	10.	ug/l	1
03962	Hexachlorobenzene	118-74-1	N.D.	10.	ug/l	1
03963	Phenanthrene	85-01-8	N.D.	10.	ug/l	1
03964	Anthracene	120-12-7	N.D.	10.	ug/l	1
03965	Di-n-butylphthalate	84-74-2	N.D.	10.	ug/l	1
03966	Fluoranthene	206-44-0	N.D.	10.	ug/l	1
03967	Pyrene	129-00-0	N.D.	10.	ug/l	1
03969	Butylbenzylphthalate	85-68-7	N.D.	10.	ug/l	1
03970	Benzo(a)anthracene	56-55-3	N.D.	10.	ug/l	1
03971	Chrysene	218-01-9	N.D.	10.	ug/l	1
03972	3,3'-Dichlorobenzidine	91-94-1	N.D.	10.	ug/l	1
03973	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	10.	ug/l	1
03974	Di-n-octylphthalate	117-84-0	N.D.	10.	ug/l	1
03975	Benzo(b)fluoranthene	205-99-2	N.D.	10.	ug/l	1
03976	Benzo(k)fluoranthene	207-08-9	N.D.	10.	ug/l	1
03977	Benzo(a)pyrene	50-32-8	N.D.	10.	ug/l	1
03978	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	10.	ug/l	1
03979	Dibenz(a,h)anthracene	53-70-3	N.D.	10.	ug/l	1
03980	Benzo(g,h,i)perylene	191-24-2	N.D.	10.	ug/l	1
04684	Carbazole	86-74-8	N.D.	10.	ug/l	1

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DR-3 Grab Water Sample
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Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

DR-3- SDG#: DUF01-13

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
06872	Appendix I by SW846/8260-water					
05385	Chloromethane	74-87-3	N.D.	5.	ug/l	1
05386	Vinyl Chloride	75-01-4	N.D.	5.	ug/l	1
05387	Bromomethane	74-83-9	N.D.	5.	ug/l	1
05388	Chloroethane	75-00-3	N.D.	5.	ug/l	1
05389	Trichlorofluoromethane	75-69-4	N.D.	5.	ug/l	1
05390	1,1-Dichloroethene	75-35-4	N.D.	5.	ug/l	1
05391	Methylene Chloride	75-09-2	N.D.	5.	ug/l	1
05392	trans-1,2-Dichloroethene	156-60-5	N.D.	5.	ug/l	1
05393	1,1-Dichloroethane	75-34-3	N.D.	5.	ug/l	1
05395	cis-1,2-Dichloroethene	156-59-2	N.D.	5.	ug/l	1
05396	Chloroform	67-66-3	N.D.	5.	ug/l	1
05397	Bromochloromethane	74-97-5	N.D.	5.	ug/l	1
05398	1,1,1-Trichloroethane	71-55-6	N.D.	5.	ug/l	1
05399	Carbon Tetrachloride	56-23-5	N.D.	5.	ug/l	1
05401	Benzene	71-43-2	N.D.	5.	ug/l	1
05402	1,2-Dichloroethane	107-06-2	N.D.	5.	ug/l	1
05403	Trichloroethene	79-01-6	N.D.	5.	ug/l	1
05404	1,2-Dichloropropane	78-87-5	N.D.	5.	ug/l	1
05405	Dibromomethane	74-95-3	N.D.	5.	ug/l	1
05406	Bromodichloromethane	75-27-4	N.D.	5.	ug/l	1
05407	Toluene	108-88-3	N.D.	5.	ug/l	1
06302	Acetone	67-64-1	N.D.	20.	ug/l	1
06303	Carbon Disulfide	75-15-0	N.D.	5.	ug/l	1
06305	2-Butanone	78-93-3	N.D.	10.	ug/l	1
06306	trans-1,3-Dichloropropene	10061-02-6	N.D.	5.	ug/l	1
06307	cis-1,3-Dichloropropene	10061-01-5	N.D.	5.	ug/l	1
06308	4-Methyl-2-pentanone	108-10-1	N.D.	10.	ug/l	1
06874	Methyl Iodide	74-88-4	N.D.	5.	ug/l	1
06875	Acrylonitrile	107-13-1	N.D.	20.	ug/l	1
06876	Vinyl Acetate	108-05-4	N.D.	10.	ug/l	1
06873	Appendix I by SW846/8260-cont					
05408	1,1,2-Trichloroethane	79-00-5	N.D.	5.	ug/l	1
05409	Tetrachloroethene	127-18-4	N.D.	5.	ug/l	1
05411	Dibromochloromethane	124-48-1	N.D.	5.	ug/l	1
05412	1,2-Dibromoethane	106-93-4	N.D.	5.	ug/l	1
05413	Chlorobenzene	108-90-7	N.D.	5.	ug/l	1
05414	1,1,1,2-Tetrachloroethane	630-20-6	N.D.	5.	ug/l	1
05415	Ethylbenzene	100-41-4	N.D.	5.	ug/l	1

Lancaster Laboratories
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Lancaster Laboratories Sample No. WW 3929670

Collected:10/28/2002 14:20 by RKS

Account Number: 01963

Submitted: 10/29/2002 17:30
Reported: 11/22/2002 at 14:43
Discard: 12/23/2002
DR-3 Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

DR-3- SDG#: DUF01-13

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
05418	Styrene	100-42-5	N.D.	5.	ug/l	1
05419	Bromoform	75-25-2	N.D.	5.	ug/l	1
05421	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	5.	ug/l	1
05423	1,2,3-Trichloropropane	96-18-4	N.D.	5.	ug/l	1
05433	1,4-Dichlorobenzene	106-46-7	N.D.	5.	ug/l	1
05435	1,2-Dichlorobenzene	95-50-1	N.D.	5.	ug/l	1
05436	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	5.	ug/l	1
06309	2-Hexanone	591-78-6	N.D.	10.	ug/l	1
06310	Xylene (Total)	1330-20-7	N.D.	5.	ug/l	1
06877	trans-1,4-Dichloro-2-butene	110-57-6	N.D.	50.	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00937	TCL Pesticides in Waters	SW-846 8081A/8082	1	11/05/2002 19:54	Anita M Dale	1
05088	PCB Congeners-Full List-water	SW-846 8082 (modified)	1	11/08/2002 18:50	Tiffany A Leyda	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 0270C	1	11/04/2002 12:50	Jason C Arnold	1
04679	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	11/04/2002 12:50	Jason C Arnold	1
06872	Appendix I by SW846/8260-water	SW-846 8260B	1	11/01/2002 21:04	Marc S Neal	1
06873	Appendix I by SW846/8260-cont	SW-846 8260B	1	11/01/2002 21:04	Marc S Neal	1
00813	BNA Water Extraction	SW-846 3510C	1	10/31/2002 16:30	Elia R Botrous	1
00817	Water Sample Pest. Extraction	SW-846 3510C	1	10/31/2002 22:15	Sharon L Jones	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	11/01/2002 21:04	Marc S Neal	n.a.

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Lancaster Laboratories Sample No. WW 3929671

Collected:10/28/2002 14:20 by RKS

Account Number: 01963

Submitted: 10/29/2002 17:30
Reported: 11/22/2002 at 14:44
Discard: 12/23/2002
DR-3 Grab Water Sample
CONTINUATION OF PREVIOUS SAMPLE
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

DR-3- SDG#: DUF01-13CON

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
00259	Mercury	7439-97-6	0.000087J	0.00020	mg/l	1
01743	Aluminum	7429-90-5	N.D.	0.200	mg/l	1
01744	Antimony	7440-36-0	N.D.	0.200	mg/l	1
01746	Barium	7440-39-3	0.228	0.100	mg/l	1
01747	Beryllium	7440-41-7	N.D.	0.0100	mg/l	1
01749	Cadmium	7440-43-9	0.0011 J	0.0100	mg/l	1
01750	Calcium	7440-70-2	140.	0.200	mg/l	1
01751	Chromium	7440-47-3	N.D.	0.0300	mg/l	1
01752	Cobalt	7440-48-4	0.0072 J	0.0500	mg/l	1
01753	Copper	7440-50-8	N.D.	0.0250	mg/l	1
01754	Iron	7439-89-6	55.0	0.100	mg/l	1
01757	Magnesium	7439-95-4	170.	0.100	mg/l	1
01758	Manganese	7439-96-5	2.80	0.0100	mg/l	1
01761	Nickel	7440-02-0	0.0127 J	0.0500	mg/l	1
01762	Potassium	7440-09-7	34.8	0.500	mg/l	1
01766	Silver	7440-22-4	N.D.	0.0200	mg/l	1
01767	Sodium	7440-23-5	184.	6.00	mg/l	10
01771	Vanadium	7440-62-2	0.0061 J	0.0200	mg/l	1
01772	Zinc	7440-66-6	N.D.	0.0250	mg/l	1
07022	Thallium TR	7440-28-0	0.0155 J	0.0200	mg/l	1
07035	Arsenic TR	7440-38-2	0.0377	0.0100	mg/l	1
07036	Selenium TR	7782-49-2	N.D.	0.0100	mg/l	1
07055	Lead TR	7439-92-1	N.D.	0.0200	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a.	909.	2.0	mg/l as CaCO3	1
00212	Total Dissolved Solids	n.a.	1,670.	120.	mg/l	1
00217	Kjeldahl Nitrogen	7727-37-9	53.	20.	mg/l	20
00219	Nitrite Nitrogen	14797-65-0	0.028 J	0.050	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.10	mg/l	1
00223	Organic Nitrogen	n.a.	18.5	1.0	mg/l	1
00224	Chloride	16887-00-6	300.	40.	mg/l	100
00228	Sulfate	14808-79-8	262.	50.	mg/l	50
00273	Total Organic Carbon	n.a.	32.5	2.00	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	3.91	0.20	mg/l	1
01333	Sulfide	18496-25-8	N.D.	2.0	mg/l	1
01454	Bicarbonate	71-52-3	909.	2.0	mg/l as CaCO3	1
04001	Chemical Oxygen Demand	n.a.	122.	50.	mg/l	1
06914	Ammonia-Nitrogen	7664-41-7	35.0	1.0	mg/l	10
08255	Total Cyanide (water)	57-12-5	N.D.	0.0050	mg/l	1

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Lancaster Laboratories Sample No. WW 3929671

Collected:10/28/2002 14:20 by RKS

Account Number: 01963

Submitted: 10/29/2002 17:30
Reported: 11/22/2002 at 14:44
Discard: 12/23/2002
DR-3 Grab Water Sample
CONTINUATION OF PREVIOUS SAMPLE
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

DR-3- SDG#: DUF01-13CON

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00259	Mercury	SW-846 7470A	1	11/07/2002 08:32	Deborah A Krady	1
01743	Aluminum	SW-846 6010B	1	11/02/2002 09:21	Eric W Cuba	1
01744	Antimony	SW-846 6010B	1	11/02/2002 09:21	Eric W Cuba	1
01746	Barium	SW-846 6010B	1	11/02/2002 09:21	Eric W Cuba	1
01747	Beryllium	SW-846 6010B	1	11/02/2002 09:21	Eric W Cuba	1
01749	Cadmium	SW-846 6010B	1	11/02/2002 09:21	Eric W Cuba	1
01750	Calcium	SW-846 6010B	1	11/02/2002 09:21	Eric W Cuba	1
01751	Chromium	SW-846 6010B	1	11/02/2002 09:21	Eric W Cuba	1
01752	Cobalt	SW-046 6010B	1	11/02/2002 09:21	Eric W Cuba	1
01753	Copper	SW-846 6010B	1	11/02/2002 09:21	Eric W Cuba	1
01754	Iron	SW-846 6010B	1	11/02/2002 09:21	Eric W Cuba	1
01757	Magnesium	SW-846 6010B	1	11/02/2002 09:21	Eric W Cuba	1
01758	Manganese	SW-846 6010B	1	11/02/2002 09:21	Eric W Cuba	1
01761	Nickel	SW-846 6010B	1	11/02/2002 09:21	Eric W Cuba	1
01762	Potassium	SW-846 6010B	1	11/02/2002 09:21	Eric W Cuba	1
01766	Silver	SW-846 6010B	1	11/02/2002 09:21	Eric W Cuba	1
01767	Sodium	SW-846 6010B	1	11/05/2002 01:55	Donna R Sackett	10
01771	Vanadium	SW-846 6010B	1	11/02/2002 09:21	Eric W Cuba	1
01772	Zinc	SW-846 6010B	1	11/02/2002 09:21	Eric W Cuba	1
07022	Thallium TR	SW-846 6010B	1	11/02/2002 09:21	Eric W Cuba	1
07035	Arsenic TR	SW-846 6010B	1	11/02/2002 09:21	Eric W Cuba	1
07036	Selenium TR	SW-846 6010B	1	11/02/2002 09:21	Eric W Cuba	1
07055	Lead TR	SW-846 6010B	1	11/02/2002 09:21	Eric W Cuba	1
00201	Alkalinity to pH 8.3	EPA 310.1	1	10/30/2002 11:02	Susan A Engle	1
00202	Alkalinity to pH 4.5	EPA 310.1	1	10/30/2002 11:02	Susan A Engle	1
00212	Total Dissolved Solids	EPA 160.1	1	10/30/2002 10:29	Anne L Kuenzli	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	11/06/2002 18:36	Venia B McFadden	20
00219	Nitrite Nitrogen	EPA 353.2	1	10/29/2002 19:41	Nicole M Kepley	1
00220	Nitrate Nitrogen	EPA 353.2	1	11/07/2002 16:16	Nicole M Kepley	1
00223	Organic Nitrogen	Std. Meth. 18th Ed., 4500-NORG	1	11/06/2002 18:32	Venia B McFadden	1
00224	Chloride	EPA 300.0	1	11/06/2002 07:39	Shannon L Phillips	100
00228	Sulfate	EPA 300.0	1	11/04/2002 20:47	Shannon L Phillips	50
00273	Total Organic Carbon	EPA 415.1	1	10/30/2002 17:14	Timothy M Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/05/2002 18:14	Venia B McFadden	1
01333	Sulfide	EPA 376.1	1	10/31/2002 11:15	Susan E Hibner	1
01454	Bicarbonate	SM-18 2320B	1	10/30/2002 11:02	Susan A Engle	1
04001	Chemical Oxygen Demand	EPA 410.4	1	10/30/2002 10:56	Susan A Engle	1

Lancaster Laboratories
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Lancaster Laboratories Sample No. WW 3929671

Collected:10/28/2002 14:20 by RKS

Account Number: 01963

Submitted: 10/29/2002 17:30
Reported: 11/22/2002 at 14:44
Discard: 12/23/2002
DR-3 Grab Water Sample
CONTINUATION OF PREVIOUS SAMPLE
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

DR-3- SDG#: DUF01-13CON

06914	Ammonia-Nitrogen	EPA 350.3	1	11/04/2002 07:47	Michele L Graham	10
08255	Total Cyanide (water)	SW-846 9012A	2	11/07/2002 15:15	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/01/2002 09:37	James S Mathiot	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	10/30/2002 22:40	Annamaria Stipkovits	1
05713	WW SW846 Hg Digest	SW-846 7470A	2	11/06/2002 21:37	Nelli S Harkaryan	1
08256	Cyanide Water Distillation	SW-846 9012A	2	11/06/2002 09:30	Cheryl L Robinson	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	11/01/2002 14:50	Nancy J Shoop	1

Analysis Report

Lancaster Laboratories
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Lancaster Laboratories Sample No. WW 3929672

Collected:10/28/2002 00:00

Account Number: 01963

Submitted: 10/29/2002 17:30
Reported: 11/22/2002 at 14:44
Discard: 12/23/2002
Trip Blank Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

4685T SDG#: DUF01-14TB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
06872	Appendix I by SW846/8260-water					
05385	Chloromethane	74-87-3	N.D.	5.	ug/l	1
05386	Vinyl Chloride	75-01-4	N.D.	5.	ug/l	1
05387	Bromomethane	74-83-9	N.D.	5.	ug/l	1
05388	Chloroethane	75-00-3	N.D.	5.	ug/l	1
05389	Trichlorofluoromethane	75-69-4	N.D.	5.	ug/l	1
05390	1,1-Dichloroethene	75-35-4	N.D.	5.	ug/l	1
05391	Methylene Chloride	75-09-2	N.D.	5.	ug/l	1
05392	trans-1,2-Dichloroethene	156-60-5	N.D.	5.	ug/l	1
05393	1,1-Dichloroethane	75-34-3	N.D.	5.	ug/l	1
05395	cis-1,2-Dichloroethene	156-59-2	N.D.	5.	ug/l	1
05396	Chloroform	67-66-3	N.D.	5.	ug/l	1
05397	Bromochloromethane	74-97-5	N.D.	5.	ug/l	1
05398	1,1,1-Trichloroethane	71-55-6	N.D.	5.	ug/l	1
05399	Carbon Tetrachloride	56-23-5	N.D.	5.	ug/l	1
05401	Benzene	71-43-2	N.D.	5.	ug/l	1
05402	1,2-Dichloroethane	107-06-2	N.D.	5.	ug/l	1
05403	Trichloroethene	79-01-6	N.D.	5.	ug/l	1
05404	1,2-Dichloropropane	78-87-5	N.D.	5.	ug/l	1
05405	Dibromomethane	74-95-3	N.D.	5.	ug/l	1
05406	Bromodichloromethane	75-27-4	N.D.	5.	ug/l	1
05407	Toluene	108-88-3	N.D.	5.	ug/l	1
06302	Acetone	67-64-1	N.D.	20.	ug/l	1
06303	Carbon Disulfide	75-15-0	N.D.	5.	ug/l	1
06305	2-Butanone	78-93-3	N.D.	10.	ug/l	1
06306	trans-1,3-Dichloropropene	10061-02-6	N.D.	5.	ug/l	1
06307	cis-1,3-Dichloropropene	10061-01-5	N.D.	5.	ug/l	1
06308	4-Methyl-2-pentanone	108-10-1	N.D.	10.	ug/l	1
06874	Methyl Iodide	74-88-4	N.D.	5.	ug/l	1
06875	Acrylonitrile	107-13-1	N.D.	20.	ug/l	1
06876	Vinyl Acetate	108-05-4	N.D.	10.	ug/l	1
06873	Appendix I by SW846/8260-cont					
05408	1,1,2-Trichloroethane	79-00-5	N.D.	5.	ug/l	1
05409	Tetrachloroethene	127-18-4	N.D.	5.	ug/l	1
05411	Dibromochloromethane	124-48-1	N.D.	5.	ug/l	1
05412	1,2-Dibromoethane	106-93-4	N.D.	5.	ug/l	1
05413	Chlorobenzene	108-90-7	N.D.	5.	ug/l	1

Lancaster Laboratories
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Lancaster Laboratories Sample No. WW 3929672

Collected:10/28/2002 00:00

Account Number: 01963

Submitted: 10/29/2002 17:30
Reported: 11/22/2002 at 14:44
Discard: 12/23/2002
Trip Blank Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

4685T SDG#: DUF01-14TB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
05414	1,1,1,2-Tetrachloroethane	630-20-6	N.D.	5.	ug/l	1
05415	Ethylbenzene	100-41-4	N.D.	5.	ug/l	1
05418	Styrene	100-42-5	N.D.	5.	ug/l	1
05419	Bromoform	75-25-2	N.D.	5.	ug/l	1
05421	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	5.	ug/l	1
05423	1,2,3-Trichloropropane	96-18-4	N.D.	5.	ug/l	1
05433	1,4-Dichlorobenzene	106-46-7	N.D.	5.	ug/l	1
05435	1,2-Dichlorobenzene	95-50-1	N.D.	5.	ug/l	1
05436	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	5.	ug/l	1
06309	2-Hexanone	591-78-6	N.D.	10.	ug/l	1
06310	Xylene (Total)	1330-20-7	N.D.	5.	ug/l	1
06877	trans-1,4-Dichloro-2-butene	110-57-6	N.D.	50.	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
06872	Appendix I by SW846/8260-water	SW-846 8260B	1	11/01/2002 21:29	Marc S Neal	1
06873	Appendix I by SW846/8260-cont	SW-846 8260B	1	11/01/2002 21:29	Marc S Neal	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	11/01/2002 21:29	Marc S Neal	n.a.

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	NA	SDG No.	OUF01	Sample Wt	1000
Client ID:	PDUXB1	Date Ext.	11/7/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	BLANKA	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
1	2-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.10	0.020
2	3-Chlorobiphenyl	0.42044		0.10	0.020	0.42	0.10	0.020
3	4-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.10	0.020
4	2,2'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
5	2,3-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
6	2,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
7	2,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
8	2,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
9	2,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
10	2,6-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
11	3,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
12	3,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
13	3,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
14	3,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
15	4,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
16	2,2',3-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
17	2,2',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
18	2,2',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
19	2,2',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
20	2,3,3'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
21	2,3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
22	2,3,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
23	2,3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
24	2,3,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
25	2,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
26	2,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
27	2,3',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
28	2,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
29	2,4,5-Trichlorbiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
30	2,4,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
31	2,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
32	2,4',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
33	2',3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
34	2',3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
35	3,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
36	3,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
37	3,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
38	3,4,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
39	3,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
40	2,2',3,3'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
41	2,2',3,4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
42	2,2',3,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
43	2,2',3,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
44	2,2',3,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
45	2,2',3,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
46	2,2',3,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
47	2,2',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050

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209 PCB CONGENER REPORT

DF	1	Date Recd	NA	SDG No.	DUP01	Sample Wt	1000	
Client ID:	PBUX01	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ml	10000	
Sample No:	BLANKA	Date Inj	11/8/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
48	2,2',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
49	2,2',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
50	2,2',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
51	2,2',4,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
52	2,2',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
53	2,2',5,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
54	2,2',6,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
55	2,3,3',4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
56	2,3,3',4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
57	2,3,3',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
58	2,3,3',5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
59	2,3,3',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
60	2,3,4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
61	2,3,4,5,-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
62	2,3,4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
63	2,3,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
64	2,3,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
65	2,3,5,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
66	2,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
67	2,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
68	2,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
69	2,3',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
70	2,3',4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
71	2,3',4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
72	2,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
73	2,3',5',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
74	2,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
75	2,4,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
76	2',3,4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
77	3,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
78	3,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
79	3,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
80	3,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
81	3,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
82	2,2',3,3',4-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
83	2,2',3,3',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
84	2,2',3,3',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
85	2,2',3,4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
86	2,2',3,4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
87	2,2',3,4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
88	2,2',3,4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
89	2,2',3,4,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
90	2,2',3,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
91	2,2',3,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
92	2,2',3,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
93	2,2',3,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
94	2,2',3,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050

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209 PCB CONGENER REPORT

OF	1	Date Rec'd	NA	SDG No.	DUF01	Sample Wt	1000
Client ID:	PSUEB1	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol, ul	10000
Sample No:	BLANKA	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
95	2,2',3,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
96	2,2',3,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
97	2,2',3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
98	2,2',3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
99	2,2',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
100	2,2',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
101	2,2',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
102	2,2',4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
103	2,2',4,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
104	2,2',4,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
105	2,3,3',4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
106	2,3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
107	2,3,3',4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
108	2,3,3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
109	2,3,3',4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
110	2,3,3',4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
111	2,3,3',5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
112	2,3,3',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
113	2,3,3',5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
114	2,3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
115	2,3,4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
116	2,3,4,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
117	2,3,4',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
118	2,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
119	2,3',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
120	2,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
121	2,3',4,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
122	2',3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
123	2',3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
124	2',3,4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
125	2',3,4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
126	3,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
127	3,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
128	2,2',3,3',4,4'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
129	2,2',3,3',4,5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
130	2,2',3,3',4,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
131	2,2',3,3',4,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
132	2,2',3,3',4,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
133	2,2',3,3',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
134	2,2',3,3',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
135	2,2',3,3',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
136	2,2',3,3',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
137	2,2',3,4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
138	2,2',3,4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
139	2,2',3,4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
140	2,2',3,4,4',6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
141	2,2',3,4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	NA	SDG No.	DUF01	Sample Wt	1000
Client ID:	PDUKB1	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	BLANK	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
142	2,2',3,4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
143	2,2',3,4,5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
144	2,2',3,4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
145	2,2',3,4,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
146	2,2',3,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
147	2,2',3,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
148	2,2',3,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
149	2,2',3,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
150	2,2',3,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
151	2,2',3,5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
152	2,2',3,5,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
153	2,2',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
154	2,2',4,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
155	2,2',4,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
156	2,3,3',4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
157	2,3,3',4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
158	2,3,3',4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
159	2,3,3',4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
160	2,3,3',4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
161	2,3,3',4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
162	2,3,3',4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
163	2,3,3',4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
164	2,3,3',4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
165	2,3,3',5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
166	2,3,4,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
167	2,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
168	2,3',4,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
169	3,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
173	2,2',3,3',4,5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
175	2,2',3,3',4,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
177	2,2',3,3',4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
178	2,2',3,3',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
181	2,2',3,4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
183	2,2',3,4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
185	2,2',3,4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	NA	SDG No.	DUFD1	Sample Wt	1000
Client ID:	PEUX01	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	BLANKA	Date Inj	11/6/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
190	2,3,3',4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
191	2,3,3',4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
192	2,3,3',4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
193	2,3,3',4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
196	2,2',3,3',4,4',5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
202	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
209	Decachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050

HOMOLOG	TOTAL UG/L	WEIGHT %
Monochlorobiphenyls	0.42	100
Dichlorobiphenyls	0.0000	0.0000
Trichlorobiphenyls	0.0000	0.0000
Tetrachlorobiphenyls	0.0000	0.0000
Pentachlorobiphenyls	0.0000	0.0000
Hexachlorobiphenyls	0.0000	0.0000
Heptachlorobiphenyls	0.0000	0.0000
Octachlorobiphenyls	0.0000	0.0000
Nonachlorobiphenyls	0.0000	0.0000
Decachlorobiphenyls	0.0000	0.0000

TOTAL PCB 0.42 UG/L

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/23/02	SDG No.	DUF01	Sample Wt	1035	
Client ID:	DR-1R	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ul	10000	
Sample No:	3929659	Date Inj	11/5/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
1	2-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.097	0.019
2	3-Chlorobiphenyl	0.295956		0.10	0.020	0.29	0.097	0.019
3	4-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.097	0.019
4	2,2'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
5	2,3-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
6	2,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
7	2,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
8	2,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
9	2,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
10	2,6-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
11	3,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
12	3,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
13	3,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
14	3,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
15	4,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
16	2,2',3-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
17	2,2',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
18	2,2',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
19	2,2',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
20	2,3,3'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
21	2,3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
22	2,3,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
23	2,3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
24	2,3,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
25	2,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
26	2,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
27	2,3',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
28	2,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
29	2,4,5-Trichlorbiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
30	2,4,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
31	2,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
32	2,4',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
33	2',3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
34	2',3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
35	3,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
36	3,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
37	3,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
38	3,4,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
39	3,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
40	2,2',3,3'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
41	2,2',3,4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
42	2,2',3,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
43	2,2',3,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
44	2,2',3,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
45	2,2',3,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
46	2,2',3,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
47	2,2',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/29/02	SDG No.	DUF01	Sample Wt	1035
Client ID:	DR-1R	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	2929659	Date Inj	11/5/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
48	2,2',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
49	2,2',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
50	2,2',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
51	2,2',4,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
52	2,2',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
53	2,2',5,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
54	2,2',6,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
55	2,3,3',4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
56	2,3,3',4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
57	2,3,3',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
58	2,3,3',5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
59	2,3,3',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
60	2,3,4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
61	2,3,4,5,-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
62	2,3,4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
63	2,3,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
64	2,3,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
65	2,3,5,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
66	2,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
67	2,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
68	2,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
69	2,3',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
70	2,3',4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
71	2,3',4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
72	2,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
73	2,3',5',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
74	2,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
75	2,4,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
76	2',3,4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
77	3,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
78	3,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
79	3,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
80	3,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
81	3,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
82	2,2',3,3',4-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
83	2,2',3,3',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
84	2,2',3,3',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
85	2,2',3,4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
86	2,2',3,4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
87	2,2',3,4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
88	2,2',3,4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
89	2,2',3,4,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
90	2,2',3,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
91	2,2',3,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
92	2,2',3,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
93	2,2',3,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
94	2,2',3,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Recd	10/29/02	SDG No.	DUF01	Sample Wt	1035
Client ID:	DP-1R	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ml	10000
Sample No:	3929659	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
95	2,2',3,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
96	2,2',3,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
97	2,2',3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
98	2,2',3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
99	2,2',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
100	2,2',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
101	2,2',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
102	2,2',4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
103	2,2',4,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
104	2,2',4,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
105	2,3,3',4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
106	2,3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
107	2,3,3',4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
108	2,3,3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
109	2,3,3',4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
110	2,3,3',4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
111	2,3,3',5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
112	2,3,3',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
113	2,3,3',5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
114	2,3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
115	2,3,4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
116	2,3,4,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
117	2,3,4',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
118	2,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
119	2,3',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
120	2,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
121	2,3',4,5',6-Pentachlorbiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
122	2',3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
123	2',3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
124	2',3,4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
125	2',3,4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
126	3,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
127	3,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
128	2,2',3,3',4,4'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
129	2,2',3,3',4,5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
130	2,2',3,3',4,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
131	2,2',3,3',4,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
132	2,2',3,3',4,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
133	2,2',3,3',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
134	2,2',3,3',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
135	2,2',3,3',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
136	2,2',3,3',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
137	2,2',3,4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
138	2,2',3,4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
139	2,2',3,4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
140	2,2',3,4,4',6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
141	2,2',3,4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/25/02	SDG No.	DUF01	Sample Wt	1035
Client ID:	DP-1R	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3928558	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
142	2,2',3,4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
143	2,2',3,4,5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
144	2,2',3,4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
145	2,2',3,4,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
146	2,2',3,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
147	2,2',3,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
148	2,2',3,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
149	2,2',3,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
150	2,2',3,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
151	2,2',3,5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
152	2,2',3,5,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
153	2,2',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
154	2,2',4,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
155	2,2',4,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
156	2,3,3',4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
157	2,3,3',4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
158	2,3,3',4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
159	2,3,3',4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
160	2,3,3',4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
161	2,3,3',4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
162	2,3,3',4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
163	2,3,3',4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
164	2,3,3',4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
165	2,3,3',5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
166	2,3,4,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
167	2,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
168	2,3',4,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
169	3,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
173	2,2',3,3',4,5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
175	2,2',3,3',4,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
177	2,2',3,3',4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
178	2,2',3,3',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
181	2,2',3,4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
183	2,2',3,4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
185	2,2',3,4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/29/02	SDG No.	DUP01	Sample Wt	1035
Client ID:	DP-1R	Date Ext.	11/1/02	Conc/Dil	Conc	F.Vol. ul	10000
Sample No:	3929659	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
190	2,3,3',4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
191	2,3,3',4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
192	2,3,3',4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
193	2,3,3',4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
196	2,2',3,3',4,4',5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
202	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
209	Decachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

HOMOLOG	TOTAL UG/L	WEIGHT %
Monochlorobiphenyls	0.30	100
Dichlorobiphenyls	0.0000	0.0000
Trichlorobiphenyls	0.0000	0.0000
Tetrachlorobiphenyls	0.0000	0.0000
Pentachlorobiphenyls	0.0000	0.0000
Hexachlorobiphenyls	0.0000	0.0000
Heptachlorobiphenyls	0.0000	0.0000
Octachlorobiphenyls	0.0000	0.0000
Nonachlorobiphenyls	0.0000	0.0000
Decachlorobiphenyls	0.0000	0.0000

TOTAL PCB 0.30 UG/L

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/29/02	SDG No.	DUF01	Sample Wt	1052
Client ID:	DA1RD	Date Ext.	11/1/02	Conc/Size	Conc	F.Vol. ul	10000
Sample No:	3923551	Date Inj	11/9/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
1	2-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.095	0.019
2	3-Chlorobiphenyl	0.205425		0.10	0.020	0.21	0.095	0.019
3	4-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.095	0.019
4	2,2'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
5	2,3-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
6	2,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
7	2,4-Dichlorobiphenyl	0.006017	J	0.020	0.0050	0.0060	0.019	0.0048
8	2,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
9	2,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
10	2,6-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
11	3,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
12	3,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
13	3,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
14	3,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
15	4,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
16	2,2',3-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
17	2,2',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
18	2,2',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
19	2,2',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
20	2,3,3'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
21	2,3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
22	2,3,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
23	2,3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
24	2,3,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
25	2,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
26	2,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
27	2,3',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
28	2,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
29	2,4,5-Trichlorbiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
30	2,4,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
31	2,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
32	2,4',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
33	2',3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
34	2',3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
35	3,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
36	3,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
37	3,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
38	3,4,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
39	3,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
40	2,2',3,3'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
41	2,2',3,4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
42	2,2',3,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
43	2,2',3,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
44	2,2',3,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
45	2,2',3,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
46	2,2',3,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
47	2,2',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048

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209 PCB CONGENER REPORT

DF	1	Date Recd	10/29/02	SDG No.	DUF01	Sample Wt	1052
Client ID:	ORIRD	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ml	10000
Sample No:	3929661	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
48	2,2',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
49	2,2',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
50	2,2',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
51	2,2',4,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
52	2,2',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
53	2,2',5,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
54	2,2',6,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
55	2,3,3',4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
56	2,3,3',4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
57	2,3,3',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
58	2,3,3',5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
59	2,3,3',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
60	2,3,4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
61	2,3,4,5,-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
62	2,3,4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
63	2,3,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
64	2,3,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
65	2,3,5,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
66	2,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
67	2,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
68	2,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
69	2,3',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
70	2,3',4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
71	2,3',4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
72	2,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
73	2,3',5',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
74	2,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
75	2,4,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
76	2',3,4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
77	3,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
78	3,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
79	3,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
80	3,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
81	3,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
82	2,2',3,3',4-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
83	2,2',3,3',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
84	2,2',3,3',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
85	2,2',3,4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
86	2,2',3,4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
87	2,2',3,4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
88	2,2',3,4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
89	2,2',3,4,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
90	2,2',3,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
91	2,2',3,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
92	2,2',3,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
93	2,2',3,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
94	2,2',3,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/29/02	SDG No.	DUF01	Sample Wt	1052	
Client ID:	DR1RD	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ul	10000	
Sample No:	3929661	Date Inj	11/8/02	Metric	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
95	2,2',3,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
96	2,2',3,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
97	2,2',3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
98	2,2',3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
99	2,2',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
100	2,2',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
101	2,2',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
102	2,2',4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
103	2,2',4,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
104	2,2',4,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
105	2,3,3',4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
106	2,3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
107	2,3,3',4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
108	2,3,3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
109	2,3,3',4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
110	2,3,3',4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
111	2,3,3',5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
112	2,3,3',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
113	2,3,3',5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
114	2,3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
115	2,3,4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
116	2,3,4,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
117	2,3,4',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
118	2,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
119	2,3',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
120	2,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
121	2,3',4,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
122	2',3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
123	2',3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
124	2',3,4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
125	2',3,4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
126	3,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
127	3,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
128	2,2',3,3',4,4'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
129	2,2',3,3',4,5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
130	2,2',3,3',4,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
131	2,2',3,3',4,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
132	2,2',3,3',4,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
133	2,2',3,3',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
134	2,2',3,3',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
135	2,2',3,3',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
136	2,2',3,3',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
137	2,2',3,4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
138	2,2',3,4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
139	2,2',3,4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
140	2,2',3,4,4',6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
141	2,2',3,4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/29/02	SDG No.	DUFD1	Sample Wt	1052
Client ID:	DR1RD	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3929661	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
142	2,2',3,4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
143	2,2',3,4,5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
144	2,2',3,4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
145	2,2',3,4,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
146	2,2',3,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
147	2,2',3,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
148	2,2',3,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
149	2,2',3,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
150	2,2',3,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
151	2,2',3,5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
152	2,2',3,5,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
153	2,2',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
154	2,2',4,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
155	2,2',4,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
156	2,3,3',4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
157	2,3,3',4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
158	2,3,3',4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
159	2,3,3',4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
160	2,3,3',4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
161	2,3,3',4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
162	2,3,3',4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
163	2,3,3',4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
164	2,3,3',4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
165	2,3,3',5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
166	2,3,4,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
167	2,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
168	2,3',4,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
169	3,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
173	2,2',3,3',4,5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
175	2,2',3,3',4,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
177	2,2',3,3',4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
178	2,2',3,3',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
181	2,2',3,4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
183	2,2',3,4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
185	2,2',3,4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Recd	10/23/02	SDG No.	DUF01	Sample Wt	1052
Client ID:	DR1RD	Date Ext.	11/1/02	Soxc/Sox	Soxc	F.Vol. ul	10000
Sample No:	3929561	Date Inj	11/3/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
190	2,3,3',4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
191	2,3,3',4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
192	2,3,3',4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
193	2,3,3',4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
196	2,2',3,3',4,4',5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
202	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
209	Decachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

HOMOLOG	TOTAL UG/L	WEIGHT %
Monochlorobiphenyls	0.21	97.2
Dichlorobiphenyls	0.0060	2.8
Trichlorobiphenyls	0.0000	0.0000
Tetrachlorobiphenyls	0.0000	0.0000
Pentachlorobiphenyls	0.0000	0.0000
Hexachlorobiphenyls	0.0000	0.0000
Heptachlorobiphenyls	0.0000	0.0000
Octachlorobiphenyls	0.0000	0.0000
Nonachlorobiphenyls	0.0000	0.0000
Decachlorobiphenyls	0.0000	0.0000

TOTAL PCB 0.21 UG/L

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/25/02	SDG No.	DUF01	Sample Wt	1052	
Client ID:	1025R	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ul	10000	
Sample No:	3925663	Date Inj	11/8/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
1	2-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.035	0.019
2	3-Chlorobiphenyl	0.415253		0.10	0.020	0.42	0.035	0.019
3	4-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.035	0.019
4	2,2'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
5	2,3-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
6	2,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
7	2,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
8	2,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
9	2,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
10	2,6-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
11	3,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
12	3,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
13	3,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
14	3,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
15	4,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
16	2,2',3-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
17	2,2',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
18	2,2',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
19	2,2',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
20	2,3,3'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
21	2,3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
22	2,3,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
23	2,3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
24	2,3,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
25	2,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
26	2,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
27	2,3',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
28	2,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
29	2,4,5-Trichlorbiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
30	2,4,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
31	2,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
32	2,4',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
33	2',3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
34	2',3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
35	3,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
36	3,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
37	3,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
38	3,4,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
39	3,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
40	2,2',3,3'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
41	2,2',3,4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
42	2,2',3,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
43	2,2',3,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
44	2,2',3,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
45	2,2',3,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
46	2,2',3,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
47	2,2',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/29/02	SDG No.	DUF01	Sample Wt	1052	
Client ID:	1025R	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ul	10000	
Sample No:	3925663	Date Inj	11/8/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
48	2,2',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
49	2,2',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
50	2,2',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
51	2,2',4,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
52	2,2',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
53	2,2',5,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
54	2,2',6,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
55	2,3,3',4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
56	2,3,3',4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
57	2,3,3',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
58	2,3,3',5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
59	2,3,3',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
60	2,3,4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
61	2,3,4,5,-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
62	2,3,4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
63	2,3,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
64	2,3,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
65	2,3,5,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
66	2,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
67	2,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
68	2,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
69	2,3',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
70	2,3',4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
71	2,3',4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
72	2,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
73	2,3',5',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
74	2,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
75	2,4,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
76	2',3,4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
77	3,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
78	3,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
79	3,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
80	3,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
81	3,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
82	2,2',3,3',4-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
83	2,2',3,3',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
84	2,2',3,3',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
85	2,2',3,4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
86	2,2',3,4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
87	2,2',3,4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
88	2,2',3,4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
89	2,2',3,4,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
90	2,2',3,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
91	2,2',3,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
92	2,2',3,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
93	2,2',3,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
94	2,2',3,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/29/02	SDG No.	DUF01	Sample Wt	1052	
Client ID:	1025R	Date Ext.	11/1/02	Conc/Size	Conc	F.Vol. ul	10000	
Sample No:	3923663	Date Inj	11/8/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
95	2,2',3,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
96	2,2',3,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
97	2,2',3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
98	2,2',3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
99	2,2',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
100	2,2',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
101	2,2',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
102	2,2',4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
103	2,2',4,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
104	2,2',4,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
105	2,3,3',4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
106	2,3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
107	2,3,3',4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
108	2,3,3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
109	2,3,3',4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
110	2,3,3',4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
111	2,3,3',5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
112	2,3,3',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
113	2,3,3',5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
114	2,3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
115	2,3,4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
116	2,3,4,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
117	2,3,4',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
118	2,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
119	2,3',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
120	2,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
121	2,3',4,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
122	2',3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
123	2',3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
124	2',3,4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
125	2',3,4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
126	3,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
127	3,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
128	2,2',3,3',4,4'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
129	2,2',3,3',4,5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
130	2,2',3,3',4,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
131	2,2',3,3',4,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
132	2,2',3,3',4,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
133	2,2',3,3',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
134	2,2',3,3',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
135	2,2',3,3',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
136	2,2',3,3',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
137	2,2',3,4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
138	2,2',3,4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
139	2,2',3,4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
140	2,2',3,4,4',6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
141	2,2',3,4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/29/02	SDG No.	DUF01	Sample Wt	1052
Client ID:	1025A	Date Ext.	11/1/02	Conc/Size	Conc	F.Vol. ul	10000
Sample No:	3929693	Date Inj	11/6/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
142	2,2',3,4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
143	2,2',3,4,5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
144	2,2',3,4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
145	2,2',3,4,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
146	2,2',3,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
147	2,2',3,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
148	2,2',3,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
149	2,2',3,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
150	2,2',3,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
151	2,2',3,5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
152	2,2',3,5,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
153	2,2',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
154	2,2',4,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
155	2,2',4,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
156	2,3,3',4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
157	2,3,3',4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
158	2,3,3',4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
159	2,3,3',4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
160	2,3,3',4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
161	2,3,3',4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
162	2,3,3',4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
163	2,3,3',4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
164	2,3,3',4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
165	2,3,3',5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
166	2,3,4,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
167	2,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
168	2,3',4,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
169	3,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
173	2,2',3,3',4,5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
175	2,2',3,3',4,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
177	2,2',3,3',4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
178	2,2',3,3',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
181	2,2',3,4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
183	2,2',3,4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
185	2,2',3,4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/29/02	SDG No.	DUF01	Sample Wt	1052
Client ID:	1025R	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3929663	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
190	2,3,3',4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
191	2,3,3',4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
192	2,3,3',4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
193	2,3,3',4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
196	2,2',3,3',4,4',5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
202	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
209	Decachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

HOMOLOG	TOTAL UG/L	WEIGHT %
Monochlorobiphenyls	0.42	100
Dichlorobiphenyls	0.0000	0.0000
Trichlorobiphenyls	0.0000	0.0000
Tetrachlorobiphenyls	0.0000	0.0000
Pentachlorobiphenyls	0.0000	0.0000
Hexachlorobiphenyls	0.0000	0.0000
Heptachlorobiphenyls	0.0000	0.0000
Octachlorobiphenyls	0.0000	0.0000
Nonachlorobiphenyls	0.0000	0.0000
Decachlorobiphenyls	0.0000	0.0000

TOTAL PCB 0.42 UG/L

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/29/02	SDG No.	DUP01	Sample Wt	1052	
Client ID:	1028A	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ul	10000	
Sample No:	3925565	Date Inj	11/8/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
1	2-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.055	0.019
2	3-Chlorobiphenyl	0.952757		0.10	0.020	0.25	0.055	0.019
3	4-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.055	0.019
4	2,2'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
5	2,3-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
6	2,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
7	2,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
8	2,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
9	2,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
10	2,6-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
11	3,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
12	3,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
13	3,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
14	3,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
15	4,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
16	2,2',3-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
17	2,2',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
18	2,2',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
19	2,2',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
20	2,3,3'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
21	2,3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
22	2,3,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
23	2,3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
24	2,3,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
25	2,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
26	2,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
27	2,3',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
28	2,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
29	2,4,5-Trichlorbiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
30	2,4,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
31	2,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
32	2,4',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
33	2',3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
34	2',3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
35	3,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
36	3,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
37	3,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
38	3,4,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
39	3,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
40	2,2',3,3'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
41	2,2',3,4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
42	2,2',3,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
43	2,2',3,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
44	2,2',3,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
45	2,2',3,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
46	2,2',3,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
47	2,2',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/23/02	SOG No.	DUF01	Sample Wt	1052	
Client ID:	1028R	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ul	10000	
Sample No:	3529665	Date Inj	11/6/02	Metric	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
43	2,2',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
43	2,2',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
50	2,2',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
51	2,2',4,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
52	2,2',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
53	2,2',5,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
54	2,2',6,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
55	2,3,3',4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
56	2,3,3',4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
57	2,3,3',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
58	2,3,3',5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
59	2,3,3',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
60	2,3,4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
61	2,3,4,5,-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
62	2,3,4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
63	2,3,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
64	2,3,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
65	2,3,5,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
66	2,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
67	2,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
68	2,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
69	2,3',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
70	2,3',4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
71	2,3',4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
72	2,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
73	2,3',5',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
74	2,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
75	2,4,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
76	2',3,4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
77	3,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
78	3,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
79	3,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
80	3,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
81	3,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
82	2,2',3,3',4-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
83	2,2',3,3',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
84	2,2',3,3',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
85	2,2',3,4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
86	2,2',3,4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
87	2,2',3,4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
88	2,2',3,4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
89	2,2',3,4,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
90	2,2',3,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
91	2,2',3,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
92	2,2',3,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
93	2,2',3,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
94	2,2',3,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/29/02	SDG No.	DUF01	Sample Wt	1052	
Client ID:	1025R	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ul	10000	
Sample No:	3923665	Date Inj	11/8/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
95	2,2',3,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
96	2,2',3,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
97	2,2',3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
98	2,2',3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
99	2,2',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
100	2,2',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
101	2,2',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
102	2,2',4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
103	2,2',4,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
104	2,2',4,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
105	2,3,3',4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
106	2,3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
107	2,3,3',4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
108	2,3,3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
109	2,3,3',4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
110	2,3,3',4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
111	2,3,3',5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
112	2,3,3',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
113	2,3,3',5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
114	2,3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
115	2,3,4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
116	2,3,4,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
117	2,3,4',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
118	2,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
119	2,3',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
120	2,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
121	2,3',4,5',6-Pentachlorbiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
122	2',3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
123	2',3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
124	2',3,4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
125	2',3,4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
126	3,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
127	3,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
128	2,2',3,3',4,4'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
129	2,2',3,3',4,5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
130	2,2',3,3',4,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
131	2,2',3,3',4,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
132	2,2',3,3',4,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
133	2,2',3,3',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
134	2,2',3,3',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
135	2,2',3,3',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
136	2,2',3,3',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
137	2,2',3,4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
138	2,2',3,4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
139	2,2',3,4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
140	2,2',3,4,4',6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
141	2,2',3,4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/29/02	SDG No.	DUF01	Sample Wt	1052	
Client ID:	1023R	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol, ul	10000	
Sample No:	3925565	Date Inj	11/2/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
142	2,2',3,4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
143	2,2',3,4,5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
144	2,2',3,4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
145	2,2',3,4,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
146	2,2',3,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
147	2,2',3,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
148	2,2',3,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
149	2,2',3,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
150	2,2',3,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
151	2,2',3,5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
152	2,2',3,5,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
153	2,2',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
154	2,2',4,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
155	2,2',4,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
156	2,3,3',4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
157	2,3,3',4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
158	2,3,3',4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
159	2,3,3',4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
160	2,3,3',4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
161	2,3,3',4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
162	2,3,3',4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
163	2,3,3',4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
164	2,3,3',4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
165	2,3,3',5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
166	2,3,4,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
167	2,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
168	2,3',4,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
169	3,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
173	2,2',3,3',4,5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
175	2,2',3,3',4,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
177	2,2',3,3',4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
178	2,2',3,3',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
181	2,2',3,4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
183	2,2',3,4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
185	2,2',3,4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048

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209 PCB CONGENER REPORT

DF	1	Date Recd	10/23/02	SDG No.	DUF01	Sample Wt	1052
Client ID:	1028R	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3925665	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
190	2,3,3',4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
191	2,3,3',4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
192	2,3,3',4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
193	2,3,3',4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
196	2,2',3,3',4,4',5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
202	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
209	Decachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

HOMOLOG	TOTAL UG/L	WEIGHT %
Monochlorobiphenyls	0.85	100
Dichlorobiphenyls	0.0000	0.0000
Trichlorobiphenyls	0.0000	0.0000
Tetrachlorobiphenyls	0.0000	0.0000
Pentachlorobiphenyls	0.0000	0.0000
Hexachlorobiphenyls	0.0000	0.0000
Heptachlorobiphenyls	0.0000	0.0000
Octachlorobiphenyls	0.0000	0.0000
Nonachlorobiphenyls	0.0000	0.0000
Decachlorobiphenyls	0.0000	0.0000

TOTAL PCB 0.85 UG/L

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209 PCB CONGENER REPORT

DF	1	Date Recd	10/29/02	SDG No.	DUF	Sample Wt	1037
Client ID:	LC105	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3929666	Date Inj	11/5/02	Metric	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
1	2-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.096	0.019
2	3-Chlorobiphenyl	0.316175		0.10	0.020	0.32	0.096	0.019
3	4-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.096	0.019
4	2,2'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
5	2,3-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
6	2,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
7	2,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
8	2,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
9	2,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
10	2,6-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
11	3,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
12	3,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
13	3,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
14	3,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
15	4,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
16	2,2',3-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
17	2,2',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
18	2,2',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
19	2,2',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
20	2,3,3'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
21	2,3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
22	2,3,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
23	2,3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
24	2,3,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
25	2,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
26	2,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
27	2,3',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
28	2,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
29	2,4,5-Trichlorbiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
30	2,4,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
31	2,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
32	2,4',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
33	2',3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
34	2',3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
35	3,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
36	3,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
37	3,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
38	3,4,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
39	3,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
40	2,2',3,3'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
41	2,2',3,4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
42	2,2',3,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
43	2,2',3,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
44	2,2',3,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
45	2,2',3,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
46	2,2',3,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
47	2,2',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/29/02	SDG No.	DUF	Sample Wt	1037
Client ID:	LC105	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3929666	Date Inj	11/5/02	Metric	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
48	2,2',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
49	2,2',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
50	2,2',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
51	2,2',4,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
52	2,2',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
53	2,2',5,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
54	2,2',6,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
55	2,3,3',4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
56	2,3,3',4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
57	2,3,3',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
58	2,3,3',5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
59	2,3,3',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
60	2,3,4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
61	2,3,4,5,-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
62	2,3,4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
63	2,3,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
64	2,3,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
65	2,3,5,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
66	2,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
67	2,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
68	2,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
69	2,3',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
70	2,3',4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
71	2,3',4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
72	2,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
73	2,3',5',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
74	2,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
75	2,4,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
76	2',3,4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
77	3,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
78	3,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
79	3,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
80	3,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
81	3,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
82	2,2',3,3',4-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
83	2,2',3,3',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
84	2,2',3,3',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
85	2,2',3,4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
86	2,2',3,4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
87	2,2',3,4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
88	2,2',3,4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
89	2,2',3,4,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
90	2,2',3,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
91	2,2',3,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
92	2,2',3,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
93	2,2',3,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
94	2,2',3,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/23/02	SDG No.	DUF01	Sample Wt	1035	
Client ID:	DR-1R	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ul	10000	
Sample No:	3929659	Date Inj	11/5/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
1	2-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.097	0.019
2	3-Chlorobiphenyl	0.295956		0.10	0.020	0.29	0.097	0.019
3	4-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.097	0.019
4	2,2'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
5	2,3-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
6	2,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
7	2,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
8	2,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
9	2,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
10	2,6-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
11	3,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
12	3,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
13	3,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
14	3,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
15	4,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
16	2,2',3-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
17	2,2',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
18	2,2',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
19	2,2',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
20	2,3,3'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
21	2,3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
22	2,3,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
23	2,3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
24	2,3,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
25	2,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
26	2,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
27	2,3',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
28	2,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
29	2,4,5-Trichlorbiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
30	2,4,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
31	2,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
32	2,4',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
33	2',3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
34	2',3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
35	3,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
36	3,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
37	3,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
38	3,4,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
39	3,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
40	2,2',3,3'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
41	2,2',3,4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
42	2,2',3,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
43	2,2',3,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
44	2,2',3,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
45	2,2',3,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
46	2,2',3,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
47	2,2',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/29/02	SDG No.	DUF01	Sample Wt	1035
Client ID:	DR-1R	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	2929659	Date Inj	11/5/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
48	2,2',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
49	2,2',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
50	2,2',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
51	2,2',4,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
52	2,2',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
53	2,2',5,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
54	2,2',6,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
55	2,3,3',4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
56	2,3,3',4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
57	2,3,3',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
58	2,3,3',5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
59	2,3,3',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
60	2,3,4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
61	2,3,4,5,-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
62	2,3,4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
63	2,3,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
64	2,3,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
65	2,3,5,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
66	2,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
67	2,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
68	2,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
69	2,3',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
70	2,3',4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
71	2,3',4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
72	2,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
73	2,3',5',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
74	2,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
75	2,4,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
76	2',3,4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
77	3,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
78	3,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
79	3,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
80	3,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
81	3,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
82	2,2',3,3',4-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
83	2,2',3,3',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
84	2,2',3,3',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
85	2,2',3,4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
86	2,2',3,4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
87	2,2',3,4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
88	2,2',3,4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
89	2,2',3,4,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
90	2,2',3,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
91	2,2',3,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
92	2,2',3,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
93	2,2',3,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
94	2,2',3,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Recd	10/29/02	SDG No.	DUF01	Sample Wt	1035
Client ID:	DP-1R	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ml	10000
Sample No:	3929659	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
95	2,2',3,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
96	2,2',3,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
97	2,2',3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
98	2,2',3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
99	2,2',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
100	2,2',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
101	2,2',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
102	2,2',4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
103	2,2',4,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
104	2,2',4,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
105	2,3,3',4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
106	2,3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
107	2,3,3',4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
108	2,3,3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
109	2,3,3',4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
110	2,3,3',4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
111	2,3,3',5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
112	2,3,3',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
113	2,3,3',5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
114	2,3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
115	2,3,4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
116	2,3,4,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
117	2,3,4',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
118	2,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
119	2,3',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
120	2,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
121	2,3',4,5',6-Pentachlorbiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
122	2',3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
123	2',3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
124	2',3,4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
125	2',3,4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
126	3,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
127	3,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
128	2,2',3,3',4,4'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
129	2,2',3,3',4,5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
130	2,2',3,3',4,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
131	2,2',3,3',4,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
132	2,2',3,3',4,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
133	2,2',3,3',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
134	2,2',3,3',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
135	2,2',3,3',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
136	2,2',3,3',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
137	2,2',3,4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
138	2,2',3,4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
139	2,2',3,4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
140	2,2',3,4,4',6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
141	2,2',3,4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/25/02	SDG No.	DUF01	Sample Wt	1035
Client ID:	DP-1R	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3928558	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
142	2,2',3,4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
143	2,2',3,4,5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
144	2,2',3,4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
145	2,2',3,4,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
146	2,2',3,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
147	2,2',3,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
148	2,2',3,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
149	2,2',3,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
150	2,2',3,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
151	2,2',3,5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
152	2,2',3,5,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
153	2,2',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
154	2,2',4,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
155	2,2',4,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
156	2,3,3',4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
157	2,3,3',4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
158	2,3,3',4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
159	2,3,3',4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
160	2,3,3',4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
161	2,3,3',4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
162	2,3,3',4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
163	2,3,3',4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
164	2,3,3',4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
165	2,3,3',5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
166	2,3,4,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
167	2,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
168	2,3',4,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
169	3,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
173	2,2',3,3',4,5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
175	2,2',3,3',4,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
177	2,2',3,3',4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
178	2,2',3,3',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
181	2,2',3,4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
183	2,2',3,4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
185	2,2',3,4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/29/02	SDG No.	DUP01	Sample Wt	1035
Client ID:	DP-1R	Date Ext.	11/1/02	Conc/Dil	Conc	F.Vol. ul	10000
Sample No:	3929659	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
190	2,3,3',4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
191	2,3,3',4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
192	2,3,3',4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
193	2,3,3',4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
196	2,2',3,3',4,4',5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
202	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
209	Decachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

HOMOLOG	TOTAL UG/L	WEIGHT %
Monochlorobiphenyls	0.30	100
Dichlorobiphenyls	0.0000	0.0000
Trichlorobiphenyls	0.0000	0.0000
Tetrachlorobiphenyls	0.0000	0.0000
Pentachlorobiphenyls	0.0000	0.0000
Hexachlorobiphenyls	0.0000	0.0000
Heptachlorobiphenyls	0.0000	0.0000
Octachlorobiphenyls	0.0000	0.0000
Nonachlorobiphenyls	0.0000	0.0000
Decachlorobiphenyls	0.0000	0.0000

TOTAL PCB 0.30 UG/L

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/29/02	SDG No.	DUF01	Sample Wt	1052
Client ID:	DA1RD	Date Ext.	11/1/02	Conc/Size	Conc	F.Vol. ul	10000
Sample No:	3923551	Date Inj	11/9/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
1	2-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.095	0.019
2	3-Chlorobiphenyl	0.205425		0.10	0.020	0.21	0.095	0.019
3	4-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.095	0.019
4	2,2'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
5	2,3-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
6	2,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
7	2,4-Dichlorobiphenyl	0.006017	J	0.020	0.0050	0.0060	0.019	0.0048
8	2,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
9	2,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
10	2,6-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
11	3,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
12	3,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
13	3,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
14	3,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
15	4,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
16	2,2',3-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
17	2,2',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
18	2,2',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
19	2,2',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
20	2,3,3'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
21	2,3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
22	2,3,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
23	2,3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
24	2,3,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
25	2,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
26	2,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
27	2,3',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
28	2,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
29	2,4,5-Trichlorbiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
30	2,4,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
31	2,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
32	2,4',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
33	2',3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
34	2',3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
35	3,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
36	3,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
37	3,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
38	3,4,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
39	3,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
40	2,2',3,3'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
41	2,2',3,4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
42	2,2',3,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
43	2,2',3,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
44	2,2',3,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
45	2,2',3,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
46	2,2',3,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
47	2,2',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048

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209 PCB CONGENER REPORT

DF	1	Date Recd	10/29/02	SDG No.	DUF01	Sample Wt	1052
Client ID:	ORIRD	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ml	10000
Sample No:	3929661	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
48	2,2',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
49	2,2',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
50	2,2',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
51	2,2',4,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
52	2,2',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
53	2,2',5,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
54	2,2',6,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
55	2,3,3',4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
56	2,3,3',4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
57	2,3,3',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
58	2,3,3',5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
59	2,3,3',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
60	2,3,4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
61	2,3,4,5,-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
62	2,3,4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
63	2,3,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
64	2,3,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
65	2,3,5,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
66	2,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
67	2,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
68	2,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
69	2,3',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
70	2,3',4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
71	2,3',4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
72	2,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
73	2,3',5',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
74	2,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
75	2,4,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
76	2',3,4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
77	3,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
78	3,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
79	3,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
80	3,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
81	3,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
82	2,2',3,3',4-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
83	2,2',3,3',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
84	2,2',3,3',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
85	2,2',3,4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
86	2,2',3,4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
87	2,2',3,4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
88	2,2',3,4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
89	2,2',3,4,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
90	2,2',3,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
91	2,2',3,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
92	2,2',3,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
93	2,2',3,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
94	2,2',3,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/29/02	SDG No.	DUF01	Sample Wt	1052	
Client ID:	DR1RD	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ul	10000	
Sample No:	3929661	Date Inj	11/8/02	Metric	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
95	2,2',3,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
96	2,2',3,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
97	2,2',3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
98	2,2',3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
99	2,2',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
100	2,2',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
101	2,2',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
102	2,2',4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
103	2,2',4,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
104	2,2',4,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
105	2,3,3',4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
106	2,3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
107	2,3,3',4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
108	2,3,3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
109	2,3,3',4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
110	2,3,3',4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
111	2,3,3',5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
112	2,3,3',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
113	2,3,3',5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
114	2,3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
115	2,3,4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
116	2,3,4,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
117	2,3,4',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
118	2,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
119	2,3',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
120	2,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
121	2,3',4,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
122	2',3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
123	2',3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
124	2',3,4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
125	2',3,4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
126	3,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
127	3,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
128	2,2',3,3',4,4'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
129	2,2',3,3',4,5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
130	2,2',3,3',4,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
131	2,2',3,3',4,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
132	2,2',3,3',4,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
133	2,2',3,3',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
134	2,2',3,3',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
135	2,2',3,3',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
136	2,2',3,3',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
137	2,2',3,4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
138	2,2',3,4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
139	2,2',3,4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
140	2,2',3,4,4',6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
141	2,2',3,4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/29/02	SDG No.	DUFD1	Sample Wt	1052
Client ID:	DR1RD	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3929661	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
142	2,2',3,4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
143	2,2',3,4,5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
144	2,2',3,4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
145	2,2',3,4,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
146	2,2',3,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
147	2,2',3,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
148	2,2',3,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
149	2,2',3,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
150	2,2',3,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
151	2,2',3,5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
152	2,2',3,5,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
153	2,2',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
154	2,2',4,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
155	2,2',4,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
156	2,3,3',4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
157	2,3,3',4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
158	2,3,3',4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
159	2,3,3',4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
160	2,3,3',4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
161	2,3,3',4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
162	2,3,3',4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
163	2,3,3',4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
164	2,3,3',4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
165	2,3,3',5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
166	2,3,4,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
167	2,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
168	2,3',4,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
169	3,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
173	2,2',3,3',4,5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
175	2,2',3,3',4,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
177	2,2',3,3',4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
178	2,2',3,3',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
181	2,2',3,4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
183	2,2',3,4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
185	2,2',3,4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Recd	10/23/02	SDG No.	DUF01	Sample Wt	1052
Client ID:	DR1RD	Date Ext.	11/1/02	Soxc/Sox	Soxc	F.Vol. ul	10000
Sample No:	3929561	Date Inj	11/3/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
190	2,3,3',4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
191	2,3,3',4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
192	2,3,3',4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
193	2,3,3',4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
196	2,2',3,3',4,4',5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
202	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
209	Decachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

HOMOLOG	TOTAL UG/L	WEIGHT %
Monochlorobiphenyls	0.21	97.2
Dichlorobiphenyls	0.0060	2.8
Trichlorobiphenyls	0.0000	0.0000
Tetrachlorobiphenyls	0.0000	0.0000
Pentachlorobiphenyls	0.0000	0.0000
Hexachlorobiphenyls	0.0000	0.0000
Heptachlorobiphenyls	0.0000	0.0000
Octachlorobiphenyls	0.0000	0.0000
Nonachlorobiphenyls	0.0000	0.0000
Decachlorobiphenyls	0.0000	0.0000

TOTAL PCB 0.21 UG/L

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/25/02	SDG No.	DUF01	Sample Wt	1052	
Client ID:	1025R	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ul	10000	
Sample No:	3925663	Date Inj	11/8/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
1	2-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.035	0.019
2	3-Chlorobiphenyl	0.415253		0.10	0.020	0.42	0.035	0.019
3	4-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.035	0.019
4	2,2'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
5	2,3-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
6	2,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
7	2,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
8	2,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
9	2,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
10	2,6-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
11	3,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
12	3,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
13	3,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
14	3,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
15	4,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
16	2,2',3-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
17	2,2',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
18	2,2',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
19	2,2',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
20	2,3,3'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
21	2,3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
22	2,3,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
23	2,3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
24	2,3,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
25	2,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
26	2,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
27	2,3',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
28	2,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
29	2,4,5-Trichlorbiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
30	2,4,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
31	2,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
32	2,4',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
33	2',3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
34	2',3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
35	3,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
36	3,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
37	3,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
38	3,4,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
39	3,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
40	2,2',3,3'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
41	2,2',3,4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
42	2,2',3,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
43	2,2',3,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
44	2,2',3,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
45	2,2',3,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
46	2,2',3,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
47	2,2',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/29/02	SDG No.	DUF01	Sample Wt	1052	
Client ID:	1025R	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ul	10000	
Sample No:	3925663	Date Inj	11/8/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
48	2,2',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
49	2,2',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
50	2,2',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
51	2,2',4,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
52	2,2',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
53	2,2',5,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
54	2,2',6,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
55	2,3,3',4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
56	2,3,3',4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
57	2,3,3',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
58	2,3,3',5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
59	2,3,3',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
60	2,3,4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
61	2,3,4,5,-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
62	2,3,4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
63	2,3,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
64	2,3,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
65	2,3,5,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
66	2,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
67	2,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
68	2,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
69	2,3',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
70	2,3',4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
71	2,3',4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
72	2,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
73	2,3',5',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
74	2,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
75	2,4,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
76	2',3,4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
77	3,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
78	3,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
79	3,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
80	3,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
81	3,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
82	2,2',3,3',4-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
83	2,2',3,3',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
84	2,2',3,3',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
85	2,2',3,4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
86	2,2',3,4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
87	2,2',3,4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
88	2,2',3,4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
89	2,2',3,4,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
90	2,2',3,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
91	2,2',3,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
92	2,2',3,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
93	2,2',3,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
94	2,2',3,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/29/02	SDG No.	DUF01	Sample Wt	1052	
Client ID:	1025R	Date Ext.	11/1/02	Conc/Size	Conc	F.Vol. ul	10000	
Sample No:	3923663	Date Inj	11/8/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
95	2,2',3,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
96	2,2',3,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
97	2,2',3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
98	2,2',3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
99	2,2',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
100	2,2',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
101	2,2',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
102	2,2',4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
103	2,2',4,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
104	2,2',4,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
105	2,3,3',4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
106	2,3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
107	2,3,3',4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
108	2,3,3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
109	2,3,3',4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
110	2,3,3',4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
111	2,3,3',5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
112	2,3,3',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
113	2,3,3',5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
114	2,3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
115	2,3,4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
116	2,3,4,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
117	2,3,4',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
118	2,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
119	2,3',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
120	2,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
121	2,3',4,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
122	2',3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
123	2',3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
124	2',3,4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
125	2',3,4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
126	3,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
127	3,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
128	2,2',3,3',4,4'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
129	2,2',3,3',4,5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
130	2,2',3,3',4,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
131	2,2',3,3',4,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
132	2,2',3,3',4,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
133	2,2',3,3',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
134	2,2',3,3',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
135	2,2',3,3',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
136	2,2',3,3',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
137	2,2',3,4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
138	2,2',3,4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
139	2,2',3,4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
140	2,2',3,4,4',6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
141	2,2',3,4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/29/02	SDG No.	DUF01	Sample Wt	1052
Client ID:	1025A	Date Ext.	11/1/02	Conc/Size	Conc	F.Vol. ul	10000
Sample No:	3929693	Date Inj	11/6/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
142	2,2',3,4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
143	2,2',3,4,5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
144	2,2',3,4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
145	2,2',3,4,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
146	2,2',3,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
147	2,2',3,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
148	2,2',3,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
149	2,2',3,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
150	2,2',3,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
151	2,2',3,5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
152	2,2',3,5,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
153	2,2',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
154	2,2',4,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
155	2,2',4,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
156	2,3,3',4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
157	2,3,3',4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
158	2,3,3',4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
159	2,3,3',4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
160	2,3,3',4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
161	2,3,3',4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
162	2,3,3',4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
163	2,3,3',4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
164	2,3,3',4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
165	2,3,3',5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
166	2,3,4,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
167	2,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
168	2,3',4,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
169	3,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
173	2,2',3,3',4,5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
175	2,2',3,3',4,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
177	2,2',3,3',4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
178	2,2',3,3',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
181	2,2',3,4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
183	2,2',3,4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
185	2,2',3,4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/29/02	SDG No.	DUF01	Sample Wt	1052
Client ID:	1025R	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3929663	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
190	2,3,3',4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
191	2,3,3',4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
192	2,3,3',4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
193	2,3,3',4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
196	2,2',3,3',4,4',5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
202	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
209	Decachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

HOMOLOG	TOTAL UG/L	WEIGHT %
Monochlorobiphenyls	0.42	100
Dichlorobiphenyls	0.0000	0.0000
Trichlorobiphenyls	0.0000	0.0000
Tetrachlorobiphenyls	0.0000	0.0000
Pentachlorobiphenyls	0.0000	0.0000
Hexachlorobiphenyls	0.0000	0.0000
Heptachlorobiphenyls	0.0000	0.0000
Octachlorobiphenyls	0.0000	0.0000
Nonachlorobiphenyls	0.0000	0.0000
Decachlorobiphenyls	0.0000	0.0000

TOTAL PCB 0.42 UG/L

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/29/02	SDG No.	DUP01	Sample Wt	1052	
Client ID:	1028A	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ul	10000	
Sample No:	3925565	Date Inj	11/8/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
1	2-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.055	0.019
2	3-Chlorobiphenyl	0.952757		0.10	0.020	0.25	0.055	0.019
3	4-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.055	0.019
4	2,2'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
5	2,3-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
6	2,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
7	2,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
8	2,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
9	2,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
10	2,6-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
11	3,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
12	3,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
13	3,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
14	3,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
15	4,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
16	2,2',3-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
17	2,2',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
18	2,2',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
19	2,2',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
20	2,3,3'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
21	2,3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
22	2,3,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
23	2,3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
24	2,3,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
25	2,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
26	2,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
27	2,3',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
28	2,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
29	2,4,5-Trichlorbiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
30	2,4,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
31	2,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
32	2,4',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
33	2',3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
34	2',3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
35	3,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
36	3,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
37	3,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
38	3,4,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
39	3,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
40	2,2',3,3'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
41	2,2',3,4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
42	2,2',3,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
43	2,2',3,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
44	2,2',3,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
45	2,2',3,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
46	2,2',3,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
47	2,2',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/23/02	SOG No.	DUF01	Sample Wt	1052	
Client ID:	1028R	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ul	10000	
Sample No:	3529665	Date Inj	11/6/02	Metric	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
43	2,2',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
43	2,2',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
50	2,2',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
51	2,2',4,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
52	2,2',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
53	2,2',5,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
54	2,2',6,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
55	2,3,3',4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
56	2,3,3',4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
57	2,3,3',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
58	2,3,3',5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
59	2,3,3',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
60	2,3,4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
61	2,3,4,5,-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
62	2,3,4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
63	2,3,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
64	2,3,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
65	2,3,5,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
66	2,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
67	2,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
68	2,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
69	2,3',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
70	2,3',4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
71	2,3',4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
72	2,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
73	2,3',5',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
74	2,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
75	2,4,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
76	2',3,4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
77	3,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
78	3,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
79	3,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
80	3,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
81	3,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
82	2,2',3,3',4-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
83	2,2',3,3',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
84	2,2',3,3',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
85	2,2',3,4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
86	2,2',3,4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
87	2,2',3,4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
88	2,2',3,4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
89	2,2',3,4,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
90	2,2',3,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
91	2,2',3,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
92	2,2',3,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
93	2,2',3,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
94	2,2',3,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/29/02	SDG No.	DUF01	Sample Wt	1052	
Client ID:	1025R	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ul	10000	
Sample No:	3923665	Date Inj	11/8/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
95	2,2',3,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
96	2,2',3,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
97	2,2',3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
98	2,2',3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
99	2,2',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
100	2,2',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
101	2,2',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
102	2,2',4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
103	2,2',4,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
104	2,2',4,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
105	2,3,3',4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
106	2,3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
107	2,3,3',4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
108	2,3,3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
109	2,3,3',4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
110	2,3,3',4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
111	2,3,3',5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
112	2,3,3',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
113	2,3,3',5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
114	2,3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
115	2,3,4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
116	2,3,4,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
117	2,3,4',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
118	2,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
119	2,3',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
120	2,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
121	2,3',4,5',6-Pentachlorbiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
122	2',3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
123	2',3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
124	2',3,4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
125	2',3,4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
126	3,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
127	3,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
128	2,2',3,3',4,4'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
129	2,2',3,3',4,5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
130	2,2',3,3',4,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
131	2,2',3,3',4,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
132	2,2',3,3',4,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
133	2,2',3,3',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
134	2,2',3,3',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
135	2,2',3,3',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
136	2,2',3,3',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
137	2,2',3,4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
138	2,2',3,4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
139	2,2',3,4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
140	2,2',3,4,4',6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
141	2,2',3,4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/29/02	SDG No.	DUF01	Sample Wt	1052	
Client ID:	1023R	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol, ul	10000	
Sample No:	3925565	Date Inj	11/2/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
142	2,2',3,4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
143	2,2',3,4,5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
144	2,2',3,4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
145	2,2',3,4,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
146	2,2',3,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
147	2,2',3,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
148	2,2',3,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
149	2,2',3,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
150	2,2',3,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
151	2,2',3,5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
152	2,2',3,5,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
153	2,2',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
154	2,2',4,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
155	2,2',4,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
156	2,3,3',4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
157	2,3,3',4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
158	2,3,3',4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
159	2,3,3',4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
160	2,3,3',4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
161	2,3,3',4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
162	2,3,3',4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
163	2,3,3',4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
164	2,3,3',4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
165	2,3,3',5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
166	2,3,4,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
167	2,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
168	2,3',4,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
169	3,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
173	2,2',3,3',4,5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
175	2,2',3,3',4,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
177	2,2',3,3',4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
178	2,2',3,3',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
181	2,2',3,4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
183	2,2',3,4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
185	2,2',3,4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048

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209 PCB CONGENER REPORT

DF	1	Date Recd	10/23/02	SDG No.	DUF01	Sample Wt	1052
Client ID:	1028R	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3925665	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
190	2,3,3',4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
191	2,3,3',4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
192	2,3,3',4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
193	2,3,3',4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
196	2,2',3,3',4,4',5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
202	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
209	Decachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

HOMOLOG	TOTAL UG/L	WEIGHT %
Monochlorobiphenyls	0.85	100
Dichlorobiphenyls	0.0000	0.0000
Trichlorobiphenyls	0.0000	0.0000
Tetrachlorobiphenyls	0.0000	0.0000
Pentachlorobiphenyls	0.0000	0.0000
Hexachlorobiphenyls	0.0000	0.0000
Heptachlorobiphenyls	0.0000	0.0000
Octachlorobiphenyls	0.0000	0.0000
Nonachlorobiphenyls	0.0000	0.0000
Decachlorobiphenyls	0.0000	0.0000

TOTAL PCB 0.85 UG/L

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209 PCB CONGENER REPORT

DF	1	Date Recd	10/29/02	SDG No.	DUF	Sample Wt	1037
Client ID:	LC105	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3929666	Date Inj	11/5/02	Metric	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
1	2-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.096	0.019
2	3-Chlorobiphenyl	0.316175		0.10	0.020	0.32	0.096	0.019
3	4-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.096	0.019
4	2,2'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
5	2,3-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
6	2,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
7	2,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
8	2,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
9	2,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
10	2,6-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
11	3,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
12	3,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
13	3,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
14	3,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
15	4,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
16	2,2',3-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
17	2,2',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
18	2,2',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
19	2,2',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
20	2,3,3'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
21	2,3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
22	2,3,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
23	2,3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
24	2,3,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
25	2,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
26	2,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
27	2,3',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
28	2,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
29	2,4,5-Trichlorbiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
30	2,4,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
31	2,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
32	2,4',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
33	2',3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
34	2',3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
35	3,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
36	3,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
37	3,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
38	3,4,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
39	3,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
40	2,2',3,3'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
41	2,2',3,4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
42	2,2',3,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
43	2,2',3,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
44	2,2',3,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
45	2,2',3,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
46	2,2',3,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
47	2,2',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/29/02	SDG No.	DUF	Sample Wt	1037
Client ID:	LC105	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3929666	Date Inj	11/5/02	Metric	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
48	2,2',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
49	2,2',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
50	2,2',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
51	2,2',4,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
52	2,2',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
53	2,2',5,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
54	2,2',6,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
55	2,3,3',4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
56	2,3,3',4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
57	2,3,3',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
58	2,3,3',5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
59	2,3,3',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
60	2,3,4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
61	2,3,4,5,-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
62	2,3,4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
63	2,3,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
64	2,3,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
65	2,3,5,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
66	2,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
67	2,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
68	2,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
69	2,3',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
70	2,3',4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
71	2,3',4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
72	2,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
73	2,3',5',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
74	2,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
75	2,4,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
76	2',3,4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
77	3,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
78	3,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
79	3,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
80	3,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
81	3,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
82	2,2',3,3',4-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
83	2,2',3,3',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
84	2,2',3,3',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
85	2,2',3,4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
86	2,2',3,4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
87	2,2',3,4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
88	2,2',3,4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
89	2,2',3,4,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
90	2,2',3,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
91	2,2',3,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
92	2,2',3,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
93	2,2',3,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
94	2,2',3,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/29/02	SDG No.	DUF	Sample Wt	1037	
Client ID:	LC105	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ul	10000	
Sample No:	3929666	Date Inj	11/8/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
95	2,2',3,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
96	2,2',3,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
97	2,2',3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
98	2,2',3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
99	2,2',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
100	2,2',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
101	2,2',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
102	2,2',4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
103	2,2',4,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
104	2,2',4,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
105	2,3,3',4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
106	2,3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
107	2,3,3',4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
108	2,3,3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
109	2,3,3',4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
110	2,3,3',4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
111	2,3,3',5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
112	2,3,3',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
113	2,3,3',5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
114	2,3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
115	2,3,4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
116	2,3,4,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
117	2,3,4',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
118	2,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
119	2,3',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
120	2,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
121	2,3',4,5',6-Pentachlorbiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
122	2',3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
123	2',3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
124	2',3,4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
125	2',3,4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
126	3,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
127	3,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
128	2,2',3,3',4,4'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
129	2,2',3,3',4,5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
130	2,2',3,3',4,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
131	2,2',3,3',4,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
132	2,2',3,3',4,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
133	2,2',3,3',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
134	2,2',3,3',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
135	2,2',3,3',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
136	2,2',3,3',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
137	2,2',3,4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
138	2,2',3,4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
139	2,2',3,4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
140	2,2',3,4,4',6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
141	2,2',3,4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/29/02	SDG No.	DUF	Sample Wt	1037
Client ID:	LC105	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3929665	Date Inj	11/5/02	Metric	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
142	2,2',3,4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
143	2,2',3,4,5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
144	2,2',3,4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
145	2,2',3,4,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
146	2,2',3,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
147	2,2',3,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
148	2,2',3,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
149	2,2',3,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
150	2,2',3,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
151	2,2',3,5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
152	2,2',3,5,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
153	2,2',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
154	2,2',4,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
155	2,2',4,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
156	2,3,3',4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
157	2,3,3',4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
158	2,3,3',4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
159	2,3,3',4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
160	2,3,3',4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
161	2,3,3',4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
162	2,3,3',4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
163	2,3,3',4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
164	2,3,3',4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
165	2,3,3',5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
166	2,3,4,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
167	2,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
168	2,3',4,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
169	3,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
173	2,2',3,3',4,5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
175	2,2',3,3',4,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
177	2,2',3,3',4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
178	2,2',3,3',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
181	2,2',3,4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
183	2,2',3,4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
185	2,2',3,4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/29/02	SDG No.	DUF	Sample Wt	1037
Client ID:	LC105	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3929666	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
190	2,3,3',4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
191	2,3,3',4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
192	2,3,3',4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
193	2,3,3',4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
196	2,2',3,3',4,4',5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
202	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
209	Decachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

HOMOLOG	TOTAL UG/L	WEIGHT %
Monochlorobiphenyls	0.32	100
Dichlorobiphenyls	0.0000	0.0000
Trichlorobiphenyls	0.0000	0.0000
Tetrachlorobiphenyls	0.0000	0.0000
Pentachlorobiphenyls	0.0000	0.0000
Hexachlorobiphenyls	0.0000	0.0000
Heptachlorobiphenyls	0.0000	0.0000
Octachlorobiphenyls	0.0000	0.0000
Nonachlorobiphenyls	0.0000	0.0000
Decachlorobiphenyls	0.0000	0.0000

TOTAL PCB 0.32 UG/L

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/29/02	SDG No.	DUF	Sample Wt	1037
Client ID:	LC102	Date Ext.	11/1/02	Soxc/Sox	Soxc	F.Vol. ul	10000
Sample No:	3929557	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
1	2-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.096	0.019
2	3-Chlorobiphenyl	0.24739		0.10	0.020	0.25	0.096	0.019
3	4-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.096	0.019
4	2,2'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
5	2,3-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
6	2,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
7	2,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
8	2,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
9	2,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
10	2,6-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
11	3,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
12	3,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
13	3,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
14	3,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
15	4,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
16	2,2',3-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
17	2,2',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
18	2,2',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
19	2,2',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
20	2,3,3'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
21	2,3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
22	2,3,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
23	2,3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
24	2,3,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
25	2,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
26	2,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
27	2,3',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
28	2,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
29	2,4,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
30	2,4,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
31	2,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
32	2,4',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
33	2',3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
34	2',3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
35	3,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
36	3,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
37	3,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
38	3,4,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
39	3,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
40	2,2',3,3'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
41	2,2',3,4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
42	2,2',3,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
43	2,2',3,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
44	2,2',3,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
45	2,2',3,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
46	2,2',3,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
47	2,2',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Recd	10/29/02	SDG No.	DUF	Sample Wt	1037
Client ID:	LC102	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3523667	Date Inj	11/5/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
48	2,2',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
49	2,2',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
50	2,2',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
51	2,2',4,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
52	2,2',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
53	2,2',5,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
54	2,2',6,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
55	2,3,3',4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
56	2,3,3',4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
57	2,3,3',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
58	2,3,3',5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
59	2,3,3',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
60	2,3,4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
61	2,3,4,5,-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
62	2,3,4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
63	2,3,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
64	2,3,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
65	2,3,5,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
66	2,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
67	2,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
68	2,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
69	2,3',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
70	2,3',4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
71	2,3',4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
72	2,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
73	2,3',5',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
74	2,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
75	2,4,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
76	2',3,4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
77	3,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
78	3,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
79	3,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
80	3,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
81	3,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
82	2,2',3,3',4-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
83	2,2',3,3',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
84	2,2',3,3',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
85	2,2',3,4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
86	2,2',3,4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
87	2,2',3,4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
88	2,2',3,4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
89	2,2',3,4,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
90	2,2',3,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
91	2,2',3,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
92	2,2',3,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
93	2,2',3,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
94	2,2',3,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/23/02	SDG No.	DUF	Sample Wt	1037
Client ID:	LC102	Date Ext.	11/7/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3923867	Date Inj	11/9/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
95	2,2',3,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
96	2,2',3,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
97	2,2',3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
98	2,2',3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
99	2,2',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
100	2,2',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
101	2,2',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
102	2,2',4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
103	2,2',4,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
104	2,2',4,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
105	2,3,3',4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
106	2,3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
107	2,3,3',4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
108	2,3,3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
109	2,3,3',4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
110	2,3,3',4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
111	2,3,3',5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
112	2,3,3',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
113	2,3,3',5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
114	2,3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
115	2,3,4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
116	2,3,4,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
117	2,3,4',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
118	2,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
119	2,3',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
120	2,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
121	2,3',4,5',6-Pentachlorbiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
122	2',3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
123	2',3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
124	2',3,4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
125	2',3,4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
126	3,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
127	3,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
128	2,2',3,3',4,4'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
129	2,2',3,3',4,5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
130	2,2',3,3',4,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
131	2,2',3,3',4,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
132	2,2',3,3',4,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
133	2,2',3,3',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
134	2,2',3,3',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
135	2,2',3,3',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
136	2,2',3,3',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
137	2,2',3,4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
138	2,2',3,4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
139	2,2',3,4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
140	2,2',3,4,4',6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
141	2,2',3,4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/29/02	SDG No.	DUF	Sample Wt	1037
Client ID:	LC102	Date Ext.	11/1/02	Soxc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3923567	Date Inj	11/5/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
142	2,2',3,4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
143	2,2',3,4,5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
144	2,2',3,4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
145	2,2',3,4,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
146	2,2',3,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
147	2,2',3,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
148	2,2',3,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
149	2,2',3,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
150	2,2',3,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
151	2,2',3,5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
152	2,2',3,5,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
153	2,2',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
154	2,2',4,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
155	2,2',4,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
156	2,3,3',4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
157	2,3,3',4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
158	2,3,3',4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
159	2,3,3',4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
160	2,3,3',4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
161	2,3,3',4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
162	2,3,3',4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
163	2,3,3',4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
164	2,3,3',4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
165	2,3,3',5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
166	2,3,4,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
167	2,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
168	2,3',4,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
169	3,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
173	2,2',3,3',4,5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
175	2,2',3,3',4,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
177	2,2',3,3',4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
178	2,2',3,3',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
181	2,2',3,4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
183	2,2',3,4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
185	2,2',3,4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/29/02	SDG No.	DUF	Sample Wt	1037
Client ID:	LC102	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3929587	Date Inj	11/5/02	Metric	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
190	2,3,3',4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
191	2,3,3',4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
192	2,3,3',4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
193	2,3,3',4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
196	2,2',3,3',4,4',5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
202	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
209	Decachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048

HOMOLOG	TOTAL UG/L	WEIGHT %
Monochlorobiphenyls	0.25	100
Dichlorobiphenyls	0.0000	0.0000
Trichlorobiphenyls	0.0000	0.0000
Tetrachlorobiphenyls	0.0000	0.0000
Pentachlorobiphenyls	0.0000	0.0000
Hexachlorobiphenyls	0.0000	0.0000
Heptachlorobiphenyls	0.0000	0.0000
Octachlorobiphenyls	0.0000	0.0000
Nonachlorobiphenyls	0.0000	0.0000
Decachlorobiphenyls	0.0000	0.0000

TOTAL PCB 0.25 UG/L

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209 PCB CONGENER REPORT

DF	1	Date Recd	10/29/02	SDG No.	DUF01	Sample Wt	979
Client ID:	OR-5-	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3529558	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
1	2-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.10	0.020
2	3-Chlorobiphenyl	0.667427		0.10	0.020	0.67	0.10	0.020
3	4-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.10	0.020
4	2,2'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
5	2,3-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
6	2,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
7	2,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
8	2,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
9	2,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
10	2,6-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
11	3,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
12	3,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
13	3,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
14	3,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
15	4,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
16	2,2',3-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
17	2,2',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
18	2,2',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
19	2,2',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
20	2,3,3'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
21	2,3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
22	2,3,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
23	2,3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
24	2,3,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
25	2,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
26	2,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
27	2,3',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
28	2,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
29	2,4,5-Trichlorbiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
30	2,4,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
31	2,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
32	2,4',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
33	2',3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
34	2',3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
35	3,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
36	3,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
37	3,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
38	3,4,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
39	3,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
40	2,2',3,3'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
41	2,2',3,4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
42	2,2',3,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
43	2,2',3,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
44	2,2',3,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
45	2,2',3,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
46	2,2',3,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
47	2,2',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051

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209 PCB CONGENER REPORT

DF	1		Date Recd	10/29/02	SDG No.	DUF01	Sample Wt	979	
Client ID:	DP-5-		Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ul	10000	
Sample No:	3929568		Date Inj	11/8/02	Matrix	Water	Moisture	NA	
IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL	
48	2,2',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051	
49	2,2',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051	
50	2,2',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051	
51	2,2',4,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051	
52	2,2',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051	
53	2,2',5,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051	
54	2,2',6,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051	
55	2,3,3',4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051	
56	2,3,3',4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051	
57	2,3,3',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051	
58	2,3,3',5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051	
59	2,3,3',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051	
60	2,3,4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051	
61	2,3,4,5,-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051	
62	2,3,4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051	
63	2,3,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051	
64	2,3,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051	
65	2,3,5,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051	
66	2,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051	
67	2,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051	
68	2,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051	
69	2,3',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051	
70	2,3',4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051	
71	2,3',4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051	
72	2,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051	
73	2,3',5',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051	
74	2,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051	
75	2,4,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051	
76	2',3,4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051	
77	3,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051	
78	3,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051	
79	3,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051	
80	3,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051	
81	3,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051	
82	2,2',3,3',4-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051	
83	2,2',3,3',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051	
84	2,2',3,3',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051	
85	2,2',3,4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051	
86	2,2',3,4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051	
87	2,2',3,4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051	
88	2,2',3,4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051	
89	2,2',3,4,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051	
90	2,2',3,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051	
91	2,2',3,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051	
92	2,2',3,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051	
93	2,2',3,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051	
94	2,2',3,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051	

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/25/02	SDG No.	DUF01	Sample Wt	979	
Client ID:	DR-5-	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ul	10000	
Sample No:	3525560	Date Inj	11/5/02	Metric	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
95	2,2',3,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
96	2,2',3,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
97	2,2',3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
98	2,2',3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
99	2,2',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
100	2,2',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
101	2,2',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
102	2,2',4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
103	2,2',4,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
104	2,2',4,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
105	2,3,3',4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
106	2,3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
107	2,3,3',4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
108	2,3,3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
109	2,3,3',4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
110	2,3,3',4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
111	2,3,3',5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
112	2,3,3',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
113	2,3,3',5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
114	2,3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
115	2,3,4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
116	2,3,4,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
117	2,3,4',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
118	2,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
119	2,3',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
120	2,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
121	2,3',4,5',6-Pentachlorbiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
122	2',3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
123	2',3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
124	2',3,4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
125	2',3,4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
126	3,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
127	3,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
128	2,2',3,3',4,4'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
129	2,2',3,3',4,5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
130	2,2',3,3',4,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
131	2,2',3,3',4,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
132	2,2',3,3',4,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
133	2,2',3,3',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
134	2,2',3,3',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
135	2,2',3,3',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
136	2,2',3,3',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
137	2,2',3,4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
138	2,2',3,4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
139	2,2',3,4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
140	2,2',3,4,4',6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
141	2,2',3,4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/29/02	SDG No.	DUF01	Sample Wt	979
Client ID:	DA-5-	Date Ext.	11/1/02	Conc/Size	Conc	F.Vol. ul	10000
Sample No:	3529568	Date Inj	11/3/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
142	2,2',3,4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
143	2,2',3,4,5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
144	2,2',3,4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
145	2,2',3,4,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
146	2,2',3,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
147	2,2',3,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
148	2,2',3,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
149	2,2',3,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
150	2,2',3,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
151	2,2',3,5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
152	2,2',3,5,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
153	2,2',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
154	2,2',4,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
155	2,2',4,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
156	2,3,3',4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
157	2,3,3',4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
158	2,3,3',4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
159	2,3,3',4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
160	2,3,3',4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
161	2,3,3',4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
162	2,3,3',4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
163	2,3,3',4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
164	2,3,3',4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
165	2,3,3',5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
166	2,3,4,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
167	2,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
168	2,3',4,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
169	3,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
173	2,2',3,3',4,5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
175	2,2',3,3',4,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
177	2,2',3,3',4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
178	2,2',3,3',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
181	2,2',3,4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
183	2,2',3,4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
185	2,2',3,4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/29/02	SDG No.	DUF01	Sample Wt	973
Client ID:	DR-5-	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3325558	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
149	2,3,3',4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
150	2,3,3',4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
151	2,3,3',4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
152	2,3,3',4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
153	2,3,3',4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
154	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
155	2,2',3,3',4,4',5,6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
156	2,2',3,3',4,4',5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
157	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
158	2,2',3,3',4,5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
159	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
160	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
161	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
162	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
163	2,2',3,4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
164	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
165	2,3,3',4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
166	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
167	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
168	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
169	Decachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051

HOMOLOG	TOTAL UG/L	WEIGHT %
Monochlorobiphenyls	0.57	100
Dichlorobiphenyls	0.0000	0.0000
Trichlorobiphenyls	0.0000	0.0000
Tetrachlorobiphenyls	0.0000	0.0000
Pentachlorobiphenyls	0.0000	0.0000
Hexachlorobiphenyls	0.0000	0.0000
Heptachlorobiphenyls	0.0000	0.0000
Octachlorobiphenyls	0.0000	0.0000
Nonachlorobiphenyls	0.0000	0.0000
Decachlorobiphenyls	0.0000	0.0000

TOTAL PCB 0.57 UG/L

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/29/02	SDG No.	DUF01	Sample Wt	1028	
Client ID:	DR-3-	Date Ext.	11/7/02	Sonc/Sox	Sonc	F.Vol. ul	10000	
Sample No:	3525670	Date Inj	11/8/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
1	2-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.097	0.019
2	3-Chlorobiphenyl	0.595325		0.10	0.020	0.60	0.097	0.019
3	4-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.097	0.019
4	2,2'-Dichlorobiphenyl	0.02994		0.020	0.0050	0.030	0.019	0.0049
5	2,3-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
6	2,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
7	2,4-Dichlorobiphenyl	0.005629	J	0.020	0.0050	0.0056	0.019	0.0049
8	2,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
9	2,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
10	2,6-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
11	3,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
12	3,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
13	3,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
14	3,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
15	4,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
16	2,2',3-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
17	2,2',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
18	2,2',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
19	2,2',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
20	2,3,3'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
21	2,3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
22	2,3,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
23	2,3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
24	2,3,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
25	2,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
26	2,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
27	2,3',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
28	2,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
29	2,4,5-Trichlorbiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
30	2,4,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
31	2,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
32	2,4',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
33	2',3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
34	2',3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
35	3,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
36	3,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
37	3,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
38	3,4,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
39	3,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
40	2,2',3,3'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
41	2,2',3,4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
42	2,2',3,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
43	2,2',3,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
44	2,2',3,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
45	2,2',3,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
46	2,2',3,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
47	2,2',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/29/02	SDG No.	DUF01	Sample Wt	1029
Client ID:	DR-3	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3929570	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
48	2,2',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
49	2,2',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
50	2,2',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
51	2,2',4,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
52	2,2',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
53	2,2',5,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
54	2,2',6,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
55	2,3,3',4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
56	2,3,3',4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
57	2,3,3',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
58	2,3,3',5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
59	2,3,3',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
60	2,3,4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
61	2,3,4,5,-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
62	2,3,4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
63	2,3,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
64	2,3,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
65	2,3,5,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
66	2,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
67	2,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
68	2,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
69	2,3',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
70	2,3',4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
71	2,3',4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
72	2,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
73	2,3',5',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
74	2,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
75	2,4,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
76	2',3,4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
77	3,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
78	3,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
79	3,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
80	3,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
81	3,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
82	2,2',3,3',4-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
83	2,2',3,3',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
84	2,2',3,3',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
85	2,2',3,4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
86	2,2',3,4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
87	2,2',3,4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
88	2,2',3,4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
89	2,2',3,4,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
90	2,2',3,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
91	2,2',3,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
92	2,2',3,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
93	2,2',3,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
94	2,2',3,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/29/02	SDG No.	DUF01	Sample Wt	1028	
Client ID:	DR-3-	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ul	10000	
Sample No:	3525670	Date Inj	11/8/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
95	2,2',3,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
96	2,2',3,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
97	2,2',3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
98	2,2',3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
99	2,2',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
100	2,2',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
101	2,2',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
102	2,2',4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
103	2,2',4,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
104	2,2',4,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
105	2,3,3',4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
106	2,3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
107	2,3,3',4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
108	2,3,3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
109	2,3,3',4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
110	2,3,3',4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
111	2,3,3',5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
112	2,3,3',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
113	2,3,3',5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
114	2,3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
115	2,3,4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
116	2,3,4,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
117	2,3,4',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
118	2,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
119	2,3',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
120	2,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
121	2,3',4,5',6-Pentachlorbiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
122	2',3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
123	2',3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
124	2',3,4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
125	2',3,4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
126	3,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
127	3,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
128	2,2',3,3',4,4'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
129	2,2',3,3',4,5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
130	2,2',3,3',4,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
131	2,2',3,3',4,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
132	2,2',3,3',4,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
133	2,2',3,3',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
134	2,2',3,3',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
135	2,2',3,3',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
136	2,2',3,3',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
137	2,2',3,4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
138	2,2',3,4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
139	2,2',3,4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
140	2,2',3,4,4',6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
141	2,2',3,4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Recd	10/29/02	SDG No.	DUF01	Sample Wt	1025
Client ID:	DR-3-	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3925670	Date Inj	11/6/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
142	2,2',3,4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
143	2,2',3,4,5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
144	2,2',3,4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
145	2,2',3,4,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
146	2,2',3,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
147	2,2',3,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
148	2,2',3,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
149	2,2',3,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
150	2,2',3,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
151	2,2',3,5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
152	2,2',3,5,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
153	2,2',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
154	2,2',4,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
155	2,2',4,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
156	2,3,3',4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
157	2,3,3',4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
158	2,3,3',4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
159	2,3,3',4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
160	2,3,3',4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
161	2,3,3',4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
162	2,3,3',4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
163	2,3,3',4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
164	2,3,3',4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
165	2,3,3',5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
166	2,3,4,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
167	2,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
168	2,3',4,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
169	3,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
173	2,2',3,3',4,5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
175	2,2',3,3',4,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
177	2,2',3,3',4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
178	2,2',3,3',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
181	2,2',3,4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
183	2,2',3,4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
185	2,2',3,4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/23/02	SDG No.	DUF01	Sample Wt	1028
Client ID:	DA-3-	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	1523570	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
188	2,3,3',4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
189	2,3,3',4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
191	2,3,3',4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
192	2,3,3',4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
193	2,3,3',4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
196	2,2',3,3',4,4',5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
202	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
209	Decachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

HOMOLOG	TOTAL UG/L	WEIGHT %
Monochlorobiphenyls	0.50	94.4
Dichlorobiphenyls	0.030	5.6
Trichlorobiphenyls	0.0000	0.0000
Tetrachlorobiphenyls	0.0000	0.0000
Pentachlorobiphenyls	0.0000	0.0000
Hexachlorobiphenyls	0.0000	0.0000
Heptachlorobiphenyls	0.0000	0.0000
Octachlorobiphenyls	0.0000	0.0000
Nonachlorobiphenyls	0.0000	0.0000
Decachlorobiphenyls	0.0000	0.0000

TOTAL PCB 0.53 UG/L

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Analysis Request / Environmental Services Chain of Custody

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For Lancaster Laboratories use only
Acct. # 1963 Group# 828704 Sample # 39296059-72

COC # 0001307

Please print. Instructions on reverse side correspond with circled numbers.

(1)
Client: Duffield Associates Acct. #:
Project Name/#: 4685, ED PWSID #:
Project Manager: M. Rick Beringer P.O.#:
Sampler: RKS / BJC / ERS Quote #:
Name of state where samples were collected: Delaware

For Lab Use Only
FSC:
SCR #:

(2) Sample Identification	Date Collected	Time Collected	(3) Grab	Composite	Matrix (4) Soil	Water (Potable / NPDES Check if Applicable)	Other	Total # of Containers	(5) Analyses Requested: Group 1	Group 3	VOCs								Remarks	(6) Temperature of samples upon receipt (if requested)
DR-1-R	10/28/02	1045	X			X		18	X											
DR-1-R DUP	10/28/02	1045	X			X		18	X											
Rinse Blk (10/25/02)	10/28/02	945	X			X		18	X											
Rinse Blank (10/28)	10/28/02	1545	X			X		4		X										
LC-105	10/28/02	1600	X			X		4		X										
LC-102	10/28/02	1030	X			X		4		X										
DR-5	10/28/02	1330	X			X		18	X											
DR-3	10/28/02	1420	X			X		18	X											
Trip Blank	10/28/02							2			X									

(7) Turnaround Time Requested (TAT) (please circle) Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed:
Rush results requested by (please circle): Phone Fax E-mail
Phone #: Fax #:
E-mail address:

(8) Data Package Options (please circle if required)
QC Summary Type VI (Raw Data)
Type I (Tier I) GLP
Type II (Tier II) Other
Type III (NJ Red. Del.)
Type IV (CLP)

SDG Complete? Yes No
State-specific QC required? Yes No
(If yes, indicate QC sample and submit triplicate volume.)
Internal Chain of Custody required? Yes No

(9)

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	10/28/02	1140			
E.B. Sprout	10/28/02	1700	Marvin McCallich	10/29/02	12:35

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ANALYTICAL RESULTS

Prepared for:

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

302-239-6634

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425

SAMPLE GROUP

The sample group for this submittal is 829037. Samples arrived at the laboratory on Thursday, October 31, 2002. The PO# for this group is 4685.ED.

Client Description	Lancaster Labs Number
P5-3A Grab Water Sample	3931391
P5-3A Grab Water Sample	3931392
P5-11A Grab Water Sample	3931393
P5-11A Grab Water Sample	3931394
P5-13A Grab Water Sample	3931395
P5-13A Grab Water Sample	3931396
LC-113 Grab Water Sample	3931397
Rinse Blank Grab Water Sample	3931398
LC-108 Dup Grab Water Sample	3931399
LC-108 Grab Water Sample	3931400
LC-101 Grab Water Sample	3931401

METHODOLOGY

The specific methodologies used in obtaining the enclosed analytical results are indicated on the laboratory chronicles.

1 COPY TO	Duffield Associates, Inc.	Attn: Mr. Rick Beringer
1 COPY TO	Data Package Group	

Lancaster Laboratories
Where quality is a science.

Questions? Contact your Client Services Representative
Carrie A Fleming at (717) 656-2300.

Respectfully Submitted,

Lancaster Laboratories
Where quality is a science

Lancaster Laboratories Sample No. WW 3931391

Collected:10/31/2002 12:00 by BS

Account Number: 01963

Submitted: 10/31/2002 18:15
Reported: 11/22/2002 at 13:24
Discard: 12/23/2002
P5-3A Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

P5-3A SDG#: DUF01-15

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
00937	TCL Pesticides in Waters					
00938	Endrin Ketone	53494-70-5	N.D.	0.019	ug/l	1
01361	Alpha Chlordane	5103-71-9	0.0035 J	0.0097	ug/l	1
01362	Gamma Chlordane	5103-74-2	0.027	0.0097	ug/l	1
01600	Alpha BHC	319-84-6	N.D.	0.0097	ug/l	1
01601	Beta BHC	319-85-7	N.D.	0.0097	ug/l	1
01602	Gamma BHC - Lindane	58-89-9	N.D.	0.0097	ug/l	1
01603	Delta BHC	319-86-8	0.0028 J	0.0097	ug/l	1
01604	Heptachlor	76-44-8	N.D.	0.0097	ug/l	1
01605	Aldrin	309-00-2	N.D.	0.024	ug/l	1
01606	Heptachlor Epoxide	1024-57-3	N.D.	0.0097	ug/l	1
01607	p,p-DDE	72-55-9	0.0049 J	0.019	ug/l	1
01608	p,p-DDD	72-54-8	N.D.	0.019	ug/l	1
01609	p,p-DDT	50-29-3	N.D.	0.019	ug/l	1
01610	Dieldrin	60-57-1	0.0049 J	0.019	ug/l	1
01611	Endrin	72-20-8	0.014 J	0.019	ug/l	1
01613	Toxaphene	8001-35-2	N.D.	1.0	ug/l	1
01615	Endosulfan II	33213-65-9	0.0047 J	0.019	ug/l	1
01616	Endosulfan I	959-98-8	N.D.	0.0097	ug/l	1
01617	Endosulfan Sulfate	1031-07-8	N.D.	0.019	ug/l	1
01618	Endrin Aldehyde	7421-93-4	N.D.	0.097	ug/l	1
01619	PCB-1016	12674-11-2	N.D.	0.49	ug/l	1
01620	PCB-1221	11104-28-2	N.D.	0.49	ug/l	1
01621	PCB-1232	11141-16-5	N.D.	0.49	ug/l	1
01622	PCB-1242	53469-21-9	N.D.	0.49	ug/l	1
01623	PCB-1248	12672-29-6	N.D.	0.49	ug/l	1
01624	PCB-1254	11097-69-1	N.D.	0.49	ug/l	1
01626	PCB-1260	11096-82-5	N.D.	0.49	ug/l	1
01860	Methoxychlor	72-43-5	N.D.	0.097	ug/l	1
05088	PCB Congeners-Full List-water					
07994	PCB 1	2051-60-7	N.D.	0.099	ug/l	1
07996	PCB 8	34883-43-7	N.D.	0.020	ug/l	1
07997	PCB 18	37680-65-2	N.D.	0.020	ug/l	1
08002	PCB 49	41464-40-8	N.D.	0.020	ug/l	1
08009	PCB 87	38380-02-8	N.D.	0.020	ug/l	1
08020	PCB 128	38380-07-3	N.D.	0.020	ug/l	1
08033	PCB 180	35066-29-3	N.D.	0.020	ug/l	1

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Discard: 12/23/2002
P5-3A Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

P5-3A SDG#: DUF01-15

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
08038	PCB 194	35694-08-7	N.D.	0.020	ug/l	1
08041	PCB 206	40186-72-9	N.D.	0.020	ug/l	1
08042	PCB 209	2051-24-3	N.D.	0.020	ug/l	1

PCB-002 was detected in the blank at a concentration of 1.53 ug/l. The blank is not subtracted from the sample concentration.

04678 TCL SW846 Semivolatiles/Waters

03871	4-Chloroaniline	106-47-8	N.D.	10.	ug/l	1
03905	2-Methylnaphthalene	91-57-6	N.D.	10.	ug/l	1
03907	2-Nitroaniline	08-74-4	N.D.	10.	ug/l	1
03922	2,4,5-Trichlorophenol	95-95-4	N.D.	10.	ug/l	1
03924	2-Chlorophenol	95-57-8	N.D.	10.	ug/l	1
03925	Phenol	108-95-2	N.D.	10.	ug/l	1
03926	2-Nitrophenol	88-75-5	N.D.	10.	ug/l	1
03927	2,4-Dimethylphenol	105-67-9	N.D.	10.	ug/l	1
03928	2,4-Dichlorophenol	120-83-2	N.D.	10.	ug/l	1
03929	4-Chloro-3-methylphenol	59-50-7	N.D.	10.	ug/l	1
03930	2,4,6-Trichlorophenol	88-06-2	N.D.	10.	ug/l	1
03936	bis(2-Chloroethyl)ether	111-44-4	N.D.	10.	ug/l	1
03937	1,3-Dichlorobenzene	541-73-1	N.D.	10.	ug/l	1
03938	1,4-Dichlorobenzene	106-46-7	N.D.	10.	ug/l	1
03939	1,2-Dichlorobenzene	95-50-1	N.D.	10.	ug/l	1
03941	Hexachloroethane	67-72-1	N.D.	10.	ug/l	1
03942	N-Nitroso-di-n-propylamine	621-64-7	N.D.	10.	ug/l	1
03943	Nitrobenzene	98-95-3	N.D.	10.	ug/l	1
03944	Isophorone	78-59-1	N.D.	10.	ug/l	1
03945	bis(2-Chloroethoxy)methane	111-91-1	N.D.	10.	ug/l	1
03946	1,2,4-Trichlorobenzene	120-82-1	N.D.	10.	ug/l	1
03947	Naphthalene	91-20-3	N.D.	10.	ug/l	1
03948	Hexachlorobutadiene	87-68-3	N.D.	10.	ug/l	1
03949	Hexachlorocyclopentadiene	77-47-4	N.D.	24.	ug/l	1
03950	2-Chloronaphthalene	91-58-7	N.D.	10.	ug/l	1
03951	Acenaphthylene	208-96-8	N.D.	10.	ug/l	1
03952	Dimethylphthalate	131-11-3	N.D.	10.	ug/l	1
04680	2-Methylphenol	95-48-7	N.D.	10.	ug/l	1
04681	2,2'-oxybis(1-Chloropropane)	108-60-1	N.D.	10.	ug/l	1
04682	4-Methylphenol	106-44-5	N.D.	10.	ug/l	1

3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.

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5400 Limestone Road
Wilmington DE 19808-1296

P5-3A SDG#: DUF01-15

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
04679	TCL SW846 Semivolatiles/Waters					
03879	Dibenzofuran	132-64-9	N.D.	10.	ug/l	1
03908	3-Nitroaniline	99-09-2	N.D.	10.	ug/l	1
03909	4-Nitroaniline	100-01-6	N.D.	10.	ug/l	1
03931	2,4-Dinitrophenol	51-28-5	N.D.	59.	ug/l	1
03932	4-Nitrophenol	100-02-7	N.D.	49.	ug/l	1
03933	4,6-Dinitro-2-methylphenol	534-52-1	N.D.	24.	ug/l	1
03934	Pentachlorophenol	87-86-5	N.D.	24.	ug/l	1
03953	2,6-Dinitrotoluene	606-20-2	N.D.	10.	ug/l	1
03954	Acenaphthene	83-32-9	N.D.	10.	ug/l	1
03955	2,4-Dinitrotoluene	121-14-2	N.D.	10.	ug/l	1
03956	Fluorene	86-73-7	N.D.	10.	ug/l	1
03957	4-Chlorophenyl-phenylether	7005-72-3	N.D.	10.	ug/l	1
03958	Diethylphthalate	84-66-2	N.D.	10.	ug/l	1
03960	N-Nitrosodiphenylamine	86-30-6	N.D.	10.	ug/l	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
03961	4-Bromophenyl-phenylether	101-55-3	N.D.	10.	ug/l	1
03962	Hexachlorobenzene	118-74-1	N.D.	10.	ug/l	1
03963	Phenanthrene	85-01-8	N.D.	10.	ug/l	1
03964	Anthracene	120-12-7	N.D.	10.	ug/l	1
03965	Di-n-butylphthalate	84-74-2	N.D.	10.	ug/l	1
03966	Fluoranthene	206-44-0	N.D.	10.	ug/l	1
03967	Pyrene	129-00-0	N.D.	10.	ug/l	1
03969	Butylbenzylphthalate	85-68-7	N.D.	10.	ug/l	1
03970	Benzo(a)anthracene	56-55-3	N.D.	10.	ug/l	1
03971	Chrysene	218-01-9	N.D.	10.	ug/l	1
03972	3,3'-Dichlorobenzidine	91-94-1	N.D.	10.	ug/l	1
03973	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	10.	ug/l	1
03974	Di-n-octylphthalate	117-84-0	N.D.	10.	ug/l	1
03975	Benzo(b)fluoranthene	205-99-2	N.D.	10.	ug/l	1
03976	Benzo(k)fluoranthene	207-08-9	N.D.	10.	ug/l	1
03977	Benzo(a)pyrene	50-32-8	N.D.	10.	ug/l	1
03978	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	10.	ug/l	1
03979	Dibenz(a,h)anthracene	53-70-3	N.D.	10.	ug/l	1
03980	Benzo(g,h,i)perylene	191-24-2	N.D.	10.	ug/l	1
04684	Carbazole	86-74-8	N.D.	10.	ug/l	1

06872 Appendix I by SW846/8260-water

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Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

P5-3A SDG#: DUF01-15

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
05385	Chloromethane	74-87-3	N.D.	5.	ug/l	1
05386	Vinyl Chloride	75-01-4	N.D.	5.	ug/l	1
05387	Bromomethane	74-83-9	N.D.	5.	ug/l	1
05388	Chloroethane	75-00-3	N.D.	5.	ug/l	1
05389	Trichlorofluoromethane	75-69-4	N.D.	5.	ug/l	1
05390	1,1-Dichloroethene	75-35-4	N.D.	5.	ug/l	1
05391	Methylene Chloride	75-09-2	N.D.	5.	ug/l	1
05392	trans-1,2-Dichloroethene	156-60-5	N.D.	5.	ug/l	1
05393	1,1-Dichloroethane	75-34-3	N.D.	5.	ug/l	1
05395	cis-1,2-Dichloroethene	156-59-2	N.D.	5.	ug/l	1
05396	Chloroform	67-66-3	N.D.	5.	ug/l	1
05397	Bromochloromethane	74-97-5	N.D.	5.	ug/l	1
05398	1,1,1-Trichloroethane	71-55-6	N.D.	5.	ug/l	1
05399	Carbon Tetrachloride	56-23-5	N.D.	5.	ug/l	1
05401	Benzene	71-43-2	N.D.	5.	ug/l	1
05402	1,2-Dichloroethane	107-06-2	N.D.	5.	ug/l	1
05403	Trichloroethene	79-01-6	N.D.	5.	ug/l	1
05404	1,2-Dichloropropane	78-87-5	N.D.	5.	ug/l	1
05405	Dibromomethane	74-95-3	N.D.	5.	ug/l	1
05406	Bromodichloromethane	75-27-4	N.D.	5.	ug/l	1
05407	Toluene	108-88-3	N.D.	5.	ug/l	1
06302	Acetone	67-64-1	N.D.	20.	ug/l	1
06303	Carbon Disulfide	75-15-0	N.D.	5.	ug/l	1
06305	2-Butanone	78-93-3	N.D.	10.	ug/l	1
06306	trans-1,3-Dichloropropene	10061-02-6	N.D.	5.	ug/l	1
06307	cis-1,3-Dichloropropene	10061-01-5	N.D.	5.	ug/l	1
06308	4-Methyl-2-pentanone	108-10-1	N.D.	10.	ug/l	1
06874	Methyl Iodide	74-88-4	N.D.	5.	ug/l	1
06875	Acrylonitrile	107-13-1	N.D.	20.	ug/l	1
06876	Vinyl Acetate	108-05-4	N.D.	10.	ug/l	1
06873	Appendix I by SW846/8260-cont					
05408	1,1,2-Trichloroethane	79-00-5	N.D.	5.	ug/l	1
05409	Tetrachloroethene	127-18-4	N.D.	5.	ug/l	1
05411	Dibromochloromethane	124-48-1	N.D.	5.	ug/l	1
05412	1,2-Dibromoethane	106-93-4	N.D.	5.	ug/l	1
05413	Chlorobenzene	108-90-7	N.D.	5.	ug/l	1
05414	1,1,1,2-Tetrachloroethane	630-20-6	N.D.	5.	ug/l	1
05415	Ethylbenzene	100-41-4	N.D.	5.	ug/l	1
05418	Styrene	100-42-5	N.D.	5.	ug/l	1
05419	Bromoform	75-25-2	N.D.	5.	ug/l	1

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P5-3A Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

P5-3A SDG#: DUF01-15

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
05421	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	5.	ug/l	1
05423	1,2,3-Trichloropropane	96-18-4	N.D.	5.	ug/l	1
05433	1,4-Dichlorobenzene	106-46-7	N.D.	5.	ug/l	1
05435	1,2-Dichlorobenzene	95-50-1	N.D.	5.	ug/l	1
05436	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	5.	ug/l	1
06309	2-Hexanone	591-78-6	N.D.	10.	ug/l	1
06310	Xylene (Total)	1330-20-7	N.D.	5.	ug/l	1
06877	trans-1,4-Dichloro-2-butene	110-57-6	N.D.	50.	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00937	TCL Pesticides in Waters	SW-846 8081A/8082	1	11/06/2002 18:24	Douglas D Seitz	1
05088	PCB Congeners-Full List-water	SW-846 8082 (modified)	1	11/09/2002 00:14	Tiffany A Leyda	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	11/04/2002 23:51	Jolene M Graham	1
04679	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	11/04/2002 23:51	Jolene M Graham	1
06872	Appendix I by SW846/8260-water	SW-846 8260B	1	11/01/2002 21:55	Marc S Neal	1
06873	Appendix I by SW846/8260-cont	SW-846 0260B	1	11/01/2002 21:55	Marc S Neal	1
00813	BNA Water Extraction	SW-846 3510C	1	11/03/2002 12:30	Jennytza L Marcano	1
00817	Water Sample Pest. Extraction	SW-846 3510C	1	11/04/2002 16:45	Desiree J Wann	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	11/01/2002 21:55	Marc S Neal	n.a.

PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax:717-656-2681

Analysis Report

Lancaster Laboratories
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P5-3A Grab Water Sample
CONTINUATION OF PREVIOUS SAMPLE
Project# 4685.ED

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P5-3A SDG#: DUF01-15CONT

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
00259	Mercury	7439-97-6	N.D.	0.00020	mg/l	1
01743	Aluminum	7429-90-5	0.0964 J	0.200	mg/l	1
01744	Antimony	7440-36-0	N.D.	0.200	mg/l	1
01746	Barium	7440-39-3	0.180	0.100	mg/l	1
01747	Beryllium	7440-41-7	N.D.	0.0100	mg/l	1
01749	Cadmium	7440-43-9	0.0010 J	0.0100	mg/l	1
01750	Calcium	7440-70-2	124.	0.200	mg/l	1
01751	Chromium	7440-47-3	0.0171 J	0.0300	mg/l	1
01752	Cobalt	7440-48-4	0.0164 J	0.0500	mg/l	1
01753	Copper	7440-50-8	N.D.	0.0250	mg/l	1
01754	Iron	7439-89-6	67.8	0.100	mg/l	1
01757	Magnesium	7439-95-4	153.	0.100	mg/l	1
01758	Manganese	7439-96-5	2.95	0.0100	mg/l	1
01761	Nickel	7440-02-0	0.0289 J	0.0500	mg/l	1
01762	Potassium	7440-09-7	32.7	0.500	mg/l	1
01766	Silver	7440-22-4	0.0080 J	0.0200	mg/l	1
01767	Sodium	7440-23-5	466.	12.0	mg/l	20
01771	Vanadium	7440-62-2	0.0138 J	0.0200	mg/l	1
01772	Zinc	7440-66-6	0.0052 J	0.0250	mg/l	1
07022	Thallium TR	7440-28-0	N.D.	0.0200	mg/l	1
07035	Arsenic TR	7440-38-2	0.0270	0.0100	mg/l	1
07036	Selenium TR	7782-49-2	0.0088 J	0.0100	mg/l	1
07055	Lead TR	7439-92-1	N.D.	0.0200	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a.	1,050.	2.0	mg/l as CaCO3	1
00212	Total Dissolved Solids	n.a.	2,640.	240.	mg/l	1
00217	Kjeldahl Nitrogen	7727-37-9	50.	20.	mg/l	20
00219	Nitrite Nitrogen	14797-65-0	0.076	0.050	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.10	mg/l	1
00223	Organic Nitrogen	n.a.	8.2	1.0	mg/l	1
00224	Chloride	16887-00-6	823.	80.	mg/l	200
00228	Sulfate	14808-79-8	20.1	5.0	mg/l	5
00273	Total Organic Carbon	n.a.	140.	20.0	mg/l	10
00345	Total Phosphorus as PO4 water	14265-44-2	4.14	0.20	mg/l	1
01333	Sulfide	18496-25-8	N.D.	2.0	mg/l	1
01454	Bicarbonate	71-52-3	1,050.	2.0	mg/l as CaCO3	1
04001	Chemical Oxygen Demand	n.a.	423.	50.	mg/l	1
06914	Ammonia-Nitrogen	7664-41-7	41.3	2.0	mg/l	20
08255	Total Cyanide (water)	57-12-5	N.D.	0.0050	mg/l	1

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CONTINUATION OF PREVIOUS SAMPLE
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Wilmington DE 19808-1296

P5-3A SDG#: DUF01-15CONT

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00259	Mercury	SW-846 7470A	1	11/05/2002 08:54	Deborah A Krady	1
01743	Aluminum	SW-846 6010B	1	11/09/2002 10:05	Eric W Cuba	1
01744	Antimony	SW-846 6010B	1	11/09/2002 10:05	Eric W Cuba	1
01746	Barium	SW-846 6010B	1	11/09/2002 10:05	Eric W Cuba	1
01747	Beryllium	SW-846 6010B	1	11/09/2002 10:05	Eric W Cuba	1
01749	Cadmium	SW-846 6010B	1	11/09/2002 10:05	Eric W Cuba	1
01750	Calcium	SW-846 6010B	1	11/09/2002 10:05	Eric W Cuba	1
01751	Chromium	SW-846 6010B	1	11/12/2002 15:35	Damary Valentin	1
01752	Cobalt	SW-846 6010B	1	11/09/2002 10:05	Eric W Cuba	1
01753	Copper	SW-846 6010B	1	11/09/2002 10:05	Eric W Cuba	1
01754	Iron	SW-846 6010B	1	11/09/2002 10:05	Eric W Cuba	1
01757	Magnesium	SW-846 6010B	1	11/09/2002 10:05	Eric W Cuba	1
01758	Manganese	SW-846 6010B	1	11/09/2002 10:05	Eric W Cuba	1
01761	Nickel	SW-846 6010B	1	11/09/2002 10:05	Eric W Cuba	1
01762	Potassium	SW-846 6010B	1	11/09/2002 10:05	Eric W Cuba	1
01766	Silver	SW-846 6010B	1	11/09/2002 10:05	Eric W Cuba	1
01767	Sodium	SW-846 6010B	1	11/12/2002 15:39	Damary Valentin	20
01771	Vanadium	SW-846 6010B	1	11/09/2002 10:05	Eric W Cuba	1
01772	Zinc	SW-846 6010B	1	11/09/2002 10:05	Eric W Cuba	1
07022	Thallium TR	SW-846 6010B	1	11/09/2002 10:05	Eric W Cuba	1
07035	Arsenic TR	SW-846 6010B	1	11/12/2002 15:35	Damary Valentin	1
07036	Selenium TR	SW-846 6010B	1	11/09/2002 10:05	Eric W Cuba	1
07055	Lead TR	SW-846 6010B	1	11/09/2002 10:05	Eric W Cuba	1
00201	Alkalinity to pH 8.3	EPA 310.1	1	11/07/2002 17:46	Elaine F Stoltzfus	1
00202	Alkalinity to pH 4.5	EPA 310.1	1	11/07/2002 17:46	Elaine F Stoltzfus	1
00212	Total Dissolved Solids	EPA 160.1	1	11/05/2002 11:35	Anne L Kuenzli	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	11/13/2002 19:23	Venia B McFadden	20
00219	Nitrite Nitrogen	EPA 353.2	1	11/01/2002 11:59	Timothy M Petree	1
00220	Nitrate Nitrogen	EPA 353.2	1	11/13/2002 09:13	Timothy M Petree	1
00223	Organic Nitrogen	Std. Meth. 18th Ed., 4500-NORG	1	11/13/2002 19:23	Venia B McFadden	1
00224	Chloride	EPA 300.0	1	11/08/2002 16:26	Shannon L Phillips	200
00228	Sulfate	EPA 300.0	1	11/07/2002 04:34	Shannon L Phillips	5
00273	Total Organic Carbon	EPA 415.1	1	11/04/2002 17:50	Timothy M Petree	10
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/05/2002 18:19	Venia B McFadden	1
01333	Sulfide	EPA 376.1	1	11/05/2002 12:55	Susan E Hibner	1
01454	Bicarbonate	SM-18 2320B	1	11/07/2002 17:46	Elaine F Stoltzfus	1
04001	Chemical Oxygen Demand	EPA 410.4	1	11/12/2002 17:00	Elaine F Stoltzfus	1

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Lancaster Laboratories Sample No. WW 3931392

Collected:10/31/2002 12:00 by BS

Account Number: 01963

Submitted: 10/31/2002 18:15
Reported: 11/22/2002 at 13:25
Discard: 12/23/2002
P5-3A Grab Water Sample
CONTINUATION OF PREVIOUS SAMPLE
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

P5-3A SDG#: DUF01-15CONT

06914	Ammonia-Nitrogen	EPA 350.3	1	11/04/2002 07:47	Michele L Graham	20
08255	Total Cyanide (water)	SW-846 9012A	1	11/04/2002 16:34	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/05/2002 09:20	Cheryl L Robinson	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	11/04/2002 16:00	Irimar Leon	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	11/04/2002 21:27	Nelli S Markaryan	1
08256	Cyanide Water Distillation	SW-846 9012A	1	11/04/2002 09:40	James S Mathiot	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	11/01/2002 14:50	Nancy J Shoop	1

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Lancaster Laboratories Sample No. WW 3931393

Collected:10/31/2002 08:45 by BS

Account Number: 01963

Submitted: 10/31/2002 18:15
Reported: 11/22/2002 at 13:25
Discard: 12/23/2002
P5-11A Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

P511A SDG#: DUF01-16

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
00937	TCL Pesticides in Waters					
00938	Endrin Ketone	53494-70-5	N.D.	0.020	ug/l	1
01361	Alpha Chlordane	5103-71-9	N.D.	0.010	ug/l	1
01362	Gamma Chlordane	5103-74-2	N.D.	0.010	ug/l	1
01600	Alpha BHC	319-84-6	N.D.	0.010	ug/l	1
01601	Beta BHC	319-85-7	N.D.	0.010	ug/l	1
01602	Gamma BHC - Lindane	58-89-9	N.D.	0.010	ug/l	1
01603	Delta BHC	319-86-8	0.0031 J	0.010	ug/l	1
01604	Heptachlor	76-44-8	N.D.	0.010	ug/l	1
01605	Aldrin	309-00-2	N.D.	0.025	ug/l	1
01606	Heptachlor Epoxide	1024-57-3	N.D.	0.010	ug/l	1
01607	p,p-DDE	72-55-9	N.D.	0.020	ug/l	1
01608	p,p-DDD	72-54-8	N.D.	0.020	ug/l	1
01609	p,p-DDT	50-29-3	N.D.	0.020	ug/l	1
01610	Dieldrin	60-57-1	N.D.	0.020	ug/l	1
01611	Endrin	72-20-8	N.D.	0.020	ug/l	1
01613	Toxaphene	8001-35-2	N.D.	1.0	ug/l	1
01615	Endosulfan II	33213-65-9	N.D.	0.020	ug/l	1
01616	Endosulfan I	959-98-8	N.D.	0.010	ug/l	1
01617	Endosulfan Sulfate	1031-07-8	N.D.	0.020	ug/l	1
01618	Endrin Aldehyde	7421-93-4	N.D.	0.10	ug/l	1
01619	PCB-1016	12674-11-2	N.D.	0.50	ug/l	1
01620	PCB-1221	11104-28-2	N.D.	0.50	ug/l	1
01621	PCB-1232	11141-16-5	N.D.	0.50	ug/l	1
01622	PCB-1242	53469-21-9	N.D.	0.50	ug/l	1
01623	PCB-1248	12672-29-6	N.D.	0.50	ug/l	1
01624	PCB-1254	11097-69-1	N.D.	0.50	ug/l	1
01626	PCB-1260	11096-82-5	N.D.	0.50	ug/l	1
01860	Methoxychlor	72-43-5	N.D.	0.10	ug/l	1
05088	PCB Congeners-Full List-water					
07994	PCB 1	2051-60-7	N.D.	0.10	ug/l	1
07996	PCB 8	34883-43-7	N.D.	0.020	ug/l	1
07997	PCB 18	37680-65-2	N.D.	0.020	ug/l	1
08002	PCB 49	41464-40-8	N.D.	0.020	ug/l	1
08009	PCB 87	38380-02-8	N.D.	0.020	ug/l	1
08020	PCB 128	38380-07-3	N.D.	0.020	ug/l	1
08033	PCB 180	35065-29-3	N.D.	0.020	ug/l	1

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Collected:10/31/2002 08:45 by BS

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Discard: 12/23/2002
P5-11A Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

P511A SDG#: DUF01-16

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
08038	PCB 194	35694-08-7	N.D.	0.020	ug/l	1
08041	PCB 206	40186-72-9	N.D.	0.020	ug/l	1
08042	PCB 209	2051-24-3	N.D.	0.020	ug/l	1

PCB-002 was detected in the blank at a concentration of 1.53 ug/l. The blank is not subtracted from the sample concentration.

04678 TCL SW846 Semivolatiles/Waters

03871	4-Chloroaniline	106-47-8	N.D.	10.	ug/l	1
03905	2-Methylnaphthalene	91-57-6	N.D.	10.	ug/l	1
03907	2-Nitroaniline	88-74-4	N.D.	10.	ug/l	1
03922	2,4,5-Trichlorophenol	95-95-4	N.D.	10.	ug/l	1
03924	2-Chlorophenol	95-57-8	N.D.	10.	ug/l	1
03925	Phenol	108-95-2	N.D.	10.	ug/l	1
03926	2-Nitrophenol	88-75-5	N.D.	10.	ug/l	1
03927	2,4-Dimethylphenol	105-67-9	N.D.	10.	ug/l	1
03928	2,4-Dichlorophenol	120-83-2	N.D.	10.	ug/l	1
03929	4-Chloro-3-methylphenol	59-50-7	N.D.	10.	ug/l	1
03930	2,4,6-Trichlorophenol	88-06-2	N.D.	10.	ug/l	1
03936	bis(2-Chloroethyl)ether	111-44-4	N.D.	10.	ug/l	1
03937	1,3-Dichlorobenzene	541-73-1	N.D.	10.	ug/l	1
03938	1,4-Dichlorobenzene	106-46-7	N.D.	10.	ug/l	1
03939	1,2-Dichlorobenzene	95-50-1	N.D.	10.	ug/l	1
03941	Hexachloroethane	67-72-1	N.D.	10.	ug/l	1
03942	N-Nitroso-di-n-propylamine	621-64-7	N.D.	10.	ug/l	1
03943	Nitrobenzene	98-95-3	N.D.	10.	ug/l	1
03944	Isophorone	78-59-1	N.D.	10.	ug/l	1
03945	bis(2-Chloroethoxy)methane	111-91-1	N.D.	10.	ug/l	1
03946	1,2,4-Trichlorobenzene	120-82-1	N.D.	10.	ug/l	1
03947	Naphthalene	91-20-3	N.D.	10.	ug/l	1
03948	Hexachlorobutadiene	87-68-3	N.D.	10.	ug/l	1
03949	Hexachlorocyclopentadiene	77-47-4	N.D.	24.	ug/l	1
03950	2-Chloronaphthalene	91-58-7	N.D.	10.	ug/l	1
03951	Acenaphthylene	208-96-8	N.D.	10.	ug/l	1
03952	Dimethylphthalate	131-11-3	N.D.	10.	ug/l	1
04680	2-Methylphenol	95-48-7	N.D.	10.	ug/l	1
04681	2,2'-oxybis(1-Chloropropane)	108-60-1	N.D.	10.	ug/l	1
04682	4-Methylphenol	106-44-5	N.D.	10.	ug/l	1

3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.

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P5-11A Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

P511A SDG#: DUF01-16

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
04679	TCL SW846 Semivolatiles/Waters					
03879	Dibenzofuran	132-64-9	N.D.	10.	ug/l	1
03908	3-Nitroaniline	99-09-2	N.D.	10.	ug/l	1
03909	4-Nitroaniline	100-01-6	N.D.	10.	ug/l	1
03931	2,4-Dinitrophenol	51-28-5	N.D.	57.	ug/l	1
03932	4-Nitrophenol	100-02-7	N.D.	48.	ug/l	1
03933	4,6-Dinitro-2-methylphenol	534-52-1	N.D.	24.	ug/l	1
03934	Pentachlorophenol	87-86-5	N.D.	24.	ug/l	1
03953	2,6-Dinitrotoluene	606-20-2	N.D.	10.	ug/l	1
03954	Acenaphthene	83-32-9	N.D.	10.	ug/l	1
03955	2,4-Dinitrotoluene	121-14-2	N.D.	10.	ug/l	1
03956	Fluorene	86-73-7	N.D.	10.	ug/l	1
03957	4-Chlorophenyl-phenylether	7005-72-3	N.D.	10.	ug/l	1
03958	Diethylphthalate	84-66-2	N.D.	10.	ug/l	1
03960	N-Nitrosodiphenylamine	86-30-6	N.D.	10.	ug/l	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
03961	4-Bromophenyl-phenylether	101-55-3	N.D.	10.	ug/l	1
03962	Hexachlorobenzene	118-74-1	N.D.	10.	ug/l	1
03963	Phenanthrene	85-01-8	N.D.	10.	ug/l	1
03964	Anthracene	120-12-7	N.D.	10.	ug/l	1
03965	Di-n-butylphthalate	84-74-2	N.D.	10.	ug/l	1
03966	Fluoranthene	206-44-0	N.D.	10.	ug/l	1
03967	Pyrene	129-00-0	N.D.	10.	ug/l	1
03969	Butylbenzylphthalate	85-68-7	N.D.	10.	ug/l	1
03970	Benzo(a)anthracene	56-55-3	N.D.	10.	ug/l	1
03971	Chrysene	218-01-9	N.D.	10.	ug/l	1
03972	3,3'-Dichlorobenzidine	91-94-1	N.D.	10.	ug/l	1
03973	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	10.	ug/l	1
03974	Di-n-octylphthalate	117-84-0	N.D.	10.	ug/l	1
03975	Benzo(b)fluoranthene	205-99-2	N.D.	10.	ug/l	1
03976	Benzo(k)fluoranthene	207-08-9	N.D.	10.	ug/l	1
03977	Benzo(a)pyrene	50-32-8	N.D.	10.	ug/l	1
03978	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	10.	ug/l	1
03979	Dibenz(a,h)anthracene	53-70-3	N.D.	10.	ug/l	1
03980	Benzo(g,h,i)perylene	191-24-2	N.D.	10.	ug/l	1
04684	Carbazole	86-74-8	N.D.	10.	ug/l	1

06872 Appendix I by SW846/8260-water

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Collected:10/31/2002 08:45 by BS

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Submitted: 10/31/2002 18:15
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Discard: 12/23/2002
P5-11A Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

P511A SDG#: DUF01-16

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
05385	Chloromethane	74-87-3	N.D.	5.	ug/l	1
05386	Vinyl Chloride	75-01-4	N.D.	5.	ug/l	1
05387	Bromomethane	74-83-9	N.D.	5.	ug/l	1
05388	Chloroethane	75-00-3	N.D.	5.	ug/l	1
05389	Trichlorofluoromethane	75-69-4	N.D.	5.	ug/l	1
05390	1,1-Dichloroethene	75-35-4	N.D.	5.	ug/l	1
05391	Methylene Chloride	75-09-2	N.D.	5.	ug/l	1
05392	trans-1,2-Dichloroethene	156-60-5	N.D.	5.	ug/l	1
05393	1,1-Dichloroethane	75-34-3	N.D.	5.	ug/l	1
05395	cis-1,2-Dichloroethene	156-59-2	N.D.	5.	ug/l	1
05396	Chloroform	67-66-3	N.D.	5.	ug/l	1
05397	Bromochloromethane	74-97-5	N.D.	5.	ug/l	1
05398	1,1,1-Trichloroethane	71-55-6	N.D.	5.	ug/l	1
05399	Carbon Tetrachloride	56-23-5	N.D.	5.	ug/l	1
05401	Benzene	71-43-2	N.D.	5.	ug/l	1
05402	1,2-Dichloroethane	107-06-2	N.D.	5.	ug/l	1
05403	Trichloroethene	79-01-6	N.D.	5.	ug/l	1
05404	1,2-Dichloropropane	78-87-5	N.D.	5.	ug/l	1
05405	Dibromomethane	74-95-3	N.D.	5.	ug/l	1
05406	Bromodichloromethane	75-27-4	N.D.	5.	ug/l	1
05407	Toluene	108-88-3	N.D.	5.	ug/l	1
06302	Acetone	67-64-1	N.D.	20.	ug/l	1
06303	Carbon Disulfide	75-15-0	N.D.	5.	ug/l	1
06305	2-Butanone	78-93-3	N.D.	10.	ug/l	1
06306	trans-1,3-Dichloropropene	10061-02-6	N.D.	5.	ug/l	1
06307	cis-1,3-Dichloropropene	10061-01-5	N.D.	5.	ug/l	1
06308	4-Methyl-2-pentanone	108-10-1	N.D.	10.	ug/l	1
06874	Methyl Iodide	74-88-4	N.D.	5.	ug/l	1
06875	Acrylonitrile	107-13-1	N.D.	20.	ug/l	1
06876	Vinyl Acetate	108-05-4	N.D.	10.	ug/l	1
06873	Appendix I by SW846/8260-cont					
05408	1,1,2-Trichloroethane	79-00-5	N.D.	5.	ug/l	1
05409	Tetrachloroethene	127-18-4	N.D.	5.	ug/l	1
05411	Dibromochloromethane	124-48-1	N.D.	5.	ug/l	1
05412	1,2-Dibromoethane	106-93-4	N.D.	5.	ug/l	1
05413	Chlorobenzene	108-90-7	N.D.	5.	ug/l	1
05414	1,1,1,2-Tetrachloroethane	630-20-6	N.D.	5.	ug/l	1
05415	Ethylbenzene	100-41-4	N.D.	5.	ug/l	1
05418	Styrene	100-42-5	N.D.	5.	ug/l	1
05419	Bromoform	75-25-2	N.D.	5.	ug/l	1

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P5-11A Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

P511A SDG#: DUF01-16

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
05421	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	5.	ug/l	1
05423	1,2,3-Trichloropropane	96-18-4	N.D.	5.	ug/l	1
05433	1,4-Dichlorobenzene	106-46-7	N.D.	5.	ug/l	1
05435	1,2-Dichlorobenzene	95-50-1	N.D.	5.	ug/l	1
05436	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	5.	ug/l	1
06309	2-Hexanone	591-78-6	N.D.	10.	ug/l	1
06310	Xylene (Total)	1330-20-7	N.D.	5.	ug/l	1
06877	trans-1,4-Dichloro-2-butene	110-57-6	N.D.	50.	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00937	TCL Pesticides in Waters	SW-846 8081A/8082	1	11/06/2002 18:44	Douglas D Seitz	1
05088	PCB Congeners-Full List-water	SW-846 8082 (modified)	1	11/09/2002 01:17	Tiffany A Leyda	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	11/05/2002 00:50	Jolene M Graham	1
04679	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	11/05/2002 00:50	Jolene M Graham	1
06872	Appendix I by SW846/8260-water	SW-846 8260B	1	11/01/2002 22:21	Marc S Neal	1
06873	Appendix I by SW846/8260-cont	SW-846 8260B	1	11/01/2002 22:21	Marc S Neal	1
00813	BNA Water Extraction	SW-846 3510C	1	11/03/2002 12:30	Jennytza L Marcano	1
00817	Water Sample Pest. Extraction	SW-846 3510C	1	11/04/2002 16:45	Desiree J Wann	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	11/01/2002 22:21	Marc S Neal	n.a.

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Lancaster Laboratories Sample No. WW 3931394

Collected:10/31/2002 08:45 by BS

Account Number: 01963

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Discard: 12/23/2002
P5-11A Grab Water Sample
CONTINUATION OF PREVIOUS SAMPLE
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

P511A SDG#: DUF01-16CONT

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
00259	Mercury	7439-97-6	N.D.	0.00020	mg/l	1
01743	Aluminum	7429-90-5	0.370	0.200	mg/l	1
01744	Antimony	7440-36-0	N.D.	0.200	mg/l	1
01746	Barium	7440-39-3	0.0851 J	0.100	mg/l	1
01747	Beryllium	7440-41-7	N.D.	0.0100	mg/l	1
01749	Cadmium	7440-43-9	N.D.	0.0100	mg/l	1
01750	Calcium	7440-70-2	212.	0.200	mg/l	1
01751	Chromium	7440-47-3	0.0032 J	0.0300	mg/l	1
01752	Cobalt	7440-48-4	0.468	0.0500	mg/l	1
01753	Copper	7440-50-8	N.D.	0.0250	mg/l	1
01754	Iron	7439-89-6	69.8	0.100	mg/l	1
01757	Magnesium	7439-95-4	145.	0.100	mg/l	1
01758	Manganese	7439-96-5	8.75	0.0100	mg/l	1
01761	Nickel	7440-02-0	0.889	0.0500	mg/l	1
01762	Potassium	7440-09-7	24.2	0.500	mg/l	1
01766	Silver	7440-22-4	N.D.	0.0200	mg/l	1
01767	Sodium	7440-23-5	57.1	3.00	mg/l	5
01771	Vanadium	7440-62-2	N.D.	0.0200	mg/l	1
01772	Zinc	7440-66-6	20.2	0.0250	mg/l	1
07022	Thallium TR	7440-28-0	0.0166 J	0.0200	mg/l	1
07035	Arsenic TR	7440-38-2	0.0057 J	0.0100	mg/l	1
07036	Selenium TR	7782-49-2	N.D.	0.0100	mg/l	1
07055	Lead TR	7439-92-1	N.D.	0.0200	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a.	306.	2.0	mg/l as CaCO3	1
00212	Total Dissolved Solids	n.a.	1,850.	120.	mg/l	1
00217	Kjeldahl Nitrogen	7727-37-9	8.7	2.0	mg/l	2
00219	Nitrite Nitrogen	14797-65-0	0.052	0.050	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	0.41	0.10	mg/l	1
00223	Organic Nitrogen	n.a.	2.3	1.0	mg/l	1
00224	Chloride	16887-00-6	59.0	8.0	mg/l	20
00228	Sulfate	14808-79-8	990.	200.	mg/l	200
00273	Total Organic Carbon	n.a.	13.6	2.00	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.70	0.20	mg/l	1
01333	Sulfide	18496-25-8	N.D.	2.0	mg/l	1
01454	Bicarbonate	71-52-3	306.	2.0	mg/l as CaCO3	1
04001	Chemical Oxygen Demand	n.a.	62.	50.	mg/l	1
06914	Ammonia-Nitrogen	7664-41-7	6.4	1.0	mg/l	10
08255	Total Cyanide (water)	57-12-5	N.D.	0.0050	mg/l	1

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Lancaster Laboratories Sample No. WW 3931394

Collected:10/31/2002 08:45 by BS

Account Number: 01963

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Discard: 12/23/2002
P5-11A Grab Water Sample
CONTINUATION OF PREVIOUS SAMPLE
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

P511A SDG#: DUF01-16CONT

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00259	Mercury	SW-846 7470A	1	11/05/2002 08:55	Deborah A Krady	1
01743	Aluminum	SW-846 6010B	1	11/09/2002 10:10	Eric W Cuba	1
01744	Antimony	SW-846 6010B	1	11/09/2002 10:10	Eric W Cuba	1
01746	Barium	SW-846 6010B	1	11/09/2002 10:10	Eric W Cuba	1
01747	Beryllium	SW-846 6010B	1	11/09/2002 10:10	Eric W Cuba	1
01749	Cadmium	SW-846 6010B	1	11/09/2002 10:10	Eric W Cuba	1
01750	Calcium	SW-846 6010B	1	11/09/2002 10:10	Eric W Cuba	1
01751	Chromium	SW-846 6010B	1	11/12/2002 15:43	Damary Valentin	1
01752	Cobalt	SW-846 6010B	1	11/09/2002 10:10	Eric W Cuba	1
01753	Copper	SW-846 6010B	1	11/09/2002 10:10	Eric W Cuba	1
01754	Iron	SW-846 6010B	1	11/09/2002 10:10	Eric W Cuba	1
01757	Magnesium	SW-846 6010B	1	11/09/2002 10:10	Eric W Cuba	1
01758	Manganese	SW-846 6010B	1	11/09/2002 10:10	Eric W Cuba	1
01761	Nickel	SW-846 6010B	1	11/09/2002 10:10	Eric W Cuba	1
01762	Potassium	SW-846 6010B	1	11/09/2002 10:10	Eric W Cuba	1
01766	Silver	SW-846 6010B	1	11/09/2002 10:10	Eric W Cuba	1
01767	Sodium	SW-846 6010B	1	11/12/2002 15:47	Damary Valentin	5
01771	Vanadium	SW-846 6010B	1	11/09/2002 10:10	Eric W Cuba	1
01772	Zinc	SW-846 6010B	1	11/12/2002 15:43	Damary Valentin	1
07022	Thallium TR	SW-846 6010B	1	11/09/2002 10:10	Eric W Cuba	1
07035	Arsenic TR	SW-846 6010B	1	11/12/2002 15:43	Damary Valentin	1
07036	Selenium TR	SW-846 6010B	1	11/09/2002 10:10	Eric W Cuba	1
07055	Lead TR	SW-846 6010B	1	11/09/2002 10:10	Eric W Cuba	1
00201	Alkalinity to pH 8.3	EPA 310.1	1	11/07/2002 17:46	Elaine F Stoltzfus	1
00202	Alkalinity to pH 4.5	EPA 310.1	1	11/07/2002 17:46	Elaine F Stoltzfus	1
00212	Total Dissolved Solids	EPA 160.1	1	11/05/2002 11:35	Anne L Kuenzli	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	11/13/2002 20:18	Venia B McFadden	2
00219	Nitrite Nitrogen	EPA 353.2	1	11/01/2002 12:01	Timothy M Petree	1
00220	Nitrate Nitrogen	EPA 353.2	1	11/13/2002 09:14	Timothy M Pettee	1
00223	Organic Nitrogen	Std. Meth. 18th Ed., 4500-NORG	1	11/13/2002 19:23	Venia B McFadden	1
00224	Chloride	EPA 300.0	1	11/07/2002 19:42	Shannon L Phillips	20
00228	Sulfate	EPA 300.0	1	11/07/2002 19:57	Shannon L Phillips	200
00273	Total Organic Carbon	EPA 415.1	1	11/04/2002 18:14	Timothy M Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/05/2002 17:13	Venia B McFadden	1
01333	Sulfide	EPA 376.1	1	11/05/2002 12:55	Susan E Hibner	1
01454	Bicarbonate	SM-18 2320B	1	11/07/2002 17:46	Elaine F Stoltzfus	1
04001	Chemical Oxygen Demand	EPA 410.4	1	11/12/2002 17:00	Elaine F Stoltzfus	1

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CONTINUATION OF PREVIOUS SAMPLE
Project# 4685.ED

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P511A SDG#: DUF01-16CONT

06914	Ammonia-Nitrogen	EPA 350.3	1	11/04/2002 07:47	Michele L Graham	10
08255	Total Cyanide (water)	SW-846 9012A	1	11/04/2002 16:35	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/05/2002 09:20	Cheryl L Robinson	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	11/04/2002 16:00	Irimar Leon	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	11/04/2002 21:27	Nelli S Markaryan	1
08256	Cyanide Water Distillation	SW-846 9012A	1	11/04/2002 09:40	James S Mathiot	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	11/01/2002 14:50	Nancy J Shoop	1

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P5-13A Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
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P513A SDG#: DUF01-17

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
00937	TCL Pesticides in Waters					
00938	Endrin Ketone	53494-70-5	N.D.	0.020	ug/l	1
01361	Alpha Chlordane	5103-71-9	N.D.	0.0098	ug/l	1
01362	Gamma Chlordane	5103-74-2	N.D.	0.0098	ug/l	1
01600	Alpha BHC	319-84-6	N.D.	0.0098	ug/l	1
01601	Beta BHC	319-85-7	N.D.	0.0098	ug/l	1
01602	Gamma BHC - Lindane	58-89-9	0.0061 J	0.0098	ug/l	1
01603	Delta BHC	319-86-8	N.D.	0.0098	ug/l	1
01604	Heptachlor	76-44-8	N.D.	0.0098	ug/l	1
01605	Aldrin	309-00-2	N.D.	0.024	ug/l	1
01606	Heptachlor Epoxide	1024-57-3	N.D.	0.0098	ug/l	1
01607	p,p-DDE	72-55-9	N.D.	0.020	ug/l	1
01608	p,p-DDD	72-54-8	N.D.	0.020	ug/l	1
01609	p,p-DDT	50-29-3	N.D.	0.020	ug/l	1
01610	Dieldrin	60-57-1	N.D.	0.020	ug/l	1
01611	Endrin	72-20-8	N.D.	0.020	ug/l	1
01613	Toxaphene	8001-35-2	N.D.	1.0	ug/l	1
01615	Endosulfan II	33213-65-9	N.D.	0.020	ug/l	1
01616	Endosulfan I	959-98-8	N.D.	0.0098	ug/l	1
01617	Endosulfan Sulfate	1031-07-8	N.D.	0.020	ug/l	1
01618	Endrin Aldehyde	7421-93-4	N.D.	0.098	ug/l	1
01619	PCB-1016	12674-11-2	N.D.	0.49	ug/l	1
01620	PCB-1221	11104-28-2	N.D.	0.49	ug/l	1
01621	PCB-1232	11141-16-5	N.D.	0.49	ug/l	1
01622	PCB-1242	53469-21-9	N.D.	0.49	ug/l	1
01623	PCB-1248	12672-29-6	N.D.	0.49	ug/l	1
01624	PCB-1254	11097-69-1	N.D.	0.49	ug/l	1
01626	PCB-1260	11096-82-5	N.D.	0.49	ug/l	1
01860	Methoxychlor	72-43-5	N.D.	0.098	ug/l	1
05088	PCB Congeners-Full List-water					
07994	PCB 1	2051-60-7	N.D.	0.098	ug/l	1
07996	PCB 8	34883-43-7	N.D.	0.020	ug/l	1
07997	PCB 18	37680-65-2	N.D.	0.020	ug/l	1
08002	PCB 49	41464-40-8	N.D.	0.020	ug/l	1
08009	PCB 87	38380-02-8	N.D.	0.020	ug/l	1
08020	PCB 128	38380-07-3	N.D.	0.020	ug/l	1
08033	PCB 180	35066-29-3	N.D.	0.020	ug/l	1

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P5-13A Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
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Wilmington DE 19808-1296

P513A SDG#: DUF01-17

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
08038	PCB 194	35694-08-7	N.D.	0.020	ug/l	1
08041	PCB 206	40186-72-9	N.D.	0.020	ug/l	1
08042	PCB 209	2051-24-3	N.D.	0.020	ug/l	1

PCB-002 was detected in the blank at a concentration of 1.53 ug/l. The blank is not subtracted from the sample concentration.

04678 TCL SW846 Semivolatiles/Waters

03871	4-Chloroaniline	106-47-8	N.D.	10.	ug/l	1
03905	2-Methylnaphthalene	91-57-6	N.D.	10.	ug/l	1
03907	2-Nitroaniline	88-74-4	N.D.	10.	ug/l	1
03922	2,4,5-Trichlorophenol	95-95-4	N.D.	10.	ug/l	1
03924	2-Chlorophenol	95-57-8	N.D.	10.	ug/l	1
03925	Phenol	108-95-2	N.D.	10.	ug/l	1
03926	2-Nitrophenol	88-75-5	N.D.	10.	ug/l	1
03927	2,4-Dimethylphenol	105-67-9	N.D.	10.	ug/l	1
03928	2,4-Dichlorophenol	120-83-2	N.D.	10.	ug/l	1
03929	4-Chloro-3-methylphenol	59-50-7	N.D.	10.	ug/l	1
03930	2,4,6-Trichlorophenol	88-06-2	N.D.	10.	ug/l	1
03936	bis(2-Chloroethyl)ether	111-44-4	N.D.	10.	ug/l	1
03937	1,3-Dichlorobenzene	541-73-1	N.D.	10.	ug/l	1
03938	1,4-Dichlorobenzene	106-46-7	N.D.	10.	ug/l	1
03939	1,2-Dichlorobenzene	95-50-1	N.D.	10.	ug/l	1
03941	Hexachloroethane	67-72-1	N.D.	10.	ug/l	1
03942	N-Nitroso-di-n-propylamine	621-64-7	N.D.	10.	ug/l	1
03943	Nitrobenzene	98-95-3	N.D.	10.	ug/l	1
03944	Isophorone	78-59-1	N.D.	10.	ug/l	1
03945	bis(2-Chloroethoxy)methane	111-91-1	N.D.	10.	ug/l	1
03946	1,2,4-Trichlorobenzene	120-82-1	N.D.	10.	ug/l	1
03947	Naphthalene	91-20-3	N.D.	10.	ug/l	1
03948	Hexachlorobutadiene	87-68-3	N.D.	10.	ug/l	1
03949	Hexachlorocyclopentadiene	77-47-4	N.D.	24.	ug/l	1
03950	2-Chloronaphthalene	91-58-7	N.D.	10.	ug/l	1
03951	Acenaphthylene	208-96-8	N.D.	10.	ug/l	1
03952	Dimethylphthalate	131-11-3	N.D.	10.	ug/l	1
04680	2-Methylphenol	95-48-7	N.D.	10.	ug/l	1
04681	2,2'-oxybis(1-Chloropropane)	108-60-1	N.D.	10.	ug/l	1
04682	4-Methylphenol	106-44-5	N.D.	10.	ug/l	1

3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.

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P5-13A Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

P513A SDG#: DUF01-17

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
04679	TCL SW846 Semivolatiles/Waters					
03879	Dibenzofuran	132-64-9	N.D.	10.	ug/l	1
03908	3-Nitroaniline	99-09-2	N.D.	10.	ug/l	1
03909	4-Nitroaniline	100-01-6	N.D.	10.	ug/l	1
03931	2,4-Dinitrophenol	51-28-5	N.D.	59.	ug/l	1
03932	4-Nitrophenol	100-02-7	N.D.	49.	ug/l	1
03933	4,6-Dinitro-2-methylphenol	534-52-1	N.D.	24.	ug/l	1
03934	Pentachlorophenol	87-86-5	N.D.	24.	ug/l	1
03953	2,6-Dinitrotoluene	606-20-2	N.D.	10.	ug/l	1
03954	Acenaphthene	83-32-9	N.D.	10.	ug/l	1
03955	2,4-Dinitrotoluene	121-14-2	N.D.	10.	ug/l	1
03956	Fluorene	86-73-7	N.D.	10.	ug/l	1
03957	4-Chlorophenyl-phenylether	7005-72-3	N.D.	10.	ug/l	1
03958	Diethylphthalate	84-66-2	N.D.	10.	ug/l	1
03960	N-Nitrosodiphenylamine	86-30-6	N.D.	10.	ug/l	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
03961	4-Bromophenyl-phenylether	101-55-3	N.D.	10.	ug/l	1
03962	Hexachlorobenzene	118-74-1	N.D.	10.	ug/l	1
03963	Phenanthrene	85-01-8	N.D.	10.	ug/l	1
03964	Anthracene	120-12-7	N.D.	10.	ug/l	1
03965	Di-n-butylphthalate	84-74-2	N.D.	10.	ug/l	1
03966	Fluoranthene	206-44-0	N.D.	10.	ug/l	1
03967	Pyrene	129-00-0	N.D.	10.	ug/l	1
03969	Butylbenzylphthalate	85-68-7	N.D.	10.	ug/l	1
03970	Benzo(a)anthracene	56-55-3	N.D.	10.	ug/l	1
03971	Chrysene	218-01-9	N.D.	10.	ug/l	1
03972	3,3'-Dichlorobenzidine	91-94-1	N.D.	10.	ug/l	1
03973	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	10.	ug/l	1
03974	Di-n-octylphthalate	117-84-0	N.D.	10.	ug/l	1
03975	Benzo(b)fluoranthene	205-99-2	N.D.	10.	ug/l	1
03976	Benzo(k)fluoranthene	207-08-9	N.D.	10.	ug/l	1
03977	Benzo(a)pyrene	50-32-8	N.D.	10.	ug/l	1
03978	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	10.	ug/l	1
03979	Dibenz(a,h)anthracene	53-70-3	N.D.	10.	ug/l	1
03980	Benzo(g,h,i)perylene	191-24-2	N.D.	10.	ug/l	1
04684	Carbazole	86-74-8	N.D.	10.	ug/l	1

06872 Appendix I by SW846/8260-water

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Wilmington DE 19808-1296

P513A SDG#: DUF01-17

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
05385	Chloromethane	74-87-3	N.D.	5.	ug/l	1
05386	Vinyl Chloride	75-01-4	N.D.	5.	ug/l	1
05387	Bromomethane	74-83-9	N.D.	5.	ug/l	1
05388	Chloroethane	75-00-3	N.D.	5.	ug/l	1
05389	Trichlorofluoromethane	75-69-4	N.D.	5.	ug/l	1
05390	1,1-Dichloroethene	75-35-4	N.D.	5.	ug/l	1
05391	Methylene Chloride	75-09-2	N.D.	5.	ug/l	1
05392	trans-1,2-Dichloroethene	156-60-5	N.D.	5.	ug/l	1
05393	1,1-Dichloroethane	75-34-3	N.D.	5.	ug/l	1
05395	cis-1,2-Dichloroethene	156-59-2	N.D.	5.	ug/l	1
05396	Chloroform	67-66-3	N.D.	5.	ug/l	1
05397	Bromochloromethane	74-97-5	N.D.	5.	ug/l	1
05398	1,1,1-Trichloroethane	71-55-6	N.D.	5.	ug/l	1
05399	Carbon Tetrachloride	56-23-5	N.D.	5.	ug/l	1
05401	Benzene	71-43-2	N.D.	5.	ug/l	1
05402	1,2-Dichloroethane	107-06-2	N.D.	5.	ug/l	1
05403	Trichloroethene	79-01-6	N.D.	5.	ug/l	1
05404	1,2-Dichloropropane	78-87-5	N.D.	5.	ug/l	1
05405	Dibromomethane	74-95-3	N.D.	5.	ug/l	1
05406	Bromodichloromethane	75-27-4	N.D.	5.	ug/l	1
05407	Toluene	108-88-3	N.D.	5.	ug/l	1
06302	Acetone	67-64-1	N.D.	20.	ug/l	1
06303	Carbon Disulfide	75-15-0	N.D.	5.	ug/l	1
06305	2-Butanone	78-93-3	N.D.	10.	ug/l	1
06306	trans-1,3-Dichloropropene	10061-02-6	N.D.	5.	ug/l	1
06307	cis-1,3-Dichloropropene	10061-01-5	N.D.	5.	ug/l	1
06308	4-Methyl-2-pentanone	108-10-1	N.D.	10.	ug/l	1
06874	Methyl Iodide	74-88-4	N.D.	5.	ug/l	1
06875	Acrylonitrile	107-13-1	N.D.	20.	ug/l	1
06876	Vinyl Acetate	108-05-4	N.D.	10.	ug/l	1
06873	Appendix I by SW846/8260-cont					
05408	1,1,2-Trichloroethane	79-00-5	N.D.	5.	ug/l	1
05409	Tetrachloroethene	127-18-4	N.D.	5.	ug/l	1
05411	Dibromochloromethane	124-48-1	N.D.	5.	ug/l	1
05412	1,2-Dibromoethane	106-93-4	N.D.	5.	ug/l	1
05413	Chlorobenzene	108-90-7	N.D.	5.	ug/l	1
05414	1,1,1,2-Tetrachloroethane	630-20-6	N.D.	5.	ug/l	1
05415	Ethylbenzene	100-41-4	N.D.	5.	ug/l	1
05418	Styrene	100-42-5	N.D.	5.	ug/l	1
05419	Bromoform	75-25-2	N.D.	5.	ug/l	1

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P513A SDG#: DUF01-17

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
05421	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	5.	ug/l	1
05423	1,2,3-Trichloropropane	96-18-4	N.D.	5.	ug/l	1
05433	1,4-Dichlorobenzene	106-46-7	N.D.	5.	ug/l	1
05435	1,2-Dichlorobenzene	95-50-1	N.D.	5.	ug/l	1
05436	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	5.	ug/l	1
06309	2-Hexanone	591-78-6	N.D.	10.	ug/l	1
06310	Xylene (Total)	1330-20-7	N.D.	5.	ug/l	1
06877	trans-1,4-Dichloro-2-butene	110-57-6	N.D.	50.	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00937	TCL Pesticides in Waters	SW-846 8081A/8082	1	11/13/2002 07:45	Douglas D Seitz	1
05088	PCB Congeners-Full List-water	SW-846 8082 (modified)	1	11/09/2002 02:20	Tiffany A Leyda	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	11/05/2002 01:50	Jolene M Graham	1
04679	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	11/05/2002 01:50	Jolene M Graham	1
06872	Appendix I by SW846/8260-water	SW-846 8260B	1	11/01/2002 22:47	Marc S Neal	1
06873	Appendix I by SW846/8260-cont	SW-846 8260B	1	11/01/2002 22:47	Marc S Neal	1
00813	BNA Water Extraction	SW-846 3510C	1	11/03/2002 12:30	Jennytza L Marcano	1
00817	Water Sample Pest. Extraction	SW-846 3510C	1	11/04/2002 16:45	Desiree J Wann	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	11/01/2002 22:47	Marc S Neal	n.a.

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3931396

Collected:10/31/2002 10:30 by BS

Account Number: 01963

Submitted: 10/31/2002 18:15
Reported: 11/22/2002 at 13:26
Discard: 12/23/2002
P5-13A Grab Water Sample
CONTINUATION OF PREVIOUS SAMPLE
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

P513A SDG#: DUF01-17CONT

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
00259	Mercury	7439-97-6	N.D.	0.00020	mg/l	1
01743	Aluminum	7429-90-5	0.126 J	0.200	mg/l	1
01744	Antimony	7440-36-0	N.D.	0.200	mg/l	1
01746	Barium	7440-39-3	0.132	0.100	mg/l	1
01747	Beryllium	7440-41-7	N.D.	0.0100	mg/l	1
01749	Cadmium	7440-43-9	N.D.	0.0100	mg/l	1
01750	Calcium	7440-70-2	130.	0.200	mg/l	1
01751	Chromium	7440-47-3	0.0042 J	0.0300	mg/l	1
01752	Cobalt	7440-48-4	N.D.	0.0500	mg/l	1
01753	Copper	7440-50-8	N.D.	0.0250	mg/l	1
01754	Iron	7439-89-6	2.09	0.100	mg/l	1
01757	Magnesium	7439-95-4	118.	0.100	mg/l	1
01758	Manganese	7439-96-5	7.14	0.0100	mg/l	1
01761	Nickel	7440-02-0	0.0021 J	0.0500	mg/l	1
01762	Potassium	7440-09-7	22.9	0.500	mg/l	1
01766	Silver	7440-22-4	0.0024 J	0.0200	mg/l	1
01767	Sodium	7440-23-5	89.7	12.0	mg/l	20
01771	Vanadium	7440-62-2	0.0042 J	0.0200	mg/l	1
01772	Zinc	7440-66-6	N.D.	0.0250	mg/l	1
07022	Thallium TR	7440-28-0	0.0172 J	0.0200	mg/l	1
07035	Arsenic TR	7440-38-2	N.D.	0.0100	mg/l	1
07036	Selenium TR	7782-49-2	N.D.	0.0100	mg/l	1
07055	Lead TR	7439-92-1	N.D.	0.0200	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a.	333.	2.0	mg/l as CaCO3	1
00212	Total Dissolved Solids	n.a.	1,460.	120.	mg/l	1
00217	Kjeldahl Nitrogen	7727-37-9	34.1	5.0	mg/l	5
00219	Nitrite Nitrogen	14797-65-0	0.033 J	0.050	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.10	mg/l	1
00223	Organic Nitrogen	n.a.	10.9	1.0	mg/l	1
00224	Chloride	16887-00-6	65.5	8.0	mg/l	20
00228	Sulfate	14808-79-8	710.	100.	mg/l	100
00273	Total Organic Carbon	n.a.	24.1	2.00	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	6.14	0.40	mg/l	2
01333	Sulfide	18496-25-8	2.5	2.0	mg/l	1
01454	Bicarbonate	71-52-3	333.	2.0	mg/l as CaCO3	1
04001	Chemical Oxygen Demand	n.a.	88.	50.	mg/l	1
06914	Ammonia-Nitrogen	7664-41-7	23.3	1.0	mg/l	10
08255	Total Cyanide (water)	57-12-5	N.D.	0.0050	mg/l	1

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Lancaster Laboratories Sample No. WW 3931396

Collected:10/31/2002 10:30 by BS

Account Number: 01963

Submitted: 10/31/2002 18:15
Reported: 11/22/2002 at 13:26
Discard: 12/23/2002
P5-13A Grab Water Sample
CONTINUATION OF PREVIOUS SAMPLE
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

P513A SDG#: DUF01-17CONT

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00259	Mercury	SW-846 7470A	1	11/05/2002 08:57	Deborah A Krady	1
01743	Aluminum	SW-846 6010B	1	11/09/2002 10:15	Eric W Cuba	1
01744	Antimony	SW-846 6010B	1	11/09/2002 10:15	Eric W Cuba	1
01746	Barium	SW-846 6010B	1	11/09/2002 10:15	Eric W Cuba	1
01747	Beryllium	SW-846 6010B	1	11/09/2002 10:15	Eric W Cuba	1
01749	Cadmium	SW-846 6010B	1	11/09/2002 10:15	Eric W Cuba	1
01750	Calcium	SW-846 6010B	1	11/09/2002 10:15	Eric W Cuba	1
01751	Chromium	SW-846 6010B	1	11/14/2002 00:40	Donna R Sackett	1
01752	Cobalt	SW-846 6010B	1	11/09/2002 10:15	Eric W Cuba	1
01753	Copper	SW-846 6010B	1	11/09/2002 10:15	Eric W Cuba	1
01754	Iron	SW-846 6010B	1	11/09/2002 10:15	Eric W Cuba	1
01757	Magnesium	SW-846 6010B	1	11/09/2002 10:15	Eric W Cuba	1
01758	Manganese	SW-846 6010B	1	11/09/2002 10:15	Eric W Cuba	1
01761	Nickel	SW-846 6010B	1	11/09/2002 10:15	Eric W Cuba	1
01762	Potassium	SW-846 6010B	1	11/09/2002 10:15	Eric W Cuba	1
01766	Silver	SW-846 6010B	1	11/09/2002 10:15	Eric W Cuba	1
01767	Sodium	SW-846 6010B	1	11/14/2002 00:45	Donna R Sackett	20
01771	Vanadium	SW-846 6010B	1	11/09/2002 10:15	Eric W Cuba	1
01772	Zinc	SW-846 6010B	1	11/09/2002 10:15	Eric W Cuba	1
07022	Thallium TR	SW-846 6010B	1	11/09/2002 10:15	Eric W Cuba	1
07035	Arsenic TR	SW-846 6010B	1	11/14/2002 00:40	Donna R Sackett	1
07036	Selenium TR	SW-846 6010B	1	11/09/2002 10:15	Eric W Cuba	1
07055	Lead TR	SW-846 6010B	1	11/09/2002 10:15	Eric W Cuba	1
00201	Alkalinity to pH 8.3	EPA 310.1	1	11/07/2002 17:46	Elaine F Stoltzfus	1
00202	Alkalinity to pH 4.5	EPA 310.1	1	11/07/2002 17:46	Elaine F Stoltzfus	1
00212	Total Dissolved Solids	EPA 160.1	1	11/05/2002 11:35	Anne L Kuenzli	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	11/13/2002 18:50	Venia B McFadden	5
00219	Nitrite Nitrogen	EPA 353.2	1	11/01/2002 12:02	Timothy M Petree	1
00220	Nitrate Nitrogen	EPA 353.2	1	11/13/2002 09:16	Timothy M Petree	1
00223	Organic Nitrogen	Std. Meth. 18th Ed., 4500-NORG	1	11/13/2002 18:50	Venia B McFadden	1
00224	Chloride	EPA 300.0	1	11/07/2002 20:44	Shannon L Phillips	20
00228	Sulfate	EPA 300.0	1	11/07/2002 20:59	Shannon L Phillips	100
00273	Total Organic Carbon	EPA 415.1	1	11/04/2002 18:22	Timothy M Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	2	11/12/2002 16:51	Nicole M Kepley	2
01333	Sulfide	EPA 376.1	1	11/05/2002 12:55	Susan E Hibner	1
01454	Bicarbonate	SM-18 2320B	1	11/07/2002 17:46	Elaine F Stoltzfus	1
04001	Chemical Oxygen Demand	EPA 410.4	1	11/12/2002 17:00	Elaine F Stoltzfus	1

Lancaster Laboratories
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Lancaster Laboratories Sample No. WW 3931396

Collected:10/31/2002 10:30 by BS

Account Number: 01963

Submitted: 10/31/2002 18:15
Reported: 11/22/2002 at 13:26
Discard: 12/23/2002
P5-13A Grab Water Sample
CONTINUATION OF PREVIOUS SAMPLE
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

P513A SDG#: DUF01-17CONT

06914	Ammonia-Nitrogen	EPA 350.3	1	11/04/2002 07:47	Michele L Graham	10
08255	Total Cyanide (water)	SW-846 9012A	1	11/04/2002 16:37	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/05/2002 09:20	Cheryl L Robinson	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	11/04/2002 16:00	Irimar Leon	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	11/04/2002 21:27	Nelli S Markaryan	1
08256	Cyanide Water Distillation	SW-846 9012A	1	11/04/2002 09:40	James S Mathiot	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	11/01/2002 14:50	Nancy J Shoop	1

Analysis Report

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3931397

Collected:10/31/2002 15:25 by BS

Account Number: 01963

Submitted: 10/31/2002 18:15
Reported: 11/22/2002 at 13:26
Discard: 12/23/2002
LC-113 Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

LC113 SDG#: DUF01-18

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
01754	Iron	7439-89-6	70.7	0.100	mg/l	1
01758	Manganese	7439-96-5	1.81	0.0100	mg/l	1
00206	Total Suspended Solids	n.a.	261.	40.	mg/l	1
	This sample was analyzed past the 7-day hold time for TSS at the client's request.					
00212	Total Dissolved Solids	n.a.	1,080.	120.	mg/l	1
00937	TCL Pesticides in Waters					
00938	Endrin Ketone	53494-70-5	N.D.	0.019	ug/l	1
01361	Alpha Chlordane	5103-71-9	N.D.	0.0095	ug/l	1
01362	Gamma Chlordane	5103-74-2	N.D.	0.0095	ug/l	1
01600	Alpha BHC	319-84-6	N.D.	0.0095	ug/l	1
01601	Beta BHC	319-85-7	N.D.	0.0095	ug/l	1
01602	Gamma BHC - Lindane	58-89-9	N.D.	0.0095	ug/l	1
01603	Delta BHC	319-86-8	N.D.	0.0095	ug/l	1
01604	Heptachlor	76-44-8	0.0032 J	0.0095	ug/l	1
01605	Aldrin	309-00-2	N.D.	0.024	ug/l	1
01606	Heptachlor Epoxide	1024-57-3	N.D.	0.0095	ug/l	1
01607	p,p-DDE	72-55-9	N.D.	0.019	ug/l	1
01608	p,p-DDD	72-54-8	N.D.	0.019	ug/l	1
01609	p,p-DDT	50-29-3	N.D.	0.019	ug/l	1
01610	Dieldrin	60-57-1	N.D.	0.019	ug/l	1
01611	Endrin	72-20-8	N.D.	0.019	ug/l	1
01613	Toxaphene	8001-35-2	N.D.	1.0	ug/l	1
01615	Endosulfan II	33213-65-9	N.D.	0.019	ug/l	1
01616	Endosulfan I	959-98-8	N.D.	0.0095	ug/l	1
01617	Endosulfan Sulfate	1031-07-8	N.D.	0.019	ug/l	1
01618	Endrin Aldehyde	7421-93-4	N.D.	0.095	ug/l	1
01619	PCB-1016	12674-11-2	N.D.	0.48	ug/l	1
01620	PCB-1221	11104-28-2	N.D.	0.48	ug/l	1
01621	PCB-1232	11141-16-5	N.D.	0.48	ug/l	1
01622	PCB-1242	53469-21-9	N.D.	0.48	ug/l	1
01623	PCB-1248	12672-29-6	N.D.	0.48	ug/l	1
01624	PCB-1254	11097-69-1	N.D.	0.48	ug/l	1
01626	PCB-1260	11096-82-5	N.D.	0.48	ug/l	1
01860	Methoxychlor	72-43-5	N.D.	0.095	ug/l	1
05088	PCB Congeners-Full List-water					
07994	PCB 1	2051-60-7	N.D.	0.095	ug/l	1

Lancaster Laboratories
Where quality is a science

Lancaster Laboratories Sample No. WW 3931397

Collected:10/31/2002 15:25 by BS

Account Number: 01963

Submitted: 10/31/2002 18:15
Reported: 11/22/2002 at 13:26
Discard: 12/23/2002
LC-113 Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

LC113 SDG#: DUF01-18

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
07996	PCB 8	34883-43-7	N.D.	0.019	ug/l	1
07997	PCB 18	37680-65-2	N.D.	0.019	ug/l	1
08002	PCB 49	41464-40-8	N.D.	0.019	ug/l	1
08009	PCB 87	38380-02-8	N.D.	0.019	ug/l	1
08020	PCB 128	38380-07-3	N.D.	0.019	ug/l	1
08033	PCB 180	35066-29-3	N.D.	0.019	ug/l	1
08038	PCB 194	35694-08-7	N.D.	0.019	ug/l	1
08041	PCB 206	40186-72-9	N.D.	0.019	ug/l	1
08042	PCB 209	2051-24-3	N.D.	0.019	ug/l	1

PCB-002 was detected in the blank at a concentration of 1.53 ug/l. The blank is not subtracted from the sample concentration.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	11/09/2002 10:20	Eric W Cuba	1
01758	Manganese	SW-846 6010B	1	11/09/2002 10:20	Eric W Cuba	1
00206	Total Suspended Solids	EPA 160.2	1	11/20/2002 14:27	Anne L Kuenzli	1
00212	Total Dissolved Solids	EPA 160.1	1	11/05/2002 11:35	Anne L Kuenzli	1
00937	TCL Pesticides in Waters	SW-846 8081A/8082	1	11/13/2002 08:05	Douglas D Seitz	1
05008	PCB Congeners-Full List-water	SW-846 8082 (modified)	1	11/09/2002 03:23	Tiffany A Leyda	1
00817	Water Sample Pest. Extraction	SW-846 3510C	1	11/04/2002 16:45	Desiree J Wann	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	11/04/2002 16:00	Irimar Leon	1

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3931398

Collected:10/31/2002 13:30 by BS

Account Number: 01963

Submitted: 10/31/2002 18:15
Reported: 11/22/2002 at 13:26
Discard: 12/23/2002
Rinse Blank Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

RNSBK SDG#: DUF01-19RB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
01754	Iron	7439-89-6	0.131	0.100	mg/l	1
01758	Manganese	7439-96-5	0.0028 J	0.0100	mg/l	1
00206	Total Suspended Solids	n.a.	N.D.	12.	mg/l	1
	This sample was analyzed past the 7-day hold time for TSS at the client's request.					
00212	Total Dissolved Solids	n.a.	N.D.	30.	mg/l	1
00937	TCL Pesticides in Waters					
00938	Endrin Ketone	53494-70-5	N.D.	0.019	ug/l	1
01361	Alpha Chlordane	5103-71-9	N.D.	0.0096	ug/l	1
01362	Gamma Chlordane	5103-74-2	N.D.	0.0096	ug/l	1
01600	Alpha BHC	319-84-6	N.D.	0.0096	ug/l	1
01601	Beta BHC	319-85-7	N.D.	0.0096	ug/l	1
01602	Gamma BHC - Lindane	58-89-9	N.D.	0.0096	ug/l	1
01603	Delta BHC	319-86-8	N.D.	0.0096	ug/l	1
01604	Heptachlor	76-44-8	N.D.	0.0096	ug/l	1
01605	Aldrin	309-00-2	N.D.	0.024	ug/l	1
01606	Heptachlor Epoxide	1024-57-3	N.D.	0.0096	ug/l	1
01607	p,p-DDE	72-55-9	N.D.	0.019	ug/l	1
01608	p,p-DDD	72-54-8	N.D.	0.019	ug/l	1
01609	p,p-DDT	50-29-3	N.D.	0.019	ug/l	1
01610	Dieldrin	60-57-1	N.D.	0.019	ug/l	1
01611	Endrin	72-20-8	N.D.	0.019	ug/l	1
01613	Toxaphene	8001-35-2	N.D.	1.0	ug/l	1
01615	Endosulfan II	33213-65-9	N.D.	0.019	ug/l	1
01616	Endosulfan I	959-98-8	N.D.	0.0096	ug/l	1
01617	Endosulfan Sulfate	1011-07-8	N.D.	0.019	ug/l	1
01618	Endrin Aldehyde	7421-93-4	N.D.	0.096	ug/l	1
01619	PCB-1016	12674-11-2	N.D.	0.48	ug/l	1
01620	PCB-1221	11104-28-2	N.D.	0.48	ug/l	1
01621	PCB-1232	11141-16-5	N.D.	0.48	ug/l	1
01622	PCB-1242	53469-21-9	N.D.	0.48	ug/l	1
01623	PCB-1248	12672-29-6	N.D.	0.48	ug/l	1
01624	PCB-1254	11097-69-1	N.D.	0.48	ug/l	1
01626	PCB-1260	11096-82-5	N.D.	0.48	ug/l	1
01860	Methoxychlor	72-43-5	N.D.	0.096	ug/l	1
05088	PCB Congeners-Full List-water					
07994	PCB 1	2051-60-7	N.D.	0.095	ug/l	1

Lancaster Laboratories
Where quality is a science

Lancaster Laboratories Sample No. WW 3931398

Collected:10/31/2002 13:30 by BS

Account Number: 01963

Submitted: 10/31/2002 18:15
Reported: 11/22/2002 at 13:26
Discard: 12/23/2002
Rinse Blank Grab Water Sample
Project# 4595.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

RNSBK SDG#: DUF01-19RB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
07996	PCB 8	34883-43-7	N.D.	0.019	ug/l	1
07997	PCB 18	37680-65-2	N.D.	0.019	ug/l	1
08002	PCB 49	41464-40-8	N.D.	0.019	ug/l	1
08009	PCB 87	38380-02-8	N.D.	0.019	ug/l	1
08020	PCB 128	38380-07-3	N.D.	0.019	ug/l	1
08033	PCB 180	35066-29-3	N.D.	0.019	ug/l	1
08038	PCB 194	35694-08-7	N.D.	0.019	ug/l	1
08041	PCB 206	40186-72-9	N.D.	0.019	ug/l	1
08042	PCB 209	2051-24-3	N.D.	0.019	ug/l	1

PCB-002 was detected in the blank at a concentration of 1.53 ug/l. The blank is not subtracted from the sample concentration.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	11/12/2002 15:55	Damary Valentin	1
01758	Manganese	SW-846 6010B	1	11/09/2002 10:25	Eric W Cuba	1
00206	Total Suspended Solids	EPA 160.2	1	11/20/2002 14:27	Anne L Kuenzli	1
00212	Total Dissolved Solids	EPA 160.1	1	11/05/2002 11:35	Anne L Kuenzli	1
00937	TCL Pesticides in Waters	SW-846 8081A/8082	1	11/06/2002 19:44	Douglas D Seitz	1
05088	PCB Congeners-Full List-water	SW-846 8082 (modified)	1	11/09/2002 04:26	Tiffany A Leyda	1
00817	Water Sample Pest. Extraction	SW-846 3510C	1	11/04/2002 16:45	Desiree J Wann	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	11/04/2002 16:00	Irimar Leon	1

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3931399

Collected:10/31/2002 12:20 by BS

Account Number: 01963

Submitted: 10/31/2002 18:15
Reported: 11/22/2002 at 13:26
Discard: 12/23/2002
LC-108 Dup Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

L108D SDG#: DUF01-20FD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
01754	Iron	7439-89-6	65.2	0.100	mg/l	1
01758	Manganese	7439-96-5	4.01	0.0100	mg/l	1
00206	Total Suspended Solids	n.a.	127.	30.	mg/l	1
	This sample was analyzed past the 7-day hold time for TSS at the client's request.					
00212	Total Dissolved Solids	n.a.	1,090.	120.	mg/l	1
00937	TCL Pesticides in Waters					
00938	Endrin Ketone	53494-70-5	N.D.	0.019	ug/l	1
01361	Alpha Chlordane	5103-71-9	N.D.	0.0097	ug/l	1
01362	Gamma Chlordane	5103-74-2	N.D.	0.0097	ug/l	1
01600	Alpha BHC	319-84-6	N.D.	0.0097	ug/l	1
01601	Beta BHC	319-85-7	N.D.	0.0097	ug/l	1
01602	Gamma BHC - Lindane	58-89-9	N.D.	0.0097	ug/l	1
01603	Delta BHC	319-86-8	0.0093 J	0.0097	ug/l	1
01604	Heptachlor	76-44-8	N.D.	0.0097	ug/l	1
01605	Aldrin	309-00-2	N.D.	0.024	ug/l	1
01606	Heptachlor Epoxide	1024-57-3	N.D.	0.0097	ug/l	1
01607	p,p-DDE	72-55-9	N.D.	0.019	ug/l	1
01608	p,p-DDD	72-54-8	N.D.	0.019	ug/l	1
01609	p,p-DDT	50-29-3	N.D.	0.019	ug/l	1
01610	Dieldrin	60-57-1	N.D.	0.019	ug/l	1
01611	Endrin	72-20-8	0.0047 J	0.019	ug/l	1
01613	Toxaphene	8001-35-2	N.D.	1.0	ug/l	1
01615	Endosulfan II	33213-65-9	N.D.	0.019	ug/l	1
01616	Endosulfan I	959-98-8	N.D.	0.0097	ug/l	1
01617	Endosulfan Sulfate	1031-07-8	N.D.	0.019	ug/l	1
01618	Endrin Aldehyde	7421-93-4	N.D.	0.097	ug/l	1
01619	PCB-1016	12674-11-2	N.D.	0.48	ug/l	1
01620	PCB-1221	11104-28-2	N.D.	0.48	ug/l	1
01621	PCB-1232	11141-16-5	N.D.	0.48	ug/l	1
01622	PCB-1242	53469-21-9	N.D.	0.48	ug/l	1
01623	PCB-1248	12672-29-6	N.D.	0.48	ug/l	1
01624	PCB-1254	11097-69-1	N.D.	0.48	ug/l	1
01626	PCB-1260	11096-82-5	N.D.	0.48	ug/l	1
01860	Methoxychlor	72-43-5	N.D.	0.097	ug/l	1
05088	PCB Congeners-Full List-water					
07994	PCB 1	2051-60-7	N.D.	0.095	ug/l	1

Lancaster Laboratories
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Lancaster Laboratories Sample No. WW 3931399

Collected:10/31/2002 12:20 by BS

Account Number: 01963

Submitted: 10/31/2002 18:15
Reported: 11/22/2002 at 13:26
Discard: 12/23/2002
LC-108 Dup Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

L108D SDG#: DUF01-20FD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
07996	PCB 8	34883-43-7	N.D.	0.019	ug/l	1
07997	PCB 18	37680-65-2	N.D.	0.019	ug/l	1
08002	PCB 49	41464-40-8	N.D.	0.019	ug/l	1
08009	PCB 87	38380-02-8	N.D.	0.019	ug/l	1
08020	PCB 128	38380-07-3	N.D.	0.019	ug/l	1
08033	PCB 180	35066-29-3	N.D.	0.019	ug/l	1
08038	PCB 194	35694-08-7	N.D.	0.019	ug/l	1
08041	PCB 206	40186-72-9	N.D.	0.019	ug/l	1
08042	PCB 209	2051-24-3	N.D.	0.019	ug/l	1

PCB-002 was detected in the blank at a concentration of 1.53 ug/l. The blank is not subtracted from the sample concentration.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	11/09/2002 10:29	Eric W Cuba	1
01758	Manganese	SW-846 6010B	1	11/09/2002 10:29	Eric W Cuba	1
00206	Total Suspended Solids	EPA 160.2	1	11/20/2002 14:27	Anne L Kuenzli	1
00212	Total Dissolved Solids	EPA 160.1	1	11/05/2002 11:35	Anne L Kuenzli	1
00937	TCL Pesticides in Waters	SW-846 8081A/8082	1	11/06/2002 20:04	Douglas D Seitz	1
05088	PCB Congeners-Full List-water	SW-846 8082 (modified)	1	11/09/2002 05:29	Tiffany A Leyda	1
00817	Water Sample Pest. Extraction	SW-846 3510C	1	11/04/2002 16:45	Desiree J Wann	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	11/04/2002 16:00	Irimar Leon	1

Lancaster Laboratories
Where quality is a science

Lancaster Laboratories Sample No. WW 3931400

Collected:10/31/2002 12:20 by BS

Account Number: 01963

Submitted: 10/31/2002 18:15
Reported: 11/22/2002 at 13:26
Discard: 12/23/2002
LC-108 Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

LC108 SDG#: DUF01-21

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
01754	Iron	7439-89-6	48.3	0.100	mg/l	1
01758	Manganese	7439-96-5	3.64	0.0100	mg/l	1
00206	Total Suspended Solids	n.a.	115.	20.	mg/l	1
	This sample was analyzed past the 7-day hold time for TSS at the client's request.					
00212	Total Dissolved Solids	n.a.	916.	60.	mg/l	1
00937	TCL Pesticides in Waters					
00938	Endrin Ketone	53494-70-5	N.D.	0.019	ug/l	1
01361	Alpha Chlordane	5103-71-9	N.D.	0.0097	ug/l	1
01362	Gamma Chlordane	5103-74-2	N.D.	0.0097	ug/l	1
01600	Alpha BHC	319-84-6	N.D.	0.0097	ug/l	1
01601	Beta BHC	319-85-7	N.D.	0.0097	ug/l	1
01602	Gamma BHC - Lindane	58-89-9	N.D.	0.0097	ug/l	1
01603	Delta BHC	319-86-8	0.0082 J	0.0097	ug/l	1
01604	Heptachlor	76-44-8	N.D.	0.0097	ug/l	1
01605	Aldrin	309-00-2	N.D.	0.024	ug/l	1
01606	Heptachlor Epoxide	1024-57-3	N.D.	0.0097	ug/l	1
01607	p,p-DDE	72-55-9	N.D.	0.019	ug/l	1
01608	p,p-DDD	72-54-8	N.D.	0.019	ug/l	1
01609	p,p-DDT	50-29-3	N.D.	0.019	ug/l	1
01610	Dieldrin	60-57-1	N.D.	0.019	ug/l	1
01611	Endrin	72-20-8	0.0048 J	0.019	ug/l	1
01613	Toxaphene	8001-35-2	N.D.	1.0	ug/l	1
01615	Endosulfan II	33213-65-9	N.D.	0.019	ug/l	1
01616	Endosulfan I	959-98-8	N.D.	0.0097	ug/l	1
01617	Endosulfan Sulfate	1031-07-8	N.D.	0.019	ug/l	1
01618	Endrin Aldehyde	7421-93-4	N.D.	0.097	ug/l	1
01619	PCB-1016	12674-11-2	N.D.	0.48	ug/l	1
01620	PCB-1221	11104-28-2	N.D.	0.48	ug/l	1
01621	PCB-1232	11141-16-5	N.D.	0.48	ug/l	1
01622	PCB-1242	53469-21-9	N.D.	0.48	ug/l	1
01623	PCB-1248	12672-29-6	N.D.	0.48	ug/l	1
01624	PCB-1254	11097-69-1	N.D.	0.48	ug/l	1
01626	PCB-1260	11096-82-5	N.D.	0.48	ug/l	1
01860	Methoxychlor	72-43-5	N.D.	0.097	ug/l	1
05088	PCB Congeners-Full List-water					
07994	PCB 1	2051-60-7	N.D.	0.097	ug/l	1

Lancaster Laboratories

Lancaster Laboratories Sample No. WW 3931400

Collected:10/31/2002 12:20 by BS

Account Number: 01963

Submitted: 10/31/2002 18:15
Reported: 11/22/2002 at 13:26
Discard: 12/23/2002
LC-108 Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

LC108 SDG#: DUF01-21

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
07996	PCB 8	34883-43-7	N.D.	0.019	ug/l	1
07997	PCB 18	37680-65-2	N.D.	0.019	ug/l	1
08002	PCB 49	41464-40-8	N.D.	0.019	ug/l	1
08009	PCB 87	38380-02-8	N.D.	0.019	ug/l	1
08020	PCB 128	38380-07-3	N.D.	0.019	ug/l	1
08033	PCB 180	35066-29-3	N.D.	0.019	ug/l	1
08038	PCB 194	35694-08-7	N.D.	0.019	ug/l	1
08041	PCB 206	40186-72-9	N.D.	0.019	ug/l	1
08042	PCB 209	2051-24-3	N.D.	0.019	ug/l	1

PCB-002 was detected in the blank at a concentration of 1.53 ug/l. The blank is not subtracted from the sample concentration.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	11/09/2002 10:34	Eric W Cuba	1
01758	Manganese	SW-846 6010B	1	11/09/2002 10:34	Eric W Cuba	1
00206	Total Suspended Solids	EPA 160.2	1	11/20/2002 14:27	Anne L Kuenzli	1
00212	Total Dissolved Solids	EPA 160.1	1	11/05/2002 11:35	Anne L Kuenzli	1
00937	TCL Pesticides in Waters	SW-846 8081A/8082	1	11/06/2002 21:24	Douglas D Seitz	1
05088	PCB Congeners-Full List-water	SW-846 8082 (modified)	1	11/09/2002 06:33	Tiffany A Leyda	1
00817	Water Sample Pest. Extraction	SW-846 3510C	1	11/04/2002 16:45	Desiree J Wann	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	11/04/2002 16:00	Irimar Leon	1

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Lancaster Laboratories Sample No. WW 3931401

Collected:10/31/2002 10:30 by BS

Account Number: 01963

Submitted: 10/31/2002 18:15
Reported: 11/22/2002 at 13:26
Discard: 12/23/2002
LC-101 Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

LC101 SDG#: DUF01-22

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
01754	Iron	7439-89-6	33.3	0.100	mg/l	1
01758	Manganese	7439-96-5	1.38	0.0100	mg/l	1
00206	Total Suspended Solids	n.a.	145.	20.	mg/l	1
	This sample was analyzed past the 7-day hold time for TSS at the client's request.					
00212	Total Dissolved Solids	n.a.	834.	60.	mg/l	1
00937	TCL Pesticides in Waters					
00938	Endrin Ketone	53494-70-5	N.D.	0.019	ug/l	1
01361	Alpha Chlordane	5103-71-9	N.D.	0.0096	ug/l	1
01362	Gamma Chlordane	5103-74-2	N.D.	0.0096	ug/l	1
01600	Alpha BHC	319-84-6	N.D.	0.0096	ug/l	1
01601	Beta BHC	319-85-7	N.D.	0.0096	ug/l	1
01602	Gamma BHC - Lindane	58-89-9	N.D.	0.0096	ug/l	1
01603	Delta BHC	319-86-8	N.D.	0.0096	ug/l	1
01604	Heptachlor	76-44-8	N.D.	0.0096	ug/l	1
01605	Aldrin	309-00-2	N.D.	0.024	ug/l	1
01606	Heptachlor Epoxide	1024-57-3	N.D.	0.0096	ug/l	1
01607	p,p-DDE	72-55-9	N.D.	0.019	ug/l	1
01608	p,p-DDD	72-54-8	N.D.	0.019	ug/l	1
01609	p,p-DDT	50-29-3	N.D.	0.019	ug/l	1
01610	Dieldrin	60-57-1	N.D.	0.019	ug/l	1
01611	Endrin	72-20-8	N.D.	0.019	ug/l	1
01613	Toxaphene	8001-35-2	N.D.	1.0	ug/l	1
01615	Endosulfan II	33213-65-9	N.D.	0.019	ug/l	1
01616	Endosulfan I	959-98-8	N.D.	0.0096	ug/l	1
01617	Endosulfan Sulfate	1031-07-8	N.D.	0.019	ug/l	1
01618	Endrin Aldehyde	7421-93-4	N.D.	0.096	ug/l	1
01619	PCB-1016	12674-11-2	N.D.	0.48	ug/l	1
01620	PCB-1221	11104-28-2	N.D.	0.48	ug/l	1
01621	PCB-1232	11141-16-5	N.D.	0.48	ug/l	1
01622	PCB-1242	53469-21-9	N.D.	0.48	ug/l	1
01623	PCB-1248	12672-29-6	N.D.	0.48	ug/l	1
01624	PCB-1254	11097-69-1	N.D.	0.48	ug/l	1
01626	PCB-1260	11096-82-5	N.D.	0.48	ug/l	1
01860	Methoxychlor	72-43-5	N.D.	0.096	ug/l	1
05088	PCB Congeners-Full List-water					
07994	PCB 1	2051-60-7	N.D.	0.095	ug/l	1

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Where quality is a science.

Lancaster Laboratories Sample No. WW 3931401

Collected:10/31/2002 10:30 by BS

Account Number: 01963

Submitted: 10/31/2002 18:15
Reported: 11/22/2002 at 13:26
Discard: 12/23/2002
LC-101 Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

LC101 SDG#: DUF01-22

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
07996	PCB 8	34883-43-7	N.D.	0.019	ug/l	1
07997	PCB 18	37680-65-2	N.D.	0.019	ug/l	1
08002	PCB 49	41464-40-8	N.D.	0.019	ug/l	1
08009	PCB 87	38380-02-8	N.D.	0.019	ug/l	1
08020	PCB 128	38380-07-3	N.D.	0.019	ug/l	1
08033	PCB 180	35066-29-3	N.D.	0.019	ug/l	1
08038	PCB 194	35694-08-7	N.D.	0.019	ug/l	1
08041	PCB 206	40186-72-9	N.D.	0.019	ug/l	1
08042	PCB 209	2051-24-3	N.D.	0.019	ug/l	1

PCB-002 was detected in the blank at a concentration of 1.53 ug/l. The blank is not subtracted from the sample concentration.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	11/09/2002 10:49	Eric W Cuba	1
01758	Manganese	SW-846 6010B	1	11/09/2002 10:49	Eric W Cuba	1
00206	Total Suspended Solids	EPA 160.2	1	11/20/2002 14:27	Anne L Kuenzli	1
00212	Total Dissolved Solids	EPA 160.1	1	11/05/2002 11:35	Anne L Kuenzli	1
00937	TCL Pesticides in Waters	SW-846 8081A/8082	1	11/06/2002 21:44	Douglas D Seitz	1
05088	PCB Congeners-Full List-water	SW-846 8082 (modified)	1	11/09/2002 07:36	Tiffany A Leyda	1
00817	Water Sample Pest. Extraction	SW-846 3510C	1	11/04/2002 16:45	Desiree J Wann	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	11/04/2002 16:00	Irimar Leon	1

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209 PCB CONGENER REPORT

DF	1	Date Recd		SDG No.	DUF01	Sample Wt	1000
Client ID:	P0UXDW	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	BLANKA	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
1	2-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.10	0.020
2	3-Chlorobiphenyl	1.5	3145	0.10	0.020	1.5	0.10	0.020
3	4-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.10	0.020
4	2,2'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
5	2,3-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
6	2,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
7	2,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
8	2,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
9	2,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
10	2,6-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
11	3,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
12	3,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
13	3,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
14	3,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
15	4,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
16	2,2',3-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
17	2,2',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
18	2,2',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
19	2,2',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
20	2,3,3'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
21	2,3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
22	2,3,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
23	2,3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
24	2,3,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
25	2,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
26	2,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
27	2,3',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
28	2,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
29	2,4,5-Trichlorbiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
30	2,4,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
31	2,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
32	2,4',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
33	2',3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
34	2',3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
35	3,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
36	3,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
37	3,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
38	3,4,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
39	3,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
40	2,2',3,3'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
41	2,2',3,4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
42	2,2',3,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
43	2,2',3,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
44	2,2',3,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
45	2,2',3,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
46	2,2',3,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
47	2,2',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050

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209 PCB CONGENER REPORT

DF	1	Date Rec'd		SDG No.	DUF01	Sample Wt	1000
Client ID:	PDUXDW	Date Ext.	11/6/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	BLANKA	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
48	2,2',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
49	2,2',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
50	2,2',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
51	2,2',4,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
52	2,2',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
53	2,2',5,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
54	2,2',6,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
55	2,3,3',4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
56	2,3,3',4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
57	2,3,3',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
58	2,3,3',5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
59	2,3,3',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
60	2,3,4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
61	2,3,4,5,-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
62	2,3,4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
63	2,3,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
64	2,3,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
65	2,3,5,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
66	2,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
67	2,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
68	2,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
69	2,3',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
70	2,3',4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
71	2,3',4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
72	2,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
73	2,3',5',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
74	2,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
75	2,4,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
76	2',3,4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
77	3,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
78	3,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
79	3,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
80	3,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
81	3,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
82	2,2',3,3',4-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
83	2,2',3,3',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
84	2,2',3,3',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
85	2,2',3,4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
86	2,2',3,4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
87	2,2',3,4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
88	2,2',3,4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
89	2,2',3,4,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
90	2,2',3,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
91	2,2',3,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
92	2,2',3,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
93	2,2',3,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
94	2,2',3,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050

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209 PCB CONGENER REPORT

DF	1	Date Recd		SDG No.	OUF01	Sample Wt	1000
Client ID:	PSUXDW	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ml	10000
Sample No:	BLANKA	Date Inj	11/5/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
95	2,2',3,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
96	2,2',3,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
97	2,2',3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
98	2,2',3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
99	2,2',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
100	2,2',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
101	2,2',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
102	2,2',4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
103	2,2',4,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
104	2,2',4,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
105	2,3,3',4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
106	2,3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
107	2,3,3',4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
108	2,3,3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
109	2,3,3',4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
110	2,3,3',4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
111	2,3,3',5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
112	2,3,3',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
113	2,3,3',5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
114	2,3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
115	2,3,4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
116	2,3,4,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
117	2,3,4',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
118	2,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
119	2,3',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
120	2,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
121	2,3',4,5',6-Pentachlorbiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
122	2',3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
123	2',3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
124	2',3,4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
125	2',3,4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
126	3,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
127	3,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
128	2,2',3,3',4,4'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
129	2,2',3,3',4,5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
130	2,2',3,3',4,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
131	2,2',3,3',4,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
132	2,2',3,3',4,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
133	2,2',3,3',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
134	2,2',3,3',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
135	2,2',3,3',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
136	2,2',3,3',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
137	2,2',3,4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
138	2,2',3,4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
139	2,2',3,4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
140	2,2',3,4,4',6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
141	2,2',3,4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050

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209 PCB CONGENER REPORT

DF	1		Date Rec'd		SDG No.	DUF01	Sample Wt	1000
Client ID:	PBLKDW		Date Ext.	11/5/02	Conc/Sox	Conc	F.Vol. ul	10000
Sample No:	BLANKA		Date Inj	11/8/02	Matrix	Water	Moisture	NA
IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
142	2,2',3,4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
143	2,2',3,4,5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
144	2,2',3,4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
145	2,2',3,4,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
146	2,2',3,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
147	2,2',3,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
148	2,2',3,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
149	2,2',3,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
150	2,2',3,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
151	2,2',3,5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
152	2,2',3,5,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
153	2,2',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
154	2,2',4,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
155	2,2',4,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
156	2,3,3',4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
157	2,3,3',4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
158	2,3,3',4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
159	2,3,3',4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
160	2,3,3',4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
161	2,3,3',4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
162	2,3,3',4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
163	2,3,3',4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
164	2,3,3',4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
165	2,3,3',5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
166	2,3,4,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
167	2,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
168	2,3',4,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
169	3,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
173	2,2',3,3',4,5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
175	2,2',3,3',4,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
177	2,2',3,3',4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
178	2,2',3,3',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
181	2,2',3,4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
183	2,2',3,4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
185	2,2',3,4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050

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209 PCB CONGENER REPORT

DF	1	Date Rec'd		SDG No.	DUF01	Sample Wt	1000
Client ID:	PDUXDW	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	BLANKA	Date Inj	11/6/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
190	2,3,3',4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
191	2,3,3',4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
192	2,3,3',4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
193	2,3,3',4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
196	2,2',3,3',4,4',5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
202	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
209	Decachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050

HOMOLOG	TOTAL UG/L	WEIGHT %
Monochlorobiphenyls	1.5	100
Dichlorobiphenyls	0.0000	0.0000
Trichlorobiphenyls	0.0000	0.0000
Tetrachlorobiphenyls	0.0000	0.0000
Pentachlorobiphenyls	0.0000	0.0000
Hexachlorobiphenyls	0.0000	0.0000
Heptachlorobiphenyls	0.0000	0.0000
Octachlorobiphenyls	0.0000	0.0000
Nonachlorobiphenyls	0.0000	0.0000
Decachlorobiphenyls	0.0000	0.0000

TOTAL PCB 1.5 UG/L

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209 PCB CONGENER REPORT

OF	1	Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	1010
Client ID:	PS-3A	Date Ext.	11/5/02	Conc/Size	Conc	F.Vol. ul	10000
Sample No:	3331391	Date Inj	11/5/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
1	2-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.099	0.020
2	3-Chlorobiphenyl	0.320212		0.10	0.020	0.32	0.099	0.020
3	4-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.099	0.020
4	2,2'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
5	2,3-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
6	2,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
7	2,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
8	2,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
9	2,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
10	2,6-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
11	3,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
12	3,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
13	3,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
14	3,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
15	4,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
16	2,2',3-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
17	2,2',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
18	2,2',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
19	2,2',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
20	2,3,3'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
21	2,3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
22	2,3,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
23	2,3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
24	2,3,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
25	2,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
26	2,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
27	2,3',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
28	2,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
29	2,4,5-Trichlorbiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
30	2,4,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
31	2,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
32	2,4',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
33	2',3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
34	2',3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
35	3,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
36	3,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
37	3,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
38	3,4,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
39	3,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
40	2,2',3,3'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
41	2,2',3,4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
42	2,2',3,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
43	2,2',3,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
44	2,2',3,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
45	2,2',3,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
46	2,2',3,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
47	2,2',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	1010	
Client ID:	P5-3A	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ul	10000	
Sample No:	3931331	Date Inj	11/8/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
48	2,2',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
49	2,2',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
50	2,2',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
51	2,2',4,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
52	2,2',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
53	2,2',5,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
54	2,2',6,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
55	2,3,3',4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
56	2,3,3',4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
57	2,3,3',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
58	2,3,3',5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
59	2,3,3',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
60	2,3,4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
61	2,3,4,5,-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
62	2,3,4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
63	2,3,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
64	2,3,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
65	2,3,5,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
66	2,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
67	2,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
68	2,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
69	2,3',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
70	2,3',4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
71	2,3',4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
72	2,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
73	2,3',5',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
74	2,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
75	2,4,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
76	2',3,4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
77	3,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
78	3,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
79	3,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
80	3,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
81	3,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
82	2,2',3,3',4-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
83	2,2',3,3',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
84	2,2',3,3',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
85	2,2',3,4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
86	2,2',3,4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
87	2,2',3,4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
88	2,2',3,4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
89	2,2',3,4,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
90	2,2',3,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
91	2,2',3,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
92	2,2',3,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
93	2,2',3,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
94	2,2',3,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	1010	
Client ID:	PS-3A	Date Ext.	11/5/02	Samp/Sox	Samp	F.Vol. ul	10000	
Sample No:	3501331	Date Inj	11/8/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
95	2,2',3,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
96	2,2',3,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
97	2,2',3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
98	2,2',3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
99	2,2',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
100	2,2',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
101	2,2',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
102	2,2',4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
103	2,2',4,5',6-Pentachlorobiphenyl	0.005085	J	0.020	0.0050	0.0051	0.020	0.0050
104	2,2',4,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
105	2,3,3',4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
106	2,3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
107	2,3,3',4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
108	2,3,3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
109	2,3,3',4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
110	2,3,3',4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
111	2,3,3',5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
112	2,3,3',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
113	2,3,3',5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
114	2,3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
115	2,3,4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
116	2,3,4,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
117	2,3,4',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
118	2,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
119	2,3',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
120	2,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
121	2,3',4,5',6-Pentachlorbiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
122	2',3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
123	2',3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
124	2',3,4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
125	2',3,4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
126	3,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
127	3,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
128	2,2',3,3',4,4'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
129	2,2',3,3',4,5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
130	2,2',3,3',4,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
131	2,2',3,3',4,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
132	2,2',3,3',4,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
133	2,2',3,3',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
134	2,2',3,3',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
135	2,2',3,3',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
136	2,2',3,3',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
137	2,2',3,4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
138	2,2',3,4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
139	2,2',3,4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
140	2,2',3,4,4',6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
141	2,2',3,4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	1010
Client ID:	P5-3A	Date Ext.	11/5/02	Sonc/Soxx	Sonc	F.Vol ul	10000
Sample No:	3531391	Date Inj	11/8/02	Metric	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
142	2,2',3,4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
143	2,2',3,4,5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
144	2,2',3,4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
145	2,2',3,4,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
146	2,2',3,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
147	2,2',3,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
148	2,2',3,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
149	2,2',3,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
150	2,2',3,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
151	2,2',3,5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
152	2,2',3,5,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
153	2,2',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
154	2,2',4,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
155	2,2',4,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
156	2,3,3',4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
157	2,3,3',4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
158	2,3,3',4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
159	2,3,3',4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
160	2,3,3',4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
161	2,3,3',4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
162	2,3,3',4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
163	2,3,3',4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
164	2,3,3',4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
165	2,3,3',5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
166	2,3,4,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
167	2,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
168	2,3',4,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
169	3,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
173	2,2',3,3',4,5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
175	2,2',3,3',4,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
177	2,2',3,3',4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
178	2,2',3,3',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
181	2,2',3,4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
183	2,2',3,4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
185	2,2',3,4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	OUF01	Sample Wt	1010
Client ID:	PS-3A	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3931351	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
190	2,3,3',4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
191	2,3,3',4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
192	2,3,3',4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
193	2,3,3',4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
196	2,2',3,3',4,4',5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
202	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
209	Decachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050

HOMOLOG	TOTAL UG/L	WEIGHT %
Monochlorobiphenyls	0.32	98.4
Dichlorobiphenyls	0.0000	0.0000
Trichlorobiphenyls	0.0000	0.0000
Tetrachlorobiphenyls	0.0000	0.0000
Pentachlorobiphenyls	0.0051	1.6
Hexachlorobiphenyls	0.0000	0.0000
Heptachlorobiphenyls	0.0000	0.0000
Octachlorobiphenyls	0.0000	0.0000
Nonachlorobiphenyls	0.0000	0.0000
Decachlorobiphenyls	0.0000	0.0000

TOTAL PCB 0.33 UG/L

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	996
Client ID:	PS11A	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3931393	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
1	2-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.10	0.021
2	3-Chlorobiphenyl	0.340585		0.10	0.020	0.34	0.10	0.021
3	4-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.10	0.021
4	2,2'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
5	2,3-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
6	2,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
7	2,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
8	2,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
9	2,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
10	2,6-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
11	3,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
12	3,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
13	3,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
14	3,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
15	4,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
16	2,2',3-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
17	2,2',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
18	2,2',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
19	2,2',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
20	2,3,3'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
21	2,3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
22	2,3,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
23	2,3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
24	2,3,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
25	2,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
26	2,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
27	2,3',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
28	2,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
29	2,4,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
30	2,4,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
31	2,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
32	2,4',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
33	2',3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
34	2',3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
35	3,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
36	3,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
37	3,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
38	3,4,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
39	3,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
40	2,2',3,3'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
41	2,2',3,4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
42	2,2',3,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
43	2,2',3,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
44	2,2',3,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
45	2,2',3,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
46	2,2',3,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
47	2,2',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052

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209 PCB CONGENER REPORT

DF	1	Date Recd	10/31/02	SDG No.	DUF01	Sample Wt	955
Client ID:	PS11A	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3531353	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
48	2,2',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
49	2,2',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
50	2,2',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
51	2,2',4,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
52	2,2',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
53	2,2',5,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
54	2,2',6,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
55	2,3,3',4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
56	2,3,3',4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
57	2,3,3',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
58	2,3,3',5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
59	2,3,3',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
60	2,3,4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
61	2,3,4,5,-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
62	2,3,4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
63	2,3,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
64	2,3,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
65	2,3,5,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
66	2,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
67	2,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
68	2,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
69	2,3',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
70	2,3',4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
71	2,3',4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
72	2,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
73	2,3',5',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
74	2,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
75	2,4,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
76	2',3,4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
77	3,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
78	3,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
79	3,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
80	3,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
81	3,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
82	2,2',3,3',4-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
83	2,2',3,3',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
84	2,2',3,3',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
85	2,2',3,4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
86	2,2',3,4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
87	2,2',3,4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
88	2,2',3,4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
89	2,2',3,4,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
90	2,2',3,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
91	2,2',3,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
92	2,2',3,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
93	2,2',3,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
94	2,2',3,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052

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209 PCB CONGENER REPORT

DF	1	Date Rcvd	10/31/02	SDG No.	DUF01	Sample Wt	556
Client ID:	P511A	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ml	10000
Sample No:	3931293	Date Inj	11/5/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
95	2,2',3,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
96	2,2',3,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
97	2,2',3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
98	2,2',3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
99	2,2',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
100	2,2',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
101	2,2',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
102	2,2',4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
103	2,2',4,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
104	2,2',4,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
105	2,3,3',4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
106	2,3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
107	2,3,3',4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
108	2,3,3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
109	2,3,3',4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
110	2,3,3',4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
111	2,3,3',5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
112	2,3,3',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
113	2,3,3',5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
114	2,3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
115	2,3,4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
116	2,3,4,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
117	2,3,4',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
118	2,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
119	2,3',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
120	2,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
121	2,3',4,5',6-Pentachlorbiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
122	2',3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
123	2',3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
124	2',3,4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
125	2',3,4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
126	3,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
127	3,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
128	2,2',3,3',4,4'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
129	2,2',3,3',4,5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
130	2,2',3,3',4,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
131	2,2',3,3',4,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
132	2,2',3,3',4,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
133	2,2',3,3',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
134	2,2',3,3',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
135	2,2',3,3',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
136	2,2',3,3',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
137	2,2',3,4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
138	2,2',3,4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
139	2,2',3,4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
140	2,2',3,4,4',6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
141	2,2',3,4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	999	
Client ID:	P511A	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ul	10000	
Sample No:	3931353	Date Inj	11/8/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
142	2,2',3,4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
143	2,2',3,4,5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
144	2,2',3,4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
145	2,2',3,4,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
146	2,2',3,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
147	2,2',3,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
148	2,2',3,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
149	2,2',3,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
150	2,2',3,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
151	2,2',3,5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
152	2,2',3,5,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
153	2,2',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
154	2,2',4,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
155	2,2',4,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
156	2,3,3',4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
157	2,3,3',4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
158	2,3,3',4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
159	2,3,3',4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
160	2,3,3',4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
161	2,3,3',4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
162	2,3,3',4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
163	2,3,3',4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
164	2,3,3',4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
165	2,3,3',5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
166	2,3,4,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
167	2,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
168	2,3',4,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
169	3,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
173	2,2',3,3',4,5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
175	2,2',3,3',4,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
177	2,2',3,3',4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
178	2,2',3,3',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
181	2,2',3,4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
183	2,2',3,4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
185	2,2',3,4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	956
Client ID:	P511A	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3931393	Date Inj	11/5/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
190	2,3,3',4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
191	2,3,3',4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
192	2,3,3',4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
193	2,3,3',4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
196	2,2',3,3',4,4',5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
202	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
209	Decachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052

HOMOLOG	TOTAL UG/L	WEIGHT %
Monochlorobiphenyls	0.14	100
Dichlorobiphenyls	0.0000	0.0000
Trichlorobiphenyls	0.0000	0.0000
Tetrachlorobiphenyls	0.0000	0.0000
Pentachlorobiphenyls	0.0000	0.0000
Hexachlorobiphenyls	0.0000	0.0000
Heptachlorobiphenyls	0.0000	0.0000
Octachlorobiphenyls	0.0000	0.0000
Nonachlorobiphenyls	0.0000	0.0000
Decachlorobiphenyls	0.0000	0.0000

TOTAL PCB 0.14 UG/L

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209 PCB CONGENER REPORT

DF	1		Date Recd	10/31/02	SDG No.	DUF01	Sample Wt	1025	
Client ID:	PS13A		Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ul	10000	
Sample No:	3331355		Date Inj	11/8/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
1	2-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.098	0.020
2	3-Chlorobiphenyl	0.757231		0.10	0.020	0.76	0.098	0.020
3	4-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.098	0.020
4	2,2'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
5	2,3-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
6	2,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
7	2,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
8	2,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
9	2,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
10	2,6-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
11	3,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
12	3,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
13	3,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
14	3,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
15	4,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
16	2,2',3-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
17	2,2',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
18	2,2',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
19	2,2',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
20	2,3,3'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
21	2,3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
22	2,3,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
23	2,3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
24	2,3,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
25	2,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
26	2,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
27	2,3',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
28	2,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
29	2,4,5-Trichlorbiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
30	2,4,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
31	2,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
32	2,4',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
33	2',3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
34	2',3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
35	3,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
36	3,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
37	3,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
38	3,4,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
39	3,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
40	2,2',3,3'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
41	2,2',3,4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
42	2,2',3,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
43	2,2',3,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
44	2,2',3,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
45	2,2',3,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
46	2,2',3,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
47	2,2',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049

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209 PCB CONGENER REPORT

DF	1		Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	1025	
Client ID:	P513A		Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ul	10000	
Sample No:	3931335		Date Inj	11/8/02	Matrix	Water	Moisture	NA	
IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL	
48	2,2',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
49	2,2',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
50	2,2',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
51	2,2',4,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
52	2,2',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
53	2,2',5,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
54	2,2',6,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
55	2,3,3',4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
56	2,3,3',4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
57	2,3,3',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
58	2,3,3',5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
59	2,3,3',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
60	2,3,4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
61	2,3,4,5,-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
62	2,3,4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
63	2,3,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
64	2,3,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
65	2,3,5,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
66	2,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
67	2,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
68	2,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
69	2,3',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
70	2,3',4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
71	2,3',4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
72	2,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
73	2,3',5',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
74	2,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
75	2,4,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
76	2',3,4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
77	3,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
78	3,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
79	3,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
80	3,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
81	3,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
82	2,2',3,3',4-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
83	2,2',3,3',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
84	2,2',3,3',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
85	2,2',3,4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
86	2,2',3,4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
87	2,2',3,4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
88	2,2',3,4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
89	2,2',3,4,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
90	2,2',3,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
91	2,2',3,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
92	2,2',3,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
93	2,2',3,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
94	2,2',3,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	1025	
Client ID:	P513A	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ul	10000	
Sample No:	3931335	Date Inj	11/5/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
95	2,2',3,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
96	2,2',3,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
97	2,2',3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
98	2,2',3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
99	2,2',4,4',5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
100	2,2',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
101	2,2',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
102	2,2',4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
103	2,2',4,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
104	2,2',4,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
105	2,3,3',4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
106	2,3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
107	2,3,3',4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
108	2,3,3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
109	2,3,3',4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
110	2,3,3',4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
111	2,3,3',5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
112	2,3,3',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
113	2,3,3',5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
114	2,3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
115	2,3,4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
116	2,3,4,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
117	2,3,4',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
118	2,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
119	2,3',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
120	2,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
121	2,3',4,5',6-Pentachlorbiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
122	2',3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
123	2',3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
124	2',3,4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
125	2',3,4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
126	3,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
127	3,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
128	2,2',3,3',4,4'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
129	2,2',3,3',4,5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
130	2,2',3,3',4,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
131	2,2',3,3',4,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
132	2,2',3,3',4,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
133	2,2',3,3',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
134	2,2',3,3',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
135	2,2',3,3',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
136	2,2',3,3',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
137	2,2',3,4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
138	2,2',3,4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
139	2,2',3,4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
140	2,2',3,4,4',6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
141	2,2',3,4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049

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209 PCB CONGENER REPORT

DF	1		Date Recd	10/31/02	SDG No.	DUF01	Sample Wt	1025	
Client ID:	PS13A		Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ul	10000	
Sample No:	3331395		Date Inj	11/5/02	Matrix	Water	Moisture	NA	
IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL	
142	2,2',3,4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
143	2,2',3,4,5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
144	2,2',3,4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
145	2,2',3,4,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
146	2,2',3,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
147	2,2',3,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
148	2,2',3,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
149	2,2',3,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
150	2,2',3,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
151	2,2',3,3',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
152	2,2',3,3',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
153	2,2',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
154	2,2',4,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
155	2,2',4,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
156	2,3,3',4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
157	2,3,3',4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
158	2,3,3',4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
159	2,3,3',4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
160	2,3,3',4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
161	2,3,3',4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
162	2,3,3',4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
163	2,3,3',4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
164	2,3,3',4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
165	2,3,3',5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
166	2,3,4,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
167	2,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
168	2,3',4,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
169	3,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
173	2,2',3,3',4,5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
175	2,2',3,3',4,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
177	2,2',3,3',4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
178	2,2',3,3',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
181	2,2',3,4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
183	2,2',3,4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
185	2,2',3,4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	
188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049	

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209 PCB CONGENER REPORT

DF	1	Date Recd	10/31/02	SDG No.	DUF01	Sample Wt	1025
Client ID:	P513A	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3931185	Date Inj	11/5/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
190	2,3,3',4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
191	2,3,3',4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
192	2,3,3',4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
193	2,3,3',4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
196	2,2',3,3',4,4',5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
202	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
209	Decachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049

HOMOLOG	TOTAL UG/L	WEIGHT %
Monochlorobiphenyls	0.76	100
Dichlorobiphenyls	0.0000	0.0000
Trichlorobiphenyls	0.0000	0.0000
Tetrachlorobiphenyls	0.0000	0.0000
Pentachlorobiphenyls	0.0000	0.0000
Hexachlorobiphenyls	0.0000	0.0000
Heptachlorobiphenyls	0.0000	0.0000
Octachlorobiphenyls	0.0000	0.0000
Nonachlorobiphenyls	0.0000	0.0000
Decachlorobiphenyls	0.0000	0.0000

TOTAL PCB 0.76 UG/L

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SOG No.	DUF01	Sample Wt	1051	
Client ID:	LC110	Date Ext.	11/5/02	Soxc/Sox	Soxc	F.Vol. ul	10000	
Sample No:	3931397	Date Inj	11/8/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
1	2-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.095	0.019
2	3-Chlorobiphenyl	0.353734		0.10	0.020	0.35	0.095	0.019
3	4-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.095	0.019
4	2,2'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
5	2,3-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
6	2,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
7	2,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
8	2,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
9	2,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
10	2,6-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
11	3,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
12	3,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
13	3,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
14	3,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
15	4,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
16	2,2',3-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
17	2,2',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
18	2,2',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
19	2,2',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
20	2,3,3'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
21	2,3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
22	2,3,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
23	2,3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
24	2,3,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
25	2,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
26	2,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
27	2,3',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
28	2,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
29	2,4,5-Trichlorbiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
30	2,4,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
31	2,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
32	2,4',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
33	2',3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
34	2',3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
35	3,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
36	3,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
37	3,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
38	3,4,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
39	3,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
40	2,2',3,3'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
41	2,2',3,4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
42	2,2',3,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
43	2,2',3,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
44	2,2',3,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
45	2,2',3,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
46	2,2',3,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
47	2,2',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	1051	
Client ID:	LC113	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ul	10000	
Sample No:	1931397	Date Inj	11/8/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
48	2,2',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
49	2,2',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
50	2,2',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
51	2,2',4,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
52	2,2',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
53	2,2',5,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
54	2,2',6,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
55	2,3,3',4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
56	2,3,3',4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
57	2,3,3',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
58	2,3,3',5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
59	2,3,3',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
60	2,3,4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
61	2,3,4,5,-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
62	2,3,4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
63	2,3,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
64	2,3,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
65	2,3,5,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
66	2,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
67	2,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
68	2,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
69	2,3',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
70	2,3',4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
71	2,3',4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
72	2,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
73	2,3',5',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
74	2,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
75	2,4,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
76	2',3,4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
77	3,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
78	3,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
79	3,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
80	3,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
81	3,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
82	2,2',3,3',4-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
83	2,2',3,3',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
84	2,2',3,3',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
85	2,2',3,4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
86	2,2',3,4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
87	2,2',3,4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
88	2,2',3,4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
89	2,2',3,4,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
90	2,2',3,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
91	2,2',3,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
92	2,2',3,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
93	2,2',3,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
94	2,2',3,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048

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209 PCB CONGENER REPORT

DF	1	Date Recd	10/31/02	SDG No.	OUF01	Sample Wt	1051	
Client ID:	LC113	Date Ext.	11/5/02	Samp/Sex	Samp	F.Vol. ul	10000	
Sample No:	3931397	Date Inj	11/9/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
95	2,2',3,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
96	2,2',3,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
97	2,2',3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
98	2,2',3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
99	2,2',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
100	2,2',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
101	2,2',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
102	2,2',4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
103	2,2',4,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
104	2,2',4,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
105	2,3,3',4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
106	2,3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
107	2,3,3',4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
108	2,3,3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
109	2,3,3',4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
110	2,3,3',4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
111	2,3,3',5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
112	2,3,3',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
113	2,3,3',5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
114	2,3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
115	2,3,4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
116	2,3,4,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
117	2,3,4',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
118	2,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
119	2,3',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
120	2,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
121	2,3',4,5',6-Pentachlorbiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
122	2',3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
123	2',3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
124	2',3,4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
125	2',3,4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
126	3,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
127	3,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
128	2,2',3,3',4,4'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
129	2,2',3,3',4,5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
130	2,2',3,3',4,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
131	2,2',3,3',4,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
132	2,2',3,3',4,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
133	2,2',3,3',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
134	2,2',3,3',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
135	2,2',3,3',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
136	2,2',3,3',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
137	2,2',3,4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
138	2,2',3,4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
139	2,2',3,4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
140	2,2',3,4,4',6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
141	2,2',3,4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUFB1	Sample Wt	1051
Client ID:	LC113	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3931397	Date Inj	11/5/02	Metric	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ng/l	Corrected LOQ	Corrected MDL
142	2,2',3,4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
143	2,2',3,4,5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
144	2,2',3,4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
145	2,2',3,4,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
146	2,2',3,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
147	2,2',3,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
148	2,2',3,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
149	2,2',3,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
150	2,2',3,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
151	2,2',3,5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
152	2,2',3,5,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
153	2,2',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
154	2,2',4,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
155	2,2',4,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
156	2,3,3',4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
157	2,3,3',4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
158	2,3,3',4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
159	2,3,3',4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
160	2,3,3',4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
161	2,3,3',4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
162	2,3,3',4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
163	2,3,3',4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
164	2,3,3',4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
165	2,3,3',5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
166	2,3,4,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
167	2,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
168	2,3',4,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
169	3,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
173	2,2',3,3',4,5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
175	2,2',3,3',4,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
177	2,2',3,3',4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
178	2,2',3,3',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
181	2,2',3,4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
183	2,2',3,4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
185	2,2',3,4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	1051
Client ID:	LC113	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol ul	10000
Sample No:	3531337	Date Inj	11/5/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
190	2,3,3',4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
191	2,3,3',4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
192	2,3,3',4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
193	2,3,3',4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
196	2,2',3,3',4,4',5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
202	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
209	Decachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

HOMOLOG	TOTAL UGL	WEIGHT %
Monochlorobiphenyls	0.16	100
Dichlorobiphenyls	0.0000	0.0000
Trichlorobiphenyls	0.0000	0.0000
Tetrachlorobiphenyls	0.0000	0.0000
Pentachlorobiphenyls	0.0000	0.0000
Hexachlorobiphenyls	0.0000	0.0000
Heptachlorobiphenyls	0.0000	0.0000
Octachlorobiphenyls	0.0000	0.0000
Nonachlorobiphenyls	0.0000	0.0000
Decachlorobiphenyls	0.0000	0.0000

TOTAL PCB 0.16 UGL

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209 PCB CONGENER REPORT

DF	1	Date Recd	10/31/02	SOG No.	DUF01	Sample Wt	1052
Client ID:	RNS8K	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3931359	Date Inj	11/5/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
1	2-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.095	0.019
2	3-Chlorobiphenyl	0.401144		0.10	0.020	0.40	0.095	0.019
3	4-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.095	0.019
4	2,2'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
5	2,3-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
6	2,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
7	2,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
8	2,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
9	2,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
10	2,6-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
11	3,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
12	3,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
13	3,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
14	3,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
15	4,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
16	2,2',3-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
17	2,2',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
18	2,2',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
19	2,2',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
20	2,3,3'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
21	2,3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
22	2,3,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
23	2,3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
24	2,3,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
25	2,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
26	2,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
27	2,3',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
28	2,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
29	2,4,5-Trichlorbiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
30	2,4,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
31	2,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
32	2,4',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
33	2',3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
34	2',3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
35	3,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
36	3,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
37	3,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
38	3,4,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
39	3,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
40	2,2',3,3'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
41	2,2',3,4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
42	2,2',3,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
43	2,2',3,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
44	2,2',3,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
45	2,2',3,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
46	2,2',3,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
47	2,2',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048

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209 PCB CONGENER REPORT

DF	1	Date Recd	10/31/02	SDG No.	DUF01	Sample Wt	1052	
Client ID:	RNSBK	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ul	10000	
Sample No:	3931359	Date Inj	11/8/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
48	2,2',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
49	2,2',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
50	2,2',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
51	2,2',4,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
52	2,2',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
53	2,2',5,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
54	2,2',6,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
55	2,3,3',4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
56	2,3,3',4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
57	2,3,3',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
58	2,3,3',5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
59	2,3,3',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
60	2,3,4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
61	2,3,4,5,-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
62	2,3,4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
63	2,3,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
64	2,3,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
65	2,3,5,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
66	2,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
67	2,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
68	2,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
69	2,3',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
70	2,3',4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
71	2,3',4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
72	2,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
73	2,3',5',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
74	2,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
75	2,4,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
76	2',3,4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
77	3,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
78	3,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
79	3,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
80	3,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
81	3,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
82	2,2',3,3',4-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
83	2,2',3,3',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
84	2,2',3,3',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
85	2,2',3,4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
86	2,2',3,4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
87	2,2',3,4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
88	2,2',3,4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
89	2,2',3,4,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
90	2,2',3,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
91	2,2',3,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
92	2,2',3,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
93	2,2',3,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
94	2,2',3,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	1052
Client ID:	RNSBK	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3931358	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
95	2,2',3,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
96	2,2',3,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
97	2,2',3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
98	2,2',3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
99	2,2',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
100	2,2',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
101	2,2',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
102	2,2',4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
103	2,2',4,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
104	2,2',4,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
105	2,3,3',4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
106	2,3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
107	2,3,3',4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
108	2,3,3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
109	2,3,3',4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
110	2,3,3',4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
111	2,3,3',5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
112	2,3,3',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
113	2,3,3',5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
114	2,3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
115	2,3,4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
116	2,3,4,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
117	2,3,4',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
118	2,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
119	2,3',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
120	2,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
121	2,3',4,5',6-Pentachlorbiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
122	2',3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
123	2',3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
124	2',3,4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
125	2',3,4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
126	3,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
127	3,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
128	2,2',3,3',4,4'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
129	2,2',3,3',4,5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
130	2,2',3,3',4,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
131	2,2',3,3',4,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
132	2,2',3,3',4,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
133	2,2',3,3',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
134	2,2',3,3',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
135	2,2',3,3',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
136	2,2',3,3',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
137	2,2',3,4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
138	2,2',3,4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
139	2,2',3,4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
140	2,2',3,4,4',6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
141	2,2',3,4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	1052	
Client ID:	RNSBK	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ul	10000	
Sample No:	3931399	Date Inj	11/8/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
142	2,2',3,4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
143	2,2',3,4,5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
144	2,2',3,4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
145	2,2',3,4,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
146	2,2',3,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
147	2,2',3,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
148	2,2',3,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
149	2,2',3,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
150	2,2',3,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
151	2,2',3,5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
152	2,2',3,5,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
153	2,2',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
154	2,2',4,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
155	2,2',4,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
156	2,3,3',4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
157	2,3,3',4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
158	2,3,3',4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
159	2,3,3',4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
160	2,3,3',4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
161	2,3,3',4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
162	2,3,3',4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
163	2,3,3',4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
164	2,3,3',4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
165	2,3,3',5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
166	2,3,4,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
167	2,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
168	2,3',4,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
169	3,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
173	2,2',3,3',4,5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
175	2,2',3,3',4,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
177	2,2',3,3',4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
178	2,2',3,3',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
181	2,2',3,4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
183	2,2',3,4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
185	2,2',3,4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Recd	10/31/02	SDG No.	DUF01	Sample Wt	1052	
Client ID:	RNSBK	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ul	10000	
Sample No:	3331398	Date Inj	11/9/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
190	2,3,3',4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
191	2,3,3',4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
192	2,3,3',4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
193	2,3,3',4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
196	2,2',3,3',4,4',5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
202	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
209	Decachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

HOMOLOG	TOTAL UG/L	WEIGHT %
Monochlorobiphenyls	0.43	100
Dichlorobiphenyls	0.0000	0.0000
Trichlorobiphenyls	0.0000	0.0000
Tetrachlorobiphenyls	0.0000	0.0000
Pentachlorobiphenyls	0.0000	0.0000
Hexachlorobiphenyls	0.0000	0.0000
Heptachlorobiphenyls	0.0000	0.0000
Octachlorobiphenyls	0.0000	0.0000
Nonachlorobiphenyls	0.0000	0.0000
Decachlorobiphenyls	0.0000	0.0000

TOTAL PCB 0.43 UG/L

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	1051
Client ID:	L108D	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3331339	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
1	2-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.035	0.019
2	3-Chlorobiphenyl	0.229251		0.10	0.020	0.23	0.035	0.019
3	4-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.035	0.019
4	2,2'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
5	2,3-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
6	2,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
7	2,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
8	2,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
9	2,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
10	2,6-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
11	3,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
12	3,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
13	3,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
14	3,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
15	4,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
16	2,2',3-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
17	2,2',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
18	2,2',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
19	2,2',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
20	2,3,3'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
21	2,3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
22	2,3,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
23	2,3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
24	2,3,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
25	2,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
26	2,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
27	2,3',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
28	2,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
29	2,4,5-Trichlorbiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
30	2,4,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
31	2,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
32	2,4',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
33	2',3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
34	2',3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
35	3,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
36	3,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
37	3,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
38	3,4,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
39	3,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
40	2,2',3,3'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
41	2,2',3,4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
42	2,2',3,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
43	2,2',3,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
44	2,2',3,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
45	2,2',3,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
46	2,2',3,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
47	2,2',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Recd	10/31/02	SDG No.	DUF01	Sample Wt	1051
Client ID:	L108D	Date Ext.	11/5/02	Soxc/Sox	Soxc	F.Vol. ul	10000
Sample No:	3531359	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
48	2,2',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
49	2,2',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
50	2,2',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
51	2,2',4,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
52	2,2',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
53	2,2',5,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
54	2,2',6,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
55	2,3,3',4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
56	2,3,3',4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
57	2,3,3',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
58	2,3,3',5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
59	2,3,3',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
60	2,3,4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
61	2,3,4,5,-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
62	2,3,4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
63	2,3,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
64	2,3,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
65	2,3,5,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
66	2,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
67	2,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
68	2,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
69	2,3',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
70	2,3',4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
71	2,3',4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
72	2,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
73	2,3',5',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
74	2,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
75	2,4,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
76	2',3,4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
77	3,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
78	3,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
79	3,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
80	3,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
81	3,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
82	2,2',3,3',4-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
83	2,2',3,3',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
84	2,2',3,3',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
85	2,2',3,4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
86	2,2',3,4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
87	2,2',3,4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
88	2,2',3,4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
89	2,2',3,4,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
90	2,2',3,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
91	2,2',3,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
92	2,2',3,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
93	2,2',3,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
94	2,2',3,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	1051
Client ID:	L108D	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3931399	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
95	2,2',3,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
96	2,2',3,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
97	2,2',3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
98	2,2',3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
99	2,2',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
100	2,2',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
101	2,2',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
102	2,2',4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
103	2,2',4,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
104	2,2',4,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
105	2,3,3',4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
106	2,3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
107	2,3,3',4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
108	2,3,3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
109	2,3,3',4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
110	2,3,3',4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
111	2,3,3',5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
112	2,3,3',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
113	2,3,3',5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
114	2,3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
115	2,3,4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
116	2,3,4,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
117	2,3,4',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
118	2,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
119	2,3',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
120	2,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
121	2,3',4,5',6-Pentachlorbiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
122	2',3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
123	2',3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
124	2',3,4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
125	2',3,4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
126	3,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
127	3,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
128	2,2',3,3',4,4'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
129	2,2',3,3',4,5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
130	2,2',3,3',4,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
131	2,2',3,3',4,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
132	2,2',3,3',4,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
133	2,2',3,3',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
134	2,2',3,3',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
135	2,2',3,3',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
136	2,2',3,3',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
137	2,2',3,4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
138	2,2',3,4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
139	2,2',3,4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
140	2,2',3,4,4',6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
141	2,2',3,4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	1051	
Client ID:	L102D	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ul	10000	
Sample No:	3531399	Date Inj	11/8/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
142	2,2',3,4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
140	2,2',3,4,5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
144	2,2',3,4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
145	2,2',3,4,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
146	2,2',3,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
147	2,2',3,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
148	2,2',3,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
149	2,2',3,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
150	2,2',3,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
151	2,2',3,5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
152	2,2',3,5,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
153	2,2',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
154	2,2',4,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
155	2,2',4,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
156	2,3,3',4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
157	2,3,3',4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
158	2,3,3',4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
159	2,3,3',4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
160	2,3,3',4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
161	2,3,3',4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
162	2,3,3',4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
163	2,3,3',4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
164	2,3,3',4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
165	2,3,3',5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
166	2,3,4,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
167	2,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
168	2,3',4,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
169	3,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
173	2,2',3,3',4,5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
175	2,2',3,3',4,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
177	2,2',3,3',4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
178	2,2',3,3',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
181	2,2',3,4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
183	2,2',3,4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
185	2,2',3,4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Recd	10/31/02	SDG No.	DUF01	Sample Wt	1051
Client ID:	1308D	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3931399	Date Inj	11/5/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
190	2,3,3',4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
191	2,3,3',4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
192	2,3,3',4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
193	2,3,3',4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
196	2,2',3,3',4,4',5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
202	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
209	Decachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

HOMOLOG	TOTAL UGL	WEIGHT %
Monochlorobiphenyls	0.23	100
Dichlorobiphenyls	0.0000	0.0000
Trichlorobiphenyls	0.0000	0.0000
Tetrachlorobiphenyls	0.0000	0.0000
Pentachlorobiphenyls	0.0000	0.0000
Hexachlorobiphenyls	0.0000	0.0000
Heptachlorobiphenyls	0.0000	0.0000
Octachlorobiphenyls	0.0000	0.0000
Nonachlorobiphenyls	0.0000	0.0000
Decachlorobiphenyls	0.0000	0.0000

TOTAL PCB 0.23 UGL

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	1029	
Client ID:	LC108	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ul	10000	
Sample No:	3331400	Date Inj	11/9/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
1	2-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.097	0.019
2	3-Chlorobiphenyl	0.545058		0.10	0.020	0.55	0.097	0.019
3	4-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.097	0.019
4	2,2'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
5	2,3-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
6	2,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
7	2,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
8	2,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
9	2,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
10	2,6-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
11	3,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
12	3,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
13	3,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
14	3,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
15	4,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
16	2,2',3-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
17	2,2',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
18	2,2',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
19	2,2',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
20	2,3,3'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
21	2,3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
22	2,3,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
23	2,3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
24	2,3,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
25	2,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
26	2,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
27	2,3',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
28	2,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
29	2,4,5-Trichlorbiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
30	2,4,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
31	2,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
32	2,4',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
33	2',3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
34	2',3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
35	3,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
36	3,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
37	3,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
38	3,4,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
39	3,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
40	2,2',3,3'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
41	2,2',3,4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
42	2,2',3,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
43	2,2',3,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
44	2,2',3,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
45	2,2',3,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
46	2,2',3,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
47	2,2',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	OUF01	Sample Wt	1029	
Client ID:	LC108	Date Ext.	11/5/02	Soxc/Sox	Soxc	F.Vol. ul	10000	
Sample No:	3331400	Date Inj	11/8/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
48	2,2',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
49	2,2',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
50	2,2',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
51	2,2',4,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
52	2,2',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
53	2,2',5,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
54	2,2',6,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
55	2,3,3',4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
56	2,3,3',4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
57	2,3,3',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
58	2,3,3',5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
59	2,3,3',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
60	2,3,4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
61	2,3,4,5,-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
62	2,3,4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
63	2,3,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
64	2,3,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
65	2,3,5,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
66	2,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
67	2,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
68	2,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
69	2,3',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
70	2,3',4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
71	2,3',4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
72	2,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
73	2,3',5',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
74	2,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
75	2,4,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
76	2',3,4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
77	3,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
78	3,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
79	3,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
80	3,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
81	3,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
82	2,2',3,3',4-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
83	2,2',3,3',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
84	2,2',3,3',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
85	2,2',3,4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
86	2,2',3,4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
87	2,2',3,4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
88	2,2',3,4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
89	2,2',3,4,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
90	2,2',3,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
91	2,2',3,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
92	2,2',3,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
93	2,2',3,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
94	2,2',3,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1		Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	1023	
Client ID:	LC108		Date Ext	11/5/02	Sonc/Sox	Sonc	F.Vol. ul	10000	
Sample No:	3931400		Date Inj	11/9/02	Matrix	Water	Moisture	NA	
IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL	
95	2,2',3,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049	
96	2,2',3,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049	
97	2,2',3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049	
98	2,2',3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049	
99	2,2',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049	
100	2,2',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049	
101	2,2',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049	
102	2,2',4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049	
103	2,2',4,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049	
104	2,2',4,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049	
105	2,3,3',4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049	
106	2,3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049	
107	2,3,3',4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049	
108	2,3,3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049	
109	2,3,3',4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049	
110	2,3,3',4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049	
111	2,3,3',5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049	
112	2,3,3',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049	
113	2,3,3',5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049	
114	2,3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049	
115	2,3,4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049	
116	2,3,4,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049	
117	2,3,4',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049	
118	2,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049	
119	2,3',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049	
120	2,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049	
121	2,3',4,5',6-Pentachlorbiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049	
122	2',3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049	
123	2',3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049	
124	2',3,4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049	
125	2',3,4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049	
126	3,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049	
127	3,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049	
128	2,2',3,3',4,4'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049	
129	2,2',3,3',4,5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049	
130	2,2',3,3',4,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049	
131	2,2',3,3',4,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049	
132	2,2',3,3',4,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049	
133	2,2',3,3',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049	
134	2,2',3,3',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049	
135	2,2',3,3',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049	
136	2,2',3,3',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049	
137	2,2',3,4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049	
138	2,2',3,4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049	
139	2,2',3,4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049	
140	2,2',3,4,4',6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049	
141	2,2',3,4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049	

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	1029	
Client ID:	LC103	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ml	10000	
Sample No:	3331400	Date Inj	11/9/02	Metric	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
142	2,2',3,4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
143	2,2',3,4,5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
144	2,2',3,4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
145	2,2',3,4,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
146	2,2',3,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
147	2,2',3,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
148	2,2',3,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
149	2,2',3,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
150	2,2',3,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
151	2,2',3,5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
152	2,2',3,5,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
153	2,2',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
154	2,2',4,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
155	2,2',4,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
156	2,3,3',4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
157	2,3,3',4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
158	2,3,3',4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
159	2,3,3',4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
160	2,3,3',4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
161	2,3,3',4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
162	2,3,3',4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
163	2,3,3',4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
164	2,3,3',4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
165	2,3,3',5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
166	2,3,4,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
167	2,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
168	2,3',4,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
169	3,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
173	2,2',3,3',4,5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
175	2,2',3,3',4,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
177	2,2',3,3',4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
178	2,2',3,3',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
181	2,2',3,4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
183	2,2',3,4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
185	2,2',3,4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	1029
Client ID:	LC108	Date Ext.	11/5/02	Conc/Size	Conc	F.Vol. ul	10000
Sample No:	3931400	Date Inj	11/9/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
190	2,3,3',4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
191	2,3,3',4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
192	2,3,3',4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
193	2,3,3',4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
196	2,2',3,3',4,4',5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
202	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
209	Decachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

HOMOLOG	TOTAL UG/L	WEIGHT %
Monochlorobiphenyls	0.55	100
Dichlorobiphenyls	0.0000	0.0000
Trichlorobiphenyls	0.0000	0.0000
Tetrachlorobiphenyls	0.0000	0.0000
Pentachlorobiphenyls	0.0000	0.0000
Hexachlorobiphenyls	0.0000	0.0000
Heptachlorobiphenyls	0.0000	0.0000
Octachlorobiphenyls	0.0000	0.0000
Nonachlorobiphenyls	0.0000	0.0000
Decachlorobiphenyls	0.0000	0.0000

TOTAL PCB 0.55 UG/L

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209 PCB CONGENER REPORT

DF	1	Date Recd	10/31/02	SDG No.	DUF01	Sample Wt	1048	
Client ID:	LC101	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol, ul	10000	
Sample No:	3931401	Date Inj	11/9/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
1	2-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.095	0.019
2	3-Chlorobiphenyl	0.310213		0.10	0.020	0.31	0.095	0.019
3	4-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.095	0.019
4	2,2'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
5	2,3-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
6	2,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
7	2,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
8	2,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
9	2,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
10	2,6-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
11	3,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
12	3,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
13	3,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
14	3,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
15	4,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
16	2,2',3-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
17	2,2',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
18	2,2',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
19	2,2',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
20	2,3,3'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
21	2,3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
22	2,3,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
23	2,3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
24	2,3,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
25	2,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
26	2,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
27	2,3',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
28	2,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
29	2,4,5-Trichlorbiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
30	2,4,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
31	2,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
32	2,4',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
33	2',3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
34	2',3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
35	3,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
36	3,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
37	3,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
38	3,4,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
39	3,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
40	2,2',3,3'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
41	2,2',3,4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
42	2,2',3,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
43	2,2',3,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
44	2,2',3,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
45	2,2',3,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
46	2,2',3,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
47	2,2',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/21/02	SDG No.	DUF01	Sample Wt	1049	
Client ID:	LC101	Date Ext.	11/5/02	Conc/Size	Conc	F.Vol. ul	10000	
Sample No:	3931401	Date Inj	11/6/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
48	2,2',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
49	2,2',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
50	2,2',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
51	2,2',4,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
52	2,2',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
53	2,2',5,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
54	2,2',6,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
55	2,3,3',4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
56	2,3,3',4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
57	2,3,3',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
58	2,3,3',5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
59	2,3,3',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
60	2,3,4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
61	2,3,4,5,-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
62	2,3,4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
63	2,3,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
64	2,3,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
65	2,3,5,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
66	2,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
67	2,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
68	2,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
69	2,3',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
70	2,3',4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
71	2,3',4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
72	2,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
73	2,3',5',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
74	2,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
75	2,4,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
76	2',3,4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
77	3,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
78	3,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
79	3,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
80	3,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
81	3,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
82	2,2',3,3',4-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
83	2,2',3,3',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
84	2,2',3,3',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
85	2,2',3,4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
86	2,2',3,4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
87	2,2',3,4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
88	2,2',3,4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
89	2,2',3,4,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
90	2,2',3,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
91	2,2',3,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
92	2,2',3,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
93	2,2',3,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
94	2,2',3,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	1049	
Client ID:	LC101	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol ul	10000	
Sample No:	3931401	Date Inj	11/8/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
95	2,2',3,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
96	2,2',3,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
97	2,2',3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
98	2,2',3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
99	2,2',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
100	2,2',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
101	2,2',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
102	2,2',4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
103	2,2',4,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
104	2,2',4,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
105	2,3,3',4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
106	2,3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
107	2,3,3',4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
108	2,3,3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
109	2,3,3',4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
110	2,3,3',4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
111	2,3,3',5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
112	2,3,3',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
113	2,3,3',5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
114	2,3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
115	2,3,4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
116	2,3,4,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
117	2,3,4',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
118	2,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
119	2,3',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
120	2,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
121	2,3',4,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
122	2',3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
123	2',3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
124	2',3,4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
125	2',3,4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
126	3,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
127	3,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
128	2,2',3,3',4,4'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
129	2,2',3,3',4,5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
130	2,2',3,3',4,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
131	2,2',3,3',4,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
132	2,2',3,3',4,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
133	2,2',3,3',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
134	2,2',3,3',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
135	2,2',3,3',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
136	2,2',3,3',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
137	2,2',3,4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
138	2,2',3,4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
139	2,2',3,4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
140	2,2',3,4,4',6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
141	2,2',3,4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	1049	
Client ID:	LC101	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ul	10000	
Sample No:	3331401	Date Inj	11/8/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
142	2,2',3,4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
143	2,2',3,4,5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
144	2,2',3,4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
145	2,2',3,4,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
146	2,2',3,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
147	2,2',3,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
148	2,2',3,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
149	2,2',3,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
150	2,2',3,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
151	2,2',3,5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
152	2,2',3,5,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
153	2,2',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
154	2,2',4,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
155	2,2',4,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
156	2,3,3',4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
157	2,3,3',4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
158	2,3,3',4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
159	2,3,3',4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
160	2,3,3',4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
161	2,3,3',4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
162	2,3,3',4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
163	2,3,3',4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
164	2,3,3',4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
165	2,3,3',5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
166	2,3,4,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
167	2,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
168	2,3',4,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
169	3,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
173	2,2',3,3',4,5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
175	2,2',3,3',4,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
177	2,2',3,3',4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
178	2,2',3,3',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
181	2,2',3,4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
183	2,2',3,4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
185	2,2',3,4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
189	2,2',3,4',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	1049
Client ID:	LCT01	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3931401	Date Inj	11/9/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
190	2,3,3',4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
191	2,3,3',4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
192	2,3,3',4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
193	2,3,3',4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
196	2,2',3,3',4,4',5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
202	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
209	Decachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

HOMOLOG	TOTAL UG/L	WEIGHT %
Monochlorobiphenyls	0.31	100
Dichlorobiphenyls	0.0000	0.0000
Trichlorobiphenyls	0.0000	0.0000
Tetrachlorobiphenyls	0.0000	0.0000
Pentachlorobiphenyls	0.0000	0.0000
Hexachlorobiphenyls	0.0000	0.0000
Heptachlorobiphenyls	0.0000	0.0000
Octachlorobiphenyls	0.0000	0.0000
Nonachlorobiphenyls	0.0000	0.0000
Decachlorobiphenyls	0.0000	0.0000

TOTAL PCB 0.31 UG/L

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Analysis Request / Environmental Services Chain of Custody

Lancaster Laboratories
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For Lancaster Laboratories use only
Acct. # 1963 Group# 829037 829042 Sample # 3931391-401 3931444

COC # 0001309

Please print. Instructions on reverse side correspond with circled numbers.

(1)
Client: Duffield Assoc. Acct. #: 1963
Project Name/#: CI-4685.ED PWSID #:
Project Manager: R. Beringer P.O.#:
Sampler: B. Summerville, B. Sprout Quote #:
Name of state where samples were collected: DE

For Lab Use Only
FSC:
SCR #:

(2) (3) (4) (5) (6)

Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water (☐ Potable ☐ NPDES Check if Applicable)	Other	Total # of Containers	NO_3, TOC, NO_2	COD, NH_3, TKN, Org N, t, TPPO4	Appendix I VOCs	Metals	8081A, 8270 (Pest. S. vacs)	CN, S2-, Bicarb, SO_4, Cr	Alk, Alk	Fe, Mn	TDS, 8081 (PCB)	Remarks	Temperature of samples upon receipt (if requested)
P5-3A	10/31/02	1200	X			X		18	X	X	X	X	X	X	X		X		
P5-11A	↓	845	↓			X		18	↓	↓	↓	↓	↓	↓	↓		↓		
P5-13A		1030				X		18											
LC-113		1525				X		4								X	X		
Rinse Blank		1330				X		4								X	X		
LC-108 DUP		1220				X		4								X	X		
LC-108		1220				X		4								X	X		
LC-101	10/31/02	1030				X		4								X	X		

(7) Turnaround Time Requested (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed:
Rush results requested by (please circle): Phone Fax E-mail
Phone #: Fax #:
E-mail address:

(8) Data Package Options (please circle if required)
OC Summary Type VI (Raw Data)
Type I (Tier I) GLP
Type II (Tier II) Other
Type III (NJ Red. Del.)
Type IV (CLP)

SDG Complete? Yes No
State-specific QC required? Yes No
(If yes, indicate QC sample and submit triplicate volume.)
Internal Chain of Custody required? Yes No

(9)

Relinquished by:	Date	Time	Received by:	Date	Time
E. Brian Sprout	10/31/02	16:35	Marvin McGallister	10/31/02	16:35
Marvin McGallister	10/31/02	18:15			
			[signature]	10/31/02	

Analysis Request / Environmental Services Chain of Custody

Lancaster Laboratories
Where quality is a science.

For Lancaster Laboratories use only
Acct. # 1963 Group# 829031 Sample # 3931391-401
829042 3931444

COC # 0001309

Please print. Instructions on reverse side correspond with circled numbers.

(1)
Client: Duffield Assoc. Acct. #: 1963
Project Name/#: CI-4685.ED PWSID #:
Project Manager: R. Beringer P.O.#:
Sampler: B. Summerville, B. Sprout Quote #:
Name of state where samples were collected: DE

For Lab Use Only
FSC:
SCR #:

(2) (3) (4) (5)

Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water (Potable / NPDES)	Other	Total # of Containers	NO_3, TOC, NO_2	COD, NH_3, TKN, org N, TPO4	Approx. KT Volts	Metals	8081A, 8270 (Pest. Sweep)	CN, S2-, Bicarb, SO_4, Cl	Alk, Alk	Fe, Mn	TDS, 8081 (PCB)	Remarks
P5-3A	10/31/02	1200	X			X		18	X	X	X	X	X	X	X		X	
P5-11A		845				X		18										
P5-13A		1030				X		18										
LC-113		1525				X		4								X	X	
Rinse Blank		1330				X		4								X	X	
LC-108 DUP		1220				X		4								X	X	
LC-108		1220				X		4								X	X	
LC-101	10/31/02	1030				X		4								X	X	

(6) Temperature of samples upon receipt (if requested):

Turnaround Time Requested (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed:
Rush results requested by (please circle): Phone Fax E-mail
Phone #: Fax #:
E-mail address:

Data Package Options (please circle if required)
QC Summary Type VI (Raw Data)
Type I (Tier I) GLP
Type II (Tier II) Other
Type III (NJ Red. Del.)
Type IV (CLP)

SDG Complete? Yes No
State-specific QC required? Yes No
(If yes, indicate QC sample and submit triplicate volume.)
Internal Chain of Custody required? Yes No

(9)

Relinquished by:	Date	Time	Received by:	Date	Time
E. Brian Sprout	10/31/02	1635	Marvin M. Gallaher	10/31/02	1635
Marvin M. Gallaher	10/31/02	18:15			

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209 PCB CONGENER REPORT

DF	1		Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	10.49
Client ID:	LC101		Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	2931401		Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
190	2,3,3',4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
191	2,3,3',4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
192	2,3,3',4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
193	2,3,3',4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
196	2,2',3,3',4,4',5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
202	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
209	Decachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

HOMOLOG	TOTAL UG/L	WEIGHT %
Monochlorobiphenyls	0.31	100
Dichlorobiphenyls	0.0000	0.0000
Trichlorobiphenyls	0.0000	0.0000
Tetrachlorobiphenyls	0.0000	0.0000
Pentachlorobiphenyls	0.0000	0.0000
Hexachlorobiphenyls	0.0000	0.0000
Heptachlorobiphenyls	0.0000	0.0000
Octachlorobiphenyls	0.0000	0.0000
Nonachlorobiphenyls	0.0000	0.0000
Decachlorobiphenyls	0.0000	0.0000

TOTAL PCB 0.31 UG/L

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUFN	Sample Wt	1049
Client ID:	LC101	Date Ext.	11/6/02	Sonc/Soxt	Sonc	F.Vol. ul	10000
Sample No:	3331401	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
142	2,2',3,4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
143	2,2',3,4,5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
144	2,2',3,4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
145	2,2',3,4,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
146	2,2',3,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
147	2,2',3,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
148	2,2',3,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
149	2,2',3,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
150	2,2',3,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
151	2,2',3,5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
152	2,2',3,5,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
153	2,2',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
154	2,2',4,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
155	2,2',4,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
156	2,3,3',4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
157	2,3,3',4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
158	2,3,3',4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
159	2,3,3',4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
160	2,3,3',4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
161	2,3,3',4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
162	2,3,3',4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
163	2,3,3',4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
164	2,3,3',4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
165	2,3,3',5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
166	2,3,4,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
167	2,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
168	2,3',4,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
169	3,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
173	2,2',3,3',4,5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
175	2,2',3,3',4,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
177	2,2',3,3',4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
178	2,2',3,3',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
181	2,2',3,4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
183	2,2',3,4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
185	2,2',3,4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
189	2,2',3,4',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	10.43	
Client ID:	LC101	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ul	10000	
Sample No:	2531401	Date Inj	11/8/02	Metric	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
95	2,2',3,5',6-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
96	2,2',3,6,6'-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
97	2,2',3',4,5-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
98	2,2',3',4,6-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
99	2,2',4,4',5-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
100	2,2',4,4',6-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
101	2,2',4,5,5'-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
102	2,2',4,5,6'-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
103	2,2',4,5',6-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
104	2,2',4,6,6'-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
105	2,3,3',4,4'-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
106	2,3,3',4,5-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
107	2,3,3',4,5'-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
108	2,3,3',4,6-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
109	2,3,3',4',5-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
110	2,3,3',4',6-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
111	2,3,3',5,5'-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
112	2,3,3',5,6-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
113	2,3,3',5',6-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
114	2,3,4,4',5-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
115	2,3,4,4',6-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
116	2,3,4,5,6-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
117	2,3,4',5,6-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
118	2,3',4,4',5-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
119	2,3',4,5',6-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
120	2,3',4,5,5'-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
121	2,3',4,5',6-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
122	2',3,3',4,5-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
123	2',3,4,4',5-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
124	2',3,4,5,5'-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
125	2',3,4,5,6'-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
126	3,3',4,4',5-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
127	3,3',4,5,5'-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
128	2,2',3,3',4,4'-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
129	2,2',3,3',4,5-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
130	2,2',3,3',4,5'-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
131	2,2',3,3',4,6-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
132	2,2',3,3',4,6'-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
133	2,2',3,3',5,5'-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
134	2,2',3,3',5,6-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
135	2,2',3,3',5,6'-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
136	2,2',3,3',6,6'-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
137	2,2',3,4,4',5-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
138	2,2',3,4,4',5'-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
139	2,2',3,4,4',6-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
140	2,2',3,4,4',6'-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
141	2,2',3,4,5,5'-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	1048	
Client ID:	LC101	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ul	10000	
Sample No:	2531401	Date Inj	11/8/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
48	2,2',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
49	2,2',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
50	2,2',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
51	2,2',4,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
52	2,2',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
53	2,2',5,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
54	2,2',6,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
55	2,3,3',4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
56	2,3,3',4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
57	2,3,3',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
58	2,3,3',5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
59	2,3,3',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
60	2,3,4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
61	2,3,4,5,-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
62	2,3,4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
63	2,3,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
64	2,3,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
65	2,3,5,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
66	2,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
67	2,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
68	2,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
69	2,3',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
70	2,3',4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
71	2,3',4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
72	2,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
73	2,3',5',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
74	2,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
75	2,4,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
76	2',3,4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
77	3,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
78	3,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
79	3,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
80	3,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
81	3,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
82	2,2',3,3',4-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
83	2,2',3,3',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
84	2,2',3,3',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
85	2,2',3,4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
86	2,2',3,4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
87	2,2',3,4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
88	2,2',3,4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
89	2,2',3,4,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
90	2,2',3,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
91	2,2',3,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
92	2,2',3,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
93	2,2',3,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
94	2,2',3,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	1049	
Client ID:	LC101	Date Ext.	11/5/02	Sonc/Soc	Sonc	F.Vol. ml	10000	
Sample No:	3931401	Date Inj	11/5/02	Metric	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
1	2-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.095	0.019
2	3-Chlorobiphenyl	0.710213		0.10	0.020	0.71	0.095	0.019
3	4-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.095	0.019
4	2,2'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
5	2,3-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
6	2,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
7	2,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
8	2,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
9	2,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
10	2,6-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
11	3,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
12	3,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
13	3,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
14	3,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
15	4,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
16	2,2',3-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
17	2,2',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
18	2,2',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
19	2,2',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
20	2,3,3'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
21	2,3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
22	2,3,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
23	2,3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
24	2,3,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
25	2,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
26	2,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
27	2,3',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
28	2,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
29	2,4,5-Trichlorbiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
30	2,4,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
31	2,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
32	2,4',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
33	2',3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
34	2',3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
35	3,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
36	3,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
37	3,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
38	3,4,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
39	3,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
40	2,2',3,3'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
41	2,2',3,4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
42	2,2',3,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
43	2,2',3,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
44	2,2',3,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
45	2,2',3,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
46	2,2',3,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
47	2,2',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048

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209 PCB CONGENER REPORT

DF	1		Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	1029	
Client ID:	LC108		Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ul	10000	
Sample No:	3531400		Date Inj	11/8/02	Metric	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
190	2,3,3',4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
191	2,3,3',4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
192	2,3,3',4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
193	2,3,3',4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
196	2,2',3,3',4,4',5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
202	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
209	Decachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

HOMOLOG	TOTAL UG/L	WEIGHT %
Monochlorobiphenyls	0.55	100
Dichlorobiphenyls	0.0000	0.0000
Trichlorobiphenyls	0.0000	0.0000
Tetrachlorobiphenyls	0.0000	0.0000
Pentachlorobiphenyls	0.0000	0.0000
Hexachlorobiphenyls	0.0000	0.0000
Heptachlorobiphenyls	0.0000	0.0000
Octachlorobiphenyls	0.0000	0.0000
Nonachlorobiphenyls	0.0000	0.0000
Decachlorobiphenyls	0.0000	0.0000

TOTAL PCB 0.55 UG/L

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	1025
Client ID:	LC108	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ml	10000
Sample No:	3331400	Date Inj	11/9/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ng/l	Corrected LOQ	Corrected MDL
142	2,2',3,4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
143	2,2',3,4,5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
144	2,2',3,4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
145	2,2',3,4,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
146	2,2',3,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
147	2,2',3,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
148	2,2',3,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
149	2,2',3,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
150	2,2',3,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
151	2,2',3,5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
152	2,2',3,5,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
153	2,2',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
154	2,2',4,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
155	2,2',4,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
156	2,3,3',4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
157	2,3,3',4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
158	2,3,3',4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
159	2,3,3',4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
160	2,3,3',4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
161	2,3,3',4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
162	2,3,3',4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
163	2,3,3',4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
164	2,3,3',4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
165	2,3,3',5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
166	2,3,4,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
167	2,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
168	2,3',4,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
169	3,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
173	2,2',3,3',4,5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
175	2,2',3,3',4,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
177	2,2',3,3',4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
178	2,2',3,3',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
181	2,2',3,4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
183	2,2',3,4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
185	2,2',3,4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUFB1	Sample Wt	1023	
Client ID:	LC108	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ul	10000	
Sample No:	3331400	Date Inj	11/8/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
95	2,2',3,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
96	2,2',3,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
97	2,2',3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
98	2,2',3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
99	2,2',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
100	2,2',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
101	2,2',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
102	2,2',4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
103	2,2',4,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
104	2,2',4,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
105	2,3,3',4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
106	2,3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
107	2,3,3',4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
108	2,3,3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
109	2,3,3',4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
110	2,3,3',4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
111	2,3,3',5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
112	2,3,3',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
113	2,3,3',5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
114	2,3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
115	2,3,4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
116	2,3,4,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
117	2,3,4',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
118	2,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
119	2,3',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
120	2,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
121	2,3',4,5',6-Pentachlorbiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
122	2',3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
123	2',3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
124	2',3,4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
125	2',3,4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
126	3,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
127	3,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
128	2,2',3,3',4,4'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
129	2,2',3,3',4,5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
130	2,2',3,3',4,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
131	2,2',3,3',4,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
132	2,2',3,3',4,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
133	2,2',3,3',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
134	2,2',3,3',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
135	2,2',3,3',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
136	2,2',3,3',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
137	2,2',3,4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
138	2,2',3,4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
139	2,2',3,4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
140	2,2',3,4,4',6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
141	2,2',3,4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	1000	
Client ID:	LC108	Date Ext.	11/5/02	Sonc/Soxc	Sonc	F.Vol. ul	10000	
Sample No:	3531409	Date Inj	11/5/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
48	2,2',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
49	2,2',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
50	2,2',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
51	2,2',4,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
52	2,2',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
53	2,2',5,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
54	2,2',6,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
55	2,3,3',4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
56	2,3,3',4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
57	2,3,3',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
58	2,3,3',5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
59	2,3,3',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
60	2,3,4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
61	2,3,4,5,-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
62	2,3,4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
63	2,3,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
64	2,3,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
65	2,3,5,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
66	2,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
67	2,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
68	2,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
69	2,3',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
70	2,3',4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
71	2,3',4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
72	2,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
73	2,3',5',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
74	2,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
75	2,4,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
76	2',3,4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
77	3,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
78	3,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
79	3,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
80	3,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
81	3,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
82	2,2',3,3',4-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
83	2,2',3,3',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
84	2,2',3,3',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
85	2,2',3,4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
86	2,2',3,4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
87	2,2',3,4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
88	2,2',3,4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
89	2,2',3,4,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
90	2,2',3,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
91	2,2',3,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
92	2,2',3,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
93	2,2',3,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
94	2,2',3,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	1029	
Client ID:	LC108	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ul	10000	
Sample No:	3931400	Date Inj	11/8/02	Metric	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
1	2-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.097	0.019
2	3-Chlorobiphenyl	0.545058		0.10	0.020	0.55	0.097	0.019
3	4-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.097	0.019
4	2,2'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
5	2,3-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
6	2,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
7	2,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
8	2,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
9	2,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
10	2,6-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
11	3,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
12	3,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
13	3,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
14	3,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
15	4,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
16	2,2',3-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
17	2,2',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
18	2,2',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
19	2,2',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
20	2,3,3'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
21	2,3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
22	2,3,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
23	2,3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
24	2,3,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
25	2,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
26	2,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
27	2,3',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
28	2,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
29	2,4,5-Trichlorbiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
30	2,4,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
31	2,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
32	2,4',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
33	2',3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
34	2',3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
35	3,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
36	3,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
37	3,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
38	3,4,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
39	3,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
40	2,2',3,3'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
41	2,2',3,4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
42	2,2',3,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
43	2,2',3,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
44	2,2',3,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
45	2,2',3,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
46	2,2',3,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
47	2,2',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	1051
Client ID:	L108D	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3931393	Date Inj	11/5/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
190	2,3,3',4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
191	2,3,3',4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
192	2,3,3',4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
193	2,3,3',4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
196	2,2',3,3',4,4',5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
202	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
209	Decachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

HOMOLOG	TOTAL UG/L	WEIGHT %
Monochlorobiphenyls	0.23	100
Dichlorobiphenyls	0.0000	0.0000
Trichlorobiphenyls	0.0000	0.0000
Tetrachlorobiphenyls	0.0000	0.0000
Pentachlorobiphenyls	0.0000	0.0000
Hexachlorobiphenyls	0.0000	0.0000
Heptachlorobiphenyls	0.0000	0.0000
Octachlorobiphenyls	0.0000	0.0000
Nonachlorobiphenyls	0.0000	0.0000
Decachlorobiphenyls	0.0000	0.0000

TOTAL PCB 0.23 UG/L

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	1051	
Client ID:	L1020	Date Ext.	11/5/02	Sample Size	Semi	F.Vol. ml	10000	
Sample No:	2331255	Date Inj	11/5/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
142	2,2',3,4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
143	2,2',3,4,5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
144	2,2',3,4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
145	2,2',3,4,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
146	2,2',3,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
147	2,2',3,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
148	2,2',3,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
149	2,2',3,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
150	2,2',3,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
151	2,2',3,5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
152	2,2',3,5,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
153	2,2',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
154	2,2',4,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
155	2,2',4,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
156	2,3,3',4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
157	2,3,3',4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
158	2,3,3',4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
159	2,3,3',4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
160	2,3,3',4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
161	2,3,3',4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
162	2,3,3',4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
163	2,3,3',4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
164	2,3,3',4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
165	2,3,3',5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
166	2,3,4,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
167	2,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
168	2,3',4,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
169	3,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
173	2,2',3,3',4,5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
175	2,2',3,3',4,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
177	2,2',3,3',4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
178	2,2',3,3',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
181	2,2',3,4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
183	2,2',3,4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
185	2,2',3,4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048

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DF	1	Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	1051
Client ID:	L1080	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ml	10000
Sample No:	3931355	Date Inj.	11/5/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
95	2,2',3,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
96	2,2',3,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
97	2,2',3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
98	2,2',3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
99	2,2',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
100	2,2',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
101	2,2',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
102	2,2',4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
103	2,2',4,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
104	2,2',4,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
105	2,3,3',4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
106	2,3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
107	2,3,3',4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
108	2,3,3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
109	2,3,3',4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
110	2,3,3',4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
111	2,3,3',5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
112	2,3,3',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
113	2,3,3',5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
114	2,3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
115	2,3,4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
116	2,3,4,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
117	2,3,4',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
118	2,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
119	2,3',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
120	2,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
121	2,3',4,5',6-Pentachlorbiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
122	2',3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
123	2',3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
124	2',3,4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
125	2',3,4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
126	3,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
127	3,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
128	2,2',3,3',4,4'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
129	2,2',3,3',4,5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
130	2,2',3,3',4,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
131	2,2',3,3',4,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
132	2,2',3,3',4,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
133	2,2',3,3',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
134	2,2',3,3',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
135	2,2',3,3',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
136	2,2',3,3',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
137	2,2',3,4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
138	2,2',3,4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
139	2,2',3,4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
140	2,2',3,4,4',6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
141	2,2',3,4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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DF	1	Date Recd	10/31/02	SDG No.	DLF01	Sample Wt	1051
Client ID:	L1080	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3931355	Date Inj	11/5/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
48	2,2',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
49	2,2',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
50	2,2',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
51	2,2',4,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
52	2,2',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
53	2,2',5,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
54	2,2',6,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
55	2,3,3',4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
56	2,3,3',4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
57	2,3,3',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
58	2,3,3',5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
59	2,3,3',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
60	2,3,4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
61	2,3,4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
62	2,3,4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
63	2,3,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
64	2,3,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
65	2,3,5,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
66	2,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
67	2,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
68	2,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
69	2,3',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
70	2,3',4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
71	2,3',4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
72	2,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
73	2,3',5',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
74	2,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
75	2,4,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
76	2',3,4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
77	3,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
78	3,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
79	3,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
80	3,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
81	3,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
82	2,2',3,3',4-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
83	2,2',3,3',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
84	2,2',3,3',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
85	2,2',3,4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
86	2,2',3,4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
87	2,2',3,4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
88	2,2',3,4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
89	2,2',3,4,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
90	2,2',3,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
91	2,2',3,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
92	2,2',3,3',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
93	2,2',3,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
94	2,2',3,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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DF	1	Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	1051
Client ID:	L1080	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3931355	Date Inj	11/5/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
1	2-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.035	0.019
2	3-Chlorobiphenyl	0.270251		0.10	0.020	0.23	0.035	0.019
3	4-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.035	0.019
4	2,2'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
5	2,3-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
6	2,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
7	2,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
8	2,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
9	2,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
10	2,6-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
11	3,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
12	3,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
13	3,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
14	3,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
15	4,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
16	2,2',3-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
17	2,2',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
18	2,2',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
19	2,2',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
20	2,3,3'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
21	2,3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
22	2,3,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
23	2,3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
24	2,3,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
25	2,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
26	2,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
27	2,3',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
28	2,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
29	2,4,5-Trichlorbiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
30	2,4,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
31	2,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
32	2,4',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
33	2',3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
34	2',3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
35	3,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
36	3,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
37	3,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
38	3,4,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
39	3,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
40	2,2',3,3'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
41	2,2',3,4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
42	2,2',3,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
43	2,2',3,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
44	2,2',3,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
45	2,2',3,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
46	2,2',3,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
47	2,2',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	1052
Client ID:	RNSEK	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3531398	Date Inj	11/5/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
190	2,3,3',4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
191	2,3,3',4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
192	2,3,3',4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
193	2,3,3',4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
196	2,2',3,3',4,4',5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
202	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
209	Decachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048

HOMOLOG	TOTAL UG/L	WEIGHT %
Monochlorobiphenyls	0.43	100
Dichlorobiphenyls	0.0000	0.0000
Trichlorobiphenyls	0.0000	0.0000
Tetrachlorobiphenyls	0.0000	0.0000
Pentachlorobiphenyls	0.0000	0.0000
Hexachlorobiphenyls	0.0000	0.0000
Heptachlorobiphenyls	0.0000	0.0000
Octachlorobiphenyls	0.0000	0.0000
Nonachlorobiphenyls	0.0000	0.0000
Decachlorobiphenyls	0.0000	0.0000

TOTAL PCB 0.43 UG/L

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	1052
Client ID:	RNSBK	Date Ext.	11/5/02	Soxt/Sox	Soxt	F.Vol. ul	10000
Sample No:	3931398	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
142	2,2',3,4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
143	2,2',3,4,5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
144	2,2',3,4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
145	2,2',3,4,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
146	2,2',3,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
147	2,2',3,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
148	2,2',3,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
149	2,2',3,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
150	2,2',3,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
151	2,2',3,5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
152	2,2',3,5,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
153	2,2',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
154	2,2',4,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
155	2,2',4,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
156	2,3,3',4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
157	2,3,3',4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
158	2,3,3',4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
159	2,3,3',4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
160	2,3,3',4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
161	2,3,3',4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
162	2,3,3',4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
163	2,3,3',4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
164	2,3,3',4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
165	2,3,3',5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
166	2,3,4,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
167	2,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
168	2,3',4,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
169	3,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
173	2,2',3,3',4,5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
175	2,2',3,3',4,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
177	2,2',3,3',4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
178	2,2',3,3',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
181	2,2',3,4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
183	2,2',3,4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
185	2,2',3,4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	1052
Client ID:	RNSBK	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	2931398	Date Inj	11/5/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
95	2,2',3,5',6-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
96	2,2',3,6,6'-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
97	2,2',3',4,5-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
98	2,2',3',4,6-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
99	2,2',4,4',5-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
100	2,2',4,4',6-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
101	2,2',4,5,5'-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
102	2,2',4,5,6'-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
103	2,2',4,5',6-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
104	2,2',4,6,6'-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
105	2,3,3',4,4'-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
106	2,3,3',4,5-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
107	2,3,3',4,5'-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
108	2,3,3',4,6-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
109	2,3,3',4',5-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
110	2,3,3',4',6-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
111	2,3,3',5,5'-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
112	2,3,3',5,6-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
113	2,3,3',5',6-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
114	2,3,4,4',5-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
115	2,3,4,4',6-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
116	2,3,4,5,6-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
117	2,3,4',5,6-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
118	2,3',4,4',5-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
119	2,3',4,4',6-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
120	2,3',4,5,5'-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
121	2,3',4,5',6-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
122	2',3,3',4,5-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
123	2',3,4,4',5-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
124	2',3,4,5,5'-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
125	2',3,4,5,6'-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
126	3,3',4,4',5-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
127	3,3',4,5,5'-Pentachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
128	2,2',3,3',4,4'-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
129	2,2',3,3',4,5-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
130	2,2',3,3',4,5'-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
131	2,2',3,3',4,6-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
132	2,2',3,3',4,6'-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
133	2,2',3,3',5,5'-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
134	2,2',3,3',5,6-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
135	2,2',3,3',5,6'-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
136	2,2',3,3',6,6'-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
137	2,2',3,4,4',5-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
138	2,2',3,4,4',5'-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
139	2,2',3,4,4',6-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
140	2,2',3,4,4',6'-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
141	2,2',3,4,5,5'-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048

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209 PCB CONGENER REPORT

DF	1	Date Recd	10/31/02	SDG No.	DUF01	Sample Wt	1052
Client ID:	RNSBK	Date Ext.	11/5/02	Sonc/Size	Sonc	F.Vol. ul	10000
Sample No:	3931258	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
48	2,2',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
49	2,2',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
50	2,2',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
51	2,2',4,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
52	2,2',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
53	2,2',5,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
54	2,2',6,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
55	2,3,3',4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
56	2,3,3',4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
57	2,3,3',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
58	2,3,3',5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
59	2,3,3',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
60	2,3,4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
61	2,3,4,5,-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
62	2,3,4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
63	2,3,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
64	2,3,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
65	2,3,5,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
66	2,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
67	2,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
68	2,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
69	2,3',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
70	2,3',4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
71	2,3',4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
72	2,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
73	2,3',5',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
74	2,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
75	2,4,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
76	2',3,4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
77	3,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
78	3,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
79	3,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
80	3,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
81	3,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
82	2,2',3,3',4-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
83	2,2',3,3',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
84	2,2',3,3',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
85	2,2',3,4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
86	2,2',3,4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
87	2,2',3,4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
88	2,2',3,4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
89	2,2',3,4,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
90	2,2',3,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
91	2,2',3,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
92	2,2',3,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
93	2,2',3,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
94	2,2',3,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUFD1	Sample Wt	1052	
Client ID:	RNSDK	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ml	10000	
Sample No:	2831258	Date Inj	11/5/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
1	2-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.095	0.019
2	3-Chlorobiphenyl	0.101144		0.10	0.020	0.10	0.095	0.019
3	4-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.095	0.019
4	2,2'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
5	2,3-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
6	2,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
7	2,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
8	2,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
9	2,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
10	2,6-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
11	3,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
12	3,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
13	3,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
14	3,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
15	4,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
16	2,2',3-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
17	2,2',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
18	2,2',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
19	2,2',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
20	2,3,3'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
21	2,3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
22	2,3,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
23	2,3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
24	2,3,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
25	2,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
26	2,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
27	2,3',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
28	2,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
29	2,4,5-Trichlorbiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
30	2,4,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
31	2,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
32	2,4',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
33	2',3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
34	2',3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
35	3,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
36	3,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
37	3,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
38	3,4,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
39	3,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
40	2,2',3,3'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
41	2,2',3,4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
42	2,2',3,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
43	2,2',3,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
44	2,2',3,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
45	2,2',3,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
46	2,2',3,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
47	2,2',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	1051
Client ID:	LC113	Date Ext.	11/5/02	Sonc/Sex	Sonc	F.Vol. of	10000
Sample No:	3931397	Date Inj	11/5/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
190	2,3,3',4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
191	2,3,3',4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
192	2,3,3',4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
193	2,3,3',4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
196	2,2',3,3',4,4',5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
202	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
209	Decachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048

HOMOLOG	TOTAL UG/L	WEIGHT %
Monochlorobiphenyls	0.36	100
Dichlorobiphenyls	0.0000	0.0000
Trichlorobiphenyls	0.0000	0.0000
Tetrachlorobiphenyls	0.0000	0.0000
Pentachlorobiphenyls	0.0000	0.0000
Hexachlorobiphenyls	0.0000	0.0000
Heptachlorobiphenyls	0.0000	0.0000
Octachlorobiphenyls	0.0000	0.0000
Nonachlorobiphenyls	0.0000	0.0000
Decachlorobiphenyls	0.0000	0.0000

TOTAL PCB 0.36 UG/L

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	1051	
Client ID:	LC113	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ul	10000	
Sample No:	3931357	Date Inj	11/8/02	Metric	Water	Moisture	NA	

IUPAC	Compounds	ng/l	U	BASE LOQ	BASE MDL	ng/l	Corrected LOQ	Corrected MDL
142	2,2',3,4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
143	2,2',3,4,5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
144	2,2',3,4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
145	2,2',3,4,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
146	2,2',3,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
147	2,2',3,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
148	2,2',3,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
149	2,2',3,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
150	2,2',3,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
151	2,2',3,5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
152	2,2',3,5,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
153	2,2',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
154	2,2',4,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
155	2,2',4,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
156	2,3,3',4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
157	2,3,3',4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
158	2,3,3',4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
159	2,3,3',4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
160	2,3,3',4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
161	2,3,3',4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
162	2,3,3',4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
163	2,3,3',4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
164	2,3,3',4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
165	2,3,3',5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
166	2,3,4,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
167	2,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
168	2,3',4,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
169	3,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
173	2,2',3,3',4,5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
175	2,2',3,3',4,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
177	2,2',3,3',4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
178	2,2',3,3',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
181	2,2',3,4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
183	2,2',3,4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
185	2,2',3,4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	1051
Client ID:	LC113	Date Ext.	11/5/02	Semi/Sox	Semi	F.Vol. ml	10000
Sample No:	3931357	Date Inj	11/5/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
95	2,2',3,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
96	2,2',3,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
97	2,2',3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
98	2,2',3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
99	2,2',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
100	2,2',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
101	2,2',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
102	2,2',4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
103	2,2',4,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
104	2,2',4,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
105	2,3,3',4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
106	2,3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
107	2,3,3',4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
108	2,3,3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
109	2,3,3',4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
110	2,3,3',4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
111	2,3,3',5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
112	2,3,3',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
113	2,3,3',5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.004
114	2,3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
115	2,3,4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
116	2,3,4,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
117	2,3,4',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
118	2,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
119	2,3',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
120	2,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
121	2,3',4,5',6-Pentachlorbiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
122	2',3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
123	2',3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
124	2',3,4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
125	2',3,4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
126	3,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
127	3,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
128	2,2',3,3',4,4'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
129	2,2',3,3',4,5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
130	2,2',3,3',4,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
131	2,2',3,3',4,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
132	2,2',3,3',4,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
133	2,2',3,3',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
134	2,2',3,3',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
135	2,2',3,3',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
136	2,2',3,3',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
137	2,2',3,4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0
138	2,2',3,4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.L
139	2,2',3,4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
140	2,2',3,4,4',6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
141	2,2',3,4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	1051
Client ID:	LC113	Date Ext.	11/5/02	Conc/Size	Conc	F.Vol. ml	10000
Sample No:	3331297	Date Inj	11/5/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
48	2,2',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
49	2,2',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
50	2,2',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
51	2,2',4,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
52	2,2',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
53	2,2',5,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
54	2,2',6,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
55	2,3,3',4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
56	2,3,3',4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
57	2,3,3',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
58	2,3,3',5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
59	2,3,3',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
60	2,3,4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
61	2,3,4,5,-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
62	2,3,4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
63	2,3,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
64	2,3,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
65	2,3,5,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
66	2,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
67	2,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
68	2,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
69	2,3',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
70	2,3',4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
71	2,3',4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
72	2,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
73	2,3',5',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
74	2,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
75	2,4,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
76	2',3,4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
77	3,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
78	3,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
79	3,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
80	3,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
81	3,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
82	2,2',3,3',4-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
83	2,2',3,3',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
84	2,2',3,3',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
85	2,2',3,4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
86	2,2',3,4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
87	2,2',3,4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
88	2,2',3,4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
89	2,2',3,4,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
90	2,2',3,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
91	2,2',3,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
92	2,2',3,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
93	2,2',3,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
94	2,2',3,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	1051
Client ID:	LC110	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3331257	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
1	2-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.095	0.019
2	3-Chlorobiphenyl	0.353734		0.10	0.020	0.36	0.095	0.019
3	4-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.095	0.019
4	2,2'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
5	2,3-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
6	2,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
7	2,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
8	2,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
9	2,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
10	2,6-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
11	3,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
12	3,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
13	3,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
14	3,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
15	4,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
16	2,2',3-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
17	2,2',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
18	2,2',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
19	2,2',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
20	2,3,3'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
21	2,3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
22	2,3,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
23	2,3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
24	2,3,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
25	2,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
26	2,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
27	2,3',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
28	2,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
29	2,4,5-Trichlorbiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
30	2,4,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
31	2,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
32	2,4',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
33	2',3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
34	2',3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
35	3,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
36	3,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
37	3,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
38	3,4,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
39	3,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
40	2,2',3,3'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
41	2,2',3,4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
42	2,2',3,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
43	2,2',3,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
44	2,2',3,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
45	2,2',3,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
46	2,2',3,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
47	2,2',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	1025
Client ID:	P513A	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3531395	Date Inj	11/9/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
190	2,3,3',4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
191	2,3,3',4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
192	2,3,3',4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
193	2,3,3',4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
196	2,2',3,3',4,4',5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
202	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
209	Decachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049

HOMOLOG	TOTAL UG/L	WEIGHT %
Monochlorobiphenyls	0.75	100
Dichlorobiphenyls	0.0000	0.0000
Trichlorobiphenyls	0.0000	0.0000
Tetrachlorobiphenyls	0.0000	0.0000
Pentachlorobiphenyls	0.0000	0.0000
Hexachlorobiphenyls	0.0000	0.0000
Heptachlorobiphenyls	0.0000	0.0000
Octachlorobiphenyls	0.0000	0.0000
Nonachlorobiphenyls	0.0000	0.0000
Decachlorobiphenyls	0.0000	0.0000

TOTAL PCB 0.75 UG/L

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	1025	
Client ID:	PS13A	Date Ext.	11/5/02	Sonc/Soxt	Sonc	F.Vol. ul	10000	
Sample No:	2531285	Date Inj	11/6/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
142	2,2',3,4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
143	2,2',3,4,5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
144	2,2',3,4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
145	2,2',3,4,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
146	2,2',3,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
147	2,2',3,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
148	2,2',3,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
149	2,2',3,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
150	2,2',3,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
151	2,2',3,5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
152	2,2',3,5,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
153	2,2',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
154	2,2',4,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
155	2,2',4,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
156	2,3,3',4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
157	2,3,3',4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
158	2,3,3',4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
159	2,3,3',4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0
160	2,3,3',4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.
161	2,3,3',4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
162	2,3,3',4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
163	2,3,3',4',5,5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
164	2,3,3',4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
165	2,3,3',5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
166	2,3,4,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
167	2,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
168	2,3',4,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
169	3,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
173	2,2',3,3',4,5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
175	2,2',3,3',4,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
177	2,2',3,3',4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
178	2,2',3,3',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
181	2,2',3,4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
183	2,2',3,4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
185	2,2',3,4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUP#	Sample Wt	1025	
Client ID:	PS13A	Date Ext.	11/5/02	Zone/Sox	Zone	F.Vol. ml	10000	
Sample No:	2331285	Date Inj	11/8/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
95	2,2',3,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
96	2,2',3,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
97	2,2',3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
98	2,2',3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
99	2,2',4,4',5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
100	2,2',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
101	2,2',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
102	2,2',4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
103	2,2',4,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
104	2,2',4,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
105	2,3,3',4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
106	2,3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
107	2,3,3',4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
108	2,3,3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
109	2,3,3',4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
110	2,3,3',4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
111	2,3,3',5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
112	2,3,3',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
113	2,3,3',5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
114	2,3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
115	2,3,4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
116	2,3,4,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
117	2,3,4',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
118	2,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
119	2,3',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
120	2,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
121	2,3',4,5',6-Pentachlorbiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
122	2',3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
123	2',3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
124	2',3,4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
125	2',3,4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
126	3,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
127	3,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
128	2,2',3,3',4,4'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
129	2,2',3,3',4,5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
130	2,2',3,3',4,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
131	2,2',3,3',4,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
132	2,2',3,3',4,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
133	2,2',3,3',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
134	2,2',3,3',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
135	2,2',3,3',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
136	2,2',3,3',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
137	2,2',3,4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
138	2,2',3,4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
139	2,2',3,4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
140	2,2',3,4,4',6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
141	2,2',3,4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUF91	Sample Wt	1625	
Client ID:	P513A	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol ul	10000	
Sample No:	3931255	Date Inj	11/5/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
48	2,2',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
49	2,2',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
50	2,2',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
51	2,2',4,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
52	2,2',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
53	2,2',5,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
54	2,2',6,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
55	2,3,3',4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
56	2,3,3',4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
57	2,3,3',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
58	2,3,3',5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
59	2,3,3',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
60	2,3,4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
61	2,3,4,5,-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
62	2,3,4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
63	2,3,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
64	2,3,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
65	2,3,5,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
66	2,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
67	2,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
68	2,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
69	2,3',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
70	2,3',4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
71	2,3',4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
72	2,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
73	2,3',5',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
74	2,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
75	2,4,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
76	2',3,4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
77	3,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
78	3,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
79	3,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
80	3,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
81	3,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
82	2,2',3,3',4-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
83	2,2',3,3',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
84	2,2',3,3',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
85	2,2',3,4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
86	2,2',3,4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
87	2,2',3,4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
88	2,2',3,4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
89	2,2',3,4,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
90	2,2',3,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
91	2,2',3,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
92	2,2',3,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
93	2,2',3,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
94	2,2',3,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUFG1	Sample Wt	1025	
Client ID:	P513A	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ml	10000	
Sample No:	3531295	Date Inj	11/2/02	Metric	Water	Moisture	NA	

IUPAC	Compounds	ng/l	U	BASE LOQ	BASE MDL	ng/l	Corrected LOQ	Corrected MDL
1	2-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.050	0.020
2	3-Chlorobiphenyl	0.757731		0.10	0.020	0.76	0.050	0.020
3	4-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.050	0.020
4	2,2'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
5	2,3-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
6	2,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
7	2,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
8	2,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
9	2,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
10	2,6-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
11	3,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
12	3,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
13	3,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
14	3,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
15	4,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
16	2,2',3-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
17	2,2',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
18	2,2',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
19	2,2',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
20	2,3,3'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
21	2,3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
22	2,3,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
23	2,3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
24	2,3,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
25	2,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
26	2,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
27	2,3',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
28	2,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
29	2,4,5-Trichlorbiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
30	2,4,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
31	2,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
32	2,4',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
33	2',3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
34	2',3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
35	3,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
36	3,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
37	3,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
38	3,4,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
39	3,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
40	2,2',3,3'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
41	2,2',3,4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
42	2,2',3,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
43	2,2',3,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
44	2,2',3,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
45	2,2',3,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
46	2,2',3,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049
47	2,2',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	966
Client ID:	P511A	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ml	10000
Sample No:	2531293	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
190	2,3,3',4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
191	2,3,3',4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
192	2,3,3',4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
193	2,3,3',4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
196	2,2',3,3',4,4',5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
202	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0057
207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
209	Decachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052

HOMOLOG	TOTAL UGL	WEIGHT %
Monochlorobiphenyls	0.34	100
Dichlorobiphenyls	0.0000	0.0000
Trichlorobiphenyls	0.0000	0.0000
Tetrachlorobiphenyls	0.0000	0.0000
Pentachlorobiphenyls	0.0000	0.0000
Hexachlorobiphenyls	0.0000	0.0000
Heptachlorobiphenyls	0.0000	0.0000
Octachlorobiphenyls	0.0000	0.0000
Nonachlorobiphenyls	0.0000	0.0000
Decachlorobiphenyls	0.0000	0.0000

TOTAL PCB 0.34 UGL

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUF31	Sample Wt	355	
Client ID:	P511A	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ml	10000	
Sample No:	3931353	Date Inj	11/5/02	Metric	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
142	2,2',3,4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
143	2,2',3,4,5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
144	2,2',3,4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
145	2,2',3,4,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
146	2,2',3,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
147	2,2',3,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
148	2,2',3,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
149	2,2',3,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
150	2,2',3,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
151	2,2',3,5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
152	2,2',3,5,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
153	2,2',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
154	2,2',4,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
155	2,2',4,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
156	2,3,3',4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
157	2,3,3',4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
158	2,3,3',4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
159	2,3,3',4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
160	2,3,3',4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
161	2,3,3',4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
162	2,3,3',4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
163	2,3,3',4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
164	2,3,3',4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
165	2,3,3',5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
166	2,3,4,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
167	2,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
168	2,3',4,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
169	3,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
173	2,2',3,3',4,5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
175	2,2',3,3',4,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
177	2,2',3,3',4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
178	2,2',3,3',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
181	2,2',3,4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
183	2,2',3,4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
185	2,2',3,4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052

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209 PCB CONGENER REPORT

DF	1	Date Recd	10/31/02	SDG No.	DUF01	Sample Wt	996
Client ID:	P511A	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3331293	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
55	2,2',3,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
56	2,2',3,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
57	2,2',3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
58	2,2',3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
59	2,2',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
100	2,2',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
101	2,2',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
102	2,2',4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
103	2,2',4,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
104	2,2',4,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
105	2,3,3',4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
106	2,3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
107	2,3,3',4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
108	2,3,3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
109	2,3,3',4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
110	2,3,3',4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
111	2,3,3',5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
112	2,3,3',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
113	2,3,3',5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
114	2,3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
115	2,3,4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
116	2,3,4,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
117	2,3,4',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
118	2,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
119	2,3',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
120	2,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
121	2,3',4,5',6-Pentachlorbiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
122	2',3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
123	2',3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
124	2',3,4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
125	2',3,4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
126	3,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
127	3,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
128	2,2',3,3',4,4'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
129	2,2',3,3',4,5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
130	2,2',3,3',4,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
131	2,2',3,3',4,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
132	2,2',3,3',4,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
133	2,2',3,3',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
134	2,2',3,3',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
135	2,2',3,3',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
136	2,2',3,3',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
137	2,2',3,4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
138	2,2',3,4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
139	2,2',3,4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
140	2,2',3,4,4',6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
141	2,2',3,4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	35g	
Client ID:	P511A	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. of	10000	
Sample No:	2531393	Date Ini	11/8/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
48	2,2',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
49	2,2',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
50	2,2',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
51	2,2',4,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
52	2,2',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
53	2,2',5,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
54	2,2',6,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
55	2,3,3',4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
56	2,3,3',4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
57	2,3,3',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
58	2,3,3',5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
59	2,3,3',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
60	2,3,4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
61	2,3,4,5,-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
62	2,3,4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
63	2,3,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
64	2,3,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
65	2,3,5,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
66	2,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
67	2,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
68	2,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
69	2,3',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
70	2,3',4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
71	2,3',4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
72	2,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
73	2,3',5',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
74	2,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
75	2,4,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
76	2',3,4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
77	3,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
78	3,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
79	3,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
80	3,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
81	3,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
82	2,2',3,3',4-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
83	2,2',3,3',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
84	2,2',3,3',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
85	2,2',3,4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
86	2,2',3,4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
87	2,2',3,4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
88	2,2',3,4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
89	2,2',3,4,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
90	2,2',3,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
91	2,2',3,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
92	2,2',3,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
93	2,2',3,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
94	2,2',3,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	955	
Client ID:	PS11A	Date Ext.	11/5/02	Conc/Size	Conc	F.Vol. ul	10000	
Sample No:	3331253	Date Inj	11/5/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
1	2-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.10	0.021
2	3-Chlorobiphenyl	0.342586		0.10	0.020	0.34	0.10	0.021
3	4-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.10	0.021
4	2,2'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
5	2,3-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
6	2,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
7	2,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
8	2,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
9	2,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
10	2,6-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
11	3,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
12	3,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
13	3,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
14	3,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
15	4,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
16	2,2',3-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
17	2,2',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
18	2,2',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	[illegible]
19	2,2',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	[illegible]
20	2,3,3'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
21	2,3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
22	2,3,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
23	2,3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
24	2,3,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
25	2,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
26	2,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
27	2,3',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
28	2,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
29	2,4,5-Trichlorbiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
30	2,4,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
31	2,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
32	2,4',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
33	2',3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
34	2',3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
35	3,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
36	3,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
37	3,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
38	3,4,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
39	3,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
40	2,2',3,3'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
41	2,2',3,4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
42	2,2',3,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
43	2,2',3,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	
44	2,2',3,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	
45	2,2',3,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
46	2,2',3,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052
47	2,2',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.021	0.0052

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUFW	Sample Wt	1010
Client ID:	PS-3A	Date Ext.	11/5/02	Conc/Size	Conc	F.Vol. ul	10000
Sample No:	3931351	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
190	2,3,3',4,4',5,6-Heptachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
191	2,3,3',4,4',5',6-Heptachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
192	2,3,3',4,5,5',6-Heptachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
193	2,3,3',4',5,5',6-Heptachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
196	2,2',3,3',4,4',5',6-Octachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
202	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
209	Decachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050

HOMOLOG	TOTAL UG/L	WEIGHT %
Monochlorobiphenyls	0.32	98.4
Dichlorobiphenyls	0.0000	0.0000
Trichlorobiphenyls	0.0000	0.0000
Tetrachlorobiphenyls	0.0000	0.0000
Pentachlorobiphenyls	0.0051	1.6
Hexachlorobiphenyls	0.0000	0.0000
Heptachlorobiphenyls	0.0000	0.0000
Octachlorobiphenyls	0.0000	0.0000
Nonachlorobiphenyls	0.0000	0.0000
Decachlorobiphenyls	0.0000	0.0000

TOTAL PCB 0.33 UG/L

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	1010	
Client ID:	PS-3A	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ml	10000	
Sample No:	2031291	Date Ini	11/5/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
142	2,2',3,4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
143	2,2',3,4,5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
144	2,2',3,4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
145	2,2',3,4,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
146	2,2',3,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
147	2,2',3,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
148	2,2',3,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
149	2,2',3,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
150	2,2',3,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
151	2,2',3,5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
152	2,2',3,5,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
153	2,2',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
154	2,2',4,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
155	2,2',4,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
156	2,3,3',4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
157	2,3,3',4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
158	2,3,3',4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
159	2,3,3',4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
160	2,3,3',4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
161	2,3,3',4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
162	2,3,3',4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
163	2,3,3',4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
164	2,3,3',4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
165	2,3,3',5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
166	2,3,4,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
167	2,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
168	2,3',4,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
169	3,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
173	2,2',3,3',4,5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
175	2,2',3,3',4,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
177	2,2',3,3',4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
178	2,2',3,3',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
181	2,2',3,4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
183	2,2',3,4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
185	2,2',3,4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	1010	
Client ID:	P5-1A	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ul	10000	
Sample No:	3931391	Date Inj	11/2/02	Metric	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
95	2,2',3,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
96	2,2',3,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
97	2,2',3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
98	2,2',3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
99	2,2',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
100	2,2',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
101	2,2',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
102	2,2',4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
103	2,2',4,5',6-Pentachlorobiphenyl	0.005065	J	0.020	0.0050	0.0051	0.020	0.0050
104	2,2',4,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
105	2,3,3',4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
106	2,3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
107	2,3,3',4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
108	2,3,3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
109	2,3,3',4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
110	2,3,3',4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
111	2,3,3',5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
112	2,3,3',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
113	2,3,3',5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
114	2,3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
115	2,3,4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
116	2,3,4,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
117	2,3,4',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
118	2,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
119	2,3',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
120	2,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
121	2,3',4,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
122	2',3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
123	2',3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
124	2',3,4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
125	2',3,4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
126	3,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
127	3,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
128	2,2',3,3',4,4'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
129	2,2',3,3',4,5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
130	2,2',3,3',4,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
131	2,2',3,3',4,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
132	2,2',3,3',4,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
133	2,2',3,3',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
134	2,2',3,3',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
135	2,2',3,3',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
136	2,2',3,3',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
137	2,2',3,4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
138	2,2',3,4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
139	2,2',3,4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
140	2,2',3,4,4',6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
141	2,2',3,4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	1010	
Client ID:	PS-3A	Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ml	10000	
Sample No:	3931351	Date Inj	11/8/02	Metric	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
48	2,2',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
49	2,2',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
50	2,2',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
51	2,2',4,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
52	2,2',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
53	2,2',5,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
54	2,2',6,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
55	2,3,3',4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
56	2,3,3',4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
57	2,3,3',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
58	2,3,3',5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
59	2,3,3',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
60	2,3,4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
61	2,3,4,5,-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
62	2,3,4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
63	2,3,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
64	2,3,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
65	2,3,5,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
66	2,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
67	2,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
68	2,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
69	2,3',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
70	2,3',4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
71	2,3',4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
72	2,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
73	2,3',5',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
74	2,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
75	2,4,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
76	2',3,4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
77	3,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
78	3,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
79	3,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
80	3,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
81	3,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
82	2,2',3,3',4-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
83	2,2',3,3',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
84	2,2',3,3',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
85	2,2',3,4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
86	2,2',3,4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
87	2,2',3,4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
88	2,2',3,4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
89	2,2',3,4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
90	2,2',3,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
91	2,2',3,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
92	2,2',3,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
93	2,2',3,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
94	2,2',3,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/31/02	SDG No.	DUF01	Sample Wt	1010
Client ID:	PS-3A	Date Ext.	11/5/02	Spec/Size	Sonc	F.Vol. ul	10000
Sample No:	2931351	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
1	2-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.099	0.020
2	3-Chlorobiphenyl	0.320212		0.10	0.020	0.32	0.099	0.020
3	4-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.099	0.020
4	2,2'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
5	2,3-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
6	2,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
7	2,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
8	2,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
9	2,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
10	2,6-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
11	3,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
12	3,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
13	3,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
14	3,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
15	4,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
16	2,2',3-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
17	2,2',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
18	2,2',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
19	2,2',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
20	2,3,3'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
21	2,3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
22	2,3,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
23	2,3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
24	2,3,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
25	2,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
26	2,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
27	2,3',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
28	2,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
29	2,4,5-Trichlorbiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
30	2,4,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
31	2,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
32	2,4',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
33	2',3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
34	2',3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
35	3,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
36	3,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
37	3,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
38	3,4,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
39	3,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
40	2,2',3,3'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
41	2,2',3,4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
42	2,2',3,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
43	2,2',3,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
44	2,2',3,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
45	2,2',3,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
46	2,2',3,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
47	2,2',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050

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209 PCB CONGENER REPORT

DF	1	Date Rec'd		SDG No.	DUF01	Sample Wt	1000
Client ID:	PDUFDW	Date Ext.	11/6/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	BLANK4	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
183	2,3,3',4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
190	2,3,3',4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
191	2,3,3',4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
192	2,3,3',4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
193	2,3,3',4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
196	2,2',3,3',4,4',5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
202	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
209	Decachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050

HOMOLOG	TOTAL UG/L	WEIGHT %
Monochlorobiphenyls	1.5	100
Dichlorobiphenyls	0.0000	0.0000
Trichlorobiphenyls	0.0000	0.0000
Tetrachlorobiphenyls	0.0000	0.0000
Pentachlorobiphenyls	0.0000	0.0000
Hexachlorobiphenyls	0.0000	0.0000
Heptachlorobiphenyls	0.0000	0.0000
Octachlorobiphenyls	0.0000	0.0000
Nonachlorobiphenyls	0.0000	0.0000
Decachlorobiphenyls	0.0000	0.0000

TOTAL PCB 1.5 UG/L

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209 PCB CONGENER REPORT

DF	1	Date Rec'd		SDG No.	DUFM	Sample Wt	1000	
Client ID:	PSLLDW	Date Ext.	11/5/02	Conc/Size	Conc	F.Vol. ml	10000	
Sample No:	BLANK4	Date Inj	11/6/02	Matrix	Water	Moisture	NA	
IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
142	2,2',3,4,5,6-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
143	2,2',3,4,5,6'-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
144	2,2',3,4,5',6-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
145	2,2',3,4,6,6'-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
146	2,2',3,4',5,5'-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
147	2,2',3,4',5,6-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
148	2,2',3,4',5,6'-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
149	2,2',3,4',5',6-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
150	2,2',3,4',6,6'-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
151	2,2',3,5,5',6-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
152	2,2',3,5,6,6'-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
153	2,2',4,4',5,5'-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
154	2,2',4,4',5,6'-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
155	2,2',4,4',6,6'-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
156	2,3,3',4,4',5-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
157	2,3,3',4,4',5'-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
158	2,3,3',4,4',6-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
159	2,3,3',4,5,5'-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
160	2,3,3',4,5,6-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
161	2,3,3',4,5',6-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
162	2,3,3',4',5,5'-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
163	2,3,3',4',5,6-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
164	2,3,3',4',5',6-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
165	2,3,3',5,5',6-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
166	2,3,4,4',5,6-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
167	2,3',4,4',5,5'-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
168	2,3',4,4',5',6-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
169	3,3',4,4',5,5'-Hexachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
173	2,2',3,3',4,5,6-Heptachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
175	2,2',3,3',4,5',6-Heptachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
177	2,2',3,3',4',5,6-Heptachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
178	2,2',3,3',5,5',6-Heptachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
181	2,2',3,4,4',5,6-Heptachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
183	2,2',3,4,4',5',6-Heptachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
185	2,2',3,4,5,5',6-Heptachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050
188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	NO	U	0.020	0.0050	NO	0.020	0.0050

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209 PCB CONGENER REPORT

DF	1	Date Rec'd		SDG No.	DUF01	Sample Wt	1000
Client ID:	PSUXDW	Date Ext.	11/6/02	Sonc/Sox	Sonc	F.Vol. ml	10000
Sample No:	BLANKA	Date Inj	11/8/02	Metric	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
95	2,2',3,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
96	2,2',3,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
97	2,2',3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
98	2,2',3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
99	2,2',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
100	2,2',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
101	2,2',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
102	2,2',4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
103	2,2',4,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
104	2,2',4,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
105	2,3,3',4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
106	2,3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
107	2,3,3',4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
108	2,3,3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
109	2,3,3',4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
110	2,3,3',4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
111	2,3,3',5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
112	2,3,3',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.00[illegible]
113	2,3,3',5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0
114	2,3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
115	2,3,4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
116	2,3,4,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
117	2,3,4',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
118	2,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
119	2,3',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
120	2,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
121	2,3',4,5',6-Pentachlorbiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
122	2',3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
123	2',3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
124	2',3,4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
125	2',3,4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
126	3,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
127	3,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
128	2,2',3,3',4,4'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
129	2,2',3,3',4,5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
130	2,2',3,3',4,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
131	2,2',3,3',4,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
132	2,2',3,3',4,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
133	2,2',3,3',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
134	2,2',3,3',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
135	2,2',3,3',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
136	2,2',3,3',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
137	2,2',3,4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	
138	2,2',3,4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	
139	2,2',3,4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
140	2,2',3,4,4',6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
141	2,2',3,4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050

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209 PCB CONGENER REPORT

DF	1		Date Rec'd		SDG No.	OUF01	Sample Wt	1000
Client ID:	PBLKDW		Date Ext.	11/5/02	Sonc/Sox	Sonc	F.Vol. ml	10000
Sample No:	BLANK		Date Inj	11/6/02	Metric	Water	Moisture	NA
IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
48	2,2',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
49	2,2',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
50	2,2',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
51	2,2',4,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
52	2,2',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
53	2,2',5,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
54	2,2',6,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
55	2,3,3',4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
56	2,3,3',4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
57	2,3,3',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
58	2,3,3',5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
59	2,3,3',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
60	2,3,4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
61	2,3,4,5,-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
62	2,3,4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
63	2,3,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
64	2,3,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
65	2,3,5,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
66	2,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
67	2,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
68	2,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
69	2,3',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
70	2,3',4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
71	2,3',4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
72	2,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
73	2,3',5',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
74	2,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
75	2,4,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
76	2',3,4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
77	3,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
78	3,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
79	3,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
80	3,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
81	3,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
82	2,2',3,3',4-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
83	2,2',3,3',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
84	2,2',3,3',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
85	2,2',3,4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
86	2,2',3,4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
87	2,2',3,4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
88	2,2',3,4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
89	2,2',3,4,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
90	2,2',3,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
91	2,2',3,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
92	2,2',3,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
93	2,2',3,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
94	2,2',3,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050

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209 PCB CONGENER REPORT

DF	1	Date Rec'd		SDG No.	DUF01	Sample Wt	1000
Client ID:	PSUUDW	Date Ext.	11/6/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	BLANKA	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
1	2-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.10	0.020
2	3-Chlorobiphenyl	1.503145		0.10	0.020	1.5	0.10	0.020
3	4-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.10	0.020
4	2,2'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
5	2,3-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
6	2,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
7	2,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
8	2,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
9	2,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
10	2,6-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
11	3,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
12	3,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
13	3,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
14	3,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
15	4,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
16	2,2',3-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
17	2,2',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
18	2,2',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
19	2,2',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
20	2,3,3'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
21	2,3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
22	2,3,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
23	2,3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
24	2,3,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
25	2,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
26	2,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
27	2,3',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
28	2,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
29	2,4,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
30	2,4,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
31	2,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
32	2,4',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
33	2',3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
34	2',3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
35	3,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
36	3,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
37	3,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
38	3,4,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
39	3,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
40	2,2',3,3'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
41	2,2',3,4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
42	2,2',3,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
43	2,2',3,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
44	2,2',3,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
45	2,2',3,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
46	2,2',3,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050
47	2,2',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0050

Lancaster Laboratories
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Lancaster Laboratories Sample No. WW 3931401

Collected:10/31/2002 10:30 by BS

Account Number: 01963

Submitted: 10/31/2002 18:15
Reported: 11/22/2002 at 13:26
Discard: 12/23/2002
LC-101 Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

LC101 SDG#: DUF01-22

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
07996	PCB 8	34883-43-7	N.D.	0.019	ug/l	1
07997	PCB 18	37680-65-2	N.D.	0.019	ug/l	1
08002	PCB 49	41464-40-8	N.D.	0.019	ug/l	1
08009	PCB 87	38380-02-8	N.D.	0.019	ug/l	1
08020	PCB 128	38380-07-3	N.D.	0.019	ug/l	1
08033	PCB 180	35066-29-3	N.D.	0.019	ug/l	1
08038	PCB 194	35694-08-7	N.D.	0.019	ug/l	1
08041	PCB 206	40186-72-9	N.D.	0.019	ug/l	1
08042	PCB 209	2051-24-3	N.D.	0.019	ug/l	1

PCB-002 was detected in the blank at a concentration of 1.53 ug/l. The blank is not subtracted from the sample concentration.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	11/09/2002 10:49	Eric W Cuba	1
01758	Manganese	SW-846 6010B	1	11/09/2002 10:49	Eric W Cuba	1
00206	Total Suspended Solids	EPA 160.2	1	11/20/2002 14:27	Anne L Kuenzli	1
00212	Total Dissolved Solids	EPA 160.1	1	11/05/2002 11:35	Anne L Kuenzli	1
00937	TCL Pesticides in Waters	SW-846 8081A/8082	1	11/06/2002 21:44	Douglas D Seitz	1
05088	PCB Congeners-Full List-water	SW-846 8082 (modified)	1	11/09/2002 07:36	Tiffany A Leyda	1
00817	Water Sample Pest. Extraction	SW-846 3510C	1	11/04/2002 16:45	Desiree J Wann	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	11/04/2002 16:00	Irimar Leon	1

Analysis Report

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3931401

Collected:10/31/2002 10:30 by BS

Account Number: 01963

Submitted: 10/31/2002 18:15
Reported: 11/22/2002 at 13:26
Discard: 12/23/2002
LC-101 Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

LC101 SDG#: DUF01-22

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
01754	Iron	7439-89-6	33.3	0.100	mg/l	1
01758	Manganese	7439-96-5	1.38	0.0100	mg/l	1
00206	Total Suspended Solids	n.a.	145.	20.	mg/l	1
	This sample was analyzed past the 7-day hold time for TSS at the client's request.					
00212	Total Dissolved Solids	n.a.	834.	60.	mg/l	1
00937	TCL Pesticides in Waters					
00938	Endrin Ketone	53494-70-5	N.D.	0.019	ug/l	1
01361	Alpha Chlordane	5103-71-9	N.D.	0.0096	ug/l	1
01362	Gamma Chlordane	5103-74-2	N.D.	0.0096	ug/l	1
01600	Alpha BHC	319-84-6	N.D.	0.0096	ug/l	1
01601	Beta BHC	319-85-7	N.D.	0.0096	ug/l	1
01602	Gamma BHC - Lindane	58-89-9	N.D.	0.0096	ug/l	1
01603	Delta BHC	319-86-8	N.D.	0.0096	ug/l	1
01604	Heptachlor	76-44-8	N.D.	0.0096	ug/l	1
01605	Aldrin	309-00-2	N.D.	0.024	ug/l	1
01606	Heptachlor Epoxide	1024-57-3	N.D.	0.0096	ug/l	1
01607	p,p-DDE	72-55-9	N.D.	0.019	ug/l	1
01608	p,p-DDD	72-54-8	N.D.	0.019	ug/l	1
01609	p,p-DDT	50-29-3	N.D.	0.019	ug/l	1
01610	Dieldrin	60-57-1	N.D.	0.019	ug/l	1
01611	Endrin	72-20-8	N.D.	0.019	ug/l	1
01613	Toxaphene	8001-35-2	N.D.	1.0	ug/l	1
01615	Endosulfan II	33213-65-9	N.D.	0.019	ug/l	1
01616	Endosulfan I	959-98-8	N.D.	0.0096	ug/l	1
01617	Endosulfan Sulfate	1031-07-8	N.D.	0.019	ug/l	1
01618	Endrin Aldehyde	7421-93-4	N.D.	0.096	ug/l	1
01619	PCB-1016	12674-11-2	N.D.	0.48	ug/l	1
01620	PCB-1221	11104-28-2	N.D.	0.48	ug/l	1
01621	PCB-1232	11141-16-5	N.D.	0.48	ug/l	1
01622	PCB-1242	53469-21-9	N.D.	0.48	ug/l	1
01623	PCB-1248	12672-29-6	N.D.	0.48	ug/l	1
01624	PCB-1254	11097-69-1	N.D.	0.48	ug/l	1
01626	PCB-1260	11096-82-5	N.D.	0.48	ug/l	1
01860	Methoxychlor	72-43-5	N.D.	0.096	ug/l	1
05088	PCB Congeners-Full List-water					
07994	PCB 1	2051-60-7	N.D.	0.095	ug/l	1

Lancaster Laboratories
Where quality is a science

Lancaster Laboratories Sample No. WW 3931400

Collected:10/31/2002 12:20 by BS

Account Number: 01963

Submitted: 10/31/2002 18:15
Reported: 11/22/2002 at 13:26
Discard: 12/23/2002
LC-108 Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

LC108 SDG#: DUF01-21

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
07996	PCB 8	34883-43-7	N.D.	0.019	ug/l	1
07997	PCB 18	37680-65-2	N.D.	0.019	ug/l	1
08002	PCB 49	41464-40-8	N.D.	0.019	ug/l	1
08009	PCB 87	38380-02-8	N.D.	0.019	ug/l	1
08020	PCB 128	38380-07-3	N.D.	0.019	ug/l	1
08033	PCB 180	35066-29-3	N.D.	0.019	ug/l	1
08038	PCB 194	35694-08-7	N.D.	0.019	ug/l	1
08041	PCB 206	40186-72-9	N.D.	0.019	ug/l	1
08042	PCB 209	2051-24-3	N.D.	0.019	ug/l	1

PCB-002 was detected in the blank at a concentration of 1.53 ug/l. The blank is not subtracted from the sample concentration.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	11/09/2002 10:34	Eric W Cuba	1
01758	Manganese	SW-846 6010B	1	11/09/2002 10:34	Eric W Cuba	1
00206	Total Suspended Solids	EPA 160.2	1	11/20/2002 14:27	Anne L Kuenzli	1
00212	Total Dissolved Solids	EPA 160.1	1	11/05/2002 11:35	Anne L Kuenzli	1
00937	TCL Pesticides in Waters	SW-846 8081A/8082	1	11/06/2002 21:24	Douglas D Seitz	1
05088	PCB Congeners-Full List-water	SW-846 8082 (modified)	1	11/09/2002 06:33	Tiffany A Leyda	1
00817	Water Sample Pest. Extraction	SW-846 3510C	1	11/04/2002 16:45	Desiree J Wann	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	11/04/2002 16:00	Irimar Leon	1

Analysis Report

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3931400

Collected:10/31/2002 12:20 by BS

Account Number: 01963

Submitted: 10/31/2002 18:15
Reported: 11/22/2002 at 13:26
Discard: 12/23/2002
LC-108 Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

LC108 SDG#: DUF01-21

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
01754	Iron	7439-89-6	48.3	0.100	mg/l	1
01758	Manganese	7439-96-5	3.64	0.0100	mg/l	1
00206	Total Suspended Solids	n.a.	115.	20.	mg/l	1
	This sample was analyzed past the 7-day hold time for TSS at the client's request.					
00212	Total Dissolved Solids	n.a.	916.	60.	mg/l	1
00937	TCL Pesticides in Waters					
00938	Endrin Ketone	53494-70-5	N.D.	0.019	ug/l	1
01361	Alpha Chlordane	5103-71-9	N.D.	0.0097	ug/l	1
01362	Gamma Chlordane	5103-74-2	N.D.	0.0097	ug/l	1
01600	Alpha BHC	319-84-6	N.D.	0.0097	ug/l	1
01601	Beta BHC	319-85-7	N.D.	0.0097	ug/l	1
01602	Gamma BHC - Lindane	58-89-9	N.D.	0.0097	ug/l	1
01603	Delta BHC	319-86-8	0.0082 J	0.0097	ug/l	1
01604	Heptachlor	76-44-8	N.D.	0.0097	ug/l	1
01605	Aldrin	309-00-2	N.D.	0.024	ug/l	1
01606	Heptachlor Epoxide	1024-57-3	N.D.	0.0097	ug/l	1
01607	p,p-DDE	72-55-9	N.D.	0.019	ug/l	1
01608	p,p-DDD	72-54-8	N.D.	0.019	ug/l	1
01609	p,p-DDT	50-29-3	N.D.	0.019	ug/l	1
01610	Dieldrin	60-57-1	N.D.	0.019	ug/l	1
01611	Endrin	72-20-8	0.0048 J	0.019	ug/l	1
01613	Toxaphene	8001-35-2	N.D.	1.0	ug/l	1
01615	Endosulfan II	33213-65-9	N.D.	0.019	ug/l	1
01616	Endosulfan I	959-98-8	N.D.	0.0097	ug/l	1
01617	Endosulfan Sulfate	1031-07-8	N.D.	0.019	ug/l	1
01618	Endrin Aldehyde	7421-93-4	N.D.	0.097	ug/l	1
01619	PCB-1016	12674-11-2	N.D.	0.48	ug/l	1
01620	PCB-1221	11104-28-2	N.D.	0.48	ug/l	1
01621	PCB-1232	11141-16-5	N.D.	0.48	ug/l	1
01622	PCB-1242	53469-21-9	N.D.	0.48	ug/l	1
01623	PCB-1248	12672-29-6	N.D.	0.48	ug/l	1
01624	PCB-1254	11097-69-1	N.D.	0.48	ug/l	1
01626	PCB-1260	11096-82-5	N.D.	0.48	ug/l	1
01860	Methoxychlor	72-43-5	N.D.	0.097	ug/l	1
05088	PCB Congeners-Full List-water					
07994	PCB 1	2051-60-7	N.D.	0.097	ug/l	1

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3931399

Collected:10/31/2002 12:20 by BS

Account Number: 01963

Submitted: 10/31/2002 18:15
Reported: 11/22/2002 at 13:26
Discard: 12/23/2002
LC-108 Dup Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

L108D SDG#: DUF01-20FD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
07996	PCB 8	34883-43-7	N.D.	0.019	ug/l	1
07997	PCB 18	37680-65-2	N.D.	0.019	ug/l	1
08002	PCB 49	41464-40-8	N.D.	0.019	ug/l	1
08009	PCB 87	38380-02-8	N.D.	0.019	ug/l	1
08020	PCB 128	38380-07-3	N.D.	0.019	ug/l	1
08033	PCB 180	35066-29-3	N.D.	0.019	ug/l	1
08038	PCB 194	35694-08-7	N.D.	0.019	ug/l	1
08041	PCB 206	40186-72-9	N.D.	0.019	ug/l	1
08042	PCB 209	2051-24-3	N.D.	0.019	ug/l	1

PCB-002 was detected in the blank at a concentration of 1.53 ug/l. The blank is not subtracted from the sample concentration.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	11/09/2002 10:29	Eric W Cuba	1
01758	Manganese	SW-846 6010B	1	11/09/2002 10:29	Eric W Cuba	1
00206	Total Suspended Solids	EPA 160.2	1	11/20/2002 14:27	Anne L Kuenzli	1
00212	Total Dissolved Solids	EPA 160.1	1	11/05/2002 11:35	Anne L Kuenzli	1
00937	TCL Pesticides in Waters	SW-846 8081A/8082	1	11/06/2002 20:04	Douglas D Seitz	1
05088	PCB Congeners-Full List-water	SW-846 8082 (modified)	1	11/09/2002 05:29	Tiffany A Leyda	1
00817	Water Sample Pest. Extraction	SW-846 3510C	1	11/04/2002 16:45	Desiree J Wann	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	11/04/2002 16:00	Irimar Leon	1

Analysis Report

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3931399

Collected:10/31/2002 12:20 by BS

Account Number: 01963

Submitted: 10/31/2002 18:15
Reported: 11/22/2002 at 13:26
Discard: 12/23/2002
LC-108 Dup Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

L108D SDG#: DUF01-20FD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
01754	Iron	7439-89-6	65.2	0.100	mg/l	1
01758	Manganese	7439-96-5	4.01	0.0100	mg/l	1
00206	Total Suspended Solids	n.a.	127.	30.	mg/l	1
	This sample was analyzed past the 7-day hold time for TSS at the client's request.					
00212	Total Dissolved Solids	n.a.	1,090.	120.	mg/l	1
00937	TCL Pesticides in Waters					
00938	Endrin Ketone	53494-70-5	N.D.	0.019	ug/l	1
01361	Alpha Chlordane	5103-71-9	N.D.	0.0097	ug/l	1
01362	Gamma Chlordane	5103-74-2	N.D.	0.0097	ug/l	1
01600	Alpha BHC	319-84-6	N.D.	0.0097	ug/l	1
01601	Beta BHC	319-85-7	N.D.	0.0097	ug/l	1
01602	Gamma BHC - Lindane	58-89-9	N.D.	0.0097	ug/l	1
01603	Delta BHC	319-86-8	0.0093 J	0.0097	ug/l	1
01604	Heptachlor	76-44-8	N.D.	0.0097	ug/l	1
01605	Aldrin	309-00-2	N.D.	0.024	ug/l	1
01606	Heptachlor Epoxide	1024-57-3	N.D.	0.0097	ug/l	1
01607	p,p-DDE	72-55-9	N.D.	0.019	ug/l	1
01608	p,p-DDD	72-54-8	N.D.	0.019	ug/l	1
01609	p,p-DDT	50-29-3	N.D.	0.019	ug/l	1
01610	Dieldrin	60-57-1	N.D.	0.019	ug/l	1
01611	Endrin	72-20-8	0.0047 J	0.019	ug/l	1
01613	Toxaphene	8001-35-2	N.D.	1.0	ug/l	1
01615	Endosulfan II	33213-65-9	N.D.	0.019	ug/l	1
01616	Endosulfan I	959-98-8	N.D.	0.0097	ug/l	1
01617	Endosulfan Sulfate	1031-07-8	N.D.	0.019	ug/l	1
01618	Endrin Aldehyde	7421-93-4	N.D.	0.097	ug/l	1
01619	PCB-1016	12674-11-2	N.D.	0.48	ug/l	1
01620	PCB-1221	11104-28-2	N.D.	0.48	ug/l	1
01621	PCB-1232	11141-16-5	N.D.	0.48	ug/l	1
01622	PCB-1242	53469-21-9	N.D.	0.48	ug/l	1
01623	PCB-1248	12672-29-6	N.D.	0.48	ug/l	1
01624	PCB-1254	11097-69-1	N.D.	0.48	ug/l	1
01626	PCB-1260	11096-82-5	N.D.	0.48	ug/l	1
01860	Methoxychlor	72-43-5	N.D.	0.097	ug/l	1
05088	PCB Congeners-Full List-water					
07994	PCB 1	2051-60-7	N.D.	0.095	ug/l	1

Lancaster Laboratories
Where quality is a science

Lancaster Laboratories Sample No. WW 3931398

Collected:10/31/2002 13:30 by BS

Account Number: 01963

Submitted: 10/31/2002 18:15
Reported: 11/22/2002 at 13:26
Discard: 12/23/2002
Rinse Blank Grab Water Sample
Project# 4695.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

RNSBK SDG#: DUF01-19RB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
07996	PCB 8	34883-43-7	N.D.	0.019	ug/l	1
07997	PCB 18	37680-65-2	N.D.	0.019	ug/l	1
08002	PCB 49	41464-40-8	N.D.	0.019	ug/l	1
08009	PCB 87	38380-02-8	N.D.	0.019	ug/l	1
08020	PCB 128	38380-07-3	N.D.	0.019	ug/l	1
08033	PCB 180	35066-29-3	N.D.	0.019	ug/l	1
08038	PCB 194	35694-08-7	N.D.	0.019	ug/l	1
08041	PCB 206	40186-72-9	N.D.	0.019	ug/l	1
08042	PCB 209	2051-24-3	N.D.	0.019	ug/l	1

PCB-002 was detected in the blank at a concentration of 1.53 ug/l. The blank is not subtracted from the sample concentration.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	11/12/2002 15:55	Damary Valentin	1
01758	Manganese	SW-846 6010B	1	11/09/2002 10:25	Eric W Cuba	1
00206	Total Suspended Solids	EPA 160.2	1	11/20/2002 14:27	Anne L Kuenzli	1
00212	Total Dissolved Solids	EPA 160.1	1	11/05/2002 11:35	Anne L Kuenzli	1
00937	TCL Pesticides in Waters	SW-846 8081A/8082	1	11/06/2002 19:44	Douglas D Seitz	1
05088	PCB Congeners-Full List-water	SW-846 8082 (modified)	1	11/09/2002 04:26	Tiffany A Leyda	1
00817	Water Sample Pest. Extraction	SW-845 3510C	1	11/04/2002 16:45	Desiree J Wann	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	11/04/2002 16:00	Irimar Leon	1

Analysis Report

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3931398

Collected:10/31/2002 13:30 by BS

Account Number: 01963

Submitted: 10/31/2002 18:15
Reported: 11/22/2002 at 13:26
Discard: 12/23/2002
Rinse Blank Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

RNSBK SDG#: DUF01-19RB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
01754	Iron	7439-89-6	0.131	0.100	mg/l	1
01758	Manganese	7439-96-5	0.0028 J	0.0100	mg/l	1
00206	Total Suspended Solids	n.a.	N.D.	12.	mg/l	1
	This sample was analyzed past the 7-day hold time for TSS at the client's request.					
00212	Total Dissolved Solids	n.a.	N.D.	30.	mg/l	1
00937	TCL Pesticides in Waters					
00938	Endrin Ketone	53494-70-5	N.D.	0.019	ug/l	1
01361	Alpha Chlordane	5103-71-9	N.D.	0.0096	ug/l	1
01362	Gamma Chlordane	5103-74-2	N.D.	0.0096	ug/l	1
01600	Alpha BHC	319-84-6	N.D.	0.0096	ug/l	1
01601	Beta BHC	319-85-7	N.D.	0.0096	ug/l	1
01602	Gamma BHC - Lindane	58-89-9	N.D.	0.0096	ug/l	1
01603	Delta BHC	319-86-8	N.D.	0.0096	ug/l	1
01604	Heptachlor	76-44-8	N.D.	0.0096	ug/l	1
01605	Aldrin	309-00-2	N.D.	0.024	ug/l	1
01606	Heptachlor Epoxide	1024-57-3	N.D.	0.0096	ug/l	1
01607	p,p-DDE	72-55-9	N.D.	0.019	ug/l	1
01608	p,p-DDD	72-54-8	N.D.	0.019	ug/l	1
01609	p,p-DDT	50-29-3	N.D.	0.019	ug/l	1
01610	Dieldrin	60-57-1	N.D.	0.019	ug/l	1
01611	Endrin	72-20-8	N.D.	0.019	ug/l	1
01613	Toxaphene	8001-35-2	N.D.	1.0	ug/l	1
01615	Endosulfan II	33213-65-9	N.D.	0.019	ug/l	1
01616	Endosulfan I	959-98-8	N.D.	0.0096	ug/l	1
01617	Endosulfan Sulfate	1031-07-8	N.D.	0.019	ug/l	1
01618	Endrin Aldehyde	7421-93-4	N.D.	0.096	ug/l	1
01619	PCB-1016	12674-11-2	N.D.	0.48	ug/l	1
01620	PCB-1221	11104-28-2	N.D.	0.48	ug/l	1
01621	PCB-1232	11141-16-5	N.D.	0.48	ug/l	1
01622	PCB-1242	53469-21-9	N.D.	0.48	ug/l	1
01623	PCB-1248	12672-29-6	N.D.	0.48	ug/l	1
01624	PCB-1254	11097-69-1	N.D.	0.48	ug/l	1
01626	PCB-1260	11096-82-5	N.D.	0.48	ug/l	1
01860	Methoxychlor	72-43-5	N.D.	0.096	ug/l	1
05088	PCB Congeners-Full List-water					
07994	PCB 1	2051-60-7	N.D.	0.095	ug/l	1

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3931397

Collected:10/31/2002 15:25 by BS

Account Number: 01963

Submitted: 10/31/2002 18:15
Reported: 11/22/2002 at 13:26
Discard: 12/23/2002
LC-113 Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

LC113 SDG#: DUF01-18

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
07996	PCB 8	34883-43-7	N.D.	0.019	ug/l	1
07997	PCB 18	37680-65-2	N.D.	0.019	ug/l	1
08002	PCB 49	41464-40-8	N.D.	0.019	ug/l	1
08009	PCB 87	38380-02-8	N.D.	0.019	ug/l	1
08020	PCB 128	38380-07-3	N.D.	0.019	ug/l	1
08033	PCB 180	35066-29-3	N.D.	0.019	ug/l	1
08038	PCB 194	35694-08-7	N.D.	0.019	ug/l	1
08041	PCB 206	40186-72-9	N.D.	0.019	ug/l	1
08042	PCB 209	2051-24-3	N.D.	0.019	ug/l	1

PCB-002 was detected in the blank at a concentration of 1.53 ug/l. The blank is not subtracted from the sample concentration.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010B	1	11/09/2002 10:20	Eric W Cuba	1
01758	Manganese	SW-846 6010B	1	11/09/2002 10:20	Eric W Cuba	1
00206	Total Suspended Solids	EPA 160.2	1	11/20/2002 14:27	Anne L Kuenzli	1
00212	Total Dissolved Solids	EPA 160.1	1	11/05/2002 11:35	Anne L Kuenzli	1
00937	TCL Pesticides in Waters	SW-846 8081A/8082	1	11/13/2002 08:05	Douglas D Seitz	1
05088	PCB Congeners-Full List-water	SW-846 8082 (modified)	1	11/09/2002 03:23	Tiffany A Leyda	1
00817	Water Sample Pest. Extraction	SW-846 3510C	1	11/04/2002 16:45	Desiree J Wann	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	11/04/2002 16:00	Irimar Leon	1

Analysis Report

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3931397

Collected:10/31/2002 15:25 by BS

Account Number: 01963

Submitted: 10/31/2002 18:15
Reported: 11/22/2002 at 13:26
Discard: 12/23/2002
LC-113 Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

LC113 SDG#: DUF01-18

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
01754	Iron	7439-89-6	70.7	0.100	mg/l	1
01758	Manganese	7439-96-5	1.81	0.0100	mg/l	1
00206	Total Suspended Solids	n.a.	261.	40.	mg/l	1
	This sample was analyzed past the 7-day hold time for TSS at the client's request.					
00212	Total Dissolved Solids	n.a.	1,080.	120.	mg/l	1
00937	TCL Pesticides in Waters					
00938	Endrin Ketone	53494-70-5	N.D.	0.019	ug/l	1
01361	Alpha Chlordane	5103-71-9	N.D.	0.0095	ug/l	1
01362	Gamma Chlordane	5103-74-2	N.D.	0.0095	ug/l	1
01600	Alpha BHC	319-84-6	N.D.	0.0095	ug/l	1
01601	Beta BHC	319-85-7	N.D.	0.0095	ug/l	1
01602	Gamma BHC - Lindane	58-89-9	N.D.	0.0095	ug/l	1
01603	Delta BHC	319-86-8	N.D.	0.0095	ug/l	1
01604	Heptachlor	76-44-8	0.0032 J	0.0095	ug/l	1
01605	Aldrin	309-00-2	N.D.	0.024	ug/l	1
01606	Heptachlor Epoxide	1024-57-3	N.D.	0.0095	ug/l	1
01607	p,p-DDE	72-55-9	N.D.	0.019	ug/l	1
01608	p,p-DDD	72-54-8	N.D.	0.019	ug/l	1
01609	p,p-DDT	50-29-3	N.D.	0.019	ug/l	1
01610	Dieldrin	60-57-1	N.D.	0.019	ug/l	1
01611	Endrin	72-20-8	N.D.	0.019	ug/l	1
01613	Toxaphene	8001-35-2	N.D.	1.0	ug/l	1
01615	Endosulfan II	33213-65-9	N.D.	0.019	ug/l	1
01616	Endosulfan I	959-98-8	N.D.	0.0095	ug/l	1
01617	Endosulfan Sulfate	1031-07-8	N.D.	0.019	ug/l	1
01618	Endrin Aldehyde	7421-93-4	N.D.	0.095	ug/l	1
01619	PCB-1016	12674-11-2	N.D.	0.48	ug/l	1
01620	PCB-1221	11104-28-2	N.D.	0.48	ug/l	1
01621	PCB-1232	11141-16-5	N.D.	0.48	ug/l	1
01622	PCB-1242	53469-21-9	N.D.	0.48	ug/l	1
01623	PCB-1248	12672-29-6	N.D.	0.48	ug/l	1
01624	PCB-1254	11097-69-1	N.D.	0.48	ug/l	1
01626	PCB-1260	11096-82-5	N.D.	0.48	ug/l	1
01860	Methoxychlor	72-43-5	N.D.	0.095	ug/l	1
05088	PCB Congeners-Full List-water					
07994	PCB 1	2051-60-7	N.D.	0.095	ug/l	1

Lancaster Laboratories
Where quality is a science

Lancaster Laboratories Sample No. WW 3931396

Collected:10/31/2002 10:30 by BS

Account Number: 01963

Submitted: 10/31/2002 18:15
Reported: 11/22/2002 at 13:26
Discard: 12/23/2002
P5-13A Grab Water Sample
CONTINUATION OF PREVIOUS SAMPLE
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

P513A SDG#: DUF01-17CONT

06914	Ammonia-Nitrogen	EPA 350.3	1	11/04/2002 07:47	Michele L Graham	10
08255	Total Cyanide (water)	SW-846 9012A	1	11/04/2002 16:37	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/05/2002 09:20	Cheryl L Robinson	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	11/04/2002 16:00	Irimar Leon	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	11/04/2002 21:27	Nelli S Markaryan	1
08256	Cyanide Water Distillation	SW-846 9012A	1	11/04/2002 09:40	James S Mathiot	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	11/01/2002 14:50	Nancy J Shocp	1

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3931396

Collected:10/31/2002 10:30 by BS

Account Number: 01963

Submitted: 10/31/2002 18:15
Reported: 11/22/2002 at 13:26
Discard: 12/23/2002
P5-13A Grab Water Sample
CONTINUATION OF PREVIOUS SAMPLE
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

P513A SDG#: DUF01-17CONT

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00259	Mercury	SW-846 7470A	1	11/05/2002 08:57	Deborah A Krady	1
01743	Aluminum	SW-846 6010B	1	11/09/2002 10:15	Eric W Cuba	1
01744	Antimony	SW-846 6010B	1	11/09/2002 10:15	Eric W Cuba	1
01746	Barium	SW-846 6010B	1	11/09/2002 10:15	Eric W Cuba	
01747	Beryllium	SW-846 6010B	1	11/09/2002 10:15	Eric W Cuba	
01749	Cadmium	SW-846 6010B	1	11/09/2002 10:15	Eric W Cuba	1
01750	Calcium	SW-846 6010B	1	11/09/2002 10:15	Eric W Cuba	1
01751	Chromium	SW-846 6010B	1	11/14/2002 00:40	Donna R Sackett	1
01752	Cobalt	SW-846 6010B	1	11/09/2002 10:15	Eric W Cuba	1
01753	Copper	SW-846 6010B	1	11/09/2002 10:15	Eric W Cuba	1
01754	Iron	SW-846 6010B	1	11/09/2002 10:15	Eric W Cuba	1
01757	Magnesium	SW-846 6010B	1	11/09/2002 10:15	Eric W Cuba	1
01758	Manganese	SW-846 6010B	1	11/09/2002 10:15	Eric W Cuba	1
01761	Nickel	SW-846 6010B	1	11/09/2002 10:15	Eric W Cuba	1
01762	Potassium	SW-846 6010B	1	11/09/2002 10:15	Eric W Cuba	1
01766	Silver	SW-846 6010B	1	11/09/2002 10:15	Eric W Cuba	1
01767	Sodium	SW-846 6010B	1	11/14/2002 00:45	Donna R Sackett	20
01771	Vanadium	SW-846 6010B	1	11/09/2002 10:15	Eric W Cuba	1
01772	Zinc	SW-846 6010B	1	11/09/2002 10:15	Eric W Cuba	1
07022	Thallium TR	SW-846 6010B	1	11/09/2002 10:15	Eric W Cuba	1
07035	Arsenic TR	SW-846 6010B	1	11/14/2002 00:40	Donna R Sackett	1
07036	Selenium TR	SW-846 6010B	1	11/09/2002 10:15	Eric W Cuba	1
07055	Lead TR	SW-846 6010B	1	11/09/2002 10:15	Eric W Cuba	1
00201	Alkalinity to pH 8.3	EPA 310.1	1	11/07/2002 17:46	Elaine F Stoltzfus	1
00202	Alkalinity to pH 4.5	EPA 310.1	1	11/07/2002 17:46	Elaine F Stoltzfus	1
00212	Total Dissolved Solids	EPA 160.1	1	11/05/2002 11:35	Anne L Ruenzli	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	11/13/2002 18:50	Venia B McFadden	5
00219	Nitrite Nitrogen	EPA 353.2	1	11/01/2002 12:02	Timothy M Petree	1
00220	Nitrate Nitrogen	EPA 353.2	1	11/13/2002 09:16	Timothy M Petree	1
00223	Organic Nitrogen	Std. Meth. 18th Ed., 4500-NORG	1	11/13/2002 18:50	Venia B McFadden	1
00224	Chloride	EPA 300.0	1	11/07/2002 20:44	Shannon L Phillips	20
00228	Sulfate	EPA 300.0	1	11/07/2002 20:59	Shannon L Phillips	100
00273	Total Organic Carbon	EPA 415.1	1	11/04/2002 18:22	Timothy M Petree	1
00345	Total Phosphorus as PO4 water	EPA 365.1	2	11/12/2002 16:51	Nicole M Kepley	2
01333	Sulfide	EPA 376.1	1	11/05/2002 12:55	Susan E Hibner	
01454	Bicarbonate	SM-18 2320B	1	11/07/2002 17:46	Elaine F Stoltzfus	
04001	Chemical Oxygen Demand	EPA 410.4	1	11/12/2002 17:00	Elaine F Stoltzfus	1

Analysis Report

Lancaster Laboratories
Where quality is a science.

Lancaster Laboratories Sample No. WW 3931396

Collected:10/31/2002 10:30 by BS

Account Number: 01963

Submitted: 10/31/2002 18:15
Reported: 11/22/2002 at 13:26
Discard: 12/23/2002
P5-13A Grab Water Sample
CONTINUATION OF PREVIOUS SAMPLE
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

P513A SDG#: DUF01-17CONT

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
00259	Mercury	7439-97-6	N.D.	0.00020	mg/l	1
01743	Aluminum	7429-90-5	0.126 J	0.200	mg/l	1
01744	Antimony	7440-36-0	N.D.	0.200	mg/l	1
01746	Barium	7440-39-3	0.132	0.100	mg/l	1
01747	Beryllium	7440-41-7	N.D.	0.0100	mg/l	1
01749	Cadmium	7440-43-9	N.D.	0.0100	mg/l	1
01750	Calcium	7440-70-2	130.	0.200	mg/l	1
01751	Chromium	7440-47-3	0.0042 J	0.0300	mg/l	1
01752	Cobalt	7440-48-4	N.D.	0.0500	mg/l	1
01753	Copper	7440-50-8	N.D.	0.0250	mg/l	1
01754	Iron	7439-89-6	2.09	0.100	mg/l	1
01757	Magnesium	7439-95-4	118.	0.100	mg/l	1
01758	Manganese	7439-96-5	7.14	0.0100	mg/l	1
01761	Nickel	7440-02-0	0.0021 J	0.0500	mg/l	1
01762	Potassium	7440-09-7	22.9	0.500	mg/l	1
01766	Silver	7440-22-4	0.0024 J	0.0200	mg/l	1
01767	Sodium	7440-23-5	89.7	12.0	mg/l	20
01771	Vanadium	7440-62-2	0.0042 J	0.0200	mg/l	1
01772	Zinc	7440-66-6	N.D.	0.0250	mg/l	1
07022	Thallium TR	7440-28-0	0.0172 J	0.0200	mg/l	1
07035	Arsenic TR	7440-38-2	N.D.	0.0100	mg/l	1
07036	Selenium TR	7782-49-2	N.D.	0.0100	mg/l	1
07055	Lead TR	7439-92-1	N.D.	0.0200	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a.	333.	2.0	mg/l as CaCO3	1
00212	Total Dissolved Solids	n.a.	1,460.	120.	mg/l	1
00217	Kjeldahl Nitrogen	7727-37-9	34.1	5.0	mg/l	5
00219	Nitrite Nitrogen	14797-65-0	0.033 J	0.050	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.10	mg/l	1
00223	Organic Nitrogen	n.a.	10.9	1.0	mg/l	1
00224	Chloride	16887-00-6	65.5	8.0	mg/l	20
00228	Sulfate	14808-79-8	710.	100.	mg/l	100
00273	Total Organic Carbon	n.a.	24.1	2.00	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	6.14	0.40	mg/l	2
01333	Sulfide	18496-25-8	2.5	2.0	mg/l	1
01454	Bicarbonate	71-52-3	333.	2.0	mg/l as CaCO3	1
04001	Chemical Oxygen Demand	n.a.	88.	50.	mg/l	1
06914	Ammonia-Nitrogen	7664-41-7	23.3	1.0	mg/l	10
08255	Total Cyanide (water)	57-12-5	N.D.	0.0050	mg/l	1

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Lancaster Laboratories Sample No. WW 3931395

Collected:10/31/2002 10:30 by BS

Account Number: 01963

Submitted: 10/31/2002 18:15
Reported: 11/22/2002 at 13:25
Discard: 12/23/2002
P5-13A Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

P513A SDG#: DUF01-17

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
05421	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	5.	ug/l	1
05423	1,2,3-Trichloropropane	96-18-4	N.D.	5.	ug/l	1
05433	1,4-Dichlorobenzene	106-46-7	N.D.	5.	ug/l	1
05435	1,2-Dichlorobenzene	95-50-1	N.D.	5.	ug/l	1
05436	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	5.	ug/l	1
06309	2-Hexanone	591-78-6	N.D.	10.	ug/l	1
06310	Xylene (Total)	1330-20-7	N.D.	5.	ug/l	1
06877	trans-1,4-Dichloro-2-butene	110-57-6	N.D.	50.	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00937	TCL Pesticides in Waters	SW-846 8081A/8082	1	11/13/2002 07:45	Douglas D Seitz	1
05088	PCB Congeners-Full List-water	SW-846 8082 (modified)	1	11/09/2002 02:20	Tiffany A Leyda	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	11/05/2002 01:50	Jolene M Graham	1
04679	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	11/05/2002 01:50	Jolene M Graham	1
06872	Appendix I by SW846/8260-water	SW-846 8260B	1	11/01/2002 22:47	Marc S Neal	1
06873	Appendix I by SW846/8260-cont	SW-846 8260B	1	11/01/2002 22:47	Marc S Neal	1
00813	BNA Water Extraction	SW-846 3510C	1	11/03/2002 12:30	Jennytza L Marcano	1
00817	Water Sample Pest. Extraction	SW-846 3510C	1	11/04/2002 16:45	Desiree J Wann	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	11/01/2002 22:47	Marc S Neal	n.a.

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P5-13A Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

P513A SDG#: DUF01-17

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
05385	Chloromethane	74-87-3	N.D.	5.	ug/l	1
05386	Vinyl Chloride	75-01-4	N.D.	5.	ug/l	1
05387	Bromomethane	74-83-9	N.D.	5.	ug/l	1
05388	Chloroethane	75-00-3	N.D.	5.	ug/l	1
05389	Trichlorofluoromethane	75-69-4	N.D.	5.	ug/l	1
05390	1,1-Dichloroethene	75-35-4	N.D.	5.	ug/l	1
05391	Methylene Chloride	75-09-2	N.D.	5.	ug/l	1
05392	trans-1,2-Dichloroethene	156-60-5	N.D.	5.	ug/l	1
05393	1,1-Dichloroethane	75-34-3	N.D.	5.	ug/l	1
05395	cis-1,2-Dichloroethene	156-59-2	N.D.	5.	ug/l	1
05396	Chloroform	67-66-3	N.D.	5.	ug/l	1
05397	Bromochloromethane	74-97-5	N.D.	5.	ug/l	1
05398	1,1,1-Trichloroethane	71-55-6	N.D.	5.	ug/l	1
05399	Carbon Tetrachloride	56-23-5	N.D.	5.	ug/l	1
05401	Benzene	71-43-2	N.D.	5.	ug/l	1
05402	1,2-Dichloroethane	107-06-2	N.D.	5.	ug/l	1
05403	Trichloroethene	79-01-6	N.D.	5.	ug/l	1
05404	1,2-Dichloropropane	78-87-5	N.D.	5.	ug/l	1
05405	Dibromomethane	74-95-3	N.D.	5.	ug/l	1
05406	Bromodichloromethane	75-27-4	N.D.	5.	ug/l	1
05407	Toluene	108-88-3	N.D.	5.	ug/l	1
06302	Acetone	67-64-1	N.D.	20.	ug/l	1
06303	Carbon Disulfide	75-15-0	N.D.	5.	ug/l	1
06305	2-Butanone	78-93-3	N.D.	10.	ug/l	1
06306	trans-1,3-Dichloropropene	10061-02-6	N.D.	5.	ug/l	1
06307	cis-1,3-Dichloropropene	10061-01-5	N.D.	5.	ug/l	1
06308	4-Methyl-2-pentanone	108-10-1	N.D.	10.	ug/l	1
06874	Methyl Iodide	74-88-4	N.D.	5.	ug/l	1
06875	Acrylonitrile	107-13-1	N.D.	20.	ug/l	1
06876	Vinyl Acetate	108-05-4	N.D.	10.	ug/l	1
06873	Appendix I by SW846/8260-cont					
05408	1,1,2-Trichloroethane	79-00-5	N.D.	5.	ug/l	1
05409	Tetrachloroethene	127-18-4	N.D.	5.	ug/l	1
05411	Dibromochloromethane	124-48-1	N.D.	5.	ug/l	1
05412	1,2-Dibromoethane	106-93-4	N.D.	5.	ug/l	1
05413	Chlorobenzene	108-90-7	N.D.	5.	ug/l	1
05414	1,1,1,2-Tetrachloroethane	630-20-6	N.D.	5.	ug/l	1
05415	Ethylbenzene	100-41-4	N.D.	5.	ug/l	1
05418	Styrene	100-42-5	N.D.	5.	ug/l	1
05419	Bromoform	75-25-2	N.D.	5.	ug/l	1

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Discard: 12/23/2002
P5-13A Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

P513A SDG#: DUF01-17

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
04679	TCL SW846 Semivolatiles/Waters					
03879	Dibenzofuran	132-64-9	N.D.	10.	ug/l	1
03908	3-Nitroaniline	99-09-2	N.D.	10.	ug/l	1
03909	4-Nitroaniline	100-01-6	N.D.	10.	ug/l	1
03931	2,4-Dinitrophenol	51-28-5	N.D.	59.	ug/l	1
03932	4-Nitrophenol	100-02-7	N.D.	49.	ug/l	1
03933	4,6-Dinitro-2-methylphenol	534-52-1	N.D.	24.	ug/l	1
03934	Pentachlorophenol	87-86-5	N.D.	24.	ug/l	1
03953	2,6-Dinitrotoluene	606-20-2	N.D.	10.	ug/l	1
03954	Acenaphthene	83-32-9	N.D.	10.	ug/l	1
03955	2,4-Dinitrotoluene	121-14-2	N.D.	10.	ug/l	1
03956	Fluorene	86-73-7	N.D.	10.	ug/l	1
03957	4-Chlorophenyl-phenylether	7005-72-3	N.D.	10.	ug/l	1
03958	Diethylphthalate	84-66-2	N.D.	10.	ug/l	1
03960	N-Nitrosodiphenylamine	86-30-6	N.D.	10.	ug/l	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
03961	4-Bromophenyl-phenylether	101-55-3	N.D.	10.	ug/l	1
03962	Hexachlorobenzene	118-74-1	N.D.	10.	ug/l	1
03963	Phenanthrene	85-01-8	N.D.	10.	ug/l	1
03964	Anthracene	120-12-7	N.D.	10.	ug/l	1
03965	Di-n-butylphthalate	84-74-2	N.D.	10.	ug/l	1
03966	Fluoranthene	206-44-0	N.D.	10.	ug/l	1
03967	Pyrene	129-00-0	N.D.	10.	ug/l	1
03969	Butylbenzylphthalate	85-68-7	N.D.	10.	ug/l	1
03970	Benzo(a)anthracene	56-55-3	N.D.	10.	ug/l	1
03971	Chrysene	218-01-9	N.D.	10.	ug/l	1
03972	3,3'-Dichlorobenzidine	91-94-1	N.D.	10.	ug/l	1
03973	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	10.	ug/l	1
03974	Di-n-octylphthalate	117-84-0	N.D.	10.	ug/l	1
03975	Benzo(b)fluoranthene	205-99-2	N.D.	10.	ug/l	1
03976	Benzo(k)fluoranthene	207-08-9	N.D.	10.	ug/l	1
03977	Benzo(a)pyrene	50-32-8	N.D.	10.	ug/l	1
03978	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	10.	ug/l	1
03979	Dibenz(a,h)anthracene	53-70-3	N.D.	10.	ug/l	1
03980	Benzo(g,h,i)perylene	191-24-2	N.D.	10.	ug/l	1
04684	Carbazole	86-74-8	N.D.	10.	ug/l	1

06872 Appendix I by SW846/8260-water

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P5-13A Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

P513A SDG#: DUF01-17

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
08038	PCB 194	35694-08-7	N.D.	0.020	ug/l	1
08041	PCB 206	40186-72-9	N.D.	0.020	ug/l	1
08042	PCB 209	2051-24-3	N.D.	0.020	ug/l	1

PCB-002 was detected in the blank at a concentration of 1.53 ug/l. The blank is not subtracted from the sample concentration.

04678 TCL SW846 Semivolatiles/Waters

03871	4-Chloroaniline	106-47-8	N.D.	10.	ug/l	1
03905	2-Methylnaphthalene	91-57-6	N.D.	10.	ug/l	1
03907	2-Nitroaniline	88-74-4	N.D.	10.	ug/l	1
03922	2,4,5-Trichlorophenol	95-95-4	N.D.	10.	ug/l	1
03924	2-Chlorophenol	95-57-8	N.D.	10.	ug/l	1
03925	Phenol	108-95-2	N.D.	10.	ug/l	1
03926	2-Nitrophenol	88-75-5	N.D.	10.	ug/l	1
03927	2,4-Dimethylphenol	105-67-9	N.D.	10.	ug/l	1
03928	2,4-Dichlorophenol	120-83-2	N.D.	10.	ug/l	1
03929	4-Chloro-3-methylphenol	59-50-7	N.D.	10.	ug/l	1
03930	2,4,6-Trichlorophenol	88-06-2	N.D.	10.	ug/l	1
03936	bis(2-Chloroethyl)ether	111-44-4	N.D.	10.	ug/l	1
03937	1,3-Dichlorobenzene	541-73-1	N.D.	10.	ug/l	1
03938	1,4-Dichlorobenzene	106-46-7	N.D.	10.	ug/l	1
03939	1,2-Dichlorobenzene	95-50-1	N.D.	10.	ug/l	1
03941	Hexachloroethane	67-72-1	N.D.	10.	ug/l	1
03942	N-Nitroso-di-n-propylamine	621-64-7	N.D.	10.	ug/l	1
03943	Nitrobenzene	98-95-3	N.D.	10.	ug/l	1
03944	Isophorone	78-59-1	N.D.	10.	ug/l	1
03945	bis(2-Chloroethoxy)methane	111-91-1	N.D.	10.	ug/l	1
03946	1,2,4-Trichlorobenzene	120-82-1	N.D.	10.	ug/l	1
03947	Naphthalene	91-20-3	N.D.	10.	ug/l	1
03948	Hexachlorobutadiene	87-68-3	N.D.	10.	ug/l	1
03949	Hexachlorocyclopentadiene	77-47-4	N.D.	24.	ug/l	1
03950	2-Chloronaphthalene	91-58-7	N.D.	10.	ug/l	1
03951	Acenaphthylene	208-96-8	N.D.	10.	ug/l	1
03952	Dimethylphthalate	131-11-3	N.D.	10.	ug/l	1
04680	2-Methylphenol	95-48-7	N.D.	10.	ug/l	1
04681	2,2'-oxybis(1-Chloropropane)	108-60-1	N.D.	10.	ug/l	1
04682	4-Methylphenol	106-44-5	N.D.	10.	ug/l	1

3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.

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P5-13A Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

P513A SDG#: DUF01-17

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
00937	TCL Pesticides in Waters					
00938	Endrin Ketone	53494-70-5	N.D.	0.020	ug/l	1
01361	Alpha Chlordane	5103-71-9	N.D.	0.0098	ug/l	1
01362	Gamma Chlordane	5103-74-2	N.D.	0.0098	ug/l	1
01600	Alpha BHC	319-84-6	N.D.	0.0098	ug/l	1
01601	Beta BHC	319-85-7	N.D.	0.0098	ug/l	1
01602	Gamma BHC - Lindane	58-89-9	0.0061 J	0.0098	ug/l	1
01603	Delta BHC	319-86-8	N.D.	0.0098	ug/l	1
01604	Heptachlor	76-44-9	N.D.	0.0098	ug/l	1
01605	Aldrin	309-00-2	N.D.	0.024	ug/l	1
01606	Heptachlor Epoxide	1024-57-3	N.D.	0.0098	ug/l	1
01607	p,p-DDE	72-55-9	N.D.	0.020	ug/l	1
01608	p,p-DDD	72-54-8	N.D.	0.020	ug/l	1
01609	p,p-DDT	50-29-3	N.D.	0.020	ug/l	1
01610	Dieldrin	60-57-1	N.D.	0.020	ug/l	1
01611	Endrin	72-20-8	N.D.	0.020	ug/l	1
01613	Toxaphene	8001-35-2	N.D.	1.0	ug/l	1
01615	Endosulfan II	33213-65-9	N.D.	0.020	ug/l	1
01616	Endosulfan I	959-98-8	N.D.	0.0098	ug/l	1
01617	Endosulfan Sulfate	1031-07-8	N.D.	0.020	ug/l	1
01618	Endrin Aldehyde	7421-93-4	N.D.	0.098	ug/l	1
01619	PCB-1016	12674-11-2	N.D.	0.49	ug/l	1
01620	PCB-1221	11104-28-2	N.D.	0.49	ug/l	1
01621	PCB-1232	11141-16-5	N.D.	0.49	ug/l	1
01622	PCB-1242	53469-21-9	N.D.	0.49	ug/l	1
01623	PCB-1248	12672-29-6	N.D.	0.49	ug/l	1
01624	PCB-1254	11097-69-1	N.D.	0.49	ug/l	1
01626	PCB-1260	11096-82-5	N.D.	0.49	ug/l	1
01860	Methoxychlor	72-43-5	N.D.	0.098	ug/l	1
05088	PCB Congeners-Full List-water					
07994	PCB 1	2051-50-7	N.D.	0.098	ug/l	1
07996	PCB 8	34883-43-7	N.D.	0.020	ug/l	1
07997	PCB 18	37680-65-2	N.D.	0.020	ug/l	1
08002	PCB 49	41464-40-8	N.D.	0.020	ug/l	1
08009	PCB 87	38380-02-8	N.D.	0.020	ug/l	1
08020	PCB 128	38380-07-3	N.D.	0.020	ug/l	1
08033	PCB 180	35065-29-3	N.D.	0.020	ug/l	1

Analysis Report

Lancaster Laboratories
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Lancaster Laboratories Sample No. WW 3931394

Collected:10/31/2002 08:45 by BS

Account Number: 01963

Submitted: 10/31/2002 18:15
Reported: 11/22/2002 at 13:25
Discard: 12/23/2002
P5-11A Grab Water Sample
CONTINUATION OF PREVIOUS SAMPLE
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

P511A SDG#: DUF01-16CONT

06914	Ammonia-Nitrogen	EPA 350.3	1	11/04/2002 07:47	Michele L Graham	10
08255	Total Cyanide (water)	SW-846 9012A	1	11/04/2002 16:35	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/05/2002 09:20	Cheryl L Robinson	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	11/04/2002 16:00	Irimar Leon	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	11/04/2002 21:27	Nelli S Markaryan	1
08256	Cyanide Water Distillation	SW-846 9012A	1	11/04/2002 09:40	James S Mathiot	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	11/01/2002 14:50	Nancy J Shoop	1

Analysis Report

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P5-11A Grab Water Sample
CONTINUATION OF PREVIOUS SAMPLE
Project# 4685.ED

Account Number: 01963

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

P511A SDG#: DUF01-16CONT

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilutic Factor
00259	Mercury	SW-846 7470A	1	11/05/2002 08:55	Deborah A Krady	1
01743	Aluminum	SW-846 6010B	1	11/09/2002 10:10	Eric W Cuba	1
01744	Antimony	SW-846 6010B	1	11/09/2002 10:10	Eric W Cuba	1
01746	Barium	SW-846 6010B	1	11/09/2002 10:10	Eric W Cuba	1
01747	Beryllium	SW-846 6010B	1	11/09/2002 10:10	Eric W Cuba	
01749	Cadmium	SW-846 6010B	1	11/09/2002 10:10	Eric W Cuba	
01750	Calcium	SW-846 6010B	1	11/09/2002 10:10	Eric W Cuba	1
01751	Chromium	SW-846 6010B	1	11/09/2002 10:10	Eric W Cuba	1
01752	Cobalt	SW-846 6010B	1	11/12/2002 15:43	Damary Valentin	1
01753	Copper	SW-846 6010B	1	11/09/2002 10:10	Eric W Cuba	1
01754	Iron	SW-846 6010B	1	11/09/2002 10:10	Eric W Cuba	1
01757	Magnesium	SW-846 6010B	1	11/09/2002 10:10	Eric W Cuba	1
01758	Manganese	SW-846 6010B	1	11/09/2002 10:10	Eric W Cuba	1
01761	Nickel	SW-846 6010B	1	11/09/2002 10:10	Eric W Cuba	1
01762	Potassium	SW-846 6010B	1	11/09/2002 10:10	Eric W Cuba	1
01766	Silver	SW-846 6010B	1	11/09/2002 10:10	Eric W Cuba	1
01767	Sodium	SW-846 6010B	1	11/09/2002 10:10	Eric W Cuba	1
01771	Vanadium	SW-846 6010B	1	11/09/2002 10:10	Eric W Cuba	1
01772	Zinc	SW-846 6010B	1	11/09/2002 10:10	Eric W Cuba	1
07022	Thallium TR	SW-846 6010B	1	11/09/2002 10:10	Eric W Cuba	1
07035	Arsenic TR	SW-846 6010B	1	11/09/2002 10:10	Eric W Cuba	1
07036	Selenium TR	SW-846 6010B	1	11/09/2002 10:10	Eric W Cuba	5
07055	Lead TR	SW-846 6010B	1	11/12/2002 15:47	Damary Valentin	1
00201	Alkalinity to pH 8.3	EPA 310.1	1	11/09/2002 10:10	Eric W Cuba	1
00202	Alkalinity to pH 4.5	EPA 310.1	1	11/12/2002 15:43	Damary Valentin	1
00212	Total Dissolved Solids	EPA 160.1	1	11/09/2002 10:10	Eric W Cuba	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	11/12/2002 15:43	Damary Valentin	1
00219	Nitrite Nitrogen	EPA 353.2	1	11/09/2002 10:10	Eric W Cuba	1
00220	Nitrate Nitrogen	EPA 353.2	1	11/09/2002 10:10	Eric W Cuba	1
00223	Organic Nitrogen	Std. Meth. 18th Ed., 4500-NORG	1	11/07/2002 17:46	Elaine F Stoltzfus	1
00224	Chloride	EPA 300.0	1	11/07/2002 17:46	Elaine F Stoltzfus	1
00228	Sulfate	EPA 300.0	1	11/05/2002 11:35	Anne L Kuenzli	1
00273	Total Organic Carbon	EPA 415.1	1	11/13/2002 20:18	Venia B McFadden	1
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/01/2002 12:01	Timothy M Petree	1
01333	Sulfide	EPA 376.1	1	11/13/2002 09:14	Timothy M Petree	1
01454	Bicarbonate	SM-18 2320B	1	11/13/2002 19:23	Venia B McFadden	1
04001	Chemical Oxygen Demand	EPA 410.4	1	11/07/2002 19:42	Shannon L Phillips	
			1	11/07/2002 19:57	Shannon L Phillips	
			1	11/04/2002 18:14	Timothy M Petree	
			1	11/05/2002 17:13	Venia B McFadden	
			1	11/05/2002 12:55	Susan E Hibner	
			1	11/07/2002 17:46	Elaine F Stoltzf	
			1	11/12/2002 17:00	Elaine F Stoltzfu	

Analysis Report

Lancaster Laboratories
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Lancaster Laboratories Sample No. WW 3931394

Collected:10/31/2002 08:45 by BS

Account Number: 01963

Submitted: 10/31/2002 18:15
Reported: 11/22/2002 at 13:25
Discard: 12/23/2002
P5-11A Grab Water Sample
CONTINUATION OF PREVIOUS SAMPLE
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

P511A SDG#: DUF01-16CONT

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
00259	Mercury	7439-97-6	N.D.	0.00020	mg/l	1
01743	Aluminum	7429-90-5	0.370	0.200	mg/l	1
01744	Antimony	7440-36-0	N.D.	0.200	mg/l	1
01746	Barium	7440-39-3	0.0851 J	0.100	mg/l	1
01747	Beryllium	7440-41-7	N.D.	0.0100	mg/l	1
01749	Cadmium	7440-43-9	N.D.	0.0100	mg/l	1
01750	Calcium	7440-70-2	212.	0.200	mg/l	1
01751	Chromium	7440-47-3	0.0032 J	0.0300	mg/l	1
1752	Cobalt	7440-48-4	0.468	0.0500	mg/l	1
01753	Copper	7440-50-8	N.D.	0.0250	mg/l	1
01754	Iron	7439-89-6	69.8	0.100	mg/l	1
01757	Magnesium	7439-95-4	145.	0.100	mg/l	1
01758	Manganese	7439-96-5	8.75	0.0100	mg/l	1
01761	Nickel	7440-02-0	0.889	0.0500	mg/l	1
01762	Potassium	7440-09-7	24.2	0.500	mg/l	1
01766	Silver	7440-22-4	N.D.	0.0200	mg/l	1
01767	Sodium	7440-23-5	57.1	3.00	mg/l	5
01771	Vanadium	7440-62-2	N.D.	0.0200	mg/l	1
01772	Zinc	7440-66-6	20.2	0.0250	mg/l	1
07022	Thallium TR	7440-28-0	0.0166 J	0.0200	mg/l	1
07035	Arsenic TR	7440-38-2	0.0057 J	0.0100	mg/l	1
07036	Selenium TR	7782-49-2	N.D.	0.0100	mg/l	1
07055	Lead TR	7439-92-1	N.D.	0.0200	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a.	306.	2.0	mg/l as CaCO3	1
00212	Total Dissolved Solids	n.a.	1,850.	120.	mg/l	1
00217	Kjeldahl Nitrogen	7727-37-9	8.7	2.0	mg/l	2
00219	Nitrite Nitrogen	14797-65-0	0.052	0.050	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	0.41	0.10	mg/l	1
00223	Organic Nitrogen	n.a.	2.3	1.0	mg/l	1
00224	Chloride	16887-00-6	59.0	8.0	mg/l	20
00228	Sulfate	14808-79-8	990.	200.	mg/l	200
00273	Total Organic Carbon	n.a.	13.6	2.00	mg/l	1
00345	Total Phosphorus as PO4 water	14265-44-2	0.70	0.20	mg/l	1
01333	Sulfide	18496-25-8	N.D.	2.0	mg/l	1
01454	Bicarbonate	71-52-3	306.	2.0	mg/l as CaCO3	1
04001	Chemical Oxygen Demand	n.a.	62.	50.	mg/l	1
06914	Ammonia-Nitrogen	7664-41-7	6.4	1.0	mg/l	10
08255	Total Cyanide (water)	57-12-5	N.D.	0.0050	mg/l	1

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Lancaster Laboratories Sample No. WW 3931393

Collected:10/31/2002 08:45 by BS

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Discard: 12/23/2002
P5-11A Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

P511A SDG#: DUF01-16

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
05421	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	5.	ug/l	1
05423	1,2,3-Trichloropropane	96-18-4	N.D.	5.	ug/l	1
05433	1,4-Dichlorobenzene	106-46-7	N.D.	5.	ug/l	1
05435	1,2-Dichlorobenzene	95-50-1	N.D.	5.	ug/l	1
05436	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	5.	ug/l	1
06309	2-Hexanone	591-78-6	N.D.	10.	ug/l	1
06310	Xylene (Total)	1330-20-7	N.D.	5.	ug/l	1
06877	trans-1,4-Dichloro-2-butene	110-57-6	N.D.	50.	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00937	TCL Pesticides in Waters	SW-846 8081A/8082	1	11/06/2002 18:44	Douglas D Seitz	1
05088	PCB Congeners-Full List-water	SW-846 8082 (modified)	1	11/09/2002 01:17	Tiffany A Leyda	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	11/05/2002 00:50	Jolene M Graham	1
04679	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	11/05/2002 00:50	Jolene M Graham	1
06872	Appendix I by SW846/8260-water	SW-846 8260B	1	11/01/2002 22:21	Marc S Neal	1
06873	Appendix I by SW846/8260-cont	SW-846 8260B	1	11/01/2002 22:21	Marc S Neal	1
00813	BNA Water Extraction	SW-846 3510C	1	11/03/2002 12:30	Jennytza L Marcano	1
00817	Water Sample Pest. Extraction	SW-846 3510C	1	11/04/2002 16:45	Desiree J Wann	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	11/01/2002 22:21	Marc S Neal	n.a.

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Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

P511A SDG#: DUF01-16

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
05385	Chloromethane	74-87-3	N.D.	5.	ug/l	1
05386	Vinyl Chloride	75-01-4	N.D.	5.	ug/l	1
05387	Bromomethane	74-83-9	N.D.	5.	ug/l	1
05388	Chloroethane	75-00-3	N.D.	5.	ug/l	1
05389	Trichlorofluoromethane	75-69-4	N.D.	5.	ug/l	1
05390	1,1-Dichloroethene	75-35-4	N.D.	5.	ug/l	1
05391	Methylene Chloride	75-09-2	N.D.	5.	ug/l	1
05392	trans-1,2-Dichloroethene	156-60-5	N.D.	5.	ug/l	1
05393	1,1-Dichloroethane	75-34-3	N.D.	5.	ug/l	1
05395	cis-1,2-Dichloroethene	156-59-2	N.D.	5.	ug/l	1
05396	Chloroform	67-66-3	N.D.	5.	ug/l	1
05397	Bromochloromethane	74-97-5	N.D.	5.	ug/l	1
05398	1,1,1-Trichloroethane	71-55-6	N.D.	5.	ug/l	1
05399	Carbon Tetrachloride	56-23-5	N.D.	5.	ug/l	1
05401	Benzene	71-43-2	N.D.	5.	ug/l	1
05402	1,2-Dichloroethane	107-06-2	N.D.	5.	ug/l	1
05403	Trichloroethene	79-01-6	N.D.	5.	ug/l	1
05404	1,2-Dichloropropane	78-87-5	N.D.	5.	ug/l	1
05405	Dibromomethane	74-95-3	N.D.	5.	ug/l	1
05406	Bromodichloromethane	75-27-4	N.D.	5.	ug/l	1
05407	Toluene	108-88-3	N.D.	5.	ug/l	1
06302	Acetone	67-64-1	N.D.	20.	ug/l	1
06303	Carbon Disulfide	75-15-0	N.D.	5.	ug/l	1
06305	2-Butanone	78-93-3	N.D.	10.	ug/l	1
06306	trans-1,3-Dichloropropene	10061-02-6	N.D.	5.	ug/l	1
06307	cis-1,3-Dichloropropene	10061-01-5	N.D.	5.	ug/l	1
06308	4-Methyl-2-pentanone	108-10-1	N.D.	10.	ug/l	1
06874	Methyl Iodide	74-88-4	N.D.	5.	ug/l	1
06875	Acrylonitrile	107-13-1	N.D.	20.	ug/l	1
06876	Vinyl Acetate	108-05-4	N.D.	10.	ug/l	1
06873	Appendix I by SW846/8260-cont					
05408	1,1,2-Trichloroethane	79-00-5	N.D.	5.	ug/l	1
05409	Tetrachloroethene	127-18-4	N.D.	5.	ug/l	1
05411	Dibromochloromethane	124-48-1	N.D.	5.	ug/l	1
05412	1,2-Dibromoethane	106-93-4	N.D.	5.	ug/l	1
05413	Chlorobenzene	108-90-7	N.D.	5.	ug/l	1
05414	1,1,1,2-Tetrachloroethane	630-20-6	N.D.	5.	ug/l	1
05415	Ethylbenzene	100-41-4	N.D.	5.	ug/l	1
05418	Styrene	100-42-5	N.D.	5.	ug/l	1
05419	Bromoform	75-25-2	N.D.	5.	ug/l	1

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Discard: 12/23/2002
P5-11A Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc..
5400 Limestone Road
Wilmington DE 19808-1296

P511A SDG#: DUF01-16

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
04679	TCL SW846 Semivolatiles/Waters					
03879	Dibenzofuran	132-64-9	N.D.	10.	ug/l	1
03908	3-Nitroaniline	99-09-2	N.D.	10.	ug/l	1
03909	4-Nitroaniline	100-01-6	N.D.	10.	ug/l	1
03931	2,4-Dinitrophenol	51-28-5	N.D.	57.	ug/l	1
03932	4-Nitrophenol	100-02-7	N.D.	48.	ug/l	1
03933	4,6-Dinitro-2-methylphenol	534-52-1	N.D.	24.	ug/l	1
03934	Pentachlorophenol	87-86-5	N.D.	24.	ug/l	1
03953	2,6-Dinitrotoluene	606-20-2	N.D.	10.	ug/l	1
03954	Acenaphthene	83-32-9	N.D.	10.	ug/l	1
03955	2,4-Dinitrotoluene	121-14-2	N.D.	10.	ug/l	1
03956	Fluorene	86-73-7	N.D.	10.	ug/l	1
03957	4-Chlorophenyl-phenylether	7005-72-3	N.D.	10.	ug/l	1
03958	Diethylphthalate	84-66-2	N.D.	10.	ug/l	1
03960	N-Nitrosodiphenylamine	86-30-6	N.D.	10.	ug/l	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
03961	4-Bromophenyl-phenylether	101-55-3	N.D.	10.	ug/l	1
03962	Hexachlorobenzene	118-74-1	N.D.	10.	ug/l	1
03963	Phenanthrene	85-01-8	N.D.	10.	ug/l	1
03964	Anthracene	120-12-7	N.D.	10.	ug/l	1
03965	Di-n-butylphthalate	84-74-2	N.D.	10.	ug/l	1
03966	Fluoranthene	206-44-0	N.D.	10.	ug/l	1
03967	Pyrene	129-00-0	N.D.	10.	ug/l	1
03969	Butylbenzylphthalate	85-68-7	N.D.	10.	ug/l	1
03970	Benzo(a)anthracene	56-55-3	N.D.	10.	ug/l	1
03971	Chrysene	218-01-9	N.D.	10.	ug/l	1
03972	3,3'-Dichlorobenzidine	91-94-1	N.D.	10.	ug/l	1
03973	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	10.	ug/l	1
03974	Di-n-octylphthalate	117-84-0	N.D.	10.	ug/l	1
03975	Benzo(b)fluoranthene	205-99-2	N.D.	10.	ug/l	1
03976	Benzo(k)fluoranthene	207-08-9	N.D.	10.	ug/l	1
03977	Benzo(a)pyrene	50-32-8	N.D.	10.	ug/l	1
03978	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	10.	ug/l	1
03979	Dibenz(a,h)anthracene	53-70-3	N.D.	10.	ug/l	1
03980	Benzo(g,h,i)perylene	191-24-2	N.D.	10.	ug/l	1
04684	Carbazole	86-74-8	N.D.	10.	ug/l	1

06872 Appendix I by SW846/8260-water

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Collected:10/31/2002 08:45 by BS

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P5-11A Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

P511A SDG#: DUF01-16

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
08038	PCB 194	35694-08-7	N.D.	0.020	ug/l	1
08041	PCB 206	40186-72-9	N.D.	0.020	ug/l	1
08042	PCB 209	2051-24-3	N.D.	0.020	ug/l	1

PCB-002 was detected in the blank at a concentration of 1.53 ug/l. The blank is not subtracted from the sample concentration.

04678 TCL SW846 Semivolatiles/Waters

03871	4-Chloroaniline	106-47-8	N.D.	10.	ug/l	1
03905	2-Methylnaphthalene	91-57-6	N.D.	10.	ug/l	1
03907	2-Nitroaniline	88-74-4	N.D.	10.	ug/l	1
03922	2,4,5-Trichlorophenol	95-95-4	N.D.	10.	ug/l	1
03924	2-Chlorophenol	95-57-8	N.D.	10.	ug/l	1
03925	Phenol	108-95-2	N.D.	10.	ug/l	1
03926	2-Nitrophenol	88-75-5	N.D.	10.	ug/l	1
03927	2,4-Dimethylphenol	105-67-9	N.D.	10.	ug/l	1
03928	2,4-Dichlorophenol	120-83-2	N.D.	10.	ug/l	1
03929	4-Chloro-3-methylphenol	59-50-7	N.D.	10.	ug/l	1
03930	2,4,6-Trichlorophenol	88-06-2	N.D.	10.	ug/l	1
03936	bis(2-Chloroethyl)ether	111-44-4	N.D.	10.	ug/l	1
03937	1,3-Dichlorobenzene	541-73-1	N.D.	10.	ug/l	1
03938	1,4-Dichlorobenzene	106-46-7	N.D.	10.	ug/l	1
03939	1,2-Dichlorobenzene	95-50-1	N.D.	10.	ug/l	1
03941	Hexachloroethane	67-72-1	N.D.	10.	ug/l	1
03942	N-Nitroso-di-n-propylamine	621-64-7	N.D.	10.	ug/l	1
03943	Nitrobenzene	98-95-3	N.D.	10.	ug/l	1
03944	Isophorone	78-59-1	N.D.	10.	ug/l	1
03945	bis(2-Chloroethoxy)methane	111-91-1	N.D.	10.	ug/l	1
03946	1,2,4-Trichlorobenzene	120-82-1	N.D.	10.	ug/l	1
03947	Naphthalene	91-20-3	N.D.	10.	ug/l	1
03948	Hexachlorobutadiene	87-68-3	N.D.	10.	ug/l	1
03949	Hexachlorocyclopentadiene	77-47-4	N.D.	24.	ug/l	1
03950	2-Chloronaphthalene	91-58-7	N.D.	10.	ug/l	1
03951	Acenaphthylene	208-96-8	N.D.	10.	ug/l	1
03952	Dimethylphthalate	131-11-3	N.D.	10.	ug/l	1
04680	2-Methylphenol	95-48-7	N.D.	10.	ug/l	1
04681	2,2'-oxybis(1-Chloropropane)	108-60-1	N.D.	10.	ug/l	1
04682	4-Methylphenol	106-44-5	N.D.	10.	ug/l	1

3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.

Lancaster Laboratories
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P5-11A Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

P511A SDG#: DUF01-16

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
00937	TCL Pesticides in Waters					
00938	Endrin Ketone	53494-70-5	N.D.	0.020	ug/l	1
01361	Alpha Chlordane	5103-71-9	N.D.	0.010	ug/l	1
01362	Gamma Chlordane	5103-74-2	N.D.	0.010	ug/l	1
01600	Alpha BHC	319-84-6	N.D.	0.010	ug/l	1
01601	Beta BHC	319-85-7	N.D.	0.010	ug/l	1
01602	Gamma BHC - Lindane	58-89-9	N.D.	0.010	ug/l	1
01603	Delta BHC	319-86-8	0.0031 J	0.010	ug/l	1
01604	Heptachlor	76-44-8	N.D.	0.010	ug/l	1
01605	Aldrin	309-00-2	N.D.	0.025	ug/l	1
01606	Heptachlor Epoxide	1024-57-3	N.D.	0.010	ug/l	1
01607	p,p-DDE	72-55-9	N.D.	0.020	ug/l	1
01608	p,p-DDD	72-54-8	N.D.	0.020	ug/l	1
01609	p,p-DDT	50-29-3	N.D.	0.020	ug/l	1
01610	Dieldrin	60-57-1	N.D.	0.020	ug/l	1
01611	Endrin	72-20-8	N.D.	0.020	ug/l	1
01613	Toxaphene	8001-35-2	N.D.	1.0	ug/l	1
01615	Endosulfan II	33213-65-9	N.D.	0.020	ug/l	1
01616	Endosulfan I	959-98-8	N.D.	0.010	ug/l	1
01617	Endosulfan Sulfate	1031-07-8	N.D.	0.020	ug/l	1
01618	Endrin Aldehyde	7421-93-4	N.D.	0.10	ug/l	1
01619	PCB-1016	12674-11-2	N.D.	0.50	ug/l	1
01620	PCB-1221	11104-28-2	N.D.	0.50	ug/l	1
01621	PCB-1232	11141-16-5	N.D.	0.50	ug/l	1
01622	PCB-1242	53469-21-9	N.D.	0.50	ug/l	1
01623	PCB-1248	12672-29-6	N.D.	0.50	ug/l	1
01624	PCB-1254	11097-69-1	N.D.	0.50	ug/l	1
01626	PCB-1260	11096-82-5	N.D.	0.50	ug/l	1
01860	Methoxychlor	72-43-5	N.D.	0.10	ug/l	1
05088	PCB Congeners-Full List-water					
07994	PCB 1	2051-60-7	N.D.	0.10	ug/l	1
07996	PCB 8	34883-43-7	N.D.	0.020	ug/l	1
07997	PCB 18	37680-65-2	N.D.	0.020	ug/l	1
08002	PCB 49	41464-40-8	N.D.	0.020	ug/l	1
08009	PCB 87	38380-02-8	N.D.	0.020	ug/l	1
08020	PCB 128	38380-07-3	N.D.	0.020	ug/l	1
08033	PCB 180	35065-29-3	N.D.	0.020	ug/l	1

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Lancaster Laboratories Sample No. WW 3931392

Collected:10/31/2002 12:00 by BS

Account Number: 01963

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Reported: 11/22/2002 at 13:25
Discard: 12/23/2002
P5-3A Grab Water Sample
CONTINUATION OF PREVIOUS SAMPLE
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

P5-3A SDG#: DUF01-15CONT

06914	Ammonia-Nitrogen	EPA 350.3	1	11/04/2002 07:47	Michele L Graham	20
08255	Total Cyanide (water)	SW-846 9012A	1	11/04/2002 16:34	Venia B McFadden	1
01460	Total Kjeldahl Nitrogen Digest	EPA 351.2	1	11/05/2002 09:20	Cheryl L Robinson	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	11/04/2002 16:00	Irimar Leon	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	11/04/2002 21:27	Nelli S Markaryan	1
08256	Cyanide Water Distillation	SW-846 9012A	1	11/04/2002 09:40	James S Mathiot	1
08264	Total Phos as PO4 Prep (water)	EPA 365.1	1	11/01/2002 14:50	Nancy J Shoop	1

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P5-3A SDG#: DUF01-15CONT

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00259	Mercury	SW-846 7470A	1	11/05/2002 08:54	Deborah A Krady	1
01743	Aluminum	SW-846 6010B	1	11/09/2002 10:05	Eric W Cuba	1
01744	Antimony	SW-846 6010B	1	11/09/2002 10:05	Eric W Cuba	1
01746	Barium	SW-846 6010B	1	11/09/2002 10:05	Eric W Cuba	1
01747	Beryllium	SW-846 6010B	1	11/09/2002 10:05	Eric W Cuba	1
01749	Cadmium	SW-846 6010B	1	11/09/2002 10:05	Eric W Cuba	1
01750	Calcium	SW-846 6010B	1	11/09/2002 10:05	Eric W Cuba	1
01751	Chromium	SW-846 6010B	1	11/12/2002 15:35	Damary Valentin	1
01752	Cobalt	SW-846 6010B	1	11/09/2002 10:05	Eric W Cuba	1
01753	Copper	SW-846 6010B	1	11/09/2002 10:05	Eric W Cuba	1
01754	Iron	SW-846 6010B	1	11/09/2002 10:05	Eric W Cuba	1
01757	Magnesium	SW-846 6010B	1	11/09/2002 10:05	Eric W Cuba	1
01758	Manganese	SW-846 6010B	1	11/09/2002 10:05	Eric W Cuba	1
01761	Nickel	SW-846 6010B	1	11/09/2002 10:05	Eric W Cuba	1
01762	Potassium	SW-846 6010B	1	11/09/2002 10:05	Eric W Cuba	1
01766	Silver	SW-846 6010B	1	11/09/2002 10:05	Eric W Cuba	1
01767	Sodium	SW-846 6010B	1	11/12/2002 15:39	Damary Valentin	20
01771	Vanadium	SW-846 6010B	1	11/09/2002 10:05	Eric W Cuba	1
01772	Zinc	SW-846 6010B	1	11/09/2002 10:05	Eric W Cuba	1
07022	Thallium TR	SW-846 6010B	1	11/09/2002 10:05	Eric W Cuba	1
07035	Arsenic TR	SW-846 6010B	1	11/12/2002 15:35	Damary Valentin	1
07036	Selenium TR	SW-846 6010B	1	11/09/2002 10:05	Eric W Cuba	1
07055	Lead TR	SW-846 6010B	1	11/09/2002 10:05	Eric W Cuba	1
00201	Alkalinity to pH 8.3	EPA 310.1	1	11/07/2002 17:46	Elaine F Stoltzfus	1
00202	Alkalinity to pH 4.5	EPA 310.1	1	11/07/2002 17:46	Elaine F Stoltzfus	1
00212	Total Dissolved Solids	EPA 160.1	1	11/05/2002 11:35	Anne L Kuenzli	1
00217	Kjeldahl Nitrogen	EPA 351.2	1	11/13/2002 19:23	Venia B McFadden	20
00219	Nitrite Nitrogen	EPA 353.2	1	11/01/2002 11:59	Timothy M Petree	1
00220	Nitrate Nitrogen	EPA 353.2	1	11/13/2002 09:13	Timothy M Petree	1
00223	Organic Nitrogen	Std. Meth. 18th Ed., 4500-NORG	1	11/13/2002 19:23	Venia B McFadden	1
00224	Chloride	EPA 300.0	1	11/08/2002 16:26	Shannon L Phillips	200
00228	Sulfate	EPA 300.0	1	11/07/2002 04:34	Shannon L Phillips	5
00273	Total Organic Carbon	EPA 415.1	1	11/04/2002 17:50	Timothy M Petree	10
00345	Total Phosphorus as PO4 water	EPA 365.1	1	11/05/2002 18:19	Venia B McFadden	1
01333	Sulfide	EPA 376.1	1	11/05/2002 12:55	Susan E Hibner	[illegible]
01454	Bicarbonate	SM-18 2320B	1	11/07/2002 17:46	Elaine F Stoltzfus	
04001	Chemical Oxygen Demand	EPA 410.4	1	11/12/2002 17:00	Elaine F Stoltzfus	[illegible]

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CONTINUATION OF PREVIOUS SAMPLE
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

P5-3A SDG#: DUF01-15CONT

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
00259	Mercury	7439-97-6	N.D.	0.00020	mg/l	1
01743	Aluminum	7429-90-5	0.0964 J	0.200	mg/l	1
01744	Antimony	7440-36-0	N.D.	0.200	mg/l	1
01746	Barium	7440-39-3	0.180	0.100	mg/l	1
01747	Beryllium	7440-41-7	N.D.	0.0100	mg/l	1
01749	Cadmium	7440-43-9	0.0010 J	0.0100	mg/l	1
01750	Calcium	7440-70-2	124.	0.200	mg/l	1
01751	Chromium	7440-47-3	0.0171 J	0.0300	mg/l	1
01752	Cobalt	7440-48-4	0.0164 J	0.0500	mg/l	1
01753	Copper	7440-50-8	N.D.	0.0250	mg/l	1
01754	Iron	7439-89-6	67.8	0.100	mg/l	1
01757	Magnesium	7439-95-4	153.	0.100	mg/l	1
01758	Manganese	7439-96-5	2.95	0.0100	mg/l	1
01761	Nickel	7440-02-0	0.0289 J	0.0500	mg/l	1
01762	Potassium	7440-09-7	32.7	0.500	mg/l	1
01766	Silver	7440-22-4	0.0080 J	0.0200	mg/l	1
01767	Sodium	7440-23-5	466.	12.0	mg/l	20
01771	Vanadium	7440-62-2	0.0138 J	0.0200	mg/l	1
01772	Zinc	7440-66-6	0.0052 J	0.0250	mg/l	1
07022	Thallium TR	7440-28-0	N.D.	0.0200	mg/l	1
07035	Arsenic TR	7440-38-2	0.0270	0.0100	mg/l	1
07036	Selenium TR	7782-49-2	0.0088 J	0.0100	mg/l	1
07055	Lead TR	7439-92-1	N.D.	0.0200	mg/l	1
00201	Alkalinity to pH 8.3	n.a.	N.D.	2.0	mg/l as CaCO3	1
00202	Alkalinity to pH 4.5	n.a.	1,050.	2.0	mg/l as CaCO3	1
00212	Total Dissolved Solids	n.a.	2,640.	240.	mg/l	1
00217	Kjeldahl Nitrogen	7727-37-9	50.	20.	mg/l	20
00219	Nitrite Nitrogen	14797-65-0	0.076	0.050	mg/l	1
00220	Nitrate Nitrogen	14797-55-8	N.D.	0.10	mg/l	1
00223	Organic Nitrogen	n.a.	8.2	1.0	mg/l	1
00224	Chloride	16887-00-6	823.	80.	mg/l	200
00228	Sulfate	14808-79-8	20.1	5.0	mg/l	5
00273	Total Organic Carbon	n.a.	140.	20.0	mg/l	10
00345	Total Phosphorus as PO4 water	14265-44-2	4.14	0.20	mg/l	1
01333	Sulfide	18496-25-8	N.D.	2.0	mg/l	1
01454	Bicarbonate	71-52-3	1,050.	2.0	mg/l as CaCO3	1
04001	Chemical Oxygen Demand	n.a.	423.	50.	mg/l	1
06914	Ammonia-Nitrogen	7664-41-7	41.3	2.0	mg/l	20
08255	Total Cyanide (water)	57-12-5	N.D.	0.0050	mg/l	1

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P5-3A Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

P5-3A SDG#: DUF01-15

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
05421	1,1,2,2-Tetrachloroethane	79-34-5	N.D.	5.	ug/l	1
05423	1,2,3-Trichloropropane	96-18-4	N.D.	5.	ug/l	1
05433	1,4-Dichlorobenzene	106-46-7	N.D.	5.	ug/l	1
05435	1,2-Dichlorobenzene	95-50-1	N.D.	5.	ug/l	1
05436	1,2-Dibromo-3-chloropropane	96-12-8	N.D.	5.	ug/l	1
06309	2-Hexanone	591-78-6	N.D.	10.	ug/l	1
06310	Xylene (Total)	1330-20-7	N.D.	5.	ug/l	1
06877	trans-1,4-Dichloro-2-butene	110-57-6	N.D.	50.	ug/l	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
00937	TCL Pesticides in Waters	SW-846 8081A/8082	1	11/06/2002 18:24	Douglas D Seitz	1
05088	PCB Congeners-Full List-water	SW-846 8082 (modified)	1	11/09/2002 00:14	Tiffany A Leyda	1
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	11/04/2002 23:51	Jolene M Graham	1
04679	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	11/04/2002 23:51	Jolene M Graham	1
06872	Appendix I by SW846/8260-water	SW-846 8260B	1	11/01/2002 21:55	Marc S Neal	1
06873	Appendix I by SW846/8260-cont	SW-846 8260B	1	11/01/2002 21:55	Marc S Neal	1
00813	BNA Water Extraction	SW-846 3510C	1	11/03/2002 12:30	Jennytza L Marcano	1
00817	Water Sample Pest. Extraction	SW-846 3510C	1	11/04/2002 16:45	Desiree J Wann	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	11/01/2002 21:55	Marc S Neal	n.a.

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PS-3A Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
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PS-3A SDG#: DUF01-15

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
05385	Chloromethane	74-87-3	N.D.	5.	ug/l	1
05386	Vinyl Chloride	75-01-4	N.D.	5.	ug/l	1
05387	Bromomethane	74-83-9	N.D.	5.	ug/l	1
05388	Chloroethane	75-00-3	N.D.	5.	ug/l	1
05389	Trichlorofluoromethane	75-69-4	N.D.	5.	ug/l	1
05390	1,1-Dichloroethene	75-35-4	N.D.	5.	ug/l	1
05391	Methylene Chloride	75-09-2	N.D.	5.	ug/l	1
05392	trans-1,2-Dichloroethene	156-60-5	N.D.	5.	ug/l	1
05393	1,1-Dichloroethane	75-14-3	N.D.	5.	ug/l	1
05395	cis-1,2-Dichloroethene	156-59-2	N.D.	5.	ug/l	1
05396	Chloroform	67-66-3	N.D.	5.	ug/l	1
05397	Bromochloromethane	74-97-5	N.D.	5.	ug/l	1
05398	1,1,1-Trichloroethane	71-55-6	N.D.	5.	ug/l	1
05399	Carbon Tetrachloride	56-23-5	N.D.	5.	ug/l	1
05401	Benzene	71-43-2	N.D.	5.	ug/l	1
05402	1,2-Dichloroethane	107-06-2	N.D.	5.	ug/l	1
05403	Trichloroethene	79-01-6	N.D.	5.	ug/l	1
05404	1,2-Dichloropropane	78-87-5	N.D.	5.	ug/l	1
05405	Dibromomethane	74-95-3	N.D.	5.	ug/l	1
05406	Bromodichloromethane	75-27-4	N.D.	5.	ug/l	1
05407	Toluene	108-88-3	N.D.	5.	ug/l	1
06302	Acetone	67-64-1	N.D.	20.	ug/l	1
06303	Carbon Disulfide	75-15-0	N.D.	5.	ug/l	1
06305	2-Butanone	78-93-3	N.D.	10.	ug/l	1
06306	trans-1,3-Dichloropropene	10061-02-6	N.D.	5.	ug/l	1
06307	cis-1,3-Dichloropropene	10061-01-5	N.D.	5.	ug/l	1
06308	4-Methyl-2-pentanone	108-10-1	N.D.	10.	ug/l	1
06874	Methyl Iodide	74-88-4	N.D.	5.	ug/l	1
06875	Acrylonitrile	107-13-1	N.D.	20.	ug/l	1
06876	Vinyl Acetate	108-05-4	N.D.	10.	ug/l	1
06871	Appendix I by SW846/8260-cont					
05408	1,1,2-Trichloroethane	79-00-5	N.D.	5.	ug/l	1
05409	Tetrachloroethene	127-18-4	N.D.	5.	ug/l	1
05411	Dibromochloromethane	124-48-1	N.D.	5.	ug/l	1
05412	1,2-Dibromoethane	106-93-4	N.D.	5.	ug/l	1
05413	Chlorobenzene	108-90-7	N.D.	5.	ug/l	1
05414	1,1,1,2-Tetrachloroethane	630-20-6	N.D.	5.	ug/l	1
05415	Ethylbenzene	100-41-4	N.D.	5.	ug/l	1
05418	Styrene	100-42-5	N.D.	5.	ug/l	1
05419	Bromoform	75-25-2	N.D.	5.	ug/l	1

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P5-3A SDG#: DUF01-15

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
04679	TCL SW846 Semivolatiles/Waters					
03879	Dibenzofuran	132-64-9	N.D.	10.	ug/l	1
03908	3-Nitroaniline	99-09-2	N.D.	10.	ug/l	1
03909	4-Nitroaniline	100-01-6	N.D.	10.	ug/l	1
03931	2,4-Dinitrophenol	51-28-5	N.D.	59.	ug/l	1
03932	4-Nitrophenol	100-02-7	N.D.	49.	ug/l	1
03933	4,6-Dinitro-2-methylphenol	534-52-1	N.D.	24.	ug/l	1
03934	Pentachlorophenol	87-86-5	N.D.	24.	ug/l	1
03953	2,6-Dinitrotoluene	606-20-2	N.D.	10.	ug/l	1
03954	Acenaphthene	83-32-9	N.D.	10.	ug/l	1
03955	2,4-Dinitrotoluene	121-14-2	N.D.	10.	ug/l	1
03956	Fluorene	86-73-7	N.D.	10.	ug/l	1
03957	4-Chlorophenyl-phenylether	7005-72-3	N.D.	10.	ug/l	1
03958	Diethylphthalate	84-66-2	N.D.	10.	ug/l	1
03960	N-Nitrosodiphenylamine	86-30-6	N.D.	10.	ug/l	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
03961	4-Bromophenyl-phenylether	101-55-3	N.D.	10.	ug/l	1
03962	Hexachlorobenzene	118-74-1	N.D.	10.	ug/l	1
03963	Phenanthrene	85-01-8	N.D.	10.	ug/l	1
03964	Anthracene	120-12-7	N.D.	10.	ug/l	1
03965	Di-n-butylphthalate	84-74-2	N.D.	10.	ug/l	1
03966	Fluoranthene	206-44-0	N.D.	10.	ug/l	1
03967	Pyrene	129-00-0	N.D.	10.	ug/l	1
03969	Butylbenzylphthalate	85-68-7	N.D.	10.	ug/l	1
03970	Benzo(a)anthracene	56-55-3	N.D.	10.	ug/l	1
03971	Chrysene	218-01-9	N.D.	10.	ug/l	1
03972	3,3'-Dichlorobenzidine	91-94-1	N.D.	10.	ug/l	1
03973	bis(2-Ethylhexyl)phthalate	117-81-7	N.D.	10.	ug/l	1
03974	Di-n-octylphthalate	117-84-0	N.D.	10.	ug/l	1
03975	Benzo(b)fluoranthene	205-99-2	N.D.	10.	ug/l	1
03976	Benzo(k)fluoranthene	207-08-9	N.D.	10.	ug/l	1
03977	Benzo(a)pyrene	50-32-8	N.D.	10.	ug/l	1
03978	Indeno(1,2,3-cd)pyrene	193-39-5	N.D.	10.	ug/l	1
03979	Dibenz(a,h)anthracene	53-70-3	N.D.	10.	ug/l	1
03980	Benzo(g,h,i)perylene	191-24-2	N.D.	10.	ug/l	1
04684	Carbazole	86-74-8	N.D.	10.	ug/l	1

06872 Appendix I by SW846/8260-water

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P5-3A SDG#: DUF01-15

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
08038	PCB 194	35694-08-7	N.D.	0.020	ug/l	1
08041	PCB 206	40186-72-9	N.D.	0.020	ug/l	1
08042	PCB 209	2051-24-3	N.D.	0.020	ug/l	1

PCB-002 was detected in the blank at a concentration of 1.53 ug/l. The blank is not subtracted from the sample concentration.

04678 TCL SW846 Semivolatiles/Waters

03871	4-Chloroaniline	106-47-8	N.D.	10.	ug/l	1
03905	2-Methylnaphthalene	91-57-6	N.D.	10.	ug/l	1
03907	2-Nitroaniline	88-74-4	N.D.	10.	ug/l	1
03922	2,4,5-Trichlorophenol	95-95-4	N.D.	10.	ug/l	1
03924	2-Chlorophenol	95-57-8	N.D.	10.	ug/l	1
03925	Phenol	108-95-2	N.D.	10.	ug/l	1
03926	2-Nitrophenol	88-75-5	N.D.	10.	ug/l	1
03927	2,4-Dimethylphenol	105-67-9	N.D.	10.	ug/l	1
03928	2,4-Dichlorophenol	120-83-2	N.D.	10.	ug/l	1
03929	4-Chloro-3-methylphenol	59-50-7	N.D.	10.	ug/l	1
03930	2,4,6-Trichlorophenol	88-06-2	N.D.	10.	ug/l	1
03936	bis(2-Chloroethyl)ether	111-44-4	N.D.	10.	ug/l	1
03937	1,3-Dichlorobenzene	541-73-1	N.D.	10.	ug/l	1
03938	1,4-Dichlorobenzene	106-46-7	N.D.	10.	ug/l	1
03939	1,2-Dicblorobenzene	95-50-1	N.D.	10.	ug/l	1
03941	Hexachloroethane	67-72-1	N.D.	10.	ug/l	1
03942	N-Nitroso-di-n-propylamine	621-64-7	N.D.	10.	ug/l	1
03943	Nitrobenzene	98-95-3	N.D.	10.	ug/l	1
03944	Isophorone	78-59-1	N.D.	10.	ug/l	1
03945	bis(2-Chloroethoxy)methane	111-91-1	N.D.	10.	ug/l	1
03946	1,2,4-Trichlorobenzene	120-82-1	N.D.	10.	ug/l	1
03947	Naphthalene	91-20-3	N.D.	10.	ug/l	1
03948	Hexachlorobutadiene	87-68-3	N.D.	10.	ug/l	1
03949	Hexachlorocyclopentadiene	77-47-4	N.D.	24.	ug/l	1
03950	2-Chloronaphthalene	91-58-7	N.D.	10.	ug/l	1
03951	Acenaphthylene	208-96-8	N.D.	10.	ug/l	1
03952	Dimethylphthalate	131-11-3	N.D.	10.	ug/l	1
04680	2-Methylphenol	95-48-7	N.D.	10.	ug/l	1
04681	2,2'-oxybis(1-Chloropropane)	108-60-1	N.D.	10.	ug/l	1
04682	4-Methylphenol	106-44-5	N.D.	10.	ug/l	1

3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.

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Lancaster Laboratories Sample No. WW 3931391

Collected:10/31/2002 12:00 by BS

Account Number: 01963

Submitted: 10/31/2002 18:15
Reported: 11/22/2002 at 13:24
Discard: 12/23/2002
PS-3A Grab Water Sample
Project# 4685.ED

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

PS-3A SDG#: DUF01-15

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Units	Dilution Factor
00937	TCL Pesticides in Waters					
00938	Endrin Ketone	53494-70-5	N.D.	0.019	ug/l	1
01361	Alpha Chlordane	5103-71-9	0.0035 J	0.0097	ug/l	1
01362	Gamma Chlordane	5103-74-2	0.027	0.0097	ug/l	1
01600	Alpha BHC	319-84-6	N.D.	0.0097	ug/l	1
01601	Beta BHC	319-85-7	N.D.	0.0097	ug/l	1
01602	Gamma BHC - Lindane	58-89-9	N.D.	0.0097	ug/l	1
01603	Delta BHC	319-86-8	0.0028 J	0.0097	ug/l	1
01604	Heptachlor	76-44-8	N.D.	0.0097	ug/l	1
01605	Aldrin	309-00-2	N.D.	0.024	ug/l	1
01606	Heptachlor Epoxide	1024-57-3	N.D.	0.0097	ug/l	1
01607	p,p-DDE	72-55-9	0.0049 J	0.019	ug/l	1
01608	p,p-DDD	72-54-8	N.D.	0.019	ug/l	1
01609	p,p-DDT	50-29-3	N.D.	0.019	ug/l	1
01610	Dieldrin	60-57-1	0.0049 J	0.019	ug/l	1
01611	Endrin	72-20-8	0.014 J	0.019	ug/l	1
01613	Toxaphene	8001-35-2	N.D.	1.0	ug/l	1
01615	Endosulfan II	33213-65-9	0.0047 J	0.019	ug/l	1
01616	Endosulfan I	959-98-8	N.D.	0.0097	ug/l	1
01617	Endosulfan Sulfate	1031-07-8	N.D.	0.019	ug/l	1
01618	Endrin Aldehyde	7421-93-4	N.D.	0.097	ug/l	1
01619	PCB-1016	12674-11-2	N.D.	0.49	ug/l	1
01620	PCB-1221	11104-28-2	N.D.	0.49	ug/l	1
01621	PCB-1232	11141-16-5	N.D.	0.49	ug/l	1
01622	PCB-1242	53469-21-9	N.D.	0.49	ug/l	1
01623	PCB-1248	12672-29-6	N.D.	0.49	ug/l	1
01624	PCB-1254	11097-69-1	N.D.	0.49	ug/l	1
01626	PCB-1260	11096-82-5	N.D.	0.49	ug/l	1
01860	Methoxychlor	72-43-5	N.D.	0.097	ug/l	1
05088	PCB Congeners-Full List-water					
07994	PCB 1	2051-60-7	N.D.	0.099	ug/l	1
07996	PCB 8	34883-43-7	N.D.	0.020	ug/l	1
07997	PCB 18	37680-65-2	N.D.	0.020	ug/l	1
08002	PCB 49	41464-40-8	N.D.	0.020	ug/l	1
08009	PCB 87	38380-02-8	N.D.	0.020	ug/l	1
08020	PCB 128	38380-07-3	N.D.	0.020	ug/l	1
08033	PCB 180	35065-29-3	N.D.	0.020	ug/l	1

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Questions? Contact your Client Services Representative
Carrie A Fleming at (717) 656-2300.

Respectfully Submitted,

Analysis Report

Lancaster Laboratories
Where quality is a science

ANALYTICAL RESULTS

Prepared for:

Duffield Associates, Inc.
5400 Limestone Road
Wilmington DE 19808-1296

302-239-6634

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425

SAMPLE GROUP

The sample group for this submittal is 829037. Samples arrived at the laboratory on Thursday, October 31, 2002. The PO# for this group is 4685.ED.

Client Description	Lancaster Labs Number
P5-3A Grab Water Sample	3931391
P5-3A Grab Water Sample	3931392
P5-11A Grab Water Sample	3931393
P5-11A Grab Water Sample	3931394
P5-13A Grab Water Sample	3931395
P5-13A Grab Water Sample	3931396
LC-113 Grab Water Sample	3931397
Rinse Blank Grab Water Sample	3931398
LC-108 Dup Grab Water Sample	3931399
LC-108 Grab Water Sample	3931400
LC-101 Grab Water Sample	3931401

METHODOLOGY

The specific methodologies used in obtaining the enclosed analytical results are indicated on the laboratory chronicles.

1 COPY TO	Duffield Associates, Inc.	Attn: Mr. Rick Beringer
1 COPY TO	Data Package Group	

Analysis Request / Environmental Services Chain of Custody

Lancaster Laboratories
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For Lancaster Laboratories use only

Acct. # 1963 Group# 828706 Sample # 3929659-72

COC # 0001307

Please print. Instructions on reverse side correspond with circled numbers.

Client: Duffield Associates Acct. #:

Project Name/#: 4685.ED PWSID #:

Project Manager: M. Rick Beringer P.O.#:

Sampler: RKS/BJS/EBS Quote #:

Name of state where samples were collected: Delaware

For Lab Use Only
FSC:
SCR #:

Sample Identification	Date Collected	Time Collected	Grab (3)	Composite	Soil	Water (4)	Other	Total # of Containers	Group 1 (5)	Group 3	VOCs							Remarks (6)
DR-1-R	10/28/02	1045	X			X		18	X									
DR-1-R DUP	10/28/02	1045	X			X		18	X									
Rinse Blk (10/25/02)	10/28/02	945	X			X	18	[illegible]	X									
Rinse Blank (10/28)	10/28/02	1545	X			X		4		X								
LC-105	10/28/02	1600	X			X		4		X								
LC-102	10/28/02	1030	X			X		4		X								
DR-5	10/28/02	1330	X			X		18	X									
DR-3	10/28/02	1420	X			X		18	X									
Trip Blank	10/28/02							2			X							

Matrix: Soil; Water (☐ Potable ☐ NPDES Check if Applicable); Other

Analyses Requested: Group 1, Group 3, VOCs

Temperature of samples upon receipt (if requested)

Turnaround Time Requested (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed:
Rush results requested by (please circle): Phone Fax E-mail
Phone #: Fax #:
E-mail address:

Data Package Options (please circle if required)
QC Summary Type VI (Raw Data)
Type I (Tier I) GLP
Type II (Tier II) Other
Type III (NJ Red. Del.)
Type IV (CLP)

SDG Complete? Yes No
State-specific QC required? Yes No
(If yes, indicate QC sample and submit triplicate volume.)
Internal Chain of Custody required? Yes No

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	10/28/02	1140			
EB Sprout	10/28/02	1700	Marvin McCallick	10/29/02	12:35
			[signature]	10/29/02	12:35

(9)

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/29/02	SDG No.	DUF01	Sample Wt	1028
Client ID:	DR-3-	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ml	10000
Sample No:	2525870	Date Inj	11/5/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
190	2,3,3',4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
191	2,3,3',4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
192	2,3,3',4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
193	2,3,3',4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
196	2,2',3,3',4,4',5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
202	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
209	Decachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

HOMOLOG	TOTAL UGL	WEIGHT %
Monochlorobiphenyls	0.50	94.4
Dichlorobiphenyls	0.030	5.6
Trichlorobiphenyls	0.0000	0.0000
Tetrachlorobiphenyls	0.0000	0.0000
Pentachlorobiphenyls	0.0000	0.0000
Hexachlorobiphenyls	0.0000	0.0000
Heptachlorobiphenyls	0.0000	0.0000
Octachlorobiphenyls	0.0000	0.0000
Nonachlorobiphenyls	0.0000	0.0000
Decachlorobiphenyls	0.0000	0.0000

TOTAL PCB 0.53 UGL

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209 PCB CONGENER REPORT

DF	1	Date Recd	10/29/02	SDG No.	DUF91	Sample Wt	1023	
Client ID:	DR-3-	Date Ex.	11/1/02	Sonc/Sox	Sonc	F.Vol. ml	10000	
Sample No:	3929670	Date Inj	11/6/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
142	2,2',3,4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
143	2,2',3,4,5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
144	2,2',3,4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
145	2,2',3,4,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
146	2,2',3,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
147	2,2',3,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
148	2,2',3,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
149	2,2',3,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
150	2,2',3,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
151	2,2',3,5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
152	2,2',3,5,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
153	2,2',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
154	2,2',4,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
155	2,2',4,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
156	2,3,3',4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
157	2,3,3',4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
158	2,3,3',4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
159	2,3,3',4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
160	2,3,3',4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
161	2,3,3',4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
162	2,3,3',4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
163	2,3,3',4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
164	2,3,3',4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
165	2,3,3',5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
166	2,3,4,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
167	2,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
168	2,3',4,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
169	3,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
173	2,2',3,3',4,5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
175	2,2',3,3',4,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
177	2,2',3,3',4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
178	2,2',3,3',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
181	2,2',3,4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
183	2,2',3,4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
185	2,2',3,4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/29/02	SDG No.	DUFR1	Sample Wt	1028	
Client ID:	DR-1-	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ml	10000	
Sample No:	3323570	Date Inj	11/8/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
95	2,2',3,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
96	2,2',3,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
97	2,2',3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
98	2,2',3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
99	2,2',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
100	2,2',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
101	2,2',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
102	2,2',4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
103	2,2',4,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
104	2,2',4,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
105	2,3,3',4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
106	2,3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
107	2,3,3',4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
108	2,3,3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
109	2,3,3',4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
110	2,3,3',4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
111	2,3,3',5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
112	2,3,3',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
113	2,3,3',5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
114	2,3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
115	2,3,4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
116	2,3,4,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
117	2,3,4',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
118	2,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
119	2,3',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
120	2,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
121	2,3',4,5',6-Pentachlorbiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
122	2',3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
123	2',3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
124	2',3,4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
125	2',3,4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
126	3,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
127	3,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
128	2,2',3,3',4,4'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
129	2,2',3,3',4,5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
130	2,2',3,3',4,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
131	2,2',3,3',4,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
132	2,2',3,3',4,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
133	2,2',3,3',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
134	2,2',3,3',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
135	2,2',3,3',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
136	2,2',3,3',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
137	2,2',3,4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
138	2,2',3,4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
139	2,2',3,4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
140	2,2',3,4,4',6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
141	2,2',3,4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/29/02	SDG No.	DUF01	Sample Wt	1070
Client ID:	DR-3-	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol.ul	10000
Sample No:	3925670	Date Inj	11/6/02	Metric	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ng/l	Corrected LOQ	Corrected MDL
48	2,2',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
49	2,2',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
50	2,2',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
51	2,2',4,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
52	2,2',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
53	2,2',5,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
54	2,2',6,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
55	2,3,3',4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
56	2,3,3',4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
57	2,3,3',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
58	2,3,3',5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
59	2,3,3',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
60	2,3,4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
61	2,3,4,5,-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
62	2,3,4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
63	2,3,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
64	2,3,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
65	2,3,5,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
66	2,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
67	2,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
68	2,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
69	2,3',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
70	2,3',4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
71	2,3',4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
72	2,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
73	2,3',5',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
74	2,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
75	2,4,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
76	2',3,4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
77	3,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
78	3,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
79	3,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
80	3,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
81	3,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
82	2,2',3,3',4-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
83	2,2',3,3',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
84	2,2',3,3',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
85	2,2',3,4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
86	2,2',3,4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
87	2,2',3,4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
88	2,2',3,4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
89	2,2',3,4,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
90	2,2',3,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
91	2,2',3,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
92	2,2',3,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
93	2,2',3,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
94	2,2',3,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Recd	10/29/02	SDG No.	DUF01	Sample Wt	1029	
Client ID:	DR-3-	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol ul	10000	
Sample No:	3929670	Date Inj	11/5/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
1	2-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.097	0.019
2	3-Chlorobiphenyl	0.596325		0.10	0.020	0.60	0.097	0.019
3	4-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.097	0.019
4	2,2'-Dichlorobiphenyl	0.02934		0.020	0.0050	0.030	0.019	0.0049
5	2,3-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
6	2,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
7	2,4-Dichlorobiphenyl	0.005629	J	0.020	0.0050	0.0056	0.019	0.0049
8	2,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
9	2,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
10	2,6-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
11	3,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
12	3,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
13	3,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
14	3,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
15	4,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
16	2,2',3-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
17	2,2',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
18	2,2',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
19	2,2',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
20	2,3,3'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
21	2,3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
22	2,3,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
23	2,3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
24	2,3,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
25	2,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
26	2,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
27	2,3',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
28	2,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
29	2,4,5-Trichlorbiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
30	2,4,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
31	2,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
32	2,4',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
33	2',3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
34	2',3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
35	3,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
36	3,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
37	3,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
38	3,4,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
39	3,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
40	2,2',3,3'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
41	2,2',3,4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
42	2,2',3,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
43	2,2',3,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
44	2,2',3,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
45	2,2',3,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
46	2,2',3,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
47	2,2',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/25/02	SDG No.	DUF01	Sample Wt	979
Client ID:	DR-5-	Date Ext.	11/7/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3525558	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ng/l	Corrected LOQ	Corrected MDL
189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
190	2,3,3',4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
191	2,3,3',4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
192	2,3,3',4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
193	2,3,3',4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
196	2,2',3,3',4,4',5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
202	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
209	Decachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051

HOMOLOG	TOTAL UGA	WEIGHT %
Monochlorobiphenyls	0.57	100
Dichlorobiphenyls	0.0000	0.0000
Trichlorobiphenyls	0.0000	0.0000
Tetrachlorobiphenyls	0.0000	0.0000
Pentachlorobiphenyls	0.0000	0.0000
Hexachlorobiphenyls	0.0000	0.0000
Heptachlorobiphenyls	0.0000	0.0000
Octachlorobiphenyls	0.0000	0.0000
Nonachlorobiphenyls	0.0000	0.0000
Decachlorobiphenyls	0.0000	0.0000

TOTAL PCB 0.57 UGA

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209 PCB CONGENER REPORT

DF	1	Date Recd	10/29/02	SDG No.	DUF01	Sample Wt	979	
Client ID:	DR-5-	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ul	10000	
Sample No:	3929568	Date Inj	11/6/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
142	2,2',3,4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
143	2,2',3,4,5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
144	2,2',3,4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
145	2,2',3,4,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
146	2,2',3,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
147	2,2',3,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
148	2,2',3,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
149	2,2',3,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
150	2,2',3,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
151	2,2',3,5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
152	2,2',3,5,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
153	2,2',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
154	2,2',4,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
155	2,2',4,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
156	2,3,3',4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
157	2,3,3',4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
158	2,3,3',4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
159	2,3,3',4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
160	2,3,3',4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
161	2,3,3',4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
162	2,3,3',4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
163	2,3,3',4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
164	2,3,3',4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
165	2,3,3',5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
166	2,3,4,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
167	2,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
168	2,3',4,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
169	3,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
173	2,2',3,3',4,5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
175	2,2',3,3',4,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
177	2,2',3,3',4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
178	2,2',3,3',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
181	2,2',3,4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
183	2,2',3,4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
185	2,2',3,4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051

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209 PCB CONGENER REPORT

DF	1	Date Recd	10/29/02	SDG No.	DUF31	Sample Wt	379
Client ID:	DP-5-	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	2525568	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
95	2,2',3,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
96	2,2',3,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
97	2,2',3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
98	2,2',3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
99	2,2',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
100	2,2',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
101	2,2',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
102	2,2',4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
103	2,2',4,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
104	2,2',4,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
105	2,3,3',4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
106	2,3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
107	2,3,3',4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
108	2,3,3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
109	2,3,3',4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
110	2,3,3',4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
111	2,3,3',5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
112	2,3,3',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
113	2,3,3',5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
114	2,3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
115	2,3,4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
116	2,3,4,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
117	2,3,4',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
118	2,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
119	2,3',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
120	2,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
121	2,3',4,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
122	2',3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
123	2',3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
124	2',3,4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
125	2',3,4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
126	3,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
127	3,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
128	2,2',3,3',4,4'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
129	2,2',3,3',4,5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
130	2,2',3,3',4,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
131	2,2',3,3',4,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
132	2,2',3,3',4,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
133	2,2',3,3',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
134	2,2',3,3',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
135	2,2',3,3',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
136	2,2',3,3',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
137	2,2',3,4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
138	2,2',3,4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
139	2,2',3,4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
140	2,2',3,4,4',6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
141	2,2',3,4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051

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209 PCB CONGENER REPORT

OF	1	Date Rec'd	10/25/02	SDG No.	DUF01	Sample Wt	979
Client ID:	DR-5-	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3929698	Date Ini	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
48	2,2',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
49	2,2',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
50	2,2',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
51	2,2',4,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
52	2,2',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
53	2,2',5,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
54	2,2',6,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
55	2,3,3',4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
56	2,3,3',4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
57	2,3,3',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
58	2,3,3',5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
59	2,3,3',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
60	2,3,4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
61	2,3,4,5,-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
62	2,3,4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
63	2,3,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
64	2,3,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
65	2,3,5,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
66	2,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
67	2,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
68	2,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
69	2,3',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
70	2,3',4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
71	2,3',4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
72	2,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
73	2,3',5',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
74	2,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
75	2,4,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
76	2',3,4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
77	3,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
78	3,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
79	3,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
80	3,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
81	3,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
82	2,2',3,3',4-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
83	2,2',3,3',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
84	2,2',3,3',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
85	2,2',3,4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
86	2,2',3,4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
87	2,2',3,4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
88	2,2',3,4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
89	2,2',3,4,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
90	2,2',3,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
91	2,2',3,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
92	2,2',3,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
93	2,2',3,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
94	2,2',3,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/29/02	SDG No.	DUF01	Sample Wt	979	
Client ID:	DR-5-	Date Ext.	11/1/02	Sonc/Soxt	Sonc	F.Vol. ul	10000	
Sample No:	3929668	Date Inj	11/8/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
1	2-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.10	0.020
2	3-Chlorobiphenyl	0.667427		0.10	0.020	0.67	0.10	0.020
3	4-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.10	0.020
4	2,2'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
5	2,3-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
6	2,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
7	2,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
8	2,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
9	2,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
10	2,6-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
11	3,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
12	3,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
13	3,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
14	3,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
15	4,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
16	2,2',3-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
17	2,2',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
18	2,2',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
19	2,2',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
20	2,3,3'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
21	2,3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
22	2,3,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
23	2,3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
24	2,3,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
25	2,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
26	2,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
27	2,3',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
28	2,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
29	2,4,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
30	2,4,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
31	2,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
32	2,4',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
33	2',3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
34	2',3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
35	3,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
36	3,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
37	3,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
38	3,4,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
39	3,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
40	2,2',3,3'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
41	2,2',3,4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
42	2,2',3,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
43	2,2',3,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
44	2,2',3,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
45	2,2',3,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
46	2,2',3,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051
47	2,2',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.020	0.0051

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209 PCB CONGENER REPORT

DF	1	Date Recd	10/25/02	SDG No.	DUF	Sample Wt	1037
Client ID:	LC102	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	2525667	Date Inj	11/5/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ng/l	Corrected LOQ	Corrected MDL
189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
190	2,3,3',4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
191	2,3,3',4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
192	2,3,3',4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
193	2,3,3',4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
196	2,2',3,3',4,4',5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
202	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
209	Decachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048

HOMOLOG	TOTAL UG/L	WEIGHT %
Monochlorobiphenyls	0.25	100
Dichlorobiphenyls	0.0000	0.0000
Trichlorobiphenyls	0.0000	0.0000
Tetrachlorobiphenyls	0.0000	0.0000
Pentachlorobiphenyls	0.0000	0.0000
Hexachlorobiphenyls	0.0000	0.0000
Heptachlorobiphenyls	0.0000	0.0000
Octachlorobiphenyls	0.0000	0.0000
Nonachlorobiphenyls	0.0000	0.0000
Decachlorobiphenyls	0.0000	0.0000

TOTAL PCB 0.25 UG/L

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/29/02	SDG No.	DUF	Sample Wt	1007
Client ID:	LC102	Date Ext.	11/1/02	Sonc/Soxc	Sonc	F.Vol. ml	10000
Sample No:	2525567	Date Inj	11/2/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
142	2,2',3,4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
143	2,2',3,4,5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
144	2,2',3,4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
145	2,2',3,4,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
146	2,2',3,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
147	2,2',3,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
148	2,2',3,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
149	2,2',3,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
150	2,2',3,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
151	2,2',3,5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
152	2,2',3,5,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
153	2,2',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
154	2,2',4,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
155	2,2',4,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
156	2,3,3',4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
157	2,3,3',4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
158	2,3,3',4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
159	2,3,3',4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
160	2,3,3',4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
161	2,3,3',4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
162	2,3,3',4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
163	2,3,3',4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
164	2,3,3',4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
165	2,3,3',5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
166	2,3,4,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
167	2,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
168	2,3',4,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
169	3,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
173	2,2',3,3',4,5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
175	2,2',3,3',4,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
177	2,2',3,3',4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
178	2,2',3,3',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
181	2,2',3,4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
183	2,2',3,4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
185	2,2',3,4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/29/02	SDG No.		DUF	Sample Wt	1017
Client ID:	LC162	Date Ext.	11/1/02	Sonc/Sox		Sonc	F.Vol. ul	10000
Sample No:	3329567	Date Ini	11/5/02	Matrix		Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
95	2,2',3,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
96	2,2',3,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
97	2,2',3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
98	2,2',3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
99	2,2',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
100	2,2',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
101	2,2',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
102	2,2',4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
103	2,2',4,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
104	2,2',4,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
105	2,3,3',4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
106	2,3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
107	2,3,3',4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
108	2,3,3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
109	2,3,3',4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
110	2,3,3',4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
111	2,3,3',5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
112	2,3,3',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
113	2,3,3',5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
114	2,3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
115	2,3,4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
116	2,3,4,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
117	2,3,4',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
118	2,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
119	2,3',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
120	2,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
121	2,3',4,5',6-Pentachlorbiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
122	2',3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
123	2',3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
124	2',3,4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
125	2',3,4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
126	3,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
127	3,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
128	2,2',3,3',4,4'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
129	2,2',3,3',4,5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
130	2,2',3,3',4,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
131	2,2',3,3',4,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
132	2,2',3,3',4,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
133	2,2',3,3',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
134	2,2',3,3',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
135	2,2',3,3',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
136	2,2',3,3',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
137	2,2',3,4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
138	2,2',3,4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
139	2,2',3,4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
140	2,2',3,4,4',6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
141	2,2',3,4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/29/02	SDG No.		DUF	Sample Wt	1037
Client ID:	LC102	Date Ext.	11/1/02	Sonc/Sox		Sonc	F.Vol. ul	10000
Sample No:	3325667	Date Inj	11/5/02	Matrix		Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
49	2,2',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
48	2,2',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
50	2,2',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
51	2,2',4,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
52	2,2',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
53	2,2',5,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
54	2,2',6,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
55	2,3,3',4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
56	2,3,3',4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
57	2,3,3',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
58	2,3,3',5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
59	2,3,3',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
60	2,3,4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
61	2,3,4,5,-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
62	2,3,4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
63	2,3,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
64	2,3,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
65	2,3,5,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
66	2,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
67	2,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
68	2,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
69	2,3',4,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
70	2,3',4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
71	2,3',4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
72	2,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
73	2,3',5',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
74	2,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
75	2,4,4',6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
76	2',3,4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
77	3,3',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
78	3,3',4,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
79	3,3',4,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
80	3,3',5,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
81	3,4,4',5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
82	2,2',3,3',4-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
83	2,2',3,3',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
84	2,2',3,3',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
85	2,2',3,4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
86	2,2',3,4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
87	2,2',3,4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
88	2,2',3,4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
89	2,2',3,4,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
90	2,2',3,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
91	2,2',3,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
92	2,2',3,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
93	2,2',3,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048
94	2,2',3,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0048

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209 PCB CONGENER REPORT

DF	1	Date Rec'd	10/25/02	SDG No.	DUF	Sample Wt	1007
Client ID:	LC102	Date Ext.	11/1/02	Sonc/Soxx	Sonc	F.Vol. ul	10000
Sample No:	3523567	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
1	2-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.056	0.019
2	3-Chlorobiphenyl	0.24723		0.10	0.020	0.25	0.056	0.019
3	4-Chlorobiphenyl	ND	U	0.10	0.020	ND	0.056	0.019
4	2,2'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
5	2,3-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
6	2,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
7	2,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
8	2,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
9	2,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
10	2,6-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
11	3,3'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
12	3,4-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
13	3,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
14	3,5-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
15	4,4'-Dichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
16	2,2',3-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
17	2,2',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
18	2,2',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
19	2,2',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
20	2,3,3'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
21	2,3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
22	2,3,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
23	2,3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
24	2,3,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
25	2,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
26	2,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
27	2,3',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
28	2,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
29	2,4,5-Trichlorbiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
30	2,4,6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
31	2,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
32	2,4',6-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
33	2',3,4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
34	2',3,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
35	3,3',4-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
36	3,3',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
37	3,4,4'-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
38	3,4,5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
39	3,4',5-Trichlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
40	2,2',3,3'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
41	2,2',3,4-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
42	2,2',3,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
43	2,2',3,5-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
44	2,2',3,5'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
45	2,2',3,6-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
46	2,2',3,6'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
47	2,2',4,4'-Tetrachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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OF	1	Date Rec'd	10/29/02	SDG No.	DUF	Sample Wt	1037
Client ID:	LC105	Date Ext.	11/1/02	Conc/Size	Conc	F.Vol. ul	10000
Sample No:	3323666	Date Inj	11/8/02	Matrix	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
149	2,3,3',4,4',5,5'-Heptachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
150	2,3,3',4,4',5,6-Heptachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
151	2,3,3',4,4',5',6-Heptachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
152	2,3,3',4,5,5',6-Heptachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
153	2,3,3',4',5,5',6-Heptachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
154	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
155	2,2',3,3',4,4',5,6-Octachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
156	2,2',3,3',4,4',5',6-Octachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
157	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
158	2,2',3,3',4,5,5',6-Octachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
159	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
202	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048
209	Decachlorobiphenyl	NO	U	0.020	0.0050	NO	0.019	0.0048

HOMOLOG	TOTAL UG/L	WEIGHT %
Monochlorobiphenyls	0.32	100
Dichlorobiphenyls	0.0000	0.0000
Trichlorobiphenyls	0.0000	0.0000
Tetrachlorobiphenyls	0.0000	0.0000
Pentachlorobiphenyls	0.0000	0.0000
Hexachlorobiphenyls	0.0000	0.0000
Heptachlorobiphenyls	0.0000	0.0000
Octachlorobiphenyls	0.0000	0.0000
Nonachlorobiphenyls	0.0000	0.0000
Decachlorobiphenyls	0.0000	0.0000

TOTAL PCB 0.32 UG/L

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DF	1	Date Rec'd	10/29/02	SDG No.	DUF	Sample Wt	1037
Client ID:	LC105	Date Ext.	11/1/02	Sonc/Sox	Sonc	F.Vol. ul	10000
Sample No:	3925586	Date Inj	11/8/02	Mestoc	Water	Moisture	NA

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
142	2,2',3,4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
143	2,2',3,4,5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
144	2,2',3,4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
145	2,2',3,4,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
146	2,2',3,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
147	2,2',3,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
148	2,2',3,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
149	2,2',3,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
150	2,2',3,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
151	2,2',3,5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
152	2,2',3,5,6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
153	2,2',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
154	2,2',4,4',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
155	2,2',4,4',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
156	2,3,3',4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
157	2,3,3',4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
158	2,3,3',4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
159	2,3,3',4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
160	2,3,3',4,5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
161	2,3,3',4,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
162	2,3,3',4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
163	2,3,3',4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
164	2,3,3',4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
165	2,3,3',5,5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
166	2,3,4,4',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
167	2,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
168	2,3',4,4',5',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
169	3,3',4,4',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
173	2,2',3,3',4,5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
175	2,2',3,3',4,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
177	2,2',3,3',4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
178	2,2',3,3',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
181	2,2',3,4,4',5,6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
183	2,2',3,4,4',5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
185	2,2',3,4,5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

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DF	1	Date Rec'd	10/29/02	SDG No.	DUF	Sample Wt	1037	
Client ID:	LC105	Date Ext.	11/1/02	Spec/Sox	Spec	F.Vol. ul	10000	
Sample No:	3329556	Date Inj	11/8/02	Matrix	Water	Moisture	NA	

IUPAC	Compounds	ug/l	U	BASE LOQ	BASE MDL	ug/l	Corrected LOQ	Corrected MDL
95	2,2',3,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
96	2,2',3,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
97	2,2',3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
99	2,2',3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
99	2,2',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
100	2,2',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
101	2,2',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
102	2,2',4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
103	2,2',4,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
104	2,2',4,6,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
105	2,3,3',4,4'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
106	2,3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
107	2,3,3',4,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
108	2,3,3',4,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
109	2,3,3',4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
110	2,3,3',4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
111	2,3,3',5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
112	2,3,3',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
113	2,3,3',5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
114	2,3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
115	2,3,4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
116	2,3,4,5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
117	2,3,4',5,6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
118	2,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
119	2,3',4,4',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
120	2,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
121	2,3',4,5',6-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
122	2',3,3',4,5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
123	2',3,4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
124	2',3,4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
125	2',3,4,5,6'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
126	3,3',4,4',5-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
127	3,3',4,5,5'-Pentachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
128	2,2',3,3',4,4'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
129	2,2',3,3',4,5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
130	2,2',3,3',4,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
131	2,2',3,3',4,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
132	2,2',3,3',4,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
133	2,2',3,3',5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
134	2,2',3,3',5,6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
135	2,2',3,3',5,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
136	2,2',3,3',6,6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
137	2,2',3,4,4',5-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
138	2,2',3,4,4',5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
139	2,2',3,4,4',6-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
140	2,2',3,4,4',6'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049
141	2,2',3,4,5,5'-Hexachlorobiphenyl	ND	U	0.020	0.0050	ND	0.019	0.0049

Prepared for

DELAWARE SOLID WASTE AUTHORITY
1128 South Bradford Street
Dover, Delaware 19903

EVALUATION OF POTENTIAL GROUNDWATER IMPACTS FROM PREFABRICATED VERTICAL DRAINS

Cherry Island Landfill Expansion Project
Northern Solid Waste Management Center
Wilmington, DE

Prepared by

GEOSYNTEC CONSULTANTS
10015 Old Columbia Road, Suite A-200
Columbia, Maryland 21046

Project No. ME0250

7 May 2003

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EXECUTIVE SUMMARY

This report of groundwater impacts from prefabricated vertical drains has been prepared for the proposed vertical expansion of the Cherry Island Landfill, which is located at the Northern Solid Waste Management Center (NSWMC) in Wilmington, New Castle County, Delaware. The Cherry Island Landfill is owned and operated by the Delaware Solid Waste Authority (DSWA). This report was prepared to address concerns of the Delaware Department of Natural Resources and Environmental Control (DNREC) regarding potential impacts to groundwater quality caused by the use of prefabricated vertical drains (PVDs) at the project to accelerate the consolidation of foundation soils beneath the perimeter berm. DNREC's concerns are identified in a 12 February 2003 letter to DSWA, in which five specific issues are identified. In this report, the five issues are evaluated using specific site-related data. The evaluations are supported by both analytical computations and a numerical model of groundwater flow conditions at the site. Based on the evaluations in this report, the following general conclusions are provided.

- The use of PVDs during construction of the Cherry Island Landfill expansion project will result in les than a two fold, temporary increase in total dissolved solids and calcium concentrations in the Columbia Formation. The increase in concentrations would last for a period of only about 22 years, after which the quality of water in the Columbia Formation would return to current levels.
- It is highly unlikely that the PVDs, or any activity at the Cherry Island Landfill, would have any impact at all on water quality in the Potomac Formation.
- No impacts are expected to occur at any groundwater supply wells located downgradient of the Cherry Island Landfill in either the Columbia Formation or the Potomac Formation.

In addition, available reports (which are referenced herein) clearly indicate that the water in the Columbia Formation is of poor quality and not suitable for water supply purposes. Based on this information and the findings of this report, there are no impacts of the proposed use of PVDs to any current use of groundwater. Further, because of the poor quality of water in the Columbia Formation and the short timeframe during which the PVDs will bave an impact (albeit minor) on groundwater quality in the Columbia Formation, it is highly unlikely that there would be any impact to any potential future use of groundwater in the Columbia or Potomac Formations.

1. INTRODUCTION

1.1 Terms of Reference

This report has been prepared to describe the potential for impacts to groundwater quality and quantity resulting from the use of prefabricated vertical drains (PVDs) at the Cherry Island Landfill (CIL), which is located at the Northern Solid Waste Management Center (NSWMC) in Wilmington, New Castle County, Delaware. The Delaware Solid Waste Authority (DSWA) owns and operates the CIL. This report was prepared to address issues identified in a 12 February 2003 memorandum from the Delaware Department of Natural Resources and Environmental Control (DNREC) to the DSWA describing the concerns of the Underground Injection Control (UIC) Branch of DNREC related to the use of PVDs in the landfill expansion project. In this report, an evaluation of the expected groundwater impacts (related to both quantity and quality) from the use of PVDs in the project is provided, and all related computations are included.

This engineering report was prepared by Dr. Carl Elder of GeoSyntec's Boxborough, Massachusetts office and it was reviewed by Mr. Michael F. Houlihan, P.E., of GeoSyntec's Columbia, Maryland office.

1.2 Background

The concerns of the UIC Branch of DNREC are summarized on a 12 February 2003 memorandum from Mr. Kevin Donnelly, Director of the Division of Water Resources of DNREC, to Mr. P.S. Canzano, P.E., Chief Operating Officer of the DSWA. The memorandum identifies actions and information to be submitted by DSWA to address the UIC Branch's concerns; one category of information identified in the memorandum is information regarding the potential for the PVDs to impact groundwater quality and quantity. Specifically, the memorandum indicates that DSWA must submit a model that predicts such impacts to groundwater quality and quantity. During a meeting with the DSWA and DNREC on 4 March 2003, the scope of the evaluation was further defined to include an assessment of five specific issues to be evaluated, which were later reiterated in a 5 March 2003 email from Mr. Michael Apgar of DNREC to the DSWA. The five issues are:

1. Evaluate the groundwater quality and quantity in the Columbia Formation beneath Cherry Island Landfill under current conditions (i.e., overlain by alluvium and dredge spoils), and the potential quality and quantity of pore water in the dredge that is likely to drain to the Columbia Formation during the PVD-enhanced consolidation period.

2. Evaluate the impact to groundwater quality in the Columbia Formation beneath Cherry Island Landfill caused by drainage of pore water from the dredge spoils through the proposed PVDs during the PVD-enhanced consolidation period.

3. Evaluate the impact of a potential release of leachate from the Cherry Island Landfill on water quality in the Columbia Formation in the distant future, after the dredge spoils have completely consolidated and a downward hydraulic gradient exists between the landfill and the Columbia Formation.

4. Evaluate the impact on groundwater quality in the Potomac Formation resulting from downward vertical leakage of groundwater from the Columbia Formation (considering the drainage of pore water from dredge spoils during the PVD-enhanced consolidation and potential leakage of leachate).

5. Evaluate the impact of water quality beneath Cherry Island Landfill on the quality of remote water supplies in the Potomac Formation, using the well at Atlas Point as an example. The analysis should consider the drainage of pore water into the Columbia Formation during the PVD-enhanced consolidation period and a potential release of leachate from the Cherry Island Landfill.

The purpose of this report is to present the results of the evaluations identified above for CIL.

1.3 Organization of This Report

This report is organized as follows:

- In Section 2, the conceptual model of subsurface conditions and groundwater flow patterns at the CIL is provided, which is used in

subsequent sections of the report for evaluation of potential impacts to groundwater of the use of PVDs at the site;

- In Section 3, the three cases that are simulated using the conceptual model are described;
- In Section 4, the results of analytical evaluations of the model are provided, organized in a format that addresses each of the five scope items agreed to at the 4 March 2003 meeting;
- In Section 5, the results of numerical model evaluations are provided;
- In Section 6, a summary of the findings of the evaluation is presented; and
- In Section 7, references that were used in performing this evaluation are provided.

2. CONCEPTUAL MODEL

CIL is a municipal landfill constructed on an approximately 15 to 30 foot thick layer of soft dredge spoils (dredge) which are underlain by about a 25 to 30 foot thick layer of alluvium (natural organic silts) [Delmarva 1988, GeoSyntec 2003]. The total thickness of the dredge and alluvium is approximately 50 feet. The dredge spoils and alluvium are both organic silt but vary in depositional history. An approximately 45 foot thick layer of well-graded gravelly sand that is interbedded with silty sand underlies alluvium. This layer is referred to as the Columbia Formation and is confined beneath the CIL. The Columbia Formation appears to be present under alluvium across the Site, but may not exist in some locations nearer the Christina River. The Columbia Formation is underlain by the Potomac Formation, which consists of an approximately 15 foot thick layer of clayey silt, which is underlain by coarse soils of varying thickness. Regional conceptual model indicate that the Potomac Formation becomes thicker as it extends southward [Delmarva 1988, USGS 1984, 1987]. Below the Site, the granular soils of the Potomac Formation are assumed to be approximately 20 feet thick [GeoSyntec 2003, ARM 2002, TerraAqua 1984]. Figure 1 illustrates the typical stratigraphy at the CIL and Figure 2B is a conceptual model of the CIL and underlying soils. The stratigraphy shown in Figures 1 and 2B is consistent with the interpretation of local geology reported in USGS [1987]. Refer to Figure 2A for a site plan of the CIL.

The hydraulic gradient in the Columbia and Potomac Formations beneath the CIL is generally north to south as shown in Figure 2B [ARM 2002, TerraAqua 1984]. The cross-section shown in Figure 2B is generally parallel to the direction of groundwater flow in the Columbia and Potomac Formations (see Attachment C, Supporting Information). Table 1 summarizes the thickness, porosity, hydraulic conductivity and hydraulic gradient in these hydrogeologic units.

The proposed vertical expansion of the CIL calls for construction of a mechanically stabilized earthen berm (MSE berm) along the northern, eastern and southern boundaries of the CIL to support the lateral loads of waste. The additional load of the MSE berms will cause consolidation settlement of the dredge and alluvium. The release water from these soils during consolidation will produce sufficient sbear strength to support the vertical expansion. However, the low hydraulic conductivity of the dredge and alluvium restrict the rate of consolidation and consequently strength

gain; thus, vertical prefabricated vertical drains (PVDs) are proposed beneath the MSE berms to provide faster drainage in the dredge and alluvium (i.e., radial consolidation). The location of the PVDs is shown in Figure 2B. PVDs will be spaced to allow dissipation of excess pore pressure and consolidation within two years. Consolidation without PVDs is expected to require over 100 years. Dissipation of pore pressure will occur as pore water from the dredge and alluvium drain into the Columbia Formation through the PVDs. The impact of pore water from PVD-enhanced consolidation on the Columbia and Potomac Formation is one focus of this investigation. The other focus of this report is the fate of leachate that could potentially leak from the CIL.

3. SIMULATION CONDITIONS

Three conditions are considered in this assessment: (1) existing conditions; (2) the PVD-enhanced consolidation period of the project (i.e., initial two years); and (3) long-term conditions (i.e., several years to decades after the PVD-enhanced consolidation period). Assumptions for the PVD-enhanced consolidation period are that 12 feet of settlement will occur in the dredge and alluvium beneath the 170 foot wide MSE berms in 2 years. Staged construction of the MSE berm has been proposed, so the rate of settlement (and pore-water drainage) may be assumed uniform during the PVD-enhanced consolidation period and zero thereafter.

Long-term conditions are assumed to follow the PVD-enhanced consolidation period. Two potential hydraulic conditions may exist during long-term: (3a) the CIL is uncapped and has standing water in the leachate collection system resulting in an unconfined water table of 50 feet msl; or (3b) the CIL is capped and the unconfined water table returns to pre-CIL conditions of 0 feet msl. Condition 3a is an unlikely worst-case condition because it assumes a failed leachate collection system and uncapped waste, which yields the maximum potential vertical gradient between the CIL and the Columbia Formation. Condition 3b is a more realistic long-term scenario because it assumes a capped CIL and operating leachate collection system, which are both long-term regulatory requirements for the facility.

Table 2 is a matrix of potential sources of liquid to the Columbia and Potomac Formations and the phases of the CIL life when each applies.

4. ANALYSIS AND RESULTS

4.1 Introduction

In the following five subsections, evaluations are provided for each of the five issues identified in Section 1.2 of this report. In each subsection, the specific issue identified by DNREC is repeated and an evaluation of the issue is provided. In this section, each evaluation is made using analytical approaches; in Section 5, evaluations are made using numerical modeling approaches. The calculations that were performed to support the evaluations provided in the following subsections are provided in Attachment A.

4.2 Assessment of Issue 1

Evaluate the groundwater quality and quantity in the Columbia Formation beneath Cherry Island Landfill under current conditions (i.e., overlain by alluvium and dredge spoils), and the potential quality and quantity of pore water in the dredge that is likely to drain to the Columbia Formation during the PVD-enhanced consolidation period.

Groundwater has been collected quarterly since 1983 from wells around the CIL that are screened in the upper and lower portions of the Columbia Formation. This groundwater has been analyzed for indicator parameters (e.g., chemical oxygen demand, COD; total dissolved solids, TDS; total organic carbon, TOC; etc.), inorganic chemicals and organic compounds. These data are available in Fluman [2002] and Duffield and Associates [2003] reports. Temporal analysis of the data indicate that no significant trend in the data exists, implying that the chemical concentrations in the Columbia have not changed significantly between 1983 and 2002; a period when the CIL has been operating, and the dredge and alluvium beneath the CIL have been consolidating.

A summary of detected compounds in groundwater from the Columbia Formation is presented in Table 3A. Data are from the April 2002 sampling event except for UC-108, which is from April 2001, the most recent sampling event that data is available for this well. Wells with the prefix "UC" are screened in the upper Columbia Formation whereas wells with the prefix "LC" are screened in the lower Columbia Formation. Wells reported in Table 3A are located primarily around the perimeter of the CIL. The average (arithmetic) and standard deviation of concentrations are reported in the right-

most columns of Table 3A. Concentrations reported as non-detect (ND) are not included in the average or standard deviation; consequently, these statistics are biased high for most compounds.

Data from the April 2002 sampling event indicate that groundwater quality in the Columbia Formation below the CIL is typical of the regional groundwater quality of the Columbia Formation; that is, groundwater has TDS, chloride, iron and manganese concentrations that exceed secondary EPA drinking water standards. Groundwater in the Columbia Formation throughout the area is generally considered non-potable due to higher TDS and inorganic chemicals [USGS 1987]. Additionally, organic chemicals are generally absent from groundwater in the Columbia Formation.

Pore water was sampled from ten locations in the dredge in October 2002 and analyzed for indicator parameters, inorganic chemicals and organic compounds. The results of these analyses are presented in Table 3B. Pore water from the dredge is assumed to be representative of the quality of water that will drain from the dredge during PVD-enhanced consolidation.

Analysis of the dredge pore water indicates similar characteristics to that of groundwater in the Columbia Formation (i.e., elevated concentrations of chloride, TDS, iron and manganese). Pore water from the dredge has some detectable organic compounds, but these tend to be sporadically detected at lower concentrations. In general, pore water from the dredge contains similar constituents as groundwater from the Columbia Formation and minimal amounts of organic compounds in localized areas. It should be noted that organic compounds were detected in groundwater at the CIL site location prior to commencement of landfilling activities.

The quantity of groundwater flowing through the Columbia Formation under ambient conditions can be predicted using Darcy's Law. Given the hydraulic parameters reported in Table 1 and the conceptual model (Figure 2B), the average flux of groundwater in the Columbia Formation is about 0.06 gal/ft^2-day (see Calculations 1 and 2 of Attachment A). The average discharge across the thickness of the Columbia Formation (45 feet) below the CIL and a unit width of aquifer is approximately 2.2 gal/day per foot of aquifer width. The range of groundwater discharge in the Columbia Formation beneath the 4,000 foot width of the CIL is between about 1,900 gal/day and about 19,000 gal/day, assuming a minimum hydraulic gradient of 1×10^{-4} and maximum hydraulic gradient of 1×10^{-3}, respectively [Terraqua 1984]. However, on average about

2.2 gallons of groundwater flows daily through each foot width of the Columbia Formation beneath the CIL towards the south. This is equivalent to a total of about 8,700 gallons per day beneath the CIL (assuming a 4,000 foot width for the CIL). Pore water from PVD-enhanced consolidation will add to this discharge. Additionally, pore water from the alluvium currently discharges to the Columbia Formation as the dredge and alluvium consolidate under self-weight and the weight of the CIL. The flux of discharge due to vertical consolidation of the dredge and alluvium is small but occurs over the 230 acres composing the CIL. Consequently, existing pore water drainage, which is predicted to continue for decades, constitute an ongoing source of pore water to the Formation.

The quantity of pore water from PVD-enhanced consolidation entering the Columbia Formation from dredge and alluvium will equal the consolidation settlement of these layers [Terzaghi and Peck 1949]. Consolidation settlement of these layers is a function of the loading and elastic/plastic strain behavior of the soil (i.e., the recompression and virgin compression indices, respectively). The rate of settlement is a function of the spacing between PVDs and the ability of the soil to dissipate excess pore pressure (represented by the coefficient of consolidation, C_h). These calculations have been presented in the CIL expansion design report [GeoSyntec 2003]. In summary, dredge and alluvium are expected to settle about 12 feet over 2 years. The rate of pore water drainage during PVD-enhanced consolidation is initially high but decreases exponentially during consolidation; however, the MSE berm at CIL will be constructed in stages every several months so that shear strength gains can be realized between stages. As a result, the dredge and alluvium will be subjected to many successive smaller loads, which cumulatively will equal the load of the MSE berm. The staged loading dampens fluctuations in pore water drainage so that discharge into the Columbia via PVDs during the PVD-enhanced consolidation period may be assumed uniform.

Twelve feet of settlement over two years yields, on average, about 21 gal/day of pore water per foot (length) of berm (assuming a 170 foot wide MSE berm). Calculation of the total quantity and rate of pore water discharge during PVD-enhanced consolidation is provided in Calculation 2 of Attachment A. This discharge is the anticipated quantity of consolidation water draining to the Columbia Formation during the PVD-enhanced consolidation phase of the project.

4.3 Assessment of Issue 2

Evaluate the impact to groundwater quality in the Columbia Formation beneath Cherry Island Landfill caused by drainage of pore water from the dredge spoils through the proposed PVDs during the PVD-enhanced consolidation period.

Approximately 21 gal/day of pore water per foot (length) of berm is expected to enter the Columbia Formation during the 2 year PVD-enhanced consolidation period of the project. This quantity of water represents approximately a 10-fold increase in flow through the Columbia Formation during the PVD-enhanced consolidation period.

The quality of groundwater in the Columbia Formation and pore water in the dredge are provided in Tables 3A and 3B, respectively. In general, water in both layers has high chloride, TDS, iron and manganese. To assess the quality of pore water in the dredge relative to groundwater quality in the Columbia Formation, concentrations of COD, chloride, TDS, TOC, calcium, iron, manganese and sodium in the dredge and Columbia Formation were compared using the Student-t and Mann-Whitney Rank tests. Only concentrations of COD, chloride, TDS, TOC, calcium, iron, manganese and sodium were compared because these compounds represent a subset of compounds above EPA drinking water standards and/or were detected in all groundwater samples.

The results of the Student-t and Mann-Whitney Rank tests are provided in Table 4. Plots of the sorted data used for the analysis are included as Attachment B. The null hypothesis for both statistical tests is: "are the average groundwater concentrations in the dredge and Columbia Formation equal?". The tests provide either confirmation of this hypothesis with a specified degree of statistical confidence, or a rejection of the null hypothesis. Rejection of the null hypothesis, however, does not indicate that the average concentrations are different; rather, it only implies that the model cannot conclude that mean concentrations are equal at the selected confidence level.

The conclusions from the Student-t and Mann-Whitney Rank tests are that average groundwater concentrations of chloride, iron, manganese and sodium are the same in the dredge and Columbia Formation with 90 and 95 percent statistical confidence. The Student-t test also indicates that average groundwater concentrations of COD, TDS, TOC and calcium are the same in the dredge and Columbia Formation. The Mann-Whitney Rank test draws a different conclusion about concentrations of COD, TDS,

TOC and calcium. The Mann-Whitney Rank test implies that concentrations of COD, TDS, TOC and calcium may be higher in the dredge than in the Columbia Formation.

Different statistical conclusions are likely the result of data that deviate from model assumptions. For example, the Student-t test assumes data are normally distributed, which is invalid for some of the compounds. The Mann-Whitney Rank test assumes compounds in each aquifer have identical distribution (but they are not required to be normally distributed), so anomalously high or low data can violate this assumption and produce erroneous conclusions.

A qualitative method for assessing relative water quality in the dredge and Columbia is to compare the distributions of data for each chemical of interest. Inspection of the sorted chemical data provided in Attachment B indicates that water concentrations in the dredge and Columbia Formations are similar (i.e., have overlapping ranges) for all chemicals except TDS and calcium. Only the extreme of the distributions for TDS and calcium concentration overlap. Consequently, intuition implies that concentrations of TDS and calcium are slightly higher in the dredge than the Columbia Formation, as predicted by the Mann-Whitney Rank test. Concentrations of all other compounds appear similar in the dredge and Columbia.

Quantitative and qualitative comparison of water concentration in the dredge and Columbia Formation indicates that waters in the dredge and Columbia Formation are similar except for TDS and calcium. Concentrations of TDS and calcium appear slightly higher in the dredge than the Columbia.

The drainage of pore water from the dredge into the Columbia Formation will not impact groundwater quality in the Columbia Formation for constituents having similar concentration in the two units. Thus, the drainage of pore water from the dredge and alluvium is only expected to potentially alter concentrations of TDS and calcium in the Columbia Formation. Concentrations of TDS and calcium may increase in the Columbia Formation during the PVD-enhanced consolidation period of the project.

The change in TDS and calcium concentration caused by the drainage of pore water from PVD-enhanced consolidation into the Columbia Formation can be estimated using a mass balance approach (i.e., flow-weighted averaging). This approach assumes perfect mixing in the Columbia Formation and drainage of all pore water from PVD-enhanced consolidation enters the Columbia. Mass balancing predicts that drainage of

pore water from PVD-enhanced consolidation will increase the concentration of TDS and calcium in the Columbia Formation to 1980 mg/l and 131 mg/l, respectively. Following PVD-enhanced consolidation (i.e., after 2 years), groundwater quality in the Columbia Formation is expected to return to current conditions. TDS concentrations in the Columbia Formation already exceed EPA secondary (aesthetic) drinking water standards so the aquifer is considered non-potable [USGS 1987]. Since Columbia groundwater is not used as a drinking water source due to higher ambient levels of TDS, increasing TDS in the Columbia (i.e., making the water taste worse) will not affect the use of the Columbia Formation as an aquifer. Calcium, the other groundwater constituent that may increase during the PVD-enhanced consolidation period, does not have an EPA drinking water standard and is not hazardous.

4.4 Assessment of Issue 3

Evaluate the impact of a potential release of leachate from the Cherry Island Landfill on water quality in the Columbia Formation in the distant future, after the dredge spoils have completely consolidated and a downward hydraulic gradient exists between the landfill and the Columbia Formation.

The potential impact of leachate on the Columbia Formation can be assessed for long-term condition 3a (i.e., an uncapped CIL with inoperable leachate collection system and the unconfined water table at 90 feet msl.) and 3b (capped CIL with an operating leachate collection system and unconfined water table at 0 feet msl).

The flux of leachate under condition 3a can be calculated using Darcy's Law. These calculations are provided in Calculation 3 of Attachment A. For this calculation, the driving head is equal to the elevation of the leachate collection system (90 feet msl), and the potentiometric surface of the Columbia Formation is assumed to be at 1 foot msl. (based on April 1, 2002 data reported by ARM [2002]). Under this gradient and assuming the vertical hydraulic conductivity of 2.8×10^{-5} ft/d to represent the consolidated dredge and alluvium, the leachate flux to the Columbia Formation is expected to be 2.5×10^{-4} gal/day-ft^2 (11 gal/day-acre). The maximum potential quantity of leachate entering the Columbia Formation is approximately 1.0 gallons/day per foot width of the CIL (assuming a 4,000 foot long CIL). The velocity of leachate in dredge and alluvium under condition 3a is approximately 1.1×10^{-4} ft/day (0.49 inches/year). At

this velocity, leachate will require about 1,900 years to travel the 75 feet between the base of the CIL and the Columbia Formation.

Given this expected travel time, it is unlikely that leachate will impact the Columbia Formation during the operating life of the CIL (when the landfill is partially uncapped). However, even if leachate for CIL reaches the Columhia Formation in the distant future, it will have little impact of groundwater quality in the Columbia because biological, abiotic, and sorption reactions occurring during transit will remove and/or immobilize organic chemicals and precipitate inorganic chemicals.

Condition 3b is a more reasonable long-term scenario for the CIL (i.e., capped with an operating leachate collection system). Under condition 3b the downward hydraulic gradient is estimated as 0.033 (1 foot head change per 30 feet of alluvium), which yields a leachate flux to the Columbia Formation of approximately 9.2×10^{-7} ft^3/ft^2-day (0.3 gal/day-acre). Assuming a 230 acre CIL, the leachate discharge under condition 3b is estimated about 69 gallons per day. At this flux, ambient horizontal flow in the Columbia Formation is expected to dilute leachate by about 50 –fold. The travel time for leachate to reach the Columbia Formation under condition 3b is expected to be well about 66,000 years (at a velocity of approximately 0.014 inches/year).

4.5 Assessment of Issue 4

Evaluate the impact on groundwater quality in the Potomac Formation resulting from downward vertical leakage of groundwater from the Columbia Formation (considering the drainage of pore water from dredge spoils during the PVD-enhanced consolidation and potential leakage of leachate).

The quantity of Columbia Formation groundwater, which contains pore water from the PVD-enhanced consolidation, that enters the sand and gravel portion of the Potomac Formation (i.e., the water bearing unit) can be calculated using Darcy's Law. These calculations are provided as Calculation 4 in Attachment A. A vertical hydraulic conductivity of 2.8×10^{-5} ft/d is used to represent the conductivity of the clayey silt separating the Columbia Formation and Potomac Formation sands. A driving head at 90 feet msl in the Columbia (i.e., condition 3a, worst-case) and a potentiometric surface at 1 foot msl. in the Potomac Formation [ARM 2002] are assumed. Given these assumptions, approximately 0.21 gal/day-ft of pore water from the dredge and alluvium

may enter the Potomac Formation. If a porosity of 0.3 is also assumed [Terraqua 1984], pore water from the dredge and alluvium will migrate at 5.6 $x10^{-1}$ ft/d (2.4 inches/year) through the clayey silt between the Columbia Formation and sands of the Potomac Formation. This prediction is slightly higher than the 0.1 to 2.0 inches/year of recharge between the Columbia and Potomac that is reported by USGS [1987], but has very conservative assumptions regarding the driving head. Over the two year PVD-enhanced consolidation period, pore water is expected to penetrate less than 5 inches into the clayey silt overlaying the sands of the Potomac Formation.

Leachate is unlikely to pass through the dredge and alluvium in a reasonable time. However, if leachate should enter the Columbia Formation, it may migrate into the Potomac Formation. The predicted vertical groundwater flux from the Columbia to the Potomac Formation under ambient conditions (i.e., condition 3b assuming April 1, 2002 hydraulic heads reported in ARM [2002]) is predicted to be $1.6x10^{-6}$ gal/day-ft^2 (25 gal/year-acre). Assuming a 230 acre source for leachate, dilute leachate passing from the Columbia into the Potomac Formation is expected to be diluted an additional 240 fold by the ambient flow of groundwater in the Potomac (i.e., discharge of leachate from a 4,000 foot source parallel to groundwater flow is $8.4x10^{-1}$ ft^3/day-ft relative to an ambient discharge of 0.2 ft^3/day-ft in the Potomac Formation).

Groundwater velocity in the clayey silt between the Columbia and Potomac Formation is approximately 0.003 inch/year. At this velocity, the travel time required for dilute leachate in the Columbia to pass into the Potomac Formation is about 59,000 years.

4.6 Assessment of Issue 5

Evaluate the impact of water quality beneath Cherry Island Landfill on the quality of remote water supplies in the Potomac Formation, using the well at Atlas Point as an example. The analysis should consider the drainage of pore water into the Columbia Formation during the PVD-enhanced consolidation period and a potential release of leachate from the Cherry Island Landfill.

The potential of pore water from PVD-enhanced consolidation and/or leachate which may enter the Columbia Formation to impact water quality in the Potomac Formation is investigated. Concentrations at arbitrary distances of 2,500 feet and one

mile down-gradient of the CIL, and at the Atlas Point Well are calculated. Two scenarios are considered in the analysis: (1) the impact of pore water from dredge and alluvium during the PVD-enhanced consolidation period, and (2) the impact of leachate in the long-term under condition 3a. Both scenarios are worst-case because they impose the largest potential downward hydraulic gradient.

Pore Water from PVD-Enhanced Consolidation

The PVD-enhanced consolidation phase is expected to last for about two years. During this time, dilute pore water draining to the Columbia Formation via PVDs is not expected to penetrate more than 3 inches into the clayey silt composing the upper Potomac Formation (see Calculation 5 in Attachment A). This layer has an average thickness of 20 feet, so pore water from PVD-enhanced consolidation is not expected to have any impact on groundwater in the sands of the Potomac Formation or wells screened in this unit under reasonable scenarios.

Leachate

The sandy unit of the Potomac Formation can be considered a two-dimensional, homogeneous and isotropic aquifer for this groundwater analysis because the lateral scales under consideration (i.e., miles) are significantly larger than the thickness of the Potomac Formation and heterogeneous features within the Formation. Given this assumption, the equation for steady-state contaminant transport by advection with dispersion in a two-dimensional bomogeneous field with a uniform flow field and a continuous point source is applicable. A steady-state solution for this problem is provided by Bear [1972] as:

$$C(x,y) = \left[\frac{C_o Q}{2\pi\sqrt{D_L D_T}}\right]\left[\exp\left(\frac{v_x x}{2D_L}\right)\right] K_o\left[\left(\frac{v_x^2}{2D_L}\left(\frac{x^2}{D_L}+\frac{y^2}{D_T}\right)\right)^{1/2}\right] \qquad (1)$$

where:

- C(x,y) is the concentration at a location x and y;
- x and y are distances from the source parallel and transverse to the average groundwater velocity (v_x);

- C_o is the source concentrations (e.g., the initial concentration of leachate entering the Potomac Formation);
- Q is the volumetric rate of leachate addition to the Potomac Formation;
- D_L and D_T are longitudinal and transverse dispersion; and
- K_o is a Bessel function of the second kind and zero order.

The concentration of leachate at any location in the Potomac Formation can be estimated using equation 1. For the analysis of potential leachate transport in the Potomac Formation below CIL, the following assumptions are made:

- $C_o = 100$ mg/l;
- $Q = K_{v,p} i_v A/20 = 0.105$ ft^3/day-ft ($K_{v,p}$ is the vertical hydraulic conductivity of upper clayey silt layer of the Potomac Formation, i_v is the vertical gradient between the Columbia and Potomac Formations, and A is the area of CIL (230 acres). The model inherently assumed perfect vertical mixing, so the volumetric discharge of leachate is divided by the thickness of the granular portion of the Potomac Formation, 20-feet.);
- $D_L = \alpha\ v_x$, where $\alpha = 0.1x$ [Gelhar 1986];
- $D_T = 0.1 D_L$ [Freeze and Cherry 1979]; and
- $v_x = 0.033$ ft/d ($v_x = K_{h,p} i_h/n$, see Table 1).

Table 5 summarizes predicted concentrations of leachate (for $C_o = 100$ mg/l) in the Potomac Formation 2,500 feet and 5,280 feet downgradient of the CIL, and at the Atlas Point Well (x = 8,000 ft, y = 10,000 ft). Dilution at these locations is also reported in Table 5 (dilution = $1 - C_{x,y}/C_o$). Further explanation of the model is provided in Calculation 6 of Attachment A.

Model results indicate that leachate that may potentially enter the Potomac Formation will be diluted by dispersion during transport by more than 2,000-fold within 2,500 feet of the CIL and more than 5,000 fold within a mile of the CIL. The model predicts essentially no (i.e., approximately $2x10^{-10}$ percent) leachate from CIL will reach the Atlas Point Well. Dispersion is a result of lateral and longitudinal spreading

of the plume within the Potomac Formation, and therefore does not include dilution of leachate that will occur due to ambient flow in the Columbia Formation.

This analysis is conservative because it assumes leachate leaks from the entire 230 acre CIL, the model assumes modest dispersion coefficients, and biological and chemical attenuation are ignored. If leachate is released from less than the entire CIL, the mass loading to underlying aquifers will be less and concentrations lower. Also, the Columbia and Potomac Formations are interbedded with silt, sand and gravel, so dispersion may be larger than the estimate provided by Gelhar [1986]. Finally, leachate mass will degrade biotically and abiotically during transport. The predicted time for leachate to travel from the CIL to the Potomac Formation is many thousand years, over which time most chemicals in the leachate will degrade significantly.

In summary, the rate of transport for leachate that may potentially leak from CIL and travel through dredge, alluvium, Columbia and the upper portion of the Potomac Formation is very slow, even under worst-case conditions. Leachate will require about 1,900 years to discharge into the Potomac Formation, and during transit, leachate will dilute and degrade significantly. Leachate that may discharge into the Potomac Formation will be diluted 5,000 fold within a mile of the CIL by dispersion. Potential leachate concentrations at the Atlas Point Well are insignificant when dilution and dispersion during transit are considered.

5. NUMERICAL MODELING

5.1 Introduction

This section provides a description of the development, calibration and results of a numerical groundwater model that is used to assess the impact of pore water from PVD-enhanced consolidation and potential leakage of leachate from the CIL to underlying aquifers. The evaluations in this section complement, rather than replace, the evaluations provided in Section 4. The United States Geological Survey (USGS) groundwater flow model, MODFLOW [McDonald and Harbaugh, 1988], was used to simulate groundwater flow and USGS' MODPATH was used to perform particle tracking. The graphical user interface program, Visual MODFLOW (Waterloo Hydrogeologic, Inc., 2000), was used to facilitate the use of MODFLOW and MODPATH.

The numerical model was developed from the conceptual model of the geology and hydrogeology for the facility and adjacent area described in Section 2 of this report. The model was used to simulate three conditions: (a) existing; (b) during PVD-enhanced consolidation of the dredge and alluvium during construction of the MSE berm; and (c) long-term for condition 3a. Model construction began with input of the conceptual cross-section (Figure 2B) and assignment of the hydraulic parameters reported in Table 1. Calibration was performed by adjusting boundary conditions until the model, under steady-state, yielded a reasonable match to the horizontal and vertical hydraulic gradients (in terms of magnitude and direction) reported in Table 1. Several simulations were conducted to achieve the calibration solution presented herein.

5.2 General Model Conditions

The domain of the numerical model is shown on Figure 3. The model was constructed as a cross-section below the CIL. The model dimensions are approximately 6,000 feet long by 230 ft tall, with a depth (into the page) of 100 feet. Elevations used in the numerical model were shifted 150 feet from NGVD to account for elevations below sea level. The approximate thicknesses and hydraulic conductivities assigned to geologic layers in the model are provided in Table 6 and shown on Figure 4.

The domain grid was discretized into 1 row with 348 columns and 46 layers as shown in Figure 5. The grid columns were refined in the area where the proposed

PVDs are to be located. A finer mesh was used in the PVD zone to obtain a more detailed simulation of flow in this area and avoid numerical error. The actual grid spacing in the PVD zone and nearby areas is about 6 feet per column. The mesh expands at an expansion ratio of less than 1.5 [Anderson and Woesner 1992] to approximately 50 feet per column near the model boundaries.

Constant head, general head and no flux boundary conditions were assigned to the calibrated model as shown in Figure 4. A constant head boundary of 150 feet was assigned along the top of the alluvium below the Delaware River to represent an infinite supply of water at constant head. General head boundaries (GHB) were assigned to the lateral edges of the model. The GHB is similar to a constant head boundary, but allows some control on the volume of water passing over the model boundary by incorporating a conductance term with a constant head (see McDonald and Harbaugh [1988] for additional information on the GHB). The GHB is similar to implementing constant head at a distant boundary. For this site, the GHB condition is ideal because it avoids extrapolating the modeling domain into regions where the hydrology is poorly understood. The GHB boundaries used in the model are summarized in Table 7. Heads for the GHB are based on water level elevations reported by ARM [2002] and summarized in Attachment C whereas conductance for each layer using the hydraulic conductivities reported in Table 6 and a flow distance of 3,000 feet.

A recharge of 0.0005 ft/day (2.2 inches/year) was assigned to the area outside the CIL and 0.00025 ft/day was assigned to the CIL. The bottom of the model was assumed to be a no flow boundary because the quantity of vertical flow into deep bedrock is assumed negligible relative to horizontal and vertical flow in the other layers.

All simulations were performed under steady-state conditions with convergence criterion on 1×10^{-6} feet of head.

5.3 Model Calibration

The model was calibrated to reflect the horizontal and vertical hydraulic gradients in April 2002 reported in ARM [2002]. Hydraulic heads at the general head boundaries were initially estimated based on observed water levels and hydraulic gradients and then changed slightly during successive simulations until good agreement was reached

between the hydraulic heads and gradients below the CIL calculated by the model and those reported by ARM [2002]. These calibration factors are summarized in Table 8.

5.4 Simulation Results

5.4.1 Existing Conditions (Calibrated Model Results)

Output from the numerical model that simulates existing conditions is provided as Figure 6A and 6B. Generally, groundwater flows is from north to south (left to right on Figure 6A) through the Columbia and Potomac Formations. The dominant flow direction through the alluvium is downward into the Columbia Formation, although significant upward flow exists from the Columbia through the alluvium and into the river. Headloss is significant for groundwater passing through the alluvium.

Particles that identify groundwater transport hy advection are shown in Figure 6B. Particles originate in the dredge below CIL and are allowed to move through the modeling domain in the direction of predicted groundwater flow. The trajectory of particles below CIL is generally downward through the alluvium to the Columbia and then southward. Particles then either move upward through the alluvium and discharge into the river, or continue south. None of the particles originating in the dredge below the CIL enter the Potomac Formation. The predicted times for particles to reach to Columbia Formation from the dredge below the CIL is tens of thousands of years, which is similar to the outcome of analytical analysis for condition 3b.

5.4.2 Predictive Modeling – Case 1

Case 1 considers the construction period for the MSE berms. During this time, pore water from the dredge and alluvium drains into the Columbia Formation through the PVD. To simulate this condition, the 150 foot wide PVD zone was assigned a vertical hydraulic conductivity of 1,000 ft/day and a constant vertical influx of water at the ground surface of 6 feet per year (12 feet of consolidation settlement over the two year consolidation phase).

The results of Case 1 modeling are shown in Figure 7. Pore water entering the PVDs moves directly through the alluvium in the PVD zone into the Columbia Formation. Once in the Columbia Formation, the pore water moves laterally beneath

the river. Some particles discharge into the river within the model domain; the remaining particles are expected to also eventually discharge into the river. No particles pass into the Potomac Formation.

Hydraulic head in the alluvium near PVD zone increases very little during the PVD-enhanced consolidation period because the PVDs drain the pore water (and relieve pore pressure). Heads in the Columbia Formation increase about 2 feet below the PVD zone. This increases the component of vertical flow from the Columbia into the Potomac under the southern half of the CIL, up gradient of the PVD zone. The increase in head in the Columbia Formation also generates a larger lateral gradient toward the south in the Columbia and a larger upward vertical gradient toward the river.

Results for Case 1 indicate that the Columbia Formation is capable of accommodating the anticipated flux of pore water during the PVD-enhanced consolidation period. This will result in some mounding in the Columbia Formation that will in turn back-up water under the CIL up gradient of the PVD zone. Some ambient groundwater from the Columbia may enter the Potomac because the mounding increases the vertical gradient between the formations; however, only a small quantity of pore water is expected to enter the Potomac Formation. These impacts are expected to last for approximately two year, after which time, groundwater in the Columbia and Potomac is expected to return to natural flow conditions.

5.4.3 Predictive Modeling - Case 2

Case 2 considers long-term Condition 3a where the CIL is uncapped, has a completely ineffective leachate collection system and is leaking leachate into the dredge. To simulate this condition, a uniform recharge of 0.0005 ft/day (2.2 inches/year) is assigned across the model. This condition implies that none of the rainfall onto the CIL is collected by the leachate collection system, but rather infiltrates at the same rate as rainfall recharge outside the CIL. Particles that identify groundwater transport by advection are located in the dredge below the CIL and are allowed to move through the modeling domain in the direction of predicted groundwater flow.

The results of Case 2 are shown in Figure 8. The trajectory of particles, which represent leachate leaking from the CIL, is generally downward through the alluvium to the Columbia and then southward through the Columbia. Particles then either move

upward through the alluvium and discharge into the river, or continue south under the river. None of the particles that represent potential leachate leakage enter the Potomac Formation. The predicted times for particles to reach to Columbia Formation from the dredge below the CIL is about 1000 years, which is similar to the prediction from the analytical analysis for condition 3a. This is an encouraging outcome because the analytical and numerical models predict leachate transport using different methods (i.e., Darcy's Law versus two-dimensional finite difference under an imposed constant flux, recharge boundary condition).

6. SUMMARY

Several analytical models were used to approximate the impact of pore water during PVD-enhanced consolidation and potential leachate leakage on the Columbia and Potomac Formations underlying the CIL. A numerical profile model of the site was then constructed to verify results from the analytical modeling and to confirm the conceptualization of flow and transport at the Site. The results of this investigation can be summarized as follows:

- Groundwater quality in the Columbia Formation and pore water in the dredge are statistically similar except for concentrations of total dissolved solids and calcium, which are higher in the dredge than in the Columbia Formation. The Columbia Formation can accommodate the additional flow from PVDs during the PVD-enhanced consolidation stage of the project without buildup of excessive heads in the alluvium or in the Columbia Formation that might change groundwater flow patterns or reduce the rate of consolidation of the dredge and alluvium soils in the PVD zone.
- Consolidation induced by the PVDs is predicted to temporarily increase TDS and calcium concentrations in the Columbia Formation below the CIL. Less than a two fold increase in concentrations is predicted, such increases in concentrations should only last for about 20 years, after which time the increased flow of pore water from the PVDs will have been discharged to the Delaware and Christina Rivers. At that time, the quality of the Columbia Formation is predicted to return to it's the current quality. Therefore, the impact to the Columbia Formation due to the PVDs is only for two constituents and only for a relatively short period of time.
- Pore water from PVD-enhanced consolidation is extremely unlikely to enter the Potomac Formation; therefore, groundwater quality in the Potomac will not be affected by the use of PVDs at CIL.
- Under worst-case conditions (i.e., the maximum hypothesized vertical hydraulic gradient), leachate will require approximately 1,900 years to discharge into the Columbia Formation and about 4,000 years to discharge into the Potomac Formation. Under more likely long-term conditions, leachate will require about 66,000 years to discharge into the Columbia Formation and over 100,000 years to discharge into the Potomac Formation.

Under each of these scenarios, the quantity of leachate entering the Potomac Formations is small relative to the horizontal flow in the Formation so impacts to the quality of groundwater in the formations will be minor.

- Under the conditions evaluated, no leachate is expected to reach the Atlas Point Well.

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TABLE 1

SUMMARY OF AQUIFER HYDRAULIC PARAMETERS

Groundwater Modeling at Cherry Island Landfill
Cherry Island Landfill Expansion Project
Wilmington, Delaware

Layer	Avg. Thickness (ft)	Avg. Horiz. Hyd. Cond. (ft/d)	Avg. Vert. Hyd. Cond. (ft/d)	Avg. Horiz. Gradient (i_h)[d]	Avg. Vert. Gradient (i_v)[d]	Porosity[e]
Dredge[a]	40	2.27×10^{-4} [b]	2.27×10^{-5} [c]	0	Variable	0.3
Alluvium[a]	30					
Columbia	45	14.2 [b]	1.42 [c]	4.6×10^{-4}	Variable	0.3
Potomac:						
Clay	15	2.83×10^{-4} [c]	2.83×10^{-5} [b]	7.0×10^{-4}	7.4×10^{-3} (downward)	0.3
Sand/Gravel	20÷	14.2 [e]				0.3

a – properties are for the existing condition (see Simulation Conditions). Hydraulic conductivity of the dredge and alluvium after consolidation (i.e., long-term) is 2.8×10^{-5} ft/d (1×10^{-8} cm/s)

b – TerraAqua 1984, USGS 1973, USGS 1984, USGS 1987, Delmarva 198 8

c – assumed based on an anisotropy ratio of 10 [Freeze and Cherry 1979]

d – based oo measured hydraulic head at LC101A, LC114, LC105, and P101A, P106, P105 on April 1, 2002 reported by ARM 2002

e – assumed to be similar geologic material as the Columbia Formation

TABLE 2

POTENTIAL SOURCES OF LIQUIDS TO THE COLUMBIA AND POTOMAC FORMATIONS AND SIMULATION CONDITION FOR EACH

Groundwater Modeling at Cherry Island Landfill
Cherry Island Landfill Expansion Project
Wilmington, Delaware

Simulation Case	Sources of Groundwater for each Formation and Case	
	Columbia Formation	Potomac Formation
1. Existing Conditions	Natural Groundwater	Natural Groundwater
2. Consolidation Period	Natural Groundwater + Pore Water	Natural Groundwater + Pore Water
3a. Long-term: Worst-Case	Natural Groundwater + Leachate	Natural Groundwater + Leachate
3b. Closed CIL	Natural Groundwater + Leachate	Natural Groundwater + Leachate

- Natural groundwater refers to the ambieot flow of groundwater beneath CIL.
- Pore water refers to the discharge of pore water from the dredge and alluvium during the PVD-enhanced consolidation period of the project.
- Leachate refers to leachate from CIL that may potentially exit the base of CIL into the underlying dredge.

Table 3A
Summary of Detected Compounds in Groundwater in the Columbia Formation
(source: Flaman (2002))

Groundwater Modeling at Cherry Island Landfill
Cherry Island Landfill Expansion Project
Wilmington, Delaware

INDICATOR PARAMETERS	Units	MCL	UC-102	UC-106	UC-108	LC-100	LC-101	LC-102	LC-104	LC-105	LC-113	LC-114	LC-115	LC-116	Average	Std Dev
			Apr-02	Apr-02	Apr-01	Apr-02	Apr-02	Apr-02	Apr-02	Apr-02	Apr-02	Apr-02	Apr-02	Apr-02		
Bicarbonate	mg/L		681	519	591	100	370	350	462	523	444	183	68	263	380	194
COD	mg/L		250	79	286	26	42	31	41	120	110	11	5	62	82	78
Ammonia Nitrogen	mg/L		82	31.2	35.6	0.69	7.47	2.5	69.4	31.9	9.01	0.1	0.1	2.29	23	28
Organic Nitrogen	mg/L		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	-
Nitrate	mg/L	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.79	4.34	0.5	1	-
Chloride	mg/L	250	707	291	375	287	246	338	283	440	335	270	84.5	388	336	146
TDS	mg/L	500	2070	1160	1290	908	926	860	799	1170	1080	712	312	968	1021	417
Total Phosphates	mg/L		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	-
Sulfide	mg/L		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	-
Sulfate	mg/L	250	5	103	5	145	5	5	5	5	17.3	9.7	38.7	6.2	29	46
TOC	mg/L		66.8	26	60	5.5	14	12.2	17.6	38.5	35.1	4	1.9	15.8	24	22

INORGANIC COMPOUNDS			UC-102	UC-106	UC-108	LC-100	LC-101	LC-102	LC-104	LC-105	LC-113	LC-114	LC-115	LC-116	Average	Std Dev
Aluminum	mg/L		ND	ND	ND	ND	ND	0.11	ND	ND	ND	ND	ND	ND	-	-
Antimony	mg/L	0.006	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Arsenic	mg/L	0.01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Barium	mg/L	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Beryllium	mg/L	0.004	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Boron	mg/L		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Cadmium	mg/L	0.005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Calcium	mg/L		100	100	99	56	57	37	79	57	110	26	44	31	66	30
Chromium	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Cobalt	mg/L		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Copper	mg/L	1.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Iron	mg/L	0.3	74	17	64	22	71	25	5.5	56	23	0.08	0.07	67	35	29
Lead	mg/L	0.015	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Magnesium	mg/L		120	89	91	50	37	54	18	81	30	25	11	47	54	34
Manganese	mg/L	0.05	0.71	3.8	5.2	18	3.1	1.6	54	0.27	1.9	0.022	0.006	0.37	7	15
Mercury	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Molybdenum	mg/L		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Nickel	mg/L		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-

Potassium	mg/L		29	17	21	4.5	4.9	15	26	13	11	10	7.8	7.6	14	8
Selenium	mg/L		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Silver	mg/L	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Sodium	mg/L		430	220	230	150	230	230	190	340	270	230	47	260	236	93
Thallium	mg/L	0.002	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Tin	mg/L		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Vanadium	mg/L		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Zinc	mg/L	5	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.00
Cyanide	mg/L		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-

ORGANIC COMPOUNDS

Polychlorinated Biphenyl Congeners

2,2'-Dichlorobiphenyl	ug/L		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	-
2,4-Dichlorobiphenyl	ug/L		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	-
2,2',4,5',6-Pentachlorobiphenyl	ug/L		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	-
Calculated Total PCB	ug/L	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	-

TCL Pesticides

Alpha Chlordane	ug/L		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	-
Gamma Chlordane	ug/L		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	-
Beta BHC	ug/L		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	-
Gamma BHC	ug/L		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	-
Delta BHC	ug/L		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	-
Heptachlor epoxide	ug/L		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	-
p,p-DDE	ug/L		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	-
Dieldrin	ug/L		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	-
Endrin	ug/L		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	-
Endosulfan II	ug/L		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	-

TCL Semivolatile Organic Compounds

bis(2-Ethylhexyl)phthalate	ug/L		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
4-Chloroaniline	ug/L		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Phenol	ug/L		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
4-Methylphenol	ug/L		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-

Volatile Organic Compounds

Acetone	ug/L		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Hydroxide	ug/l		ND	ND	ND	ND	ND	0.02	0.02	ND	ND	ND	ND	ND	0.02	0
Toluene	ug/L	1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-

ND = not detected

NA = not tested

italics indicates an estimated concentration greater than the method detection limit but less than the limit of quantitation.

bold indicates a measured concentrations in excess of the MCL, or 50 ug/l for organic compounds without MCLs

Table 3B
Summary of Detected Compounds in Groundwater in the Dredge
(source: Duffield [2003])

Groundwater Modeling at Cherry Island Landfill
Cherry Island Landfill Expansion Project
Wilmington, Delaware

INDICATOR PARAMETERS	Units	MCL	DR-1	DR-2	DR-3	DR-4	DR-5	P4-4	P5-3A	P5-11A	P5-12A	P5-13A	Average	Std Dev
			Oct-02	Oct-02	Oct-02	Oct-02	Oct-02	Oct-02	Oct-02	Oct-02	Oct-02	Oct-02		
Bicarbonate	mg/L		838	795	909	946	593	916	1050	386	778	333	746	255
COD	mg/L		301	318	122	368	303	209	423	62	296	88	249	123
Ammonia Nitrogen	mg/L		51.2	34.6	35	60.4	25.7	15.2	41.3	6.4	58.2	23.3	35	18
Organic Nitrogen	mg/L		14.3	12.1	18.5	14.5	11.1	12.6	8.2	2.3	18.9	10.9	12	5
Nitrate	mg/L	1	ND	ND	ND	ND	ND	ND	ND	0.41	ND	ND	0	-
Chloride	mg/L	250	463	343	300	1080	596	551	823	59	890	65.5	517	342
TDS	mg/L	500	1620	1500	1670	2730	2920	1960	2640	1850	2430	1460	2078	551
Total Phosphates	mg/L		0.28	5.33	3.91	0.36	3.38	2.39	4.14	0.7	1.25	6.14	3	2
Sulfide	mg/L		ND	ND	ND	ND	ND	ND	ND	ND	ND	2.5	3	-
Sulfate	mg/L	250	0.63	ND	262	2.5	830	31	20.1	990	ND	710	356	419
TOC	mg/L		94.1	97.6	32.5	111	93.8	63.7	140	13.6	84.2	24.1	75	41

INORGANIC COMPOUNDS			DR-1	DR-2	DR-3	DR-4	DR-5	P4-4	P5-3A	P5-11A	P5-12A	P5-13A	Average	Std Dev
Aluminum	mg/L		ND	ND	ND	9.04	ND	ND	0.0964 J	0.37	ND	0.126 J	5	6
Antimony	mg/L	0.006	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Arsenic	mg/L	0.01	*0.0057*	ND	0.0377	0.0575	0.0831	*0.008*	0.027	*0.0057*	0.0342	ND	0	0
Barium	mg/L	2	0.149	0.151	0.228	0.481	0.272	0.121	0.18	*0.0351*	0.390	0.132	0	0
Beryllium	mg/L	0.004	ND	ND	ND	*0.00065*	ND	ND	ND	ND	ND	ND	0	-
Boron	mg/L		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Cadmium	mg/L	0.005	ND	ND	*0.0011*	*0.0014*	*0.0025*	ND	*0.001*	ND	ND	ND	0	0
Calcium	mg/L		80.8	123	140	108	201	155	124	212	103	130	138	42
Chromium	mg/L	0.1	*0.0110*	*0.0123*	ND	0.0945	*0.0239*	*0.0021*	*0.0171*	*0.0032*	*0.0157*	*0.0042*	0	0
Cobalt	mg/L		*0.0105*	*0.0054*	*0.0072*	*0.0239*	ND	*0.0022*	*0.0164*	0.468	*0.0147*	ND	0	0
Copper	mg/L	1.3	*0.015*	ND	ND	0.0838	ND	ND	ND	ND	ND	ND	0	0
Iron	mg/L	0.3	3.11	66.1	55	121	148	42	67.8	69.8	37.8	2.09	61	46
Lead	mg/L	0.015	ND	ND	ND	0.119	ND	ND	ND	ND	ND	ND	0	-
Magnesium	mg/L		87.2	105	170	115	250	139	153	145	103	118	139	47
Manganese	mg/L	0.05	1.17	4.4	2.8	1.71	5.97	7.55	2.95	8.75	0.525	7.14	4	3
Mercury	mg/L	0.002	ND	ND	*0.000057*	ND	ND	ND	ND	ND	ND	ND	0	-
Molybdenum	mg/L		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Nickel	mg/L		*0.0126*	*0.0048*	*0.0127*	*0.0334*	ND	*0.0036*	*0.0239*	0.889	*0.0147*	*0.0021*	0	0

Potassium	mg/L		60.9	23.4	34.8	86.8	27.6	17.5	32.7	24.2	27.7	22.9	36	22
Selenium	mg/L		ND	ND	ND	ND	0.006 J	ND	*0.0098*	ND	ND	ND	0	-
Silver	mg/L	0.1	ND	ND	ND	ND	ND	ND	*0.008*	ND	ND	*0.0024*	0	0
Sodium	mg/L		303	179	184	587	289	215	486	57.1	483	89.7	287	179
Thallium	mg/L	0.002	ND	ND	*0.0155*	ND	0.0248	ND	ND	*0.0166*	ND	*0.0172*	0	0
Tin	mg/L		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Vanadium	mg/L		ND	*0.012*	*0.0061*	0.0392	*0.0123*	*0.003*	*0.0138*	ND	*0.0046*	0.00412	0	0
Zinc	mg/L	5	0.0559	*0.006*	ND	0.582	ND	*0.0116*	*0.0052*	20.2	*0.0159*	ND	3	8
Cyanide	mg/L		ND	ND	ND	ND	0.009	ND	ND	ND	ND	ND	0	-

ORGANIC COMPOUNDS

Polychlorinated Biphenyl Congeners

2,2'-Dichlorobiphenyl	ug/L		ND	ND	30.0	ND	ND	ND	ND	ND	ND	ND	30	-
2,4-Dichlorobiphenyl	ug/L		ND	ND	5.6	ND	ND	5.2	ND	ND	ND	ND	5	0
2,2',4,5',6-Pentachlorobiphenyl	ug/L		ND	ND	ND	ND	ND	ND	5.1	ND	ND	ND	5	-
Calculated Total PCB	ug/L	0.5	ND	ND	35.6	ND	ND	5.2	5.1	ND	ND	ND	15	18

TCL Pesticides

Alpha Chlordane	ug/L		ND	ND	ND	ND	ND	ND	*3.5*	ND	ND	ND	0	-
Gamma Chlordane	ug/L		ND	ND	ND	ND	ND	12	27	ND	ND	ND	20	11
Beta BHC	ug/L		ND	*21*	4	13	ND	ND	ND	ND	*3.4*	ND	10	8
Gamma BHC	ug/L		*3.7*	5	ND	ND	ND	*4.3*	ND	ND	ND	*6.1*	5	1
Delta BHC	ug/L		6.8	ND	11	ND	*6.1*	14	*2.8*	*3.1*	*6.2*	ND	7	4
Heptachlor epoxide	ug/L		14	10	ND	ND	7.2	*3.3*	ND	ND	ND	ND	9	5
p,p-DDE	ug/L		ND	ND	ND	ND	ND	ND	*4.9*	ND	ND	ND	5	-
Dieldrin	ug/L		ND	ND	ND	ND	ND	ND	*4.9*	ND	ND	ND	5	-
Endrin	ug/L		ND	ND	ND	ND	ND	*11*	*14*	ND	*4.9*	ND	10	5
Endosulfan II	ug/L		ND	ND	ND	ND	ND	ND	*4.7*	ND	ND	ND	5	-

TCL Semivolatile Organic Compounds

bis(2-Ethylhexyl)phthalate	ug/L		ND	ND	ND	ND	ND	ND	ND	ND	*2000*	ND	2000	-
4-Chloroaniline	ug/L		ND	*2000*	ND	ND	ND	ND	ND	ND	ND	ND	2000	-
Phenol	ug/L		ND	ND	ND	*3000*	ND	ND	ND	ND	ND	ND	3000	-
4-Methylphenol	ug/L		ND	ND	ND	*2000*	ND	ND	ND	ND	ND	ND	2000	-

Volatile Organic Compounds

Acetone	ug/L		*8000*	ND	ND	*12000*	ND	ND	ND	*7000*	ND	ND	9000	2646
Hydroxide	ug/l		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Toluene	ug/L	1000	ND	ND	ND	*1000*	ND	ND	ND	ND	ND	ND	1000	-

ND = not detected

italics indicates an estimated concentration greater than the method detection limit but less than the limit of quantitation.

bold indicates a measured concentrations in excess of the MCL, or 50 ug/l for organic compounds without MCLs

TABLE 4

SUMMARY OF RESULTS FOR STATISTICAL COMPARISON OF GROUNDWATER FROM DREDGE MATERIAL AND THE COLUMBIA FORMATION

Groundwater Modeling at Cherry Island Landfill
Cherry Island Landfill Expansion Project
Wilmington, Delaware

		COD (mg/l)		Chloride (mg/l)		TDS (mg/l)		TOC (mg/l)		Calcium (mg/l)		Iron (mg/l)		Manganese (mg/l)		Sodium (mg/l)		Ammonia – N (mg/l)	
		Dredge	Columbia	Dredge	Columbia	Dredge	Columbia	Dredge	Columbia	Dredge	Columbia	Dredge	Columbia	Dredge	Columbia	Dredge	Columbia	Dredge	Columbia
Student-T Test	Median	299	52	307	313	1905	947	89	15	127	57	61	24	4	2	252	230	35	8
	Arithmatic Average	249	82	317	336	2078	1021	75	24	138	66	61	35	4	7	287	236	35	23
	Standard Deviation	123	78	342	346	551	417	41	22	42	30	46	29	3	15	179	93	18	28
	Variance	15072	6020	116781	21351	303551	174158	1681	466	1735	902	2119	835	8	240	31946	8710	324	797
	Pooled Variance	10094		64294		232385		1013		1277		1412		136		19166		584	
	Calculated T-statistic	0.039		0.007		0.011		0.118		0.131		0.043		-0.053		0.006		0.050	
	Are the Sample Means Equal?																		
	at 90% confidence?	yes		yes		yes		yes		yes		yes		yes		yes		yes	
	at 95% confidence?	yes		yes		yes		yes		yes		yes		yes		yes		yes	
Mann-Whitney Rank Test	Cum. Weight (Dredge)	162		138		169		158		169		133		133		120		139	
	Cum. Weight (Columbia)	91		115		84		95		84		120		120		133		114	
	Z-statistic	3.30		1.52		3.56		2.84		3.56		1.19		1.19		0.33		1.58	
	Are the Sample Means Equal?																		
	at 90% confidence?	no		yes		no		no		no		yes		yes		yes		yes	
	at 95% confidence?	no		yes		no		no		no		yes		yes		yes		yes	

TABLE 5

PREDICTED STEADY-STATE LEACHATE CONCENTRATIONS IN THE POTOMAC FORMATION DOWN AND SIDE-GRADIENT TO CIL

Groundwater Modeling at Cherry Island Landfill
Cherry Island Landfill Expansion Project
Wilmington, Delaware

Location	x (feet)	y (feet)	Concentration	Dilution
Source	0	0	100	0%
Location1	2500	0	0.037	99.96%
Location 2	5280	0	0.018	99.98%
Atlas Point Well	8000	10000	0.00	100.00%

TABLE 6

INPUT PARAMETERS FOR THE NUMERICAL GROUNDWATER MODEL

Groundwater Modeling at Cherry Island Landfill
Cherry Island Landfill Expansion Project
Wilmington, Delaware

Model Layer	Approximate Thickness (feet)	Horizontal K (ft/day)	Vertical K (ft/day)
Municipal Solid Waste (MSW)	30	28.4	2.84
Dredge	20	2.3×10^{-4}	2.3×10^{-5}
Dredge	20	2.3×10^{-2}	2.3×10^{-4}
Alluvium	50	2.3×10^{-3}	2.3×10^{-4}
Columbia	30	14.17	1.417
Potomac (clayey silt layer)	10	2.3×10^{-3}	2.3×10^{-4}
Potomac	30	14.2	1.42
Bedrock	40	1×10^{-5}	1×10^{-6}

TABLE 7

GENERAL HEAD BOUNDARY CONDITIONS
FOR THE NUMERICAL GROUNDWATER MODEL

Groundwater Modeling at Cherry Island Landfill
Cherry Island Landfill Expansion Project
Wilmington, Delaware

Geologic Layer	Conductance (ft^2/day)[1]	Northwest Boundary		Southeast Boundary	
		Elevation (ft)	Head (ft)	Elevation (ft)	Head (ft)
Alluvium	690	170 to 130	152.00 for the entire layer	140 to 95 ft	150.00 for the entire layer
Columbia	$42.6e^6$	130 to 95	152.00 for the entire layer	95 to 70	150.00 for the entire layer
Potomac (clayey silt)	840	95 to 80	152.70 for the entire layer	70 to 65	150.00 for the entire layer
Potomac	$42.6e^6$	80 to 40	153.30 for the entire layer	65 to 40	150.00 for the entire layer
Bedrock	30	40 to zero	153.30 for the entire layer	140 to 95 ft	150.00 for the entire layer

1 – applied for 3000 feet on each end of the model

TABLE 8

NUMERICAL GROUNDWATER MODEL CALIBRATION RESULTS

Groundwater Modeling at Cherry Island Landfill
Cherry Island Landfill Expansion Project
Wilmington, Delaware

Calibration Factor	Reported by ARM (2002)[1]		Calculated by the Model	
	Columbia	Potomac	Columbia	Potomac
Horizontal Gradient	4.6×10^{-4}	7.0×10^{-4}	4.8×10^{-4}	5.5×10^{-4}
Head on the upland side of CIL[2] (feet)	152.20	152.47	151.95	152.55
Head on the river side of CIL[2] (feet)	150.36 to 150.54	148.51 to 151.10	150.90	150.78

1 – refer to Appendix A for calculations
2 – include 150-foot shift in elevation used for numerical modeling to avoid negative hydraulic heads and elevations
3 – on average below CIL.

ATTACHMENT A

Calculations:

Calculation 1 – Assessment of Hydraulic Gradient Below CIL

Calculation 2 – Assessment of Issue 1

Calculation 3 – Assessment of Issue 2

Calculation 4 – Assessment of Issue 3

Calculation 5 – Assessment of Issue 4

Calculation 6 – Assessment of Issue 5

GEOSYNTEC CONSULTANTS

COMPUTATION COVER SHEET

Client: DSWA Project: Cherry Island Project/Proposal #: ME0250 Task: 7-4

TITLE OF COMPUTATIONS GROUNDWATER MODELING

COMPUTATIONS BY:
Signature: Carl R. Elder — DATE: 9/4/03
Printed Name and Title: Carl Elder, Project Engineer

ASSUMPTIONS AND PROCEDURES CHECKED BY:
(Peer Reviewer)
Signature: for — DATE: 9/4/03
Printed Name and Title: Shamim Hasan, Project Engineer

COMPUTATIONS CHECKED BY:
Signature: for — DATE: 9/4/03
Printed Name and Title: Shamim Hasan, Project Engineer

COMPUTATIONS BACKCHECKED BY:
(Originator)
Signature: Carl R. Elder — DATE: 9/4/03
Printed Name and Title: Carl Elder, Project Engineer

APPROVED BY:
(PM or Designate)
Signature: for — DATE: 9/4/03
Printed Name and Title: Michael Houlihan, Principal

APPROVAL NOTES:

REVISIONS (Number and initial all revisions)

NO.	SHEET	DATE	BY	CHECKED BY	APPROVAL

Written by: Carl Elder Date: 4/29/03 Reviewed by: Shamim Hasan Date: 4/29/03

Client: DSWA Project: Cherry Island Proj. Proposal No.: ME0250 Task No.: 7*4

GROUNDWATER MODELING AT CHERRY ISLAND LANDFILL WILMINGTON, DELAWARE

PURPOSE

The purpose of this calculation package is to assess the potential impact of consolidation water and leachate on the Columbia and Potomac Formations that underlay the Cherry Island Landfill. An assessment of the impact of consolidation water on the Columbia Formation was requested by the Underground Injection Program. During a meeting with the Delaware Solid Waste Authority on 4 March 2003, the scope of the requested groundwater investigation was refined to an assessment of:

1. Evaluate the groundwater quality and quantity in the Columbia Formation beneath Cherry Island Landfill under current conditions (i.e., overlain by alluvium and dredge spoils), and the potential quality and quantity of pore water in the dredge that is likely to drain to the Columbia Formation during the PVD-enhanced consolidation period.
2. Evaluate the impact to groundwater quality in the Columbia Formation beneath Cherry Island Landfill caused by drainage of pore water from the dredge spoils through the proposed PVDs during the PVD-enhanced consolidation period.
3. Evaluate the impact of a potential release of leachate from the Cherry Island Landfill on water quality in the Columbia Formation in the distant future, after the dredge spoils have completely consolidated and a downward hydraulic gradient exists between the landfill and the Columbia Formation.
4. Evaluate the impact on groundwater quality in the Potomac Formation resulting from downward vertical leakage of groundwater from the Columbia Formation (considering the drainage of pore water from dredge spoils during the PVD-enhanced consolidation and potential leakage of leachate).
5. Evaluate the impact of water quality beneath Cherry Island Landfill on the quality of remote water supplies in the Potomac Formation, using the well at Atlas Point as an example. The analysis should consider the drainage of pore water into the Columbia Formation during the PVD-enhanced consolidation period and a potential release of leachate from the Cherry Island Landfill.

Calculations addressing issues one to five are provided in this calculation package. Calculations for each specific question are referenced by number and prefaced by a statement of the issue in italics.

Written by: Carl Elder Date: 4/29/03 Reviewed by: Shamim Hasan Date: 4/29/03

Client: DSWA Project: Cherry Island Proj./Proposal No.: ME0250 Task No.: 7*4

CALCULATION 1

ASSESSMENT OF HYDRAULIC GRADIENT BELOW CIL

PURPOSE

The purpose of this calculation is to estimate the horizontal hydraulic gradients in the Columbia and Potomac Formations below CIL. Estimates of the horizontal gradients will be used for subsequent calculation of groundwater flow rate, flux and discharge.

ANALYSIS

Contours of hydraulic head on April 1, 2002 are provided in ARM [2002], and included in Appendix C, Supporting Information. Evaluation of contours of hydraulic head presented as Figure 5 in ARM [2002] indicates that the horizontal hydraulic gradient in the Columbia Formation is generally from north to south below CIL. Evaluation of contours of hydraulic head presented as Figure 6 of ARM [2002] indicates that the horizontal hydraulic gradient in the Potomac Formation is generally from north to south below CIL. Hydraulic heads measured at the site on April 1, 2002 are also reported on the figures.

The hydraulic gradient within a geologic formation can be estimated as the difference in hydraulic head from two locations (Δh) divided by the distance between the locations (ΔL). This calculation can be performed for the Columbia Formation using data report in Figure 5 [ARM 2002]. Well LC101A is used as an up gradient location and has a head of 2.20 feet. A down gradient location aligned with LC101A is approximately midway between LC114 and LC105; thus, the average head at LC114 and LC105 is used as a down gradient location. The heads at these locations are reported below. The distance between LC101A and the midpoint between LC114 and LC105 is approximately 3800 feet.

Up gradient location (LC101A): head = 2.20 ft
Down gradient location (midpoint between LC114 and LC105):
Head = average of head at LC114 and LC105 = 0.5*(0.37+0.55) = 0.455 ft

Distance between locations = 3800 ft

Average horizontal gradient = (2.20 – 0.455)/3800 = 0.000457

The range of hydraulic gradient in the Columbia Formation reported in TerraAqua [1984] is 0.00011 to 0.0013, which encompasses the horizontal gradient calculated using data from ARM [2002].

The hydraulic gradient in the Potomac Formation can be calculated using data report in Figure 6 of ARM [2002]. Well P101A is used as an up gradient location and has a head of 2.47 feet. A down gradient location aligned with P101A is approximately midway between P106 and P105; thus, the average head at P106 and P105 is used a down gradient location. The heads at these locations are reported below. The distance between P101A and the midpoint between P106 and P105 is approximately 3800 feet.

Up gradient location (P101A): head = 2.47 ft

Down gradient location (midpoint between P106 and P105):
Head = average of head at P106 and P105= 0.5*(-1.49+1.10) = -0.195 ft

Distance between locations = 3800 ft

Average horizontal gradient = (2.47 – -0.195)/3800 = 0.00070

The range of hydraulic gradient in the Potomac Formation reported in TerraAqua [1984] is 0.00012 to 0.0018, which encompasses the horizontal gradient calculated using data from ARM [2002].

The vertical gradient between the Columbia and Potomac Formations can be estimated using nested wells at a location (e.g., LC101A and P101A; LC114 and P106; and LC105 and P105). The vertical gradient is the difference in head between the wells in each formation, divided by the distance between the well screens. Figures 5 and 6 of ARM [2002] provide hydraulic head at the wells. For this calculation, the distance between the well screens is assumed to be 45-feet, which equals the average distance between the center of the Columbia Formation and the center of the Potomac Formation. The calculation of vertical hydraulic gradient between LC101A and P101A; LC114 and P106; and LC105 and P105 is summarized below.

Gradient between LC101A and P101A = (2.47 - 2.20)/45 = 0.00675 (upward)
Gradient between LC114 and P106 = (0.37 – 1.49)/45 = 0.041 (downward)
Gradient between LC105 and P105 = (0.54 – 1.10)/45 = 0.012 (upward)

The average of these vertical gradients is 0.00074 (downward). Although a two of the gradients are upward, these are smaller than the downward gradient. Furthermore, it is logical and conservative to conceptualize a downward gradient below CIL because downward vertical flow is occurring into the Columbia driven by higher hydraulic heads in the alluvium above the Columbia Formation.

SUMMARY

Hydraulic heads in the Columbia and Potomac Formations reported by ARM [2002] were use to calculate the horizontal gradient in the two formations, and the vertical gradient between the formations. The results of these calculations are the following:

- average horizontal gradient in the Columbia Formation = 0.00046 from north to south
- average horizontal gradient in the Potomac Formation = 0.00070 from north to south
- average vertical gradient between the Columbia and Potomac Formations = 0.00074 downward.

Written by: Carl Elder Date: 4/29/03 Reviewed by: Shamim Hasan Date: 4/29/03

Client: DSWA Project: Cherry Island Proj./Proposal No.: ME0250 Task No.: 7*4

CALCULATION 2

ASSESSMENT OF ISSUE 1

Evaluate the groundwater quality and quantity in the Columbia Formation beneath Cherry Island Landfill under current conditions (i.e., overlain by alluvium and dredge spoils), and the potential quality and quantity of pore water in the dredge that is likely to drain to the Columbia Formation during the PVD-enhanced consolidation period.

PURPOSE

The purpose of this calculation is to: (1) assess the quality of groundwater in the Columbia Formation and dredge, and (2) estimate the quantity of ambient groundwater passing through the Columbia Formation and the quantity of consolidation water that is likely to drain into the Columbia Formation through the PVDs.

ANALYSIS

The quality of groundwater in the Columbia Formation and dredge are obtained from compiling and averaging the concentrations of various constituents measured from groundwater samples obtained from each geologic unit. Data for this analysis were obtained from Duffield [2003] and Fluman [2002] and are reported in Table 3 of the report. Also reported in Table 3 are the average and standard deviation of the data.

The quantity of groundwater flowing through the Columbia Formation is estimated by applications of Darcy's Law. This calculation used the horizontal hydraulic gradient calculated for the Columbia Formation, reported in Calculation 1, and the hydraulic conductivity reported in Table 1. Application of Darcy's Law to the Columbia Formation is the following:

Darcy's Law: $Q_c = K_{h,c} i_h A_c$

where: $K_{h,c}$ = horizontal hydraulic conductivity in the Columbia = 14.2 ft/d

i_h = horizontal hydraulic gradient in the Columbia = 4.6×10^{-4}

A_c = Cross-sectional area of the Columbia = 45 ft x 1 ft = 45 ft^2

Q_c = 0.29 ft^3/d per foot width = 2.2 gallon/day per foot width of aquifer

In summary, the ambient discharge of groundwater through the Columbia Formation is approximately 2.2 gallons/day per foot of aquifer.

The quantity of water draining from PVDs into the Columbia formation during consolidation is equal to the predicted volume of settlement. Furthermore, staged loading is proposed for the site, which will yield a more uniform rate of settlement. The expected quantity of water from the dredge draining through the PVDs and into the Columbia Formation is calculated as follows.

Given that:

- the total settlement of dredge and alluvium = 12 ft;
- MSE berms are approximately 170 ft wide berms (parallel to Q_c); and
- it is assumed that the rate of settlement is uniform over the 2-year consolidation stage

Volume of Consolidation Water = V_{consol} = (12 ft)(170 ft)(1 ft) = 2040 ft^3/ft

Rate of Consolidation Water = $Q_{consol} = V_{consol}/(2 \times 365 \text{ days})$
= 2.8 ft^3/ft-day
= 20.9 gallons/day per foot

SUMMARY

In summary, the ambient discharge of consolidation water to the Columbia Formation via the PVDs is approximately 20.9 gallons/day per foot of aquifer.

Written by: Carl Elder Date: 4/29/03 Reviewed by: Shamim Hasan Date: 4/29/03

Client: DSWA Project: Cherry Island Proj./Proposal No.: ME0250 Task No.: 7*4

CALCULATION 3

ASSESSMENT OF ISSUE 2

Evaluate the impact to groundwater quality in the Columbia Formation beneath Cherry Island Landfill caused by drainage of pore water from the dredge spoils through the proposed PVDs during the PVD-enhanced consolidation period.

PURPOSE

The purpose of this calculation is to estimate (1) the potential discharge of leachate through the dredge and alluvium and (2) the potential time required for leachate to travel through the dredge and alluvium under conditions 3a and 3b. Conditions 3a and 3b are described in section 4 of the report.

ANALYSIS

The quantity of groundwater potentially entering the Columbia Formation via PVDs is obtained from Calculation 2, as is the ambient flow in the Columbia Formation. The ratio of these flow rates is the relative increase in flow that may occur during consolidation.

Potential flow entering the Columbia Formation via PVDs = 20.9 gallons/day per foot

Ambient flow in the Columbia Formation = 2.2 gallons/day per foot

Relative increase in flow during consolidation = 20.9/2.2 = 9.5 = 950%

SUMMARY

In summary, consolidation drainage may increase flow in the Columbia by approximately one order of magnitude.

Written by: Carl Elder Date: 4/29/03 Reviewed by: Shamim Hasan Date: 4/29/03

Client: DSWA Project: Cherry Island Proj./Proposal No.: ME0250 Task No.: 7*4

CALCULATION 4

ASSESSMENT OF ISSUE 3

Evaluate the impact of a potential release of leachate from the Cherry Island Landfill on water quality in the Columbia Formation in the distant future, after the dredge spoils have completely consolidated and a downward hydraulic gradient exists between the landfill and the Columbia Formation.

PURPOSE

The purpose of this calculation is to compare the quantity of consolidation water entering the Columbia Formation through PVDs relative to the ambient groundwater flow in the Columbia Formation.

ANALYSIS

The quantity and rate of leachate potentially traveling through the dredge and alluvium is calculated using Darcy's Law. Hydraulic properties for the dredge and alluvium are reported in Table 1. Two conditions are considered, 3a and 3b. Condition 3a is a worst-case, long-term scenario where static water is in the leachate collection system of the CIL, and the Landfill is uncapped. Condition 3b is a more likely scenario where the long-term water table returns to 0-feet msl., which is the equilibrium hydraulic condition for the site.

Condition 3a

The discharge of leachate through dredge and alluvium (Q_L) under condition 3a may be calculated as follows using Darcy's Law as explained in Calculation 2:

$Q_L = K_v i_v A$

where: K_v = vertical hydraulic conductivity in the consolidated dredge/alluvium = 2.8×10^{-5} ft/d (1×10^{-8} cm/s)

i_v = vertical hydraulic gradient in the dredge/alluvium = (90 ft – 1 ft)/75 ft = 1.19

(based on 4/1/02 heads reported by ARM [2002], and 75 feet between the CIL and the Columbia Formation)

A = (4000 ft)(1 ft) = 4000 ft^2 (4000 ft is the length of the CIL parallel to groundwater flow in the Columbia. The method assumes leakage from the entire CIL. Discharge is for a unit width of aquifer)

$Q_L = (2.8x10^{-5}$ ft/d)(1.19)(4000 ft^2) = 0.13 ft^3/day-ft = 1.0 gallon/day per foot width

The travel time for leachate through the dredge and alluvium (T_L) under condition 3a may be calculated as the ratio of distance to leachate velocity (v_L). The leachate velocity may be calculated using Darcy's Law.

$v_L = K_v i_v / n$

$T_L = L/v_L$

where: v_L = seepage velocity of leachate through dredge and alluvium

n = porosity = 0.3 (assumed for consolidated dredge/alluvium, [Terraqua 1984])

L = travel distance between the CIL and Columbia Formation = 75 feet

$v_L = (2.8x10^{-5}$ ft/d)(1.19)/(0.3) = $1.1x10^{-4}$ ft/day = 0.49 inch/year

$T_L = (75$ ft)/($1.1x10^{-4}$ ft/d) = 681818 days = 1868 years

It is estimated that approximately 1.0 gallon/day per foot width of the CIL of leachate may potentially drain into the Columbia under worst-case conditions (condition 3a). The time required for leachate to travel through the dredge and alluvium is estimated to be 1868 years.

Condition 3b

Condition 3b is a more likely long-term scenario. The discharge of leachate through dredge and alluvium (Q_L) under condition 3b may be calculated as follows using Darcy's Law:

$Q_L = K_v i_v A$

where: i_v = vertical hydraulic gradient in the dredge/alluvium

= (1 ft – 0ft)/30 ft = 0.033

(based on 4/1/02 heads reported by ARM [2002], and 30-feet between the water table and base of the alluvium)

$Q_L = (2.8\text{x}10^{-5}\ \text{ft/d})(0.033)(4000\ \text{ft}^2) = 0.0037\ \text{ft}^3\text{/day-ft} = 0.028$ gal/day per foot width

The travel time for leachate through the dredge and alluvium (T_L) under condition 3b may be calculated as the ratio of distance to leachate velocity (v_L). The leachate velocity may be calculated using Darcy's Law.

$v_L = K_v i_v / n$
$T_L = L/v_L$
where: v_L = seepage velocity of leachate through dredge and alluvium
n = porosity = 0.3 (assumed for consolidated dredge/alluvium[Terraqua 1984])

$v_L = (2.3\text{x}10^{-4}\ \text{ft/d})(0.033)/(0.3) = 3.1\text{x}10^{-6}\ \text{ft/day} = 0.014$ inch/year
$T_L = (75\ \text{ft})/(2.5\text{x}10^{-5}\ \text{ft/d}) = 2.4\text{x}10^{7}$ days = 66284 years

It is estimated that approximately 0.028 gallon/day per foot width of the CIL of leachate may potentially drain into the Columbia under anticipated conditions (condition 3b). The time required for leachate to travel through the dredge and alluvium is estimated to be about 66284 years. Under these conditions, leachate potentially entering the Columbia Formation will dilute by about 50-fold due to ambient flow in the Columbia Formation (see Calculation 2).

SUMMARY

The quantity of potential leachate and time required for the leachate to travel through the dredge and alluvium was estimated using Darcy's Law. Two long-term conditions were considered: condition 3a in which the static water exists in the leachate collection system of the CIL, and condition 3b in which the water table returns to an ambient level of 0-feet. Condition 3a is considered a worst-case scenario; condition 3b is a more likely scenario.

Under condition 3a, leachate may potentially discharge into the Columbia Formation at a rate of approximately 8.18 gallons/day per foot length of CIL. Leachate will require approximately 1,900 years to travel between the CIL and the Columbia Formation. Under condition 3b, leachate may potentially discharge into the Columbia Formation at a rate of approximately 0.28 gallons/day per foot length of CIL, and will require approximately 66,284 years to travel between the CIL and the Columbia Formation.

Written by: Carl Elder Date: 4/29/03 Reviewed by: Shamim Hasan Date: 4/29/03

Client: DSWA Project: Cherry Island Proj./Proposal No.: ME0250 Task No.: 7*4

CALCULATION 5

ASSESSMENT OF ISSUE 4

Evaluate the impact on groundwater quality in the Potomac Formation resulting from downward vertical leakage of groundwater from the Columbia Formation (considering the drainage of pore water from dredge spoils during the PVD-enhanced consolidation and potential leakage of leachate).

PURPOSE

The purpose of this calculation is to estimate the volume of groundwater from the Columbia Formation that may discharge into the Potomac Formation under long-term conditions 3a and 3b. See section 4 of the report for a description of these conditions. The discharge rates are then compared to the ambient flow rates of groundwater in the Columbia and Potomac Formations to estimate dilution.

ANALYSIS

The quantity of groundwater flowing through the Columbia Formation is calculated in Calculation 2. The quantity of groundwater flowing through the Potomac Formation is calculated using an identical methodology as Calculation 2, which is an application of Darcy's Law. Applications of Darcy's Law in the Potomac Formation to calculate the ambient groundwater discharge rate uses the hydraulic conductivity reported in Table 1 and the horizontal gradient estimated in Calculation 1.

$Q_p = K_{h,p} i_h A_c$

where: $K_{h,p}$ = horizontal hydraulic conductivity in the Potomac = 14.2 ft/d

i_h = horizontal hydraulic gradient in the Potomac = 7.0×10^{-4}

A_c = minimum cross-sectional area of the Potomac = 20 ft x 1 ft = 20 ft^2

Q_p = 0.20 ft^3/d per foot width = 1.5 gallon/day per foot width of the Potomac Formation

Written by: Carl Elder Date: 4/29/03 Reviewed by: Shanum Hasan Date: 4/29/03

Client: DSWA Project: Cherry Island Proj./Proposal No.: ME0250 Task No.: 7*4

The ambient discharge of groundwater through the Potomac Formation is approximately 1.5 gallons/day per foot of aquifer. From Calculation 2, the ambient discharge of groundwater through the Columbia Formation is approximately 2.2 gallons/day per foot of aquifer.

The quantity of consolidation water that may enter the Potomac Formation can be calculated using Darcy's Law. For this calculation, it is conservatively assumed that the PVDs and the Columbia Formation offer no resistance to vertical flow. Rather, the only resistance to the vertical flow of consolidation water into the Potomac Formation is provided by the upper layer of the Potomac Formation, which is assumed to be a 15 foot thick clay unit with a hydraulic conductivity of 2.82×10^{-5} ft/d (Table 1). This calculation is performed only for condition 3a. because condition 3a is similar to the anticipated heads during consolidation. For condition 3a. the driving head above the clay layer of the Potomac Formation is equal to 90 feet. which is the elevation of the CIL leachate collection system. Application of Darcy's Law across the upper clay layer of the Potomac Formation is as follows.

$$Q_{c,p} = K_{v,p} i_{v,p} A$$

where:

$K_{v,p}$ = vertical hydraulic conductivity in the Potomac = 2.83×10^{-5} ft/d (TerraAqua 1984)

i_v = vertical hydraulic gradient between the Columbia and Potomac

= (90 ft – 1ft)/15 ft = 5.9

A = (170 ft)(1 ft) = 170 ft^2 (170 ft is the length of the berm parallel to groundwater flow in the Columbia and Potomac. Discharge is for a unit width of aquifer)

$$Q_{c,p} = (2.83 \times 10^{-5} \text{ ft/d})(5.9)(170 \text{ ft}^2) = 0.028 \text{ ft}^3\text{/day-ft} = 0.21 \text{ gallon/day-ft}$$

The travel velocity of consolidation water through the clay layer of the Potomac Formation may be estimated using the equation for seepage velocity. Independent variables in this equation are similar to the Darcy's Law calculation presented above and a porosity of 0.3 is assumed [Freeze and Cherry 1979, Terraqua 1984]. This calculation is as follows:

$v_{c,p} = (K_{v,p} i_{v,p})/n$,

where: n = porosity of the clayey silt = 0.3 [Terraqua 1984]

$v_{c,p} = (2.83 \times 10^{-5} \text{ ft/d} \times 5.9)/0.3 = 5.6 \times 10^{-4}$ ft/d = 2.4 inches/year

In summary, it is conservatively estimated that consolidation water will travel 4.8 inches into the clayey silt between the Columbia and Potomac Formations during the two-year consolidation stage. The clayey silt is 15 feet thick.

The potential impact of leachate under long-term conditions 3a and 3b can be calculated using Darcy's Law applied across the dredge, alluvium, Columbia Formation and clay of the Potomac Formation. This calculation used an equivalent hydraulic conductivity across these geologic units, and a driving gradient between the CIL and the gravel unit of the Potomac Formation. Evaluation of Darcy's Law for condition 3a and 3b are as follows.

Condition 3a

The discharge of leachate through dredge, alluvium, the Columbia Formation, and the clay layer of the Potomac Formation ($Q_{L,p}$) under condition 3a is calculated using Darcy's Law.

$Q_{L,p} = K_{v,eq} i_{v,p} A$

where: $K_{v,eq}$ = equivalent vertical hydraulic conductivity in the dredge, alluvium, Columbia and upper 15-feet of Potomac (clay)

i_v = vertical hydraulic gradient between the CIL and Potomac = (90 ft – 1 ft)/130 ft = 0.68

A = (4000 ft)(1 ft) = 4000 ft^2 (4000 ft is the length of the CIL parallel to groundwater flow. Discharge is for a unit width of aquifer)

$$K_{v,eq} = \frac{\sum Z_i}{\sum Z_i / K_i} = \frac{70 + 45 + 15}{\left(70/2.8x10^{-5}\right) + \left(45/14\right) + \left(15/2.8x10^{-5}\right)} = 4.2x10^{-5}\ ft/d$$

$Q_{c,p}$ = ($4.2x10^{-5}$ ft/d)(0.68)(4000 ft^2) = 0.12 ft^3/day-ft = 0.87 gallon/day-ft

Travel time for leachate to reach the Potomac Formation ($T_{L,p}$) is calculated as the quotient of travel distance to leachate seepage velocity. This calculation neglects dispersion and sorption, and uses an assumed porosity of 0.3 [Terraqua 1984].

$T_{L,p} = (Ln)/(K_{v,eq} i_{v,p})$

where: n = porosity of the clayey silt = 0.3 [Terraqua 1984]

L = travel distance = 130 ft

$T_{L,p} = (130 \text{ ft} \times 0.3)/(4.2\times10^{-5} \text{ ft/d} \times 0.68) = 1.3\times10^{7} \text{ days} = 3741 \text{ years}$

The discharge of dilute leachate to the Potomac Formation is predicted to be about 0.87 gallons per day per foot width of aquifer for condition 3a, the worst-case scenario of leachate from the entire CIL, the maximum vertical gradient, and no dilution or horizontal flow in the Columbia. Leachate will require about 4000 years to reach the Potomac Formation for this condition.

Condition 3b

The discharge of leachate into the Potomac Formation under condition 3b is calculated differently that for condition 3a. A more conservative approach is only considering the flow rate and transport time across the clay layer of the Potomac Formation is used. As shown in the subsequent calculations, this method, although very conservative, indicates that leachate is unlikely to enter the Potomac Formation under condition 3b.

The transport of leachate into the Potomac Formation ($Q_{L,p}$) under condition 3b is calculated using Darcy's Law.

$Q_{L,p} = K_{v,p} i_{v,p} A$

where: $K_{v,p}$ = vertical hydraulic conductivity in the Potomac = 2.83×10^{-5} ft/d (TerraAqua 1984)

i_v = vertical hydraulic gradient between the Columbia and Potomac = 7.4×10^{-3} (Table 1)

A = (4000 ft)(1 ft) = 4000 ft^2 (4000 ft is the length of the CIL parallel to groundwater flow. Discharge is for a unit width of aquifer)

$Q_{L,p} = (2.83\times10^{-5} \text{ ft/d})(7.4\times10^{-3})(4000 \text{ ft}^2) = 8.4\times10^{-4} \text{ ft}^3\text{/day-ft}$
$= 2.3$ gallon/year-ft
$= 24.9$ gallon/year-acre

Travel time for leachate to reach the Potomac Formation ($T_{L,p}$) is calculated as the quotient of travel distance to leachate seepage velocity. This calculation neglects dispersion and sorption, and uses an assumed porosity of 0.3 [Terraqua 1984].

$T_{L,p} = (Ln)/(K_{v,p} i_{v,p})$

Written by: Carl Elder Date: 4/29/03 Reviewed by: Shamim Hasan Date: 4/29/03

Client: DSWA Project: Cherry Island Proj. Proposal No.: ME0250 Task No.: 7*4

where: n = porosity of the clayey silt = 0.3 [Terraqua 1984]
L = travel distance = 15 ft (clay)
$T_{L,p}$ = (15 ft x 0.3)/(2.83×10^{-5} ft/d x 7.4×10^{-3}) = 21.5 million days = 58871 years

The discharge of dilute leachate to the Potomac Formation is predicted to be about 25 gallons/year per acre of CIL for condition 3b. Leachate will require more than 59,000 years to reach the Potomac Formation for this condition.

SUMMARY

The discharge rate and travel time for leachate to reach the Potomac Formation under conditions 3a and 3b were calculated by application of Darcy's Law and the equation for seepage velocity, respectively. These calculations indicate that under the worst case condition (i.e., condition 3a), dilute leachate may discharge to the Potomac Formation at a rate of about 3.2 gallons per year per foot width of aquifer. This discharge is approximately 0.4% of the ambient horizontal groundwater flow in the Potomac Formation. Also, under condition 3a, dilute leachate will require approximately 1,000 years to reach the Potomac Formation. Under a more likely scenario, condition 3b, the expected discharge of dilute leachate to the Potomac Formation is predicted to be about 25 gallons/year per acre of CIL and leachate will require more than 59,000 years to reach the Potomac Formation.

Written by: Carl Elder Date: 4/29/03 Reviewed by: Shamim Hasan Date: 4/29/03

Client: DSWA Project: Cherry Island Proj./Proposal No.: ME0250 Task No.: 7*4

CALCULATION 6

ASSESSMENT OF ISSUE 5

Evaluate the impact of water quality beneath Cherry Island Landfill on the quality of remote water supplies in the Potomac Formation, using the well at Atlas Point as an example. The analysis should consider the drainage of pore water into the Columbia Formation during the PVD-enhanced consolidation period and a potential release of leachate from the Cherry Island Landfill.

PURPOSE

The purpose of this calculation is to estimate the dilution of groundwater in the Potomac between the CIL and off-site locations including the Atlas Point Well. This calculation can then be used to infer the dilution of Potomac Formation groundwater that may contain either consolidation water and/or leachate as it moves off-site.

ANALYSIS

An assessment of the transport of consolidation water in the Potomac Formation is not performed because the results of Calculation 5 indicate that consolidation water will not enter the granular portion (i.e., water bearing unit) of the Potomac Formation.

The advective transport and dispersion of Potomac Formation groundwater is estimated using a two-dimensional analytical model of groundwater flow. This equation does not incorporate sorption or reactions, so an inherent assumption is that if leachate enters the Potomac Formation, it will travel with groundwater (i.e., as a conservative analyte).

The steady-state solution for two-dimensional contaminant transport with dispersion from a continuous point source is provided by Bear [1972]. The model assumes a homogeneous aquifer having uniform flow at v_x.

Written by: Carl Elder Date: 4/29/03 Reviewed by: Shamim Hasan Date: 4/29/03

Client: DSWA Project: Cherry Island Proj./Proposal No.: ME0250 Task No.: 7*4

$$C(x,y) = \left[\frac{C_o Q}{2\pi\sqrt{D_L D_T}}\right]\left[\exp\left(\frac{v_x x}{2D_L}\right)\right]K_o\left[\left(\frac{v_x^2}{2D_L}\left(\frac{x^2}{D_L}+\frac{y^2}{D_T}\right)\right)^{1/2}\right]$$

where: C(x,y) is the concentration at a location x and y
x and y are distances from the source parallel and transverse to v_x
C_o is the concentration of leachate entering the Potomac Formation
Q is the volumetric rate of leachate addition to the Potomac Formation
D_L and D_T are longitudinal and transverse dispersion, respectively
K_o is a Bessel function of the second kind and zero order.

The steady-state discharge rate of groundwater potentially containing leachate into the Potomac Formation can be calculated using Darcy's Law. Since Q in the equation above assumes a unit thickness for the aquifer, groundwater discharge into the Potomac Formation must be calculated on a per unit thickness basis:

$$Q = K_{v,p} i_v A/20 = (2.83\times10^{-5}\ \text{ft/d})(7.4\times10^{-3})(230\ \text{acres} \times 43500\ \text{ft}^2/\text{acre}) / 20\ \text{ft}$$
$$= 0.105\ \text{ft}^3/\text{day-ft}$$

The ambient groundwater flow velocity in the Potomac Formation (v_x) can be calculated using the equation for seepage velocity.

$$v_x = K_{h,p} i_h/n = (14.2\ \text{ft/d})(7.0\times10^{-4}) / 0.3$$
$$= 0.033\ \text{ft/day}$$

Other independent variable used in the transport equation as the following:
$C_o = 100$ (assumed so that C(x,y) is easily converted to a dilution factor)
$D_L = \alpha\ v_x$, where $\alpha = 0.1x$ [Gelhar 1986]
$D_T = 0.1 D_L$ (Freeze and Cherry [1979])

Three locations are considered in the analysis. These are 2,500 feet and one mile down gradient of the CIL, and the Atlas Point Well (x = 8,000 ft, y = 10,000 ft). The following summarizes predicted concentrations of leachate (for $C_o = 100$) in the Potomac Formation at these locations Dilution at these locations is also reported, where dilution equals $1 - C_{x,y}/C_o$.

Written by: Carl Elder Date: 4/29/03 Reviewed by: Shamim Hasan Date: 4/29/03

Client: DSWA Project: Cherry Island Proj./Proposal No.: ME0250 Task No.: 7*4

Location	x (feet)	y (feet)	Concentration	Dilution
Source	0	0	100	0%
Location 1	2500	0	0.037	99.96%
Location 2	5280	0	0.018	99.98%
Atlas Point Well	8000	10000	0.00	100.00%

SUMMARY

Analysis using a two-dimensional model of steady-state groundwater flow with dispersion indicates that leachate which may potentially enter the Potomac Formation will be diluted by dispersion during transport by more than 2000-fold within 2500 feet of the CIL and more than 5000-fold within a mile of the CIL. The model predicts that essentially no leachate from CIL will reach the Atlas Point Well. Model results are also conservative because they neglect dilution of leachate that will occur due to ambient flow in the Columbia Formation and sorption or degradation reactions that will occur in-situ.

Written by: Carl Elder Date: 4/29 03 Reviewed by: Shamim Hasan Date: 4/29/03

Client: DSWA Project: Cherry Island Proj./Proposal No.: ME0250 Task No.: 7*4

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Freeze, A. and Cherry, J (1979). Groundwater. Prentice-Hall. Inc. Englewood Cliffs. New Jersey.

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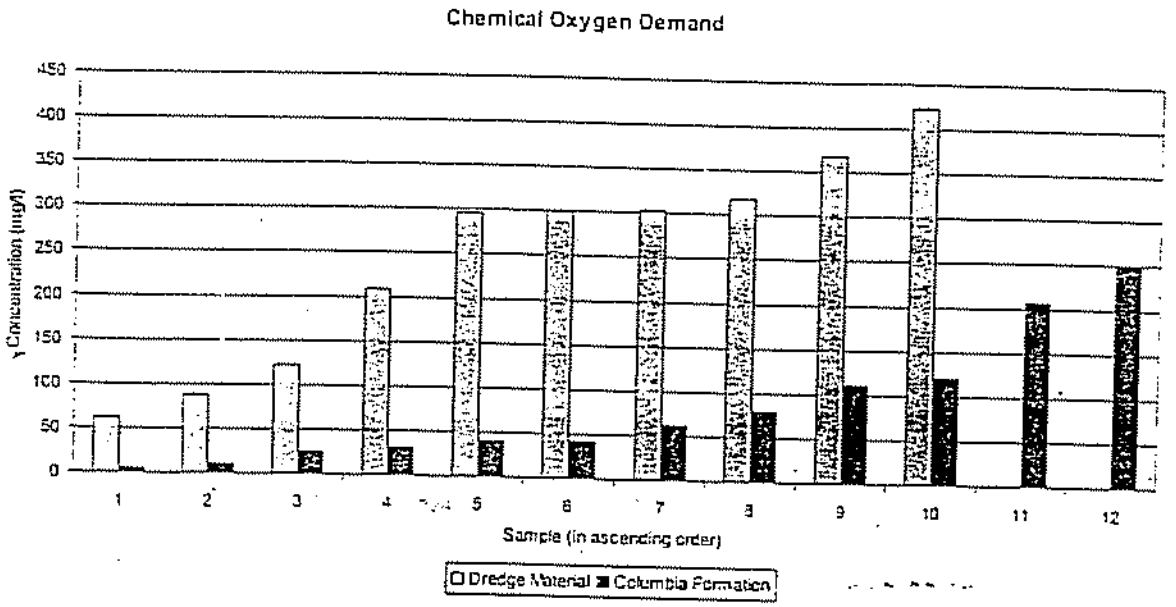
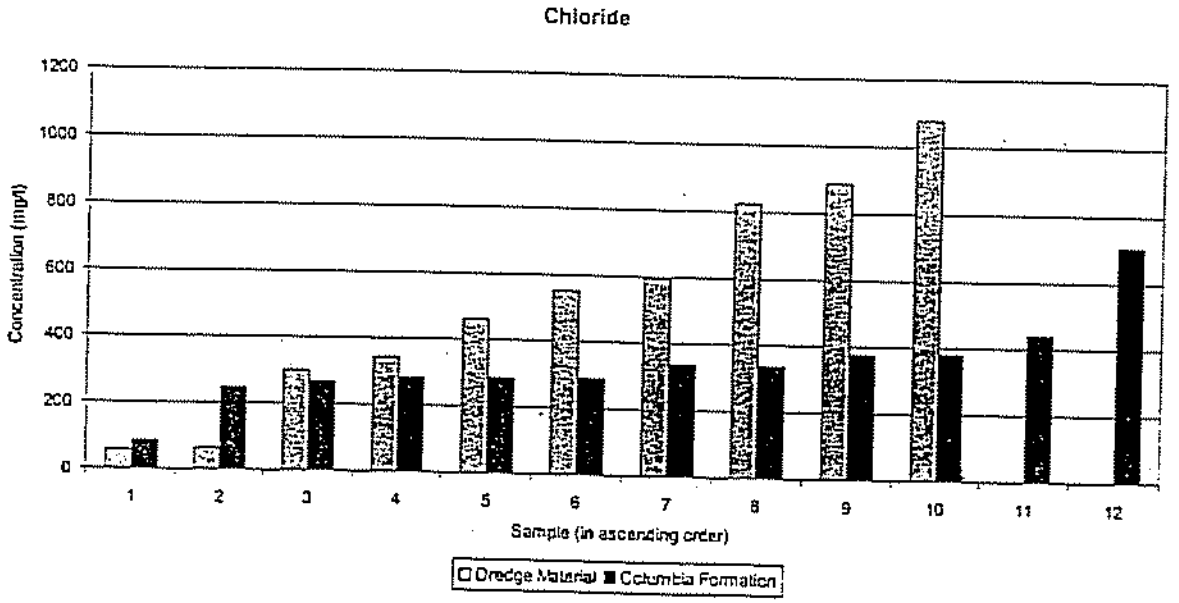
Fluman, D. (2002). Historical Columbia Data was provided by Dan Fluman of DSWA.

ATTACHMENT B
Plots of Groundwater Chemical Data

DREDGE AND COLUMBIA FORMATION GEOCHEMISTRY

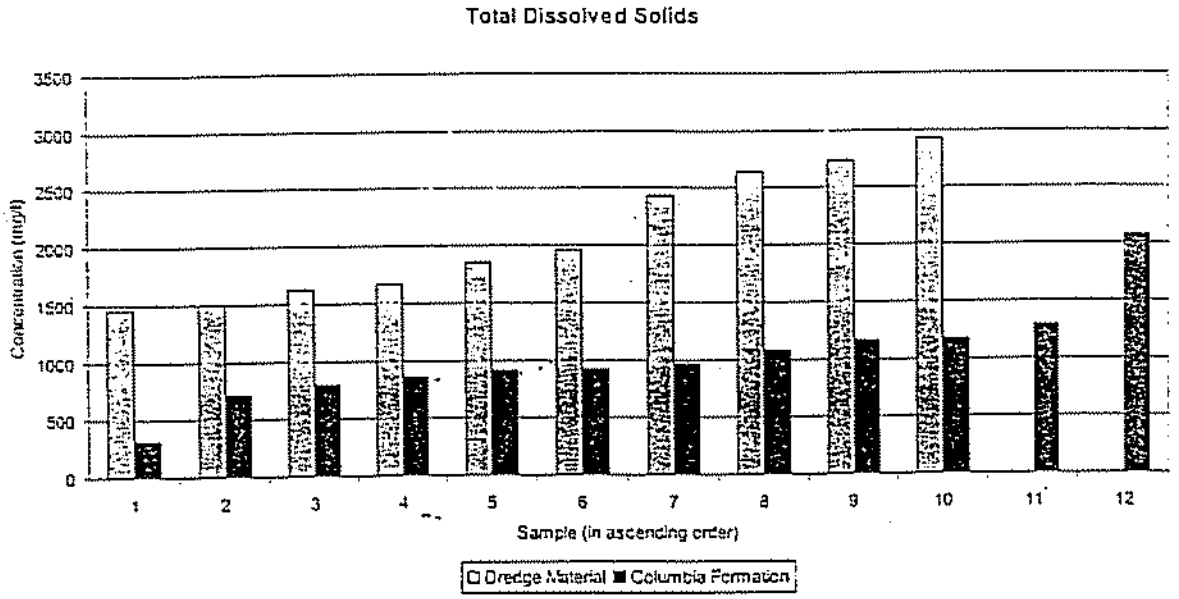


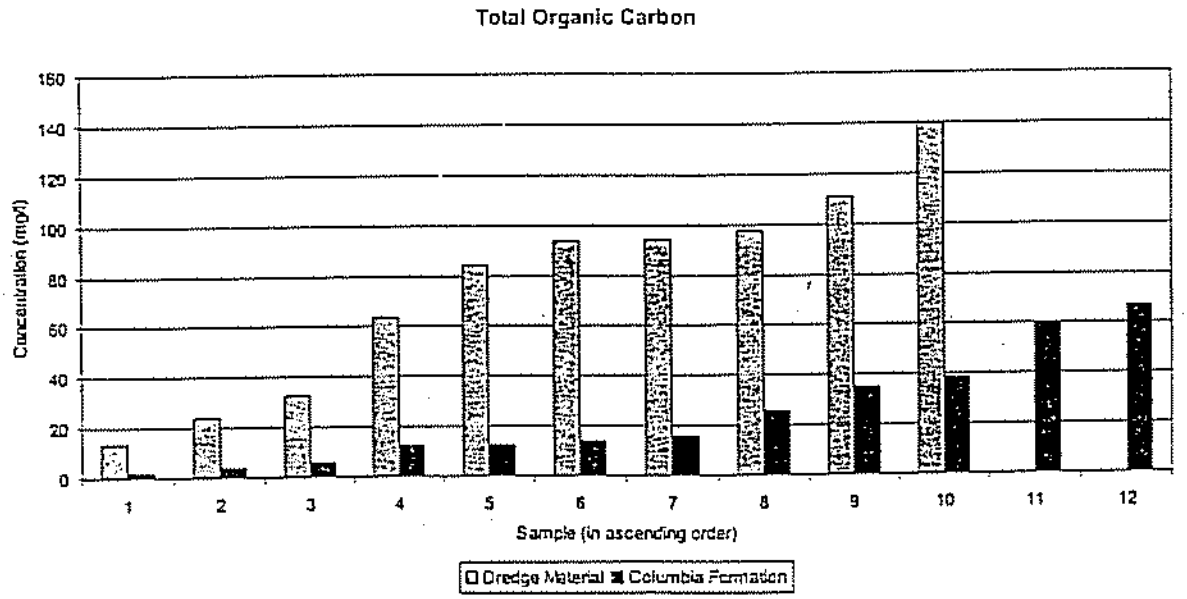


GEOSYNTEC CONSULTANTS
Boxborough, Massachusetts

FIGURE NO.	B1
PROJECT NO.	ME0250
DOCUMENT NO.	ME0250-03R002
FILE NO.	ME0250

DREDGE AND COLUMBIA FORMATION GEOCHEMISTRY

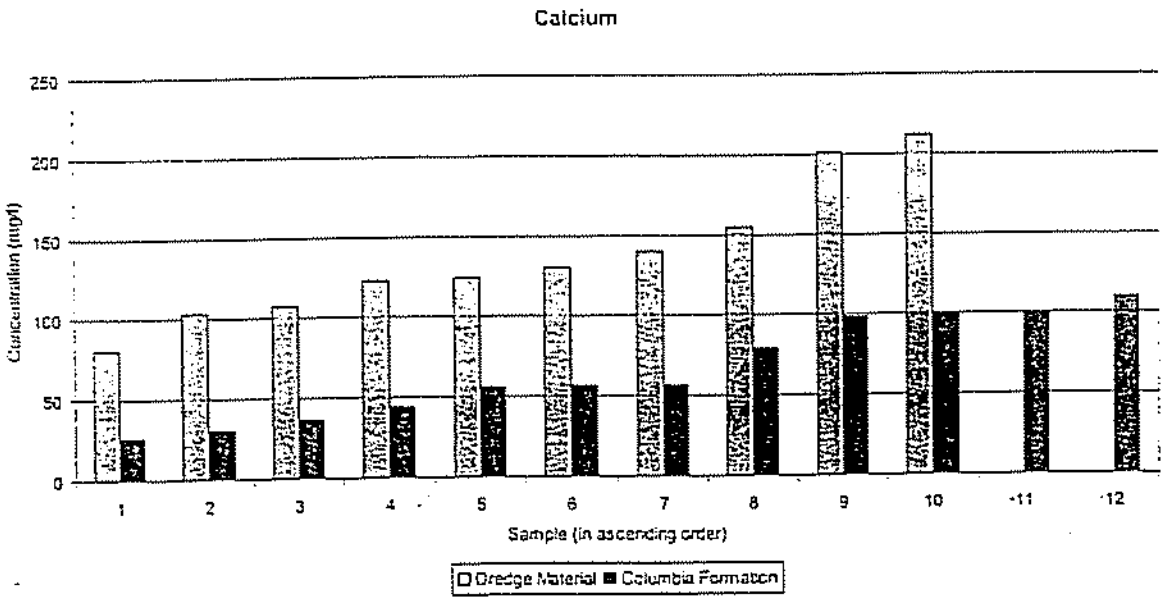


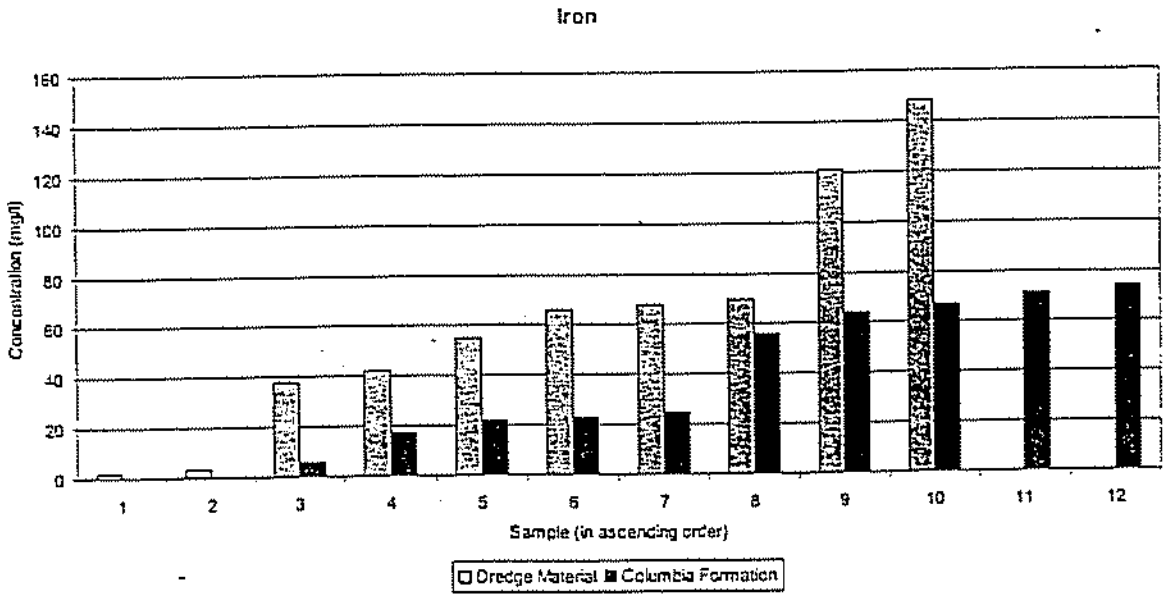


GeoSyntec Consultants
Boxborough, Massachusetts

FIGURE NO.	B2
PROJECT NO.	ME0250
DOCUMENT NO	ME0250-03R002
FILE NO.	ME0250

DREDGE AND COLUMBIA FORMATION GEOCHEMISTRY





GeoSyntec Consultants
Boxborough, Massachusetts

FIGURE NO.	B3
PROJECT NO.	ME0250
DOCUMENT NO.	ME0250-03R002
FILE NO.	ME0250

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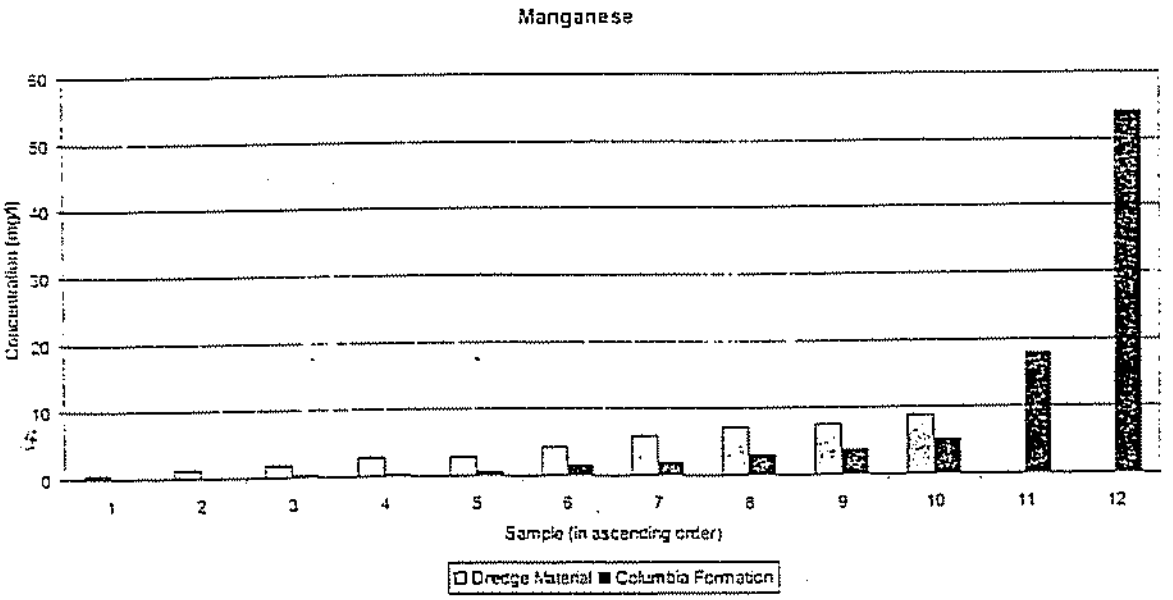
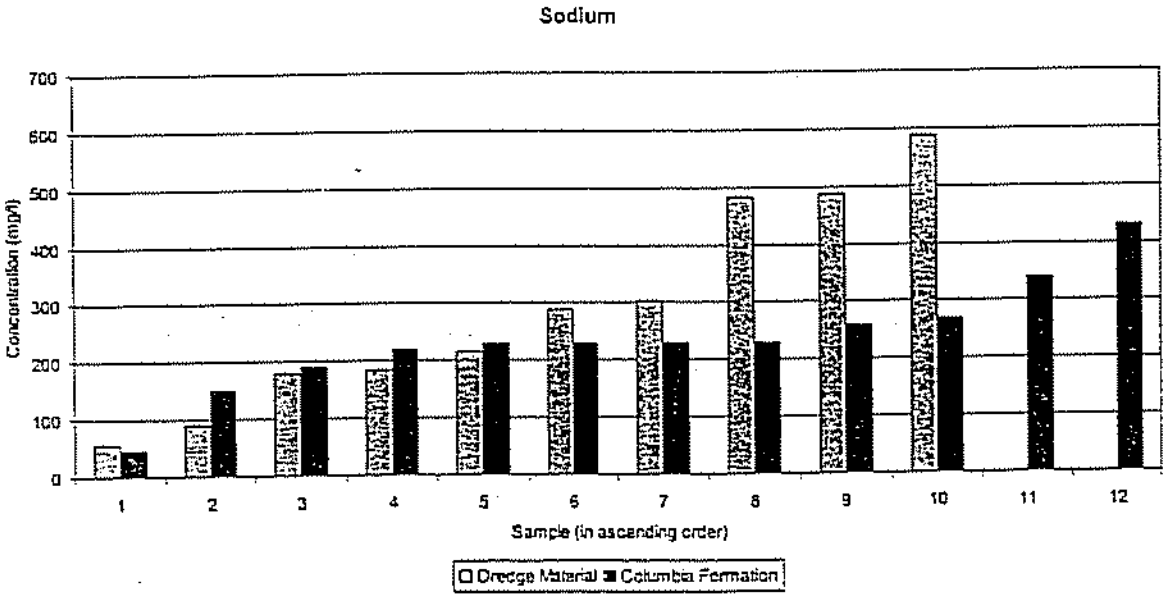
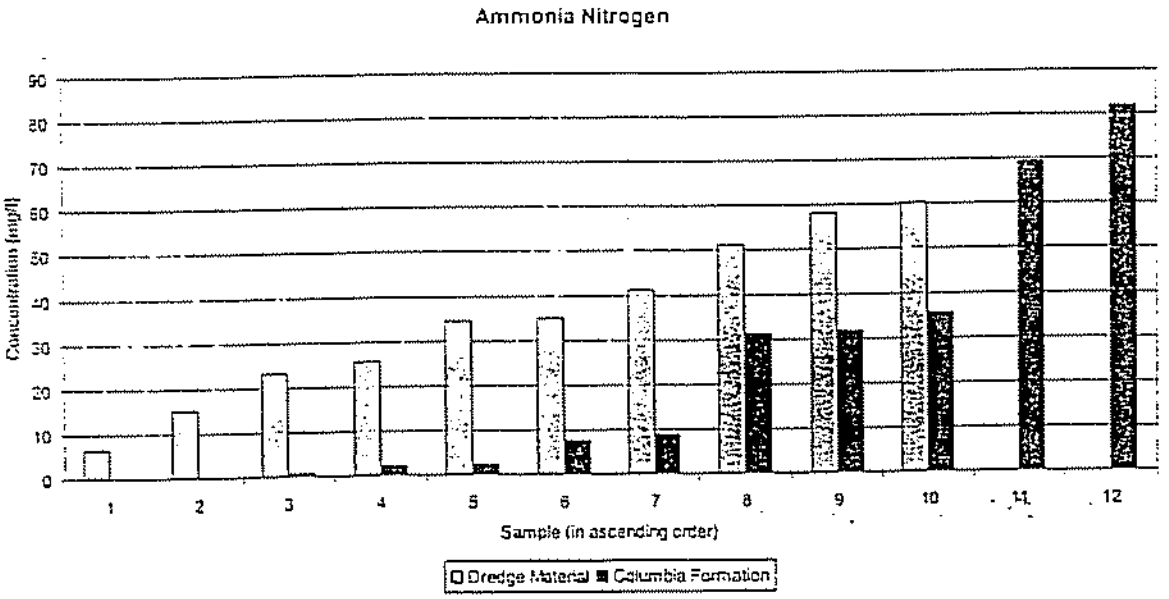




GEOSYNTEC CONSULTANTS
Boxborough, Massachusetts

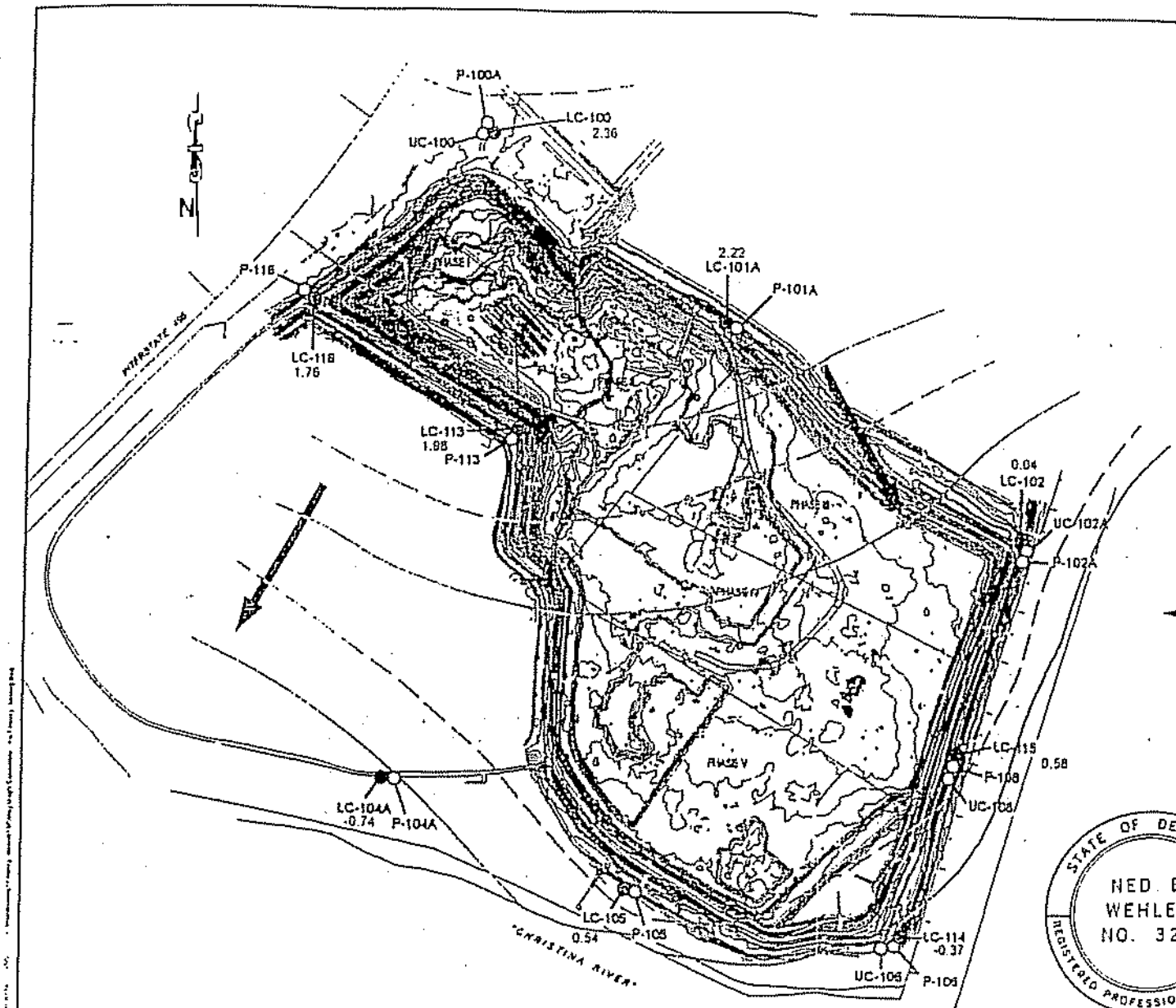
FIGURE NO.	B4
PROJECT NO.	ME0250
DOCUMENT NO.	ME0250-03R002
FILE NO	ME0250

DREDGE AND COLUMBIA FORMATION GEOCHEMISTRY



GeoSyntec Consultants Boxborough, Massachusetts	FIGURE NO.	B5
	PROJECT NO.	ME0250
	DOCUMENT NO.	ME0250-03R002
	FILE NO.	ME0250

ATTACHMENT C
Supporting Information



This drawing is a combination of Vandermark & Lynch Inc.'s 1900 Instrument Location Drawing and Tetra-Tech, Inc.'s April 2001 Aerial Topo.

WELL IDENTIFICATION NUMBER	REFERENCE POINT ELEVATION	DEPTH TO WATER (FEET)*	GROUNDWATER ELEVATION (FEET NGVD)
RECENT DEPOSITS ***			
UC-100	18.42	14.83	3.59
ISOLATED SAND LENS			
UC-102A	28.80	28.56	0.24
UC-106	30.07	27.87	2.20
UC-108	29.45	27.18	2.27
COLUMBIA AQUIFER			
LC-101A	49.30	47.08	2.22
LC-102	29.78	29.74	0.04
C-104	16.96	ABANDONED	ABANDONED
LC-104A	24.96	25.70	-0.74
LC-105	24.21	23.67	0.54
C-111	44.93	ABANDONED	ABANDONED
LC-113	43.19	41.21	1.98
LC-114	30.02	29.65	0.37
LC-115	32.41	31.83	0.58
LC-116	28.59	26.83	1.76
LC-100 **	18.24	15.88	2.36

* ALL WELLS GAUGED ON APRIL 1, 2002

** WELL LC-100 WAS ORIGINALLY DESIGNATED AS P-100.

*** DESPITE COLUMBIA AQUIFER DESIGNATION, THESE WELLS ARE SUSPECTED OF BEING SCREENED WITHIN DISTINCT MINOR HYDROLOGIC UNITS ABOVE THE COLUMBIA AQUIFER. THEY HAVE NOT BEEN USED IN CONTOURING.

LEGEND

- MONITORING WELL LOCATION (WELLS CONSTRUCTED WITHIN POTOMAC SANDS)
- POTENTIOMETRIC SURFACE CONTOUR (feet NGVD)
- INFERRED GROUNDWATER FLOW DIRECTION

NOTES

1). ARM REPRODUCED THIS GENERALIZED SITE MAP BASED ON MAPS PROVIDED BY DSWA.

2). INTERPRETED SCREENED INTERVALS PROVIDED TO ARM BY DSWA.

3). GROUNDWATER SURFACE CONTOUR LINES ARE INTERPRETED BETWEEN DATA POINTS.

STATE OF DELAWARE
NED E. WEHLER
NO. 328
REGISTERED PROFESSIONAL GEOLOGIST

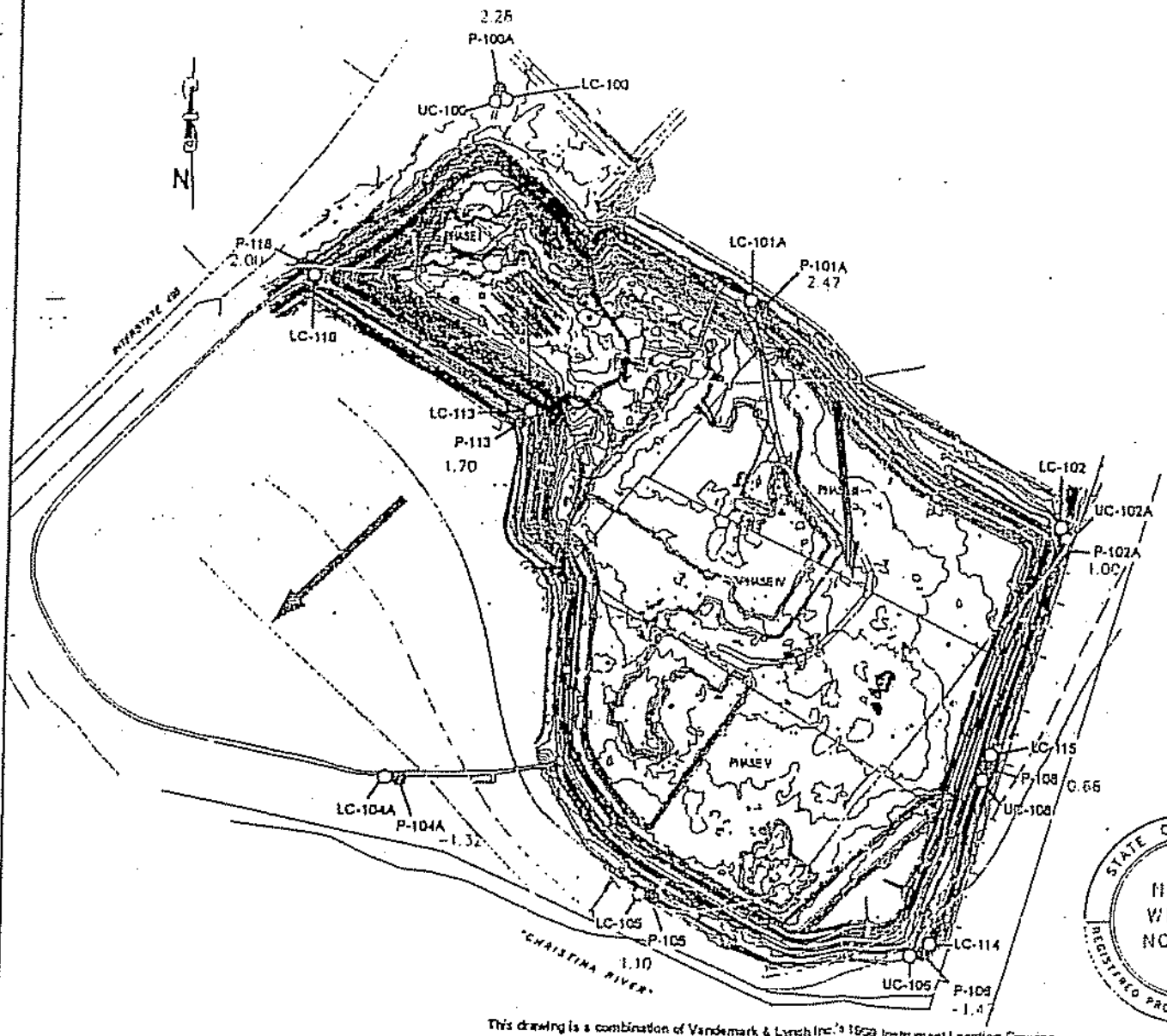
Source: ARM (2002)

Potentiometric Surface Elevation
April 2002
Columbia Aquifer
NSWLC-2 at Cherry Island
New Castle County, DE

Designed	BAH	Scale	1" = 450'
Drawn	MWF	Date	05/02/02
Checked	SBF	Project #	02105

ARM Group Inc.

Figure 5



RECENT DEPOSITS	REFERENCE POINT ELEVATION	DEPTH TO WATER (FEET)*	GROUNDWATER ELEVATIONS (FEET NGVD)**
POTOMAC AQUIFER			
P-100A**	17.81	15.53	2.28
P-101A	49.30	46.83	2.47
P-102A	30.11	29.11	1.00
P-104A	25.46	26.78	-1.32
P-105	22.94	21.84	1.10
P-106	28.95	30.44	-1.49
P-108	29.97	29.31	0.66
P-113	41.22	39.52	1.70
P-118	26.38	24.38	2.00

* ALL WELLS GAUGED ON APRIL 1, 2002.
** WELL P-100A WAS PREVIOUSLY DESIGNATED AS P-100.

LEGEND

- MONITORING WELL LOCATION (WELLS CONSTRUCTED WITHIN POTOMAC SANDS)
- POTENTIOMETRIC SURFACE CONTOUR (feet NGVD)
- INFERRED GROUNDWATER FLOW DIRECTION

NOTES

1) ARM REPRODUCED THIS GENERALIZED SITE MAP BASED ON MAPS PROVIDED BY DSWA.

2) INTERPRETED SCREENED INTERVALS PROVIDED TO ARM BY DSWA.

3) GROUNDWATER SURFACE CONTOURS ARE INTERPRETED BETWEEN DATA POINTS.

STATE OF DELAWARE
NED. E. WEHLER
NO. 328
REGISTERED PROFESSIONAL GEOLOGIST

This drawing is a combination of Vandemark & Lynch Inc.'s 1999 Instrument Location Drawing and Tetra-Tech, Inc.'s April 2001 Aerial Topo.

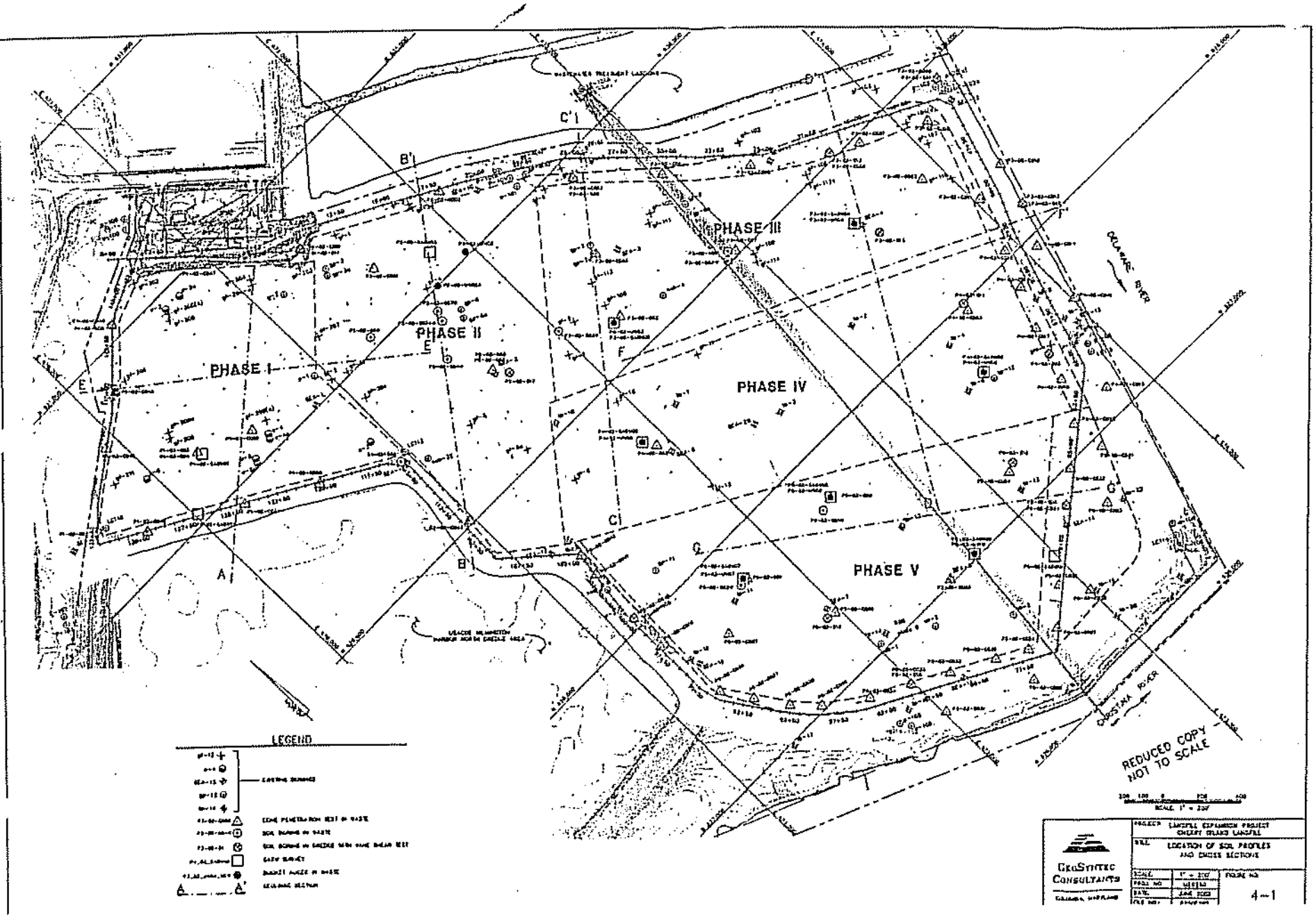
Source: ARM (2002)

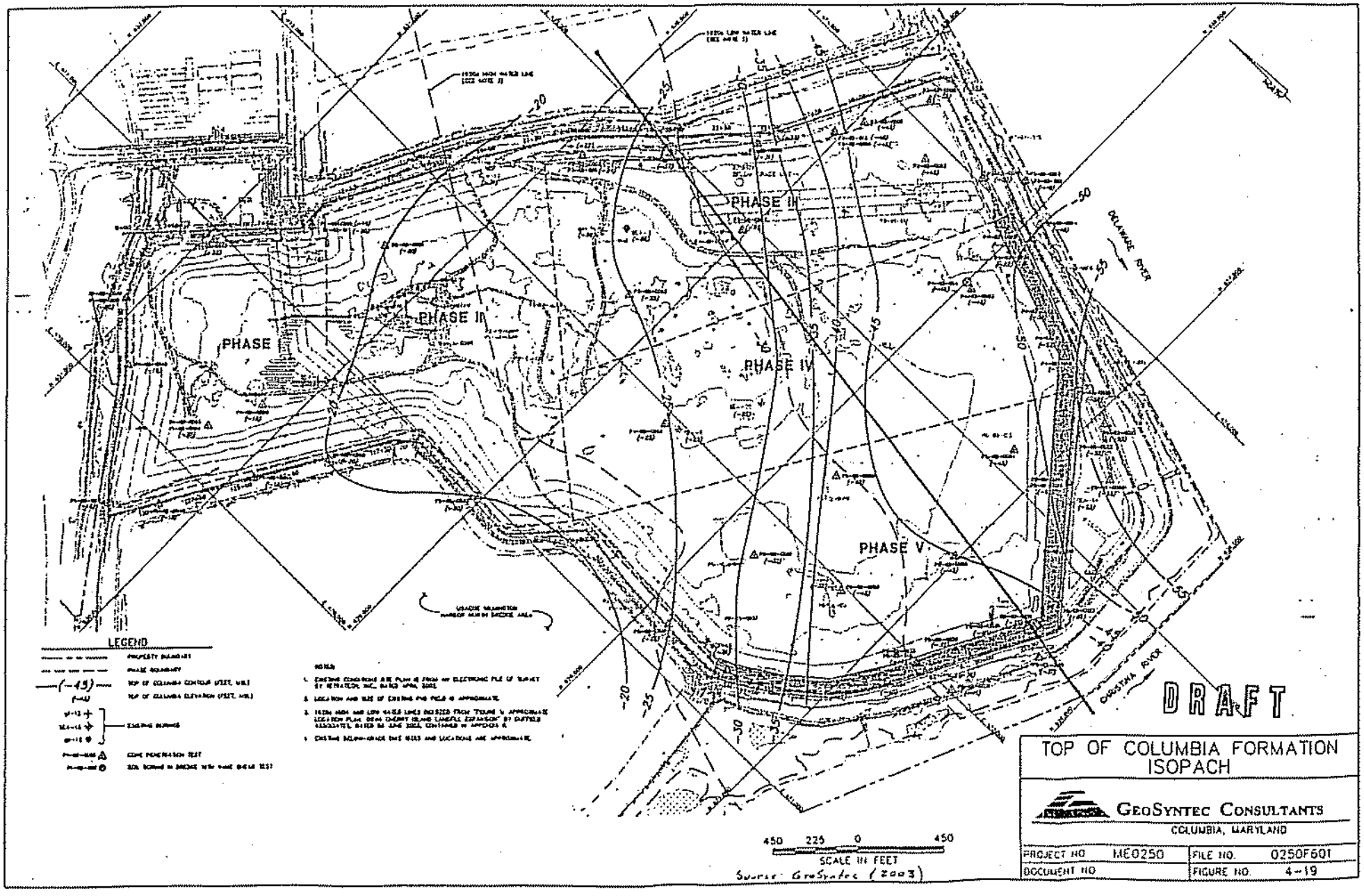
Potentiometric Surface Elevation
April 2002
Potomac Formation
HSWMC-2 at Cherry Island
New Castle County, DE

designed	BAW	scale	1" = 450'
drawn	MWF	date	05/03/02
reviewed	SBF	project no.	02105

ARM Group Inc.
Earth Resource Exploration and Consultants
1123 Pan American Road • Newark, PA 19713-1313

Figure 6


PHASE I
PHASE II
PHASE III
PHASE IV
PHASE V
A
A'
B
B'
C
C'
E
E'
F
G
G'
DELAWARE RIVER
CHRISTINA RIVER
LEGEND
REDUCED COPY
NOT TO SCALE
GeoSyntec Consultants
LANDFILL EXPANSION PROJECT
CHERRY ISLAND LANDFILL
LOCATION OF SOIL PROFILES
AND CROSS SECTIONS
4-1


PHASE I
PHASE II
PHASE III
PHASE IV
PHASE V
DELAWARE RIVER
CHRISTINA RIVER
LEGEND
450 225 0 450
SCALE IN FEET
Source: GeoSyntec (2003)
DRAFT
TOP OF COLUMBIA FORMATION ISOPACH
GEOSYNTEC CONSULTANTS
COLUMBIA, MARYLAND
PROJECT NO ME0250
FILE NO. 0250F601
DOCUMENT NO
FIGURE NO. 4-19

CLIENT: DSWA
MARCOR JOB #: EX-00911-001
WELL/BORING #: LC101A

MARCOR ENVIRONMENTAL

See Figure 2-1 for location

PERMIT #: 106907	DATE: 01 February 1995
DRILLING METHOD/RIG: Hollow Stem Auger	
DRILLED BY: MARCOR	GEOLOGIST: Joe Casey
SAMPLING: Cuttings	ELEVATION: Not Surveyed
RISER TYPE: 4" PVC	SCREEN TYPE: .010 Slot PVC
FEET RISER: 76.5 feet	FEET SCREEN: 10
WELL DIAMETER (in): 4	SCREEN DIAMETER: 4
DEPTH TO BEDROCK (ft): N/A	DEPTH TO WATER (ft): 71
OTHER: 2.5 ft stickup manway	

BOREHOLE DIAMETER(in): 8 1/4
TOTAL DEPTH (ft): 84

DEPTH (FEET)	BLOW COUNT	SAMPLE RECOV.	O.V.A./ P.I.D. READING	WELL CON.	LITHOLOGY DESCRIPTION
0	N/A	N/A	N/A		0-18.0 Dredge Spoils Silt (ML): Lt. gray, slightly moist, very clayey, massive, soft, organic odor 13.0-18.0 Same as above increasing clay content slightly more moist.
10					
20					18.0-71.0 Dredge Spoils Clay (CL): Medium grey high plasticity, saturated, massive, runny, organic odor.
30					
40					
50					
60					
70					Bottom of Dredge Spoils 71.0-84.0 Columbia Fm. Sand (SP): Orange to Light Brown, Arkosic, Slight Moist, Loose, Micaceous Minor Subrounded Coarse Clasts (<10%) (The description above is inferred from well site LC102A

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Contract # 1971
Cherry Island

SPRAGUE & HENWOOD, Inc.
SCRANTON, PA.

FOUNDATION TESTING and SOIL SAMPLING RECORD

NAME: A.C. Schultes & Sons, Inc. LOCATION: Wilmington, Delaware

HOLE NO. GP-8 SURFACE ELEVATION _____ RIG NO. ____ DATE: From 8/23 To 8/25 19 83

BORING LOG: DEPTH FROM—TO	DESCRIPTION OF MATERIAL Based On Samples Recovered Plus Observation Of Material Returned Between Samples	SAMPLE NUMBER	DEPTH FROM—TO	BLOWS PER 6" ON SAMPLES	Sample Recovery (Undisturbed T-Trap W-Wash R-Rock C-Core)	CORE RECOVY'D — NO. PCS. REMARKS *
0.0' 40.0'	Grey organic silt	1	5.0' 6.5'	Push	1.5'	
		2	10.0' 11.5'	Push	1.5'	
40.0' 70.0'	Grey silt with sand lenses	3	15.0' 16.5'	Push	1.5'	
		4	20.0' 21.5'	Push	1.5'	
70.0' 73.0'	Clayey silt	U5	25.0' 27.0'		2.0'	Shelby Tube
		6	30.0' 31.5'	Push	1.5'	
73.0' 94.5'	sand and gravel		33.0'	- Vane Shear Test		
		U7	35.0' 37.0'		2.0'	Shelby Tube
94.5' 98.0'	Red clay	8	40.0' 41.5'	6-12	1.5'	
			43.0'	- Vane Shear Test		
		U9	45.0' 47.0'		2.0'	Shelby Tube
		10	50.0' 52.0'	Dropped rods and spoon 50.0' to 51.0' 2-2	1.5'	
		U11	55.0' 57.0'		2.0'	Shelby Tube
			58.5'	- Vane Shear Test		
		12	60.0' 62.0'	Pushed 60.0' to 61.0' 2-2	2.0'	
		13	65.0' 66.5'	2-1 2	1.5'	
		14	70.0' 71.5'	5-5 7	1.5'	
		15	80.0' 81.5'	13-15 20	0.7'	Used 300 lb. hammer
		16	86.0' 87.5'	9-15 18	0.0'	Used 300lb. hammer Lost sample

SPOON SAMPLE AND CORE DATA	BLOWS ON CASING
0-1	31-32
1-2	32-33
2-3	33-34
3-4	34-35
4-5	35-36
5-6	36-37
6-7	37-38
7-8	38-39
8-9	39-40
9-10	40-41
10-11	41-42
11-12	42-43
12-13	43-44
13-14	44-45
14-15	45-46
15-16	46-47
16-17	47-48
17-18	48-49
18-19	49-50
19-20	50-51
20-21	51-52
21-22	52-53
22-23	53-54
23-24	54-55
24-25	55-56
25-26	56-57
26-27	57-58
27-28	58-59
28-29	59-60
29-30	60-61
30-31	61-62
31-32	62-63
32-33	63-64
33-34	64-65
34-35	65-66
35-36	66-67
36-37	67-68
37-38	68-69
38-39	69-70
39-40	70-71
40-41	71-72
41-42	72-73
42-43	73-74
43-44	74-75
44-45	75-76
45-46	76-77
46-47	77-78
47-48	78-79
48-49	79-80
49-50	80-81
50-51	81-82

Casing driven to 15.0' on 8/23

GROUND WATER DEPTH	HOUR	DATE
None of Sample		

PIPE AND CASING LEFT IN HOLE SIZE	AMOUNT	REASON
3/4	47.0	Collected

DISTANCE HAMMER DROP 30 INCH
DRIVE HAMMER 300 LBS.
SPOON HAMMER 140 LBS.
CASING SIZE 5 INCH
SPOON SIZE 2 INCH
SIZE OF DRILL BIT ____ INCH

NOTE: *Classification of soil has been made by the driller and has not been [illegible] classification of rock has been made by

Driller Carl Ward

301

SPRAGUE & HENWOOD, Inc.
SCRANTON, PA.

FOUNDATION TESTING and SOIL SAMPLING RECORD

NAME: A.C. Schultes & Sons, Inc. LOCATION: Wilmington, Delaware

HOLE NO. GP-8 SURFACE ELEVATION _____ RIG NO. _____ DATE: From 8/25 To 8/25 19 83

BORING LOG		SPOON SAMPLE AND CORE DATA					BLOWS ON CASING	
DEPTH FROM—TO	DESCRIPTION OF MATERIAL Based On Samples Recovered Plus Observation Of Material Returned Between Samples	SAMPLE NUMBER	DEPTH FROM—TO	BLOWS PER 6" ON SAMPLES	Sample: D=DRY U=UNDISTURBED T=TRAP W=WASH R=ROD C=CORE; CORE RECOV'D — NO. PCS. REMARKS *		0-1	51-52
							1-2	52-53
							2-3	53-54
							3-4	54-55
							4-5	55-56
							5-6	56-57
		17	91.0 92.5	13-58 15	0.25	Used 300 lb. hammer	6-7	57-58
							7-8	58-59
		18	96.5 98.0	7-14 17	1.5	Used 300 lb. hammer	8-9	59-60
							9-10	60-61
							10-11	61-62
							11-12	62-63
							12-13	63-64
							13-14	64-65
							14-15	65-66
							15-16	66-67
							16-17	67-68
							17-18	68-69
							18-19	69-70
							19-20	70-71
							20-21	71-72
							21-22	72-73
							22-23	73-74
							23-24	74-75
							24-25	75-76
							25-26	76-77
							26-27	77-78
							27-28	78-79
							28-29	79-80
							29-30	80-81
							30-31	81-82
							31-32	82-83
							32-33	83-84
							33-34	84-85
							34-35	85-86
							35-36	86-87
							36-37	87-88
							37-38	88-89
							38-39	89-90
							39-40	90-91
							40-41	91-92
							41-42	92-93
							42-43	93-94
							43-44	94-95
							44-45	95-96
							45-46	96-97
							46-47	97-98
							47-48	98-99
							48-49	99-100
							49-50	100-101
							50-51	101-102

GROUND WATER

DEPTH	HOUR	DATE

PIPE AND CASING LEFT IN HOLE

SIZE	AMOUNT	REASON

DISTANCE HAMMER DROP _____ INCH
DRIVE HAMMER _____ LBS.
SPOON HAMMER _____ LBS.
CASING SIZE _____ INCH
SPOON SIZE _____ INCH
SIZE OF CORE BIT _____ INCH

Cherry Island

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SPRAGUE & HENWOOD, Inc.
SCRANTON, PA.

FOUNDATION TESTING and SOIL SAMPLING RECORD

NAME: A.C. Schultes & Sons, Inc. LOCATION: Wilmington, Delaware

HOLE NO. GP5A SURFACE ELEVATION _____ RIG NO. _____ DATE: From 8/26 To 8/26 19 83

BORING LOG		SPOON SAMPLE AND CORE DATA					BLOWS ON CASING
DEPTH FROM—TO	DESCRIPTION OF MATERIAL Based On Samples Recovered Plus Observation Of Material Returned Between Samples	SAMPLE NUMBER	DEPTH FROM—TO	BLOWS PER FT. ON SAMPLES	ROCK CORE RECOV'D	D=DRY U=UNDISTURBED T=TRAP W=WASH R=ROD C=CORE CORE RECOV'D — NO. PCS. REMARKS *	0-1 / 1-2 / 2-3 / 3-4 / 4-5 / 5-6 / 6-7 / 7-8 / 8-9 / 9-10 / 10-11 / 11-12 / 12-13 / 13-14 / 14-15 / 15-16 / 16-17 / 17-18 / 18-19 / 19-20 / 20-21 / 21-22 / 22-23 / 23-24 / 24-25 / 25-26 / 26-27 / 27-28 / 28-29 / 29-30 / 30-31 / 31-32 / 32-33 / 33-34 / 34-35 / 35-36 / 36-37 / 37-38 / 38-39 / 39-40 / 40-41 / 41-42 / 42-43 / 43-44 / 44-45 / 45-46 / 46-47 / 47-48 / 48-49 / 49-50 / 50-51
0.0' 25.0'	Grey organic silt		No Samples Required				

GROUND WATER			PIPE AND CASING LEFT IN HOLE		
DEPTH	HOUR	DATE	SIZE	AMOUNT	REASON
Ground surface			7/4"	16.7'	Piezometer Point

DISTANCE HAMMER DROP _____ INCH
DRIVE HAMMER _____ LBS.
SPOON HAMMER _____ LBS.
CASING SIZE DW INCH
SPOON SIZE _____ INCH
SIZE OF CORE BIT _____ INCH

NOTE: *Classification of soil has been made by the driller and has not been checked by a soils engineer. Classification of rock has been made by

Driller Carl Ward

WESTON

Soil Boring Log

Job Name	DSWA - Phase IV	Boring No.	TB-2
Job No.	2477-03-01	Surface Elevation	47.7
Date Drilled	4/16 to 4/21/92	Boring Method	HSA: 0-14' MR: 14' - BTB
Drilling Co.	Walton Corp.	Completion Depth	84.5 ft.
Drill Foreman	M. Beck	Location	See Figure 3-2
Logged By	J. Vitale (RFW)		

Groundwater Level Date	Depth
4/16/92	-7.5'

Depth (Feet)	Sample No.	Sample Type	Sample Blow Counts* (per 6 in.)	N Value	Visual Description	Stratum Elevation	INCHES Recovery	USCS CLASS	Laboratory Test Results
	S1	SS	WOH-WOH-1	1	Black, very soft to soft clayey silt with little organics and trace fine sand, wet.		12		
	S2	SS	WOR-WOR-WOR	0	(Dredge spoils underlain by recent deposits)		0		
10	S3	SS	WOR-WOR-WOR	0			15		
	ST1	ST					24½		K, MC, B
20									
	S4	SS	WOR-WOR-WOR	0			18		
30	ST2	ST					17¾		C
	S5	SS	WOR-WOR-WOR	0			0		
40	S6	SS	WOH-WOH-2	2			18		
50	ST3	ST					15¾		

Sample Type: SS-Split Spoon, ST-Shelby Tube, RC-Rock Core

Laboratory Tests: MC-Moisture Content, AL-Atterberg Limits, S-Sieve Analysis, SH-Sieve/Hydrometer Analysis, C-Consolidation, UU-Unconsolidated Undrained Triaxial, CIU-Consolidated Undrained Triaxial, UCS-Unconfined Compression Strength, K-Hydraulic Conductivity

* ASTM D-1586 Standard Penetration Test

OC- Organic Content

WESTON

Soil Boring Log

Job Name: DSWA- Phase IV	Boring No. TB-2 (Cont.)	Groundwater Level	
Job No.	Surface Elevation	Date	Depth
Date Drilled	Boring Method		
Drilling Co.	Completion Depth		
Drill Foreman	Location		
Logged By			

Depth (Feet)	Sample No.	Sample Type	Sample Blow Counts* (per 6 in.)	N Value	Visual Description	Stratum Elevation	INCHES Recovery	USCS CLASS	Laboratory Test Results
					Black, very soft to soft clayey silt with little organics and trace fine sand, wet.				
	S7	SS	WOR-WOR-WOR	0			13		
60									
	S8	SS	1-WOH-WOH	0			0		
	S9	SS	2-4-5	9	- Becoming medium stiff at -68'		18		
70									
	S10	SS	4-2-4	6			18		
					-78.5'	-30.8			
	S11	SS	14-24-29	53	Gray and tan, dense, coarse to fine sand with little coarse to fine gravel, wet. (Granular Deposits)		18		
80						-36.8			
	S12	SS	19-18-20	38			8		
					Bottom of Test Boring at -84.5'				
90									
100									

Sample Type: SS-Split Spoon, ST-Shelby Tube, RC-Rock Core

Laboratory Tests: MC-Moisture Content, AL-Atterberg Limits, S-Sieve Analysis, SH-Sieve/Hydrometer Analysis, C-Consolidation, UU-Unconsolidated Undrained Triaxial, CIU-Consolidated Undrained Triaxial, UCS-Unconfined Compression Strength, OC-Organic Cont.

* ASTM D-1586 Standard Penetration Test

WALTON

Soil Boring Log

Job Name: DSWA-Phase IV	Boring No.: T3-3	Groundwater Level	
Job No.: 2477-03-I	Surface Elevation: 47.8	Date	Depth
Date Drilled: 4/29/92	Boring Method: DSA: 4 1/4 to 30.5; MD: - 4 1/4 to 30.5	Not measured due to mud rotary operations.	
Drilling Co.: Walton Corp.	Completion Depth: 84 Ft.		
Drill Foreman: M. Beck	Location: See Figure 1-2		
Logged By: J. Vitale (RFW)			

Depth (Feet)	Sample No.	Sample Type	Sample Blow Counts* (per 6 in.)	N Value	Visual Description	Stratum Elevation	INCHES Recovery	USCS CLASS	Laboratory Test Results
	S1	SS	1-1-1	2	Black, very soft to soft clayey silt with little organics and trace fine sand, wet		18		
	S2	SS	WOR-WOR-WOR	0			1		MC, OC
	ST1	ST			(Dredge spoils underlain by recent deposits)		20 3/4		
10									
	S3	SS	WOR-WOR-WOR	0			0		
	ST2	ST					24		CIU
20									
	S4	SS	WOH-WOH WOH	0			18		
	ST3	ST					22 3/4		K,B,MC,OC
30									
	S5	SS	WOR-WOH -WOH	0			0		
	ST4	ST					23 3/4		
40									
	S6	SS	WOH-3-2	5	-Medium Stiff at -42'		12	MH	MC, AL
	ST5	ST					0		
50									

Sample Type: SS-Split Spoon, ST-Shelby Tube, RC-Rock Core

Laboratory Tests: MC-Moisture Content, AL-Atterberg Limits, S-Sieve Analysis, SH-Sieve/Hydrometer Analysis, SG-Specific Gravity, C-Consolidation, UU-Unconsolidated Undrained Triaxial, CIU-Consolidated Undrained Triaxial, UCS-Unconfined Compression Strength, K-Hydraulic Conductivity, OC-Organic Content, B-Bulk Density

* ASTM D-1586 Standard Penetration Test

WESTON

Soil Boring Log

Job Name: DSWA - Phase IV	Boring No.: TB-3 (Cont.)	Groundwater Level	
Job No.:	Surface Elevation:	Date	Depth
Date Drilled:	Boring Method:		
Drilling Co.:	Completion Depth:		
Drill Foreman:	Location:		
Logged By:			

Depth (Feet)	Sample No.	Sample Type	Sample Blow Counts* (per 6 in.)	N Value	Visual Description	Stratum Elevation	INCHES Recovery	USCS CLASS	Laboratory Test Results
	ST 6	ST					24½		UU
	S7	SS	WOH - 1-2	3	Black, soft clayey silt with little organics and trace fine sand, wet		13		MC, SH
	ST 7	ST					0		
60	ST 8	ST					0		
	S8	SS	WOR-1-1	2			0		
	ST9	ST					25½		UU, C
70	S9	SS	1-2-3	5	-Becoming medium stiff at -70' -74'	-26.2	0		
	S10	SS	10-12-16	28	Gray and tan, dense coarse to fine sand with little coarse to fine gravel, wet. (Granular Deposits)		10		MC,S,SG
80	S11	SS	21-17-20	37		-36.2	10		
					Bottom of Test Boring at -84 ft.				
90									
100									

Sample Type: SS-Split Spoon, ST-Shelby Tube, RC-Rock Core

Laboratory Tests: MC-Moisture Content, AL-Atterberg Limits, S-Sieve Analysis, SH-Sieve/Hydrometer Analysis, C-Consolidation, UU-Unconsolidated Undrained Triaxial, CIU-Consolidated Undrained Triaxial, UCS-Unconfined Compression Strength, K-Hydraulic Conductivity, OC- Organic Con...

* ASTM D-1586 Standard Penetration Test

WESTON

Soil Boring Log

Job Name	DSWA Phase V	Boring No.	TB-12
Job No.	02477-004-001-0021	Surface Elevation	47.79
Date Drilled	6-24-93	Boring Method	HSA/MR
Drilling Co.	Walton Corp.	Completion Depth	86'-6"
Drill Foreman	A.W. Feldman	Location	N627499.883
Logged By	S. Strazzella (REW)		E472500.047

Groundwater Level Date	Depth
6-24-93	10'-0"

Depth (Feet)	Sample No.	Sample Type	Sample Blow Counts* (per 6 in.)	N Value	Visual Description	Stratum Elevation	% Recovery	% RQD	Laboratory Test Results
	S1	SS	R-H-H	0	Black, very soft to soft clayey silt with little organics and trace fine sand, wet.		2"		
5	S2	SS	H-H-H	0			2"		AL
10	S3	SS	H-1-1	2			12"		
	ST-1	ST			(Dredge spoils underlain by natant deposits)		F		
15	S4	SS	H-H-H	0			18"		
20	S5	SS	H-H-H	0			18"		AL
25	S6	SS	H-H-H	0			18"		SH
30	ST-2	ST					F		
	S7	SS	H-H-H	0			16"		
35	S8	SS	R-H-H	0			18"		
40	S9	SS	R-H-H	0			18"		
45	S10	SS	R-H-H	0			18"		
50	S11	SS	R-H-H	0			18"		

Sample Type: SS-Split Spoon, ST-Shelby Tube, RC-Rock Core

Laboratory Tests: MC-Moisture Content, AL-Atterberg Limits, S-Sieve Analysis, SH-Sieve/Hydrometer Analysis, SG-Specific Gravity, C-Consolidation, UU-Unconsolidated Undrained Triaxial, CIU-Consolidated Undrained Triaxial, UCS-Unconfined Compression Strength, K-Hydraulic Conductivity

* ASTM D-1586 Standard Penetration Test

WESTON

Soil Boring Log

Job Name: DSWA	Boring No.: TB-12	Groundwater Level	
Job No.: 02477-004-001-0021	Surface Elevation: 47.79	Date	Depth
Date Drilled: 6-25-93	Boring Method: HSA/WR	6-24-93	10'-0"
Drilling Co.: Walton Corp.	Completion Depth:		
Drill Foreman: A.W. Feldmann	Location: N627499.881		
Logged By: S. Strazzella (RFW)	E472500.047		

Depth (Feet)	Sample No.	Sample Type	Sample Blow Counts* (per 6 in.)	N Value	Visual Description	Stratum Elevation	% Recovery	% RQD	Laboratory Test Results
55	S12	SS	R-H-H	0	Black, very soft to soft clayey silt with little organics and trace fine sand, wet.		18"		
60	S13	SS	R-H-2	2			18"		
65	S14	SS	H-H-3	3			18"		
70	S15	SS	1-2-2	4			18"		
75	S16	SS	1-2-2	4			18"		
80	S17	SS	1-14-22	36	-80.5 ft.	-32.71	10"		
					Gray and tan, dense coarse to fine sand with little coarse to fine gravel, wet. (granular deposits)				
85	S18	SS	18-15-17	32		-38.71	8"		S
					End of boring @ -86.5 ft.				
90									
95									
100									
105									

Sample Type: SS-Split Spoon, ST-Shelby Tube, RC-Rock Core

Laboratory Tests: MC-Moisture Content, AL-Atterberg Limits, S-Sieve Analysis, C-Consolidation, UU-Unconsolidated Undrained Triaxial, CIU-Consolidated Undrained Triaxial, UCC-Unconfined Compressive Strength

* ASTM D-1586 Standard Penetration Test

WESTON

Soil Boring Log

Job Name	DSWA Phase V	Boring No.	T3-19
Job No.	02477-003-001-0021	Surface Elevation	29.29
Date Drilled	6-14-93	Boring Method	HSA/MR
Drilling Co.	Walton Corp.	Completion Depth	76'-6"
Drill Foreman	J. Foley	Location	N625302.035
Logged By	J. Wartman (RFW)		E472504.524

Groundwater Level Date	Depth
6-14-93	8'-10"

Depth (Feet)	Sample No.	Sample Type	Sample Blow Counts* (per 6 in.)	N Value	Visual Description	Stratum Elevation	% Recovery	% RQD	Laboratory Test Results
	S1	SS	7-7-5	12	Black, very soft to stiff clayey silt with little organics and trace fine sand, wet.		12"		MC
5	S2	SS	H-1-3	4					
10	S3	SS	H-1-1	2	(Dredge spoils underlain by recent deposits)				
15									
	S4	SS	1-1-1-1	2			18"		AL
20	S5	SS	1-1-1	2			18"		MC
25	S6	SS	1-1-2	3			18"		SA
30	ST1	ST					F		
	S7	SS	1-2-3	5			18"		
35	S8	SS	1-1-2	3			18"		
40	S9	SS	H-1-2	3			18"		
45	ST-2	ST					F		
	S10	SS	2-2-4	6			18"		MC
50	S11	SS	2-2-4	6			18"		

Sample Type: SS-Spit Spoon, ST-Shelby Tube, RC-Rock Core

Laboratory Tests: MC-Moisture Content, AL-Atterberg Limits, S-Sieve Analysis, SH-Sieve/Hydrometer Analysis, C-Consolidation, UU-Unconsolidated Undrained Triaxial, CIU-Consolidated Undrained Triaxial, UCS-Unconfined Compression Strength, K-Hydraulic Conductivity

* ASTM D-1586 Standard Penetration Test

WESTON

Soil Boring Log

Job Name: DSWA Phase V	Boring No. TB-19	Groundwater Level Date	Depth
Job No. 02477-003-001-0021	Surface Elevation 29.29	6-14-93	8'-10"
Date Drilled: 6-14-93	Boring Method: HSA/MR		
Drilling Co.: Walton Corp.	Completion Depth: 76'-6"		
Drill Foreman: J. Foley	Location: N626302.035		
Logged By: J. Warcman (RFW)	E472504.524		

Depth (Feet)	Sample No.	Sample Type	Sample Blow Counts* (per 6 in.)	N Value	Visual Description	Stratum Elevation	% Recovery	% RQD	Laboratory Test Results
					Black, soft clayey silt with little organics and trace fine sand, wet.				
55	S12	SS	22-18-6	24	Very stiff at 55' BGS.		18"		
60	S13	SS	2-2-2	4			18"		
65	S14	SS	3-4-4	8			18"		MC
					-71 ft.	-41.71			
70	S15	SS	10-9-11	20	Gray, medium dense to very dense coarse to fine sand and gravel, wet.		6"		
75	S16	SS	35-35-24	59	(Granular Deposits)	-47.21	10"		MC
					End of boring @-76.5 ft.				
80									
85									
90									
95									
100									

Sample Type: SS-Split Spoon, ST-Shelby Tube, RC-Rock Core

Laboratory Tests: MC-Moisture Content, AL-Atterberg Limits, S-Sieve Analysis, SH-Sieve/Hydrometer Analysis, C-Consolidation, UU-Unconsolidated Undrained Triaxial, CIU-Consolidated Undrained Triaxial, UCS-Unconfined Compression Strength

* ASTM D-1586 Standard Penetration Test

CLIENT: DSWA
MARCOR JOB #: EX-00911-001
WELL/BORING #: P101A

MARCOR

See Figure 2-1 for location

PERMIT #: 106903	DATE: 20 March 1996
DRILLING METHOD/RIG: Mud Rotary	
DRILLED BY: MARCOR	GEOLOGIST: Jeff Walsh/Bob Eyer
SAMPLING: Cuttings	ELEVATION: Not Surveyed
RISER TYPE: 4" PVC	SCREEN TYPE: .010 Slot PVC
FEET RISER: 167.5 feet	FEET SCREEN: 10
WELL DIAMETER (in): 4	SCREEN DIAMETER: 4
DEPTH TO BEDROCK (ft): N/A	DEPTH TO WATER (ft): NM
OTHER: 2.5 ft stick up manway	

BOREHOLE DIAMETER(in): 6 1/4
TOTAL DEPTH (ft): 168

DEPTH (FEET)	BLOW COUNT	SAMPLE RECOV.	O.V.A./ P.I.D. READING	WELL CON.	LITHOLOGY DESCRIPTION
0	N/A	N/A	N/A		0.0-17.0 Artificial Fill (AFU) Dredge Spoils (with some clayey silt)
10					
20					22.0-66.0 Artificial Fill (AFU) Dredge Spoils with Coarse White Sand, & Fine Gravel (GC) and Sands In Some Intervals
30					
40					
50					
60					End of Artificial Fill (AFU)
70					Columbia Formation - Contact encountered between 64 ft bgs and 66 ft bgs. 64.0 - 135.0 Silty Sands and Sandy Silts (SP) Brown to Light Brown, with some Intervals Having Fine Gravels or Woody Fragments. Some of the Sand & Gravels are Micaceous.

CLIENT: DSWA MARCOR JOB #: EX-00911-001 WELL/BORING #: P101A	MARCOR	See Figure 2-1 for location
PERMIT #: 106303	DATE: 20 March 1996	
DRILLING METHOD/RIG: Mud Rotary		
DRILLED BY: MARCOR	GEOLOGIST: Jeff Walsh/Bob Byer	
SAMPLING: Cuttings	ELEVATION: Not Surveyed	
RISER TYPE: 4" PVC	SCREEN TYPE: .010 Slot PVC	
FEET RISER: 157.5 feet	FEET SCREEN: 10	
WELL DIAMETER (in): 4	SCREEN DIAMETER: 4	BOREHOLE DIAMETER(in): 5 1/4
DEPTH TO BEDROCK (ft): N/A	DEPTH TO WATER (ft): NM	TOTAL DEPTH (ft): 169
OTHER: 2.5 ft stick up manway		

DEPTH (FEET)	BLOW COUNT	SAMPLE RECOV.	O.V.A./ P.I.D. READING	WELL CON.	LITHOLOGY DESCRIPTION
80					72.0-82.5 Hard Gravel
	N/A	N/A	N/A		82.5-88.0 Brown & White Coarse Sand (SP) Micaceous
					88.0-112.0 Light Brown, Dk. Brown, Dk. Green, and Gray Silty Fine Sands (SP) with Occasional Gravel < Few Inches Thick.
90					
100					Below ~ 100 Sands Have Coarsened to Predominantly a Medium Sand
110					112.0-112.5 Hard Gravel - No Recovery
					112.5-118.0 Same as above Hard Gravel
120					118.0-125.0 Red Silty Clay (CL) coarsening with (SP) sand down to 125 ft bgs.
					125.0-126.0 Sand (SP) Coarse, White, Orange, Brown, Micaceous
130					126.0-135.0 Clayey Sand (SC), Orange Change in drilling @ 133 ft bgs, clay reddens, dense-hard. End of Columbia Formation
					Top of Potomac Formation
					135.0-150.0 Sandy Clay (SC), Red
140					140.0-141.0 Same as above, dark grey
					@144 ft bgs Same as above, light brown
150					153.0-154.0 As above with white sand
					154.0-169.0 Silty Sand (SM) medium, yellow, orange, brown, dark grey.
160					Boring terminated at 169 ft bgs

APPENDIX C

DRAFT

WETLAND JURISDICTIONAL DETERMINATION
DELAWARE SOLID WASTE AUTHORITY
CHERRY ISLAND LANDFILL PROPERTY
WILMINGTON, DELAWARE

July 2002

Prepared for:

Delaware Solid Waste Authority
P.O. Box 455
Dover, Delaware 19903-0455

and

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Prepared by:

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Consultants in the Geosciences
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Wilmington, Delaware 19808-1232
(302) 239-6634

Project No. 4685.ED

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Figure 3	Jurisdictional Determination Wetlands Plan
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APPENDICES

Appendix A	Site Photographs
Appendix B	Hydric Soil List
Appendix C	Wetland Data Forms

SUMMARY

A wetland evaluation was conducted between February 19, 2002, and March 19, 2002, at the Cherry Island Landfill site in Wilmington, Delaware, for the Delaware Solid Waste Authority. The project area was defined as lands owned by the Delaware Solid Waste Authority (Tax Parcel Nos. 26-059.00-001 and 26-053.00-003), which encompass approximately 326 acres of land. The purpose of the evaluation was to identify and delineate wetland areas within the DSWA property boundaries, in accordance with the procedures of the *Corps of Engineers Wetlands Delineation Manual* (1987). This report has been prepared according to the requirements and format of the U.S. Army Corps of Engineers' *Information Required for Jurisdictional Determinations*, Public Notice CENAP-OP-P, July 29, 1987.

Approximately 1.55 acres of non-tidal and 1.69 acres of tidal wetlands were identified and delineated around the perimeter of the landfill and adjoining dredged material storage area. Lands interior to the active landfill and dredged material storage area were not assessed for wetlands due to the active use and disturbance of the ground within those areas, which precludes the presence of jurisdictional wetlands. The landfill is owned and managed by the Delaware Solid Waste Authority. A dredged material storage area adjacent to the project site is managed by the U.S. Army Corps of Engineers on lands owned by the Delaware Solid Waste Authority.

I. INTRODUCTION

A wetland evaluation was conducted for the Delaware Solid Waste Authority (DSWA) at their Cherry Island Landfill between February 19, 2002, and March 19, 2002, to determine the limits of federal and State of Delaware jurisdictional wetlands within the property. The site was evaluated for wetlands using the procedures of the *Corps of Engineers Wetlands Delineation Manual* (1987). This report has been prepared according to the requirements and format of the U.S. Army Corps of Engineers' *Information Required for Jurisdictional Determinations*, Public Notice CENAP-OP-P, July 29, 1987.

II. PROPERTY IDENTIFICATION

The property that contains Cherry Island Landfill is located along the southern side of 12th Street, east of Interstate Highway 495, within the City of Wilmington, Delaware (see Figure 1). Figure 2 is a location sketch that is based on the United States Geologic Survey (USGS) Wilmington South, Delaware, 7.5 Minute Quadrangle Map. Based on information provided on the USGS quadrangle map, the approximate center of the site is situated at Latitude N39^0 43' 30" and Longitude W75^0 31' 00".

The property is bordered by:

- Delaware River to the east;
- Christina River and lands owned by the United States of America to the south;
- Gas, sewer, and electric transmission line right-of-ways to the west; and
- 12th Street and the City of Wilmington Wastewater Treatment Plant to the north.

Wetland identification and delineation was limited to lands currently owned by Delaware Solid Waste Authority, which includes lands currently leased to the U.S. Army Corps of Engineers for the Wilmington Harbor North Dredged Material Storage Area. The site is recorded as Tax Parcel Nos. 26-059.00-001 and 26-053.00-003, which together encompasses approximately 326 acres of land. Figure 3 provides a depiction of the site boundaries.

Surficial soils within the property reflect the development history of the property and predominantly consist of materials deposited on-site during USACE dredging operations or imported for use as landfill cover, road construction, erosion protection, and dike construction. Invasive weed species, primarily Phragmites (*Phragmites australis*, FACW), mugwort (*Artemesia vulgaris*, NL), and pokeweed (*Phytolacca americana*, FACU), dominate landfill slopes and most lowland vegetated areas. Numerous drainage ditches have been made to convey supernatant waters from the dredge storage areas and stormwater from the landfill site.

Photographs of the site are included as Appendix A, with the photograph locations shown on the site plan included as Figure 3.

III. HISTORICAL LAND USE

Most of the land area within Tax Parcel No. 26-059.00-003 is developed with an active solid waste landfill, landfill related structures, and landfill related infrastructure. Prior to development of the solid waste landfill, the U.S. Army Corps of Engineers (USACE) used the property for dredged material storage. Tax Parcel No. 26-059.00-001, while owned by DSWA, is currently used by USACE for dredged material storage.

Historical maps, dated 1841 and 1883, indicate that the DSWA property consisted of tidal marsh and meadows. A series of drainage ditches or tidal channels were mapped as extending though the marsh and meadows. Historical aerial photographs of the property and historical records obtained from the U.S. Army Corps of Engineers indicate that the approximate western half of the property (including all of Tax Parcel No. 26-059.00-001 and the northwestern portion of Tax Parcel No. 26-059.00-003) was in use for dredged material storage by 1927. The facility was known as "Wilmington Harbor Disposal Area." The southern dike of this facility essentially formed the northern bank of the Christina River. USACE records indicate that between 1917 and 1931, construction of the "Edgemoor Dike" was in progress in the tidal flats of the Delaware River, east of Cherry Island. Once this dike was completed, the enclosed tidal flats were filled with dredged material. The storage area created by this dike became known as the "Edgemoor Disposal Area." The addition of the "Edgemoor Disposal Area" approximately doubled the land area of the Tax Parcel No. 26-059.00-003. The "Edgemoor Dike" forms the Delaware River bank on the property.

A 1982 aerial photograph shows that the project area still in use for dredged material storage. Both the Wilmington Harbor and the adjoining Edgemoor Disposal Areas appear to be in use in this photograph.

The DSWA's Cherry Island Landfill began accepting solid waste in September 1985. Aerial photographs after 1985 show a progressive change from dredged material storage to solid waste landfill development within the former "Edgemoor Disposal Area" on Tax Parcel No. 26-059.00-003. The use of the "Wilmington Harbor Disposal Area" on the southwestern portion of the property for dredged materials storage continues through the date of this report.

IV. TOPOGRAPHY

The site is nearly level (0 to 3 percent) to gently sloping (3 to 8 percent) across the top of the landfill, and nearly level throughout the top of the dredged material storage area. The side slopes of the landfill and the perimeter dikes of the dredged material storage area are sloping (8 to 15 percent) to strongly sloping (15 to 25 percent). Elevations range from a

low of mean low water level (-2.5 feet NGVD29) along the Delaware and Christina Rivers to a high of approximately 95 feet (NGVD29) in the northern sections of the landfill area. Topography for the project area is shown on the site plan enclosed as Figure 3.

V. NATIONAL WETLANDS INVENTORY MAPPING

According to the National Wetlands Inventory 7.5 Minute Quadrangle Map for Wilmington South, Delaware (Figure 4), the active landfill area is considered an upland, while the area within the U.S. Army Corps of Engineers' dredged material storage area dikes is listed as palustrine, flat, artificial, seasonal, spoil (PFLKCs). A narrow fringe directly adjacent to the Christina River, along the southern side of the site, is listed as estuarine, intertidal, flat, regular, oligohaline (E2FLN6). The map description for the Christina River is estuarine, subtidal, open water, subtidal, oligohaline (E1OWL6). The Delaware River, along the eastern boundary of the site, is described as estuarine, subtidal, open water, subtidal (E1OWL). These classifications were based on aerial photography, dated April 1981, and do not necessarily reflect current land use.

VI. SOILS

Soils sampled by Duffield Associates for this report appeared to fall into three classifications: estuarine, dredged materials, or thermally treated materials. The characteristics of these three soils were very similar and were low chroma by nature. Considering the use and topography of various regions of the project site, the soils found at each location sampled appear to correlate the particular landfill uses at that location. For instance, the thermally treated materials were found in the wetlands near I-495. Dredged and estuarine materials were located near the Christina River.

Wetlands sampled along I-495 were downslope from a steep face of the landfill. The predominant soils observed in these wetlands were black and gray sandy-silt, which most likely were recent deposits derived from soil used for daily cover on active landfill areas. This cover soil has been obtained from a local treatment plant that thermally desorbs petroleum and coal-derived hydrocarbons from soil. The thermal desorbtion process typically blackens the treated soil. Some of the landfill cover soil, after being placed on top of the landfill, apparently has been carried by runoff downslope and deposited in the lower elevations during storm events. The soils that had these qualities were characterized as hydric when they also showed complete saturation within 12 inches of the ground surface.

The wetland soils along the Christina River were mostly dark gray to black mud and silt. Unlike the I-495 soils, these soils were most likely a mixture of dredged soil and estuarine soil, which typically consists of gray to dark gray silt and clay. The dredged material that has been removed from the navigation channels of the Christina and the Delaware Rivers were virtually indistinguishable from the estuarine, gray to dark gray silt

and clay deposits that originally formed Cherry Island. The dredge materials contained low chroma colorations and prominent drainage mottles, lending a hydric coloration to the soil, regardless of the current hydrology. These materials have been used for dike and road construction. The highly disturbed conditions and relatively uniform coloration of the various soil materials that were present on the site severely limit the functional value of using color as an indicator of hydric soil conditions.

According to the *Soil Survey of New Castle County, Delaware* (1970), soils that occur on the site consist of the Othello-Fallsington-Urban Land Complex (Ou), with a small area of Tidal Marsh (Tm) adjacent to the confluence of the Delaware and Christina River. The Othello-Fallsington-Urban Land Complex is described in the soil survey as containing poorly drained Othello and Fallsington Series soils, which have been used for residential, commercial, and industrial purposes. Most areas containing this series are disturbed (approximately 75 percent) and covered with as much as 18 inches of fill materials. The soil survey describes Tidal Marsh soils as having various textures and as being regularly flooded by tidal waters. Soils mapped for the site in the *Soil Survey* have been included as Figure 5.

Of the two soil series mapped for the site, only the Tidal March Series is considered a hydric soil, according to *Hydric Soils List – New Castle County, Delaware* (1990). Soil descriptions from the wetland delineation and from additional samples taken throughout the site are presented on the wetland data forms included as Appendix B.

The Soil Survey used 1961 aerial photographs of New Castle County as a basis for mapping. At the time of those photographs, filling associated with the use of the site for dredged material storage had been in progress for more than 34 years. The majority of the area marked as Tidal Marsh on the aerial photograph-based mapping is located inside the "Edgemoor Dike," and the water observed in the "marsh" appears to be ponded water (supernatant) associated with the deposition of hydraulically dredged materials. The area marked as Othello-Fallsington Urban Land Complex was within the dikes of the "Wilmington Harbor Disposal Area." The original surficial soil of this area most likely was buried beneath many feet of fill material at the time of the 1961 photograph. These observations call the SCS designated soil series into question. Considering the continual and changing land uses of the disposal area, the Soil Survey classifications clearly do not reflect the site alterations that have occurred since publication of the Soil Survey in 1970. The information provided by the Soil Survey is of limited pertinence for wetland area delineation within the DSWA property.

VII. HYDROLOGY

The site was assessed for indications of wetland hydrology, such as standing water (inundation), shallow soil depths to free water or saturation, floating debris, drift lines, water stained leaves, oxidized root channels, and sediment deposits. Due to the degree of disturbance of the soils, soil saturation was a primary criteria used to determine the presence of wetlands. The origin of hydrology was also considered during this

investigation as a factor in determining the presence of wetlands.

The source of hydrology for most wetlands not adjacent to the Christina or Delaware Rivers is either from impeded surface drainage associated with dredge dewatering culverts or storm culverts. Hydrology of the wetlands labeled "E/F" developed from stormwater runoff from the adjacent access road to the southwest. Likewise, the wetland labeled "A" receives water from a large corrugated metal storm drain located at the 12th Street entrance of the landfill. Wetland "B" is depressional and seemed to be topographically inclined to collect water to sustain hydrophitic vegetation. Drainage from pipes that convey supernatant from the material in Wilmington Harbor North Dredged Material Storage Area supplied some surface water to areas along I-495. Hydrology observations made during the investigation have been recorded on the wetland data forms included as Appendix C.

VIII. VEGETATION

Plants inhabiting the site are adapted to highly disturbed conditions. For example, the most common species observed on the site was phragmities (Phragmites australis), also known as common reed. This aggressive grass species forms large, monotypic stands reaching 10 to 14 feet in height. Phragmities dominates a majority of the wetland areas, as well as much of the adjoining vegetated upland areas within the site.

Phragmities was considered an unreliable wetland indicator at this site due to its highly adaptive nature. This delineation relied on the predominant secondary and tertiary hydrophytes for identification of wetland areas. If a particular area met hydrologic and soil criteria for a wetland and was dominated by phragmities, hydrophitic vegetation criterion was based on the 50/20 rule as described on page 13 of the *Corps of Engineers Wetland Delineation Manual (1987).*

The most common plant species observed within the delineated wetlands included:

- phragmities (*Phragmites australis*, FACW)
- fall panicum (*Panicum dichotomoflorum*, FACW-)
- barnyard grass (*Echinochloa muricata*, FACW+)
- reed canary grass (*Phalaris arundinacea*, FACW+)
- rice cutgrass, (*Leersia oryziodes*, OBL)
- mile-a-minute (*Polygonum perfoliatum*, FAC)
- smartweed (*Polygonum sp.*, FACW)

These plants are adapted to life in saturated soil (wetland) conditions, according to the wetland indicator status listings found in the *National List of Plant Species Found in Wetlands Region 1, Northeast* (1984).

The adjoining non-wetland regions of the site also were dominated by phragmities, or weedy upland plant species, such as:

- mugwort (*Artemesia vulgaris*, NL)
- pokeweed (*Phytolacca americana*, FACU)
- foxail (*Seteria glauca*, FAC)
- Japanese honeysuckle (*Lonicera japonica*, FAC-)
- tree of heaven (*Alanthus altissima*, NL)
- black locust (*Robinia pseudoacacea*, FACU-)
- royal paulonia (*Paulonia tomentosa*, UPL)

IX. PHOTOGRAPHS

The site was photographed during the wetland assessment. Photographs depicting some of the wetlands and general site conditions are included as Appendix A, with the location and direction of each photograph presented on the site plan included as Figure 3.

X. SYNTHESIS OF DATA

The identification of wetland areas at the Cherry Island Landfill site was impeded by the significant disturbances found throughout the property. Soils sampled throughout the site were highly disturbed or fill materials from off-site sources. Due to this disturbance, phragmities dominates nearly all vegetated portions of the site. Although generally considered a wetland plant, phragmities was found growing under a broad range of hydrologic conditions, from the daily flooded tidal areas along the Christina and Delaware Rivers to the exceptionally droughty steep side-slopes of the dikes and landfill. As such, direct ohservations of the vegetation and soil parameters were not reliable in indicating the presence and limits of wetlands. The limits of wetland areas at this site were defined through the observation of soil saturation, the proliferation of a secondary plant species growing with phragmities, and the topographic characteristics of the area (closed depressions, swales, and areas low in elevation along the rivers).

XI. CONCLUSIONS

During the evaluation, approximately 1.55 acres of non-tidal wetlands were identified, and 1.69 acres of tidal wetlands were delineated at the Cherry Island Landfill site around the perimeter of the landfill and dredged material storage areas as shown in Figure 2. These wetlands formed in topographically low areas that have been significantly disturbed or created by past activities. The active landfill and dredged material storage do not contain jurisdictional wetlands, since disturbance in these areas is ongoing and will continue through the life of the project.

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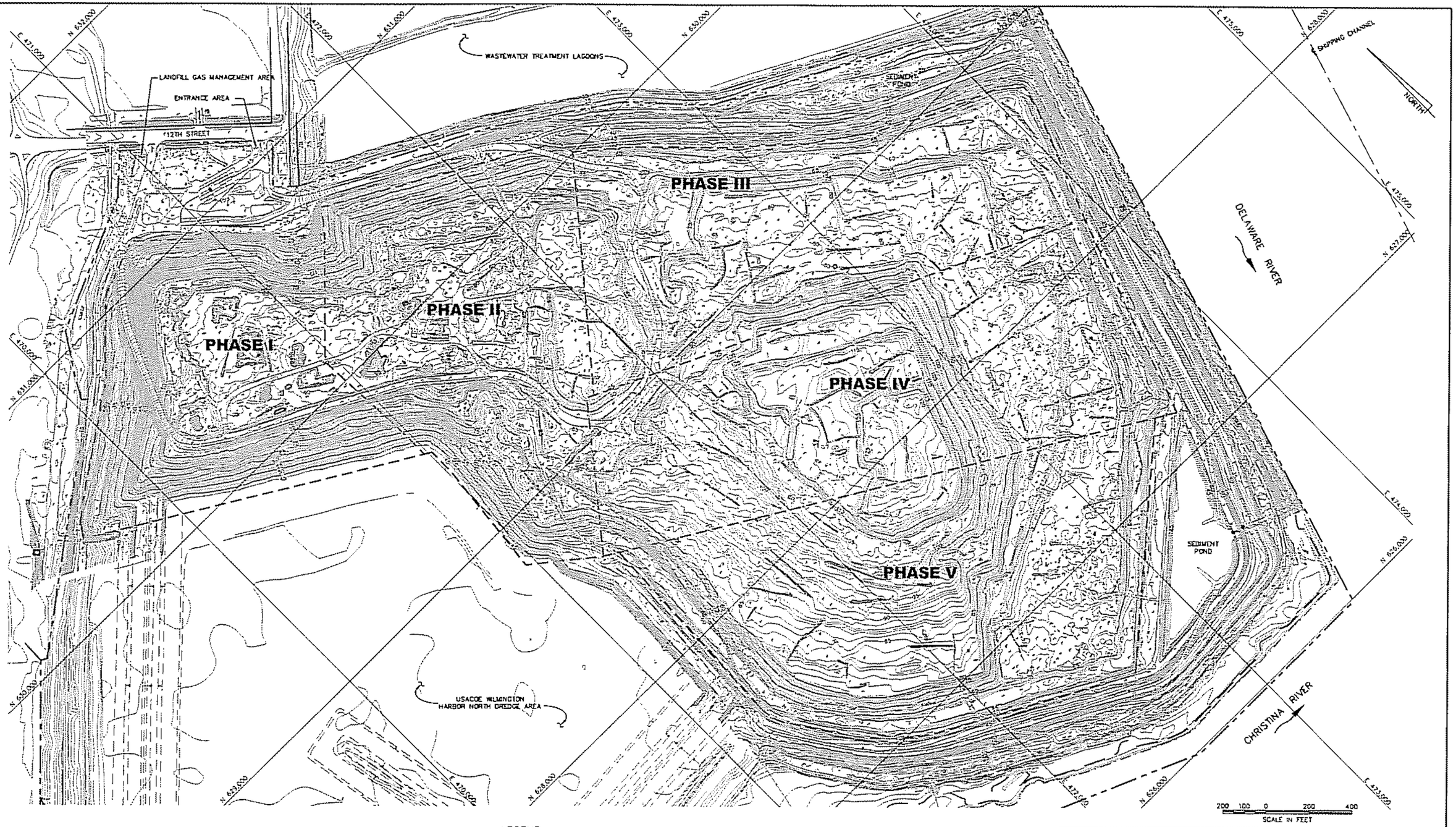


LEGEND

- PROPERTY BOUNDARY
- CURRENT PHASE BOUNDARY (LIMIT OF DISPOSAL AREA)
- 60 — CONTOUR OF EXISTING GRADE (FEET, MSL) AS OF APRIL 6 2004 (2.5' CONTOUR INTERVAL)
- 100-YEAR ELEVATION FLOODPLAIN (10-FOOT CONTOUR LINE)

REDUCED COPY - NOT TO SCALE

NOTES:

1. PLAN FROM AERIAL SURVEY (FLYOVER DATE 1 JANUARY 2005 BY LAND AND MAPPING SERVICES) BY TETRATECH, INC.

GEOSYNTEC CONSULTANTS
10015 OLD COLUMBIA ROAD, SUITE A-200
COLUMBIA, MARYLAND 21046 USA
(410) 381-4333

REV	DATE	DESCRIPTION	DR BY	APP BY

DATE:	MAY 2005	PROJECT NO. ME0250	SCALE: 1" = 200'
DES BY	RDE	MAY 05	EXPOSED GEOMEMBRANE COVER CONSTRUCTION PROJECT CHERRY ISLAND LANDFILL NEW CASTLE COUNTY, DELAWARE
DRN BY	JOC	MAY 05	SHEET TITLE:
CHK BY			EXISTING CONDITIONS PLAN (1 JANUARY 2005)
REV BY			
APP BY			

SIGNATURE

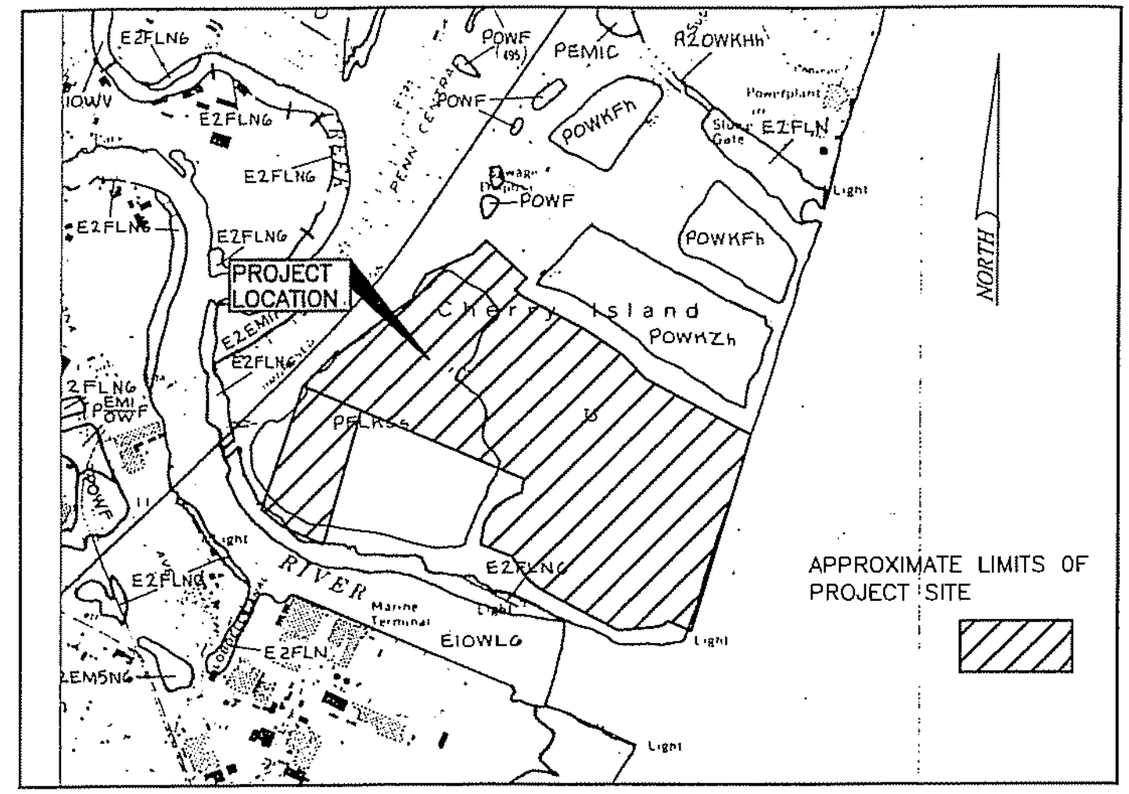
DATE

DELAWARE SOLID WASTE AUTHORITY

FILE NO: 0250ECP

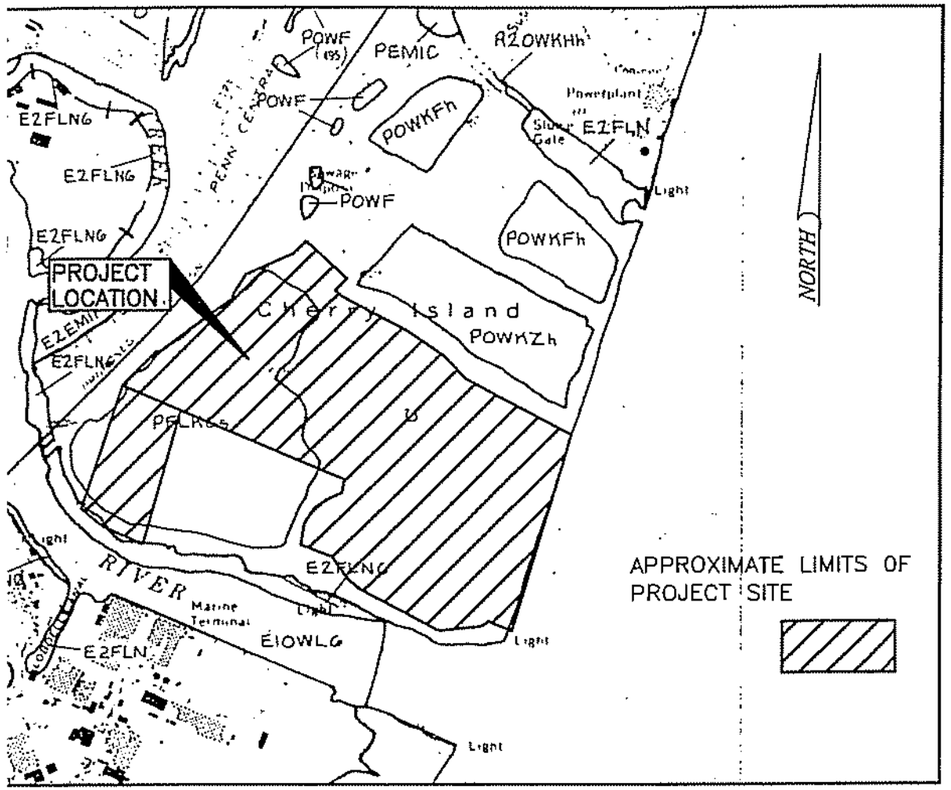
DRAWING NO: 1 OF 1

P:\ME0250\ME0250\0100 - CAD\ME0250ECP.dwg, 7/7/2005 4:11:21 AM, \\columbia-01\CIM-BLOTP0001, Geosyntec Consultants, Inc. (1:1)



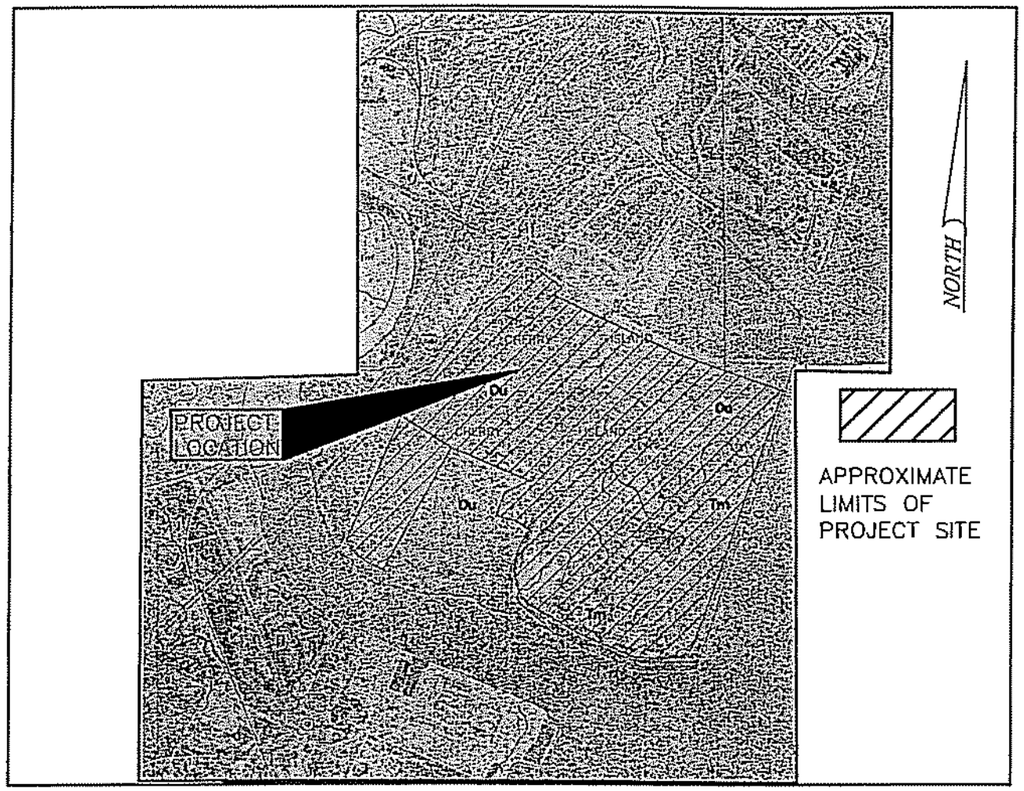
NOTE:
THIS LOCATION SKETCH IS ADAPTED FROM THE NATIONAL WETLANDS INVENTORY MAP FOR WILMINGTON SOUTH, DELAWARE–NEW JERSEY, 1977.

DATE: 10 MAY 2002	NATIONAL WETLANDS INVENTORY MAP	DESIGNED BY: JME	DUFFIELD ASSOCIATES
SCALE: 1"=2000'	CHERRY ISLAND LANDFILL	DRAWN BY: EDB	5400 LIMESTONE ROAD WILMINGTON, DE 19808-1232 TEL (302)239-6634 FAX (302)239-8485
W.O. NO. 4685.ED	WETLAND DETERMINATION	CHECKED BY: JME	1528 WALNUT STREET, SUITE 725 PHILADELPHIA, PA 19102
SHEET: FIGURE 4	WILMINGTON ~ NEW CASTLE COUNTY ~ DELAWARE	FILE: A4685ED01	E-MAIL: DUFFIELD@DUFFNET.COM



LOCATION SKETCH IS ADAPTED FROM THE NATIONAL WETLANDS
TORY MAP FOR WILMINGTON SOUTH, DELAWARE–NEW JERSEY, 1977.

NATIONAL WETLANDS INVENTORY MAP CHERRY ISLAND LANDFILL WETLAND DETERMINATION WILMINGTON ~ NEW CASTLE COUNTY ~ DELAWARE	DESIGNED BY: JME DRAWN BY: EDB CHECKED BY: JME FILE: A4685ED01	DUFFIELD ASSOCIATES Consultants in the Geosciences 5400 LIMESTONE ROAD WILMINGTON, DE 19808-1232 TEL (302)239-6634 FAX (302)239-8485 1528 WALNUT STREET, SUITE 725 PHILADELPHIA, PA 19102 E-MAIL: DUFFIELD@DUFFNET.COM



Ou = OTHELLO FALLSINGTON
URBAN LAND COMPLEX

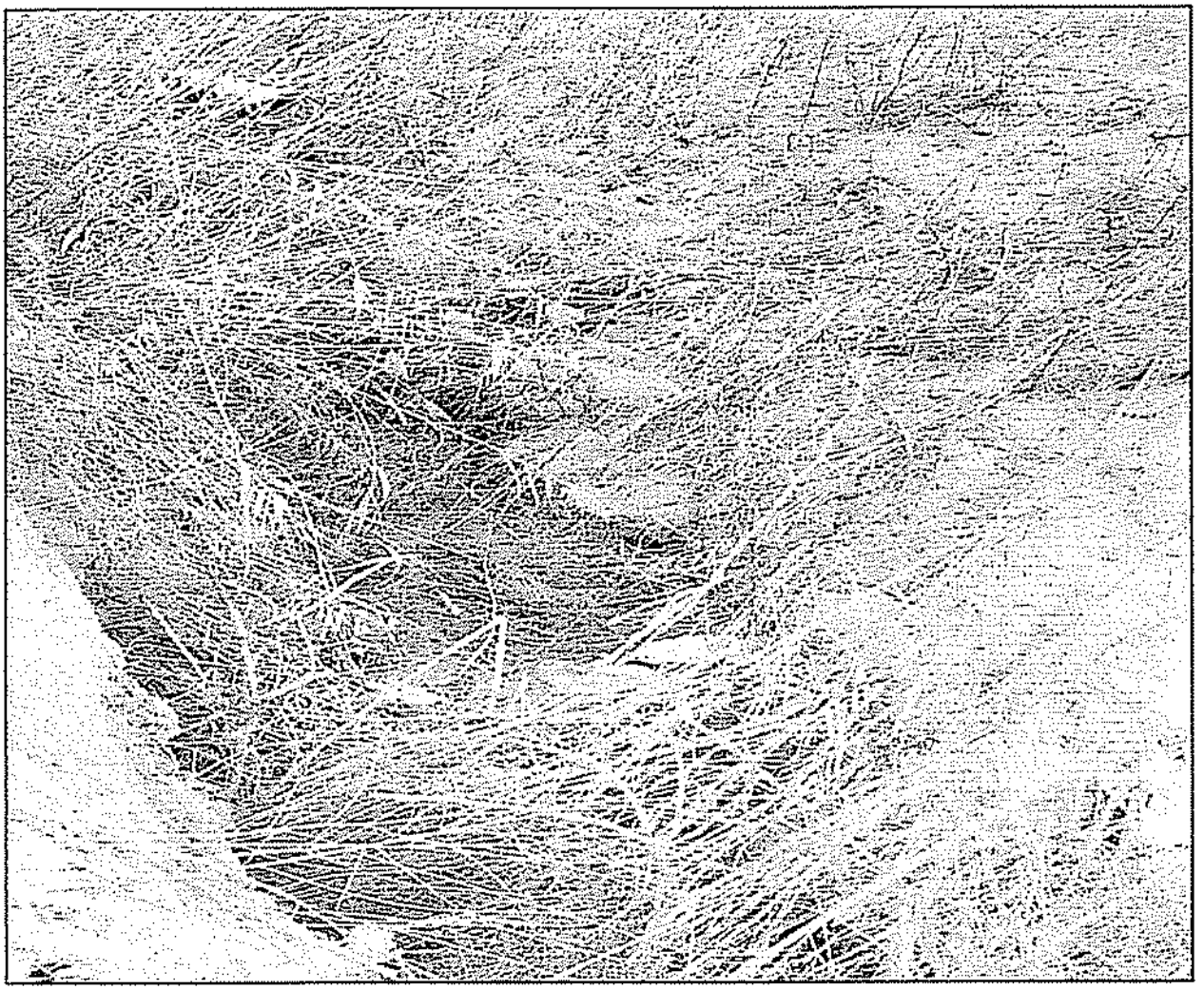
Tm = TIDAL
MARSH

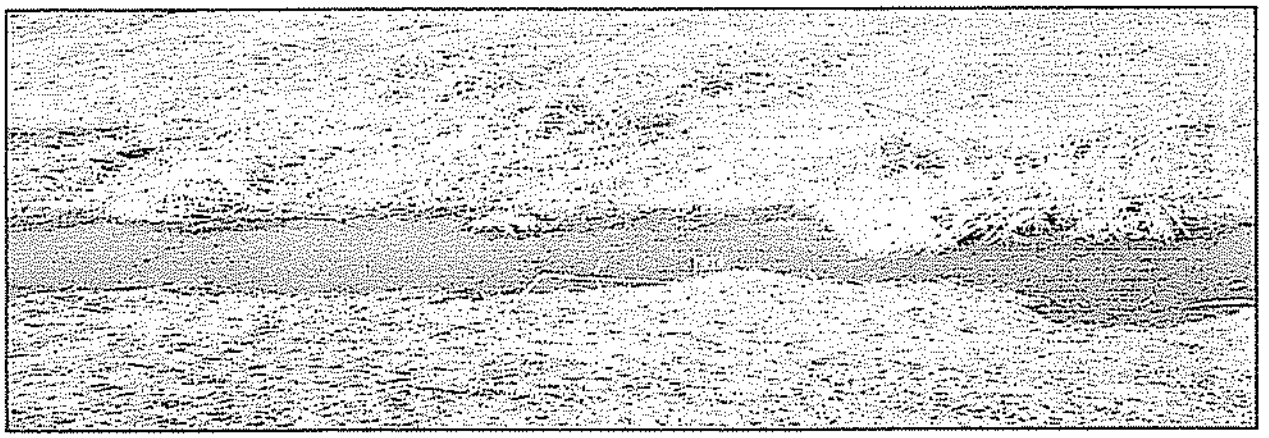
NOTE:
THIS LOCATION SKETCH IS ADAPTED FROM "SOIL SURVEY, NEW CASLTE COUNTY, DE," SHEETS 4, 12, AND 13. OCTOBER 1970

DATE: 10 MAY 2002 SCALE: NONE W.O. NO. 4685.ED SHEET: FIGURE 5	SOIL SURVEY MAP CHERRY ISLAND LANDFILL WETLAND DETERMINATION WILMINGTON ~ NEW CASTLE COUNTY ~ DELAWARE	DESIGNED BY: JME DRAWN BY: EDB CHECKED BY: JME FILE: A4685ED01	DUFFIELD ASSOCIATES Consultants in the Geosciences 5400 LIMESTONE ROAD WILMINGTON, DE 19808-1232 TEL (302)239-6634 FAX (302)239-8485 1528 WALNUT STREET, SUITE 725 PHILADELPHIA, PA 19102 E-MAIL: DUFFIELD@DUFFNET.COM

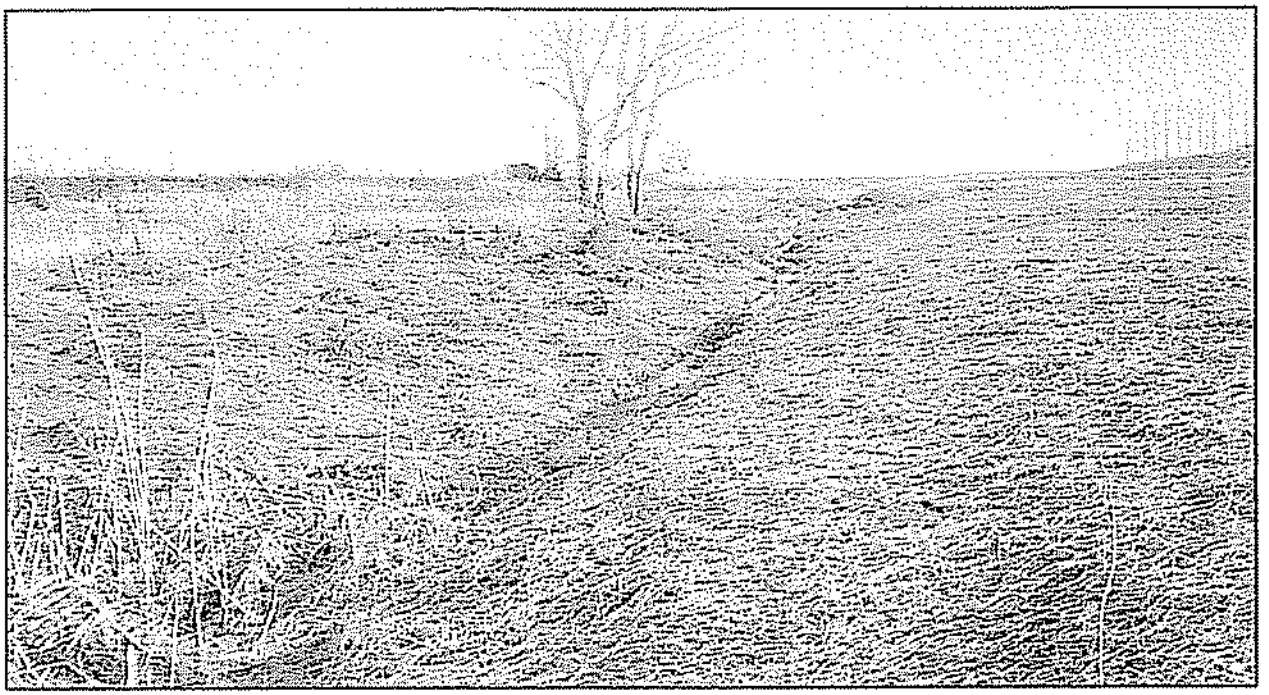
APPENDIX A

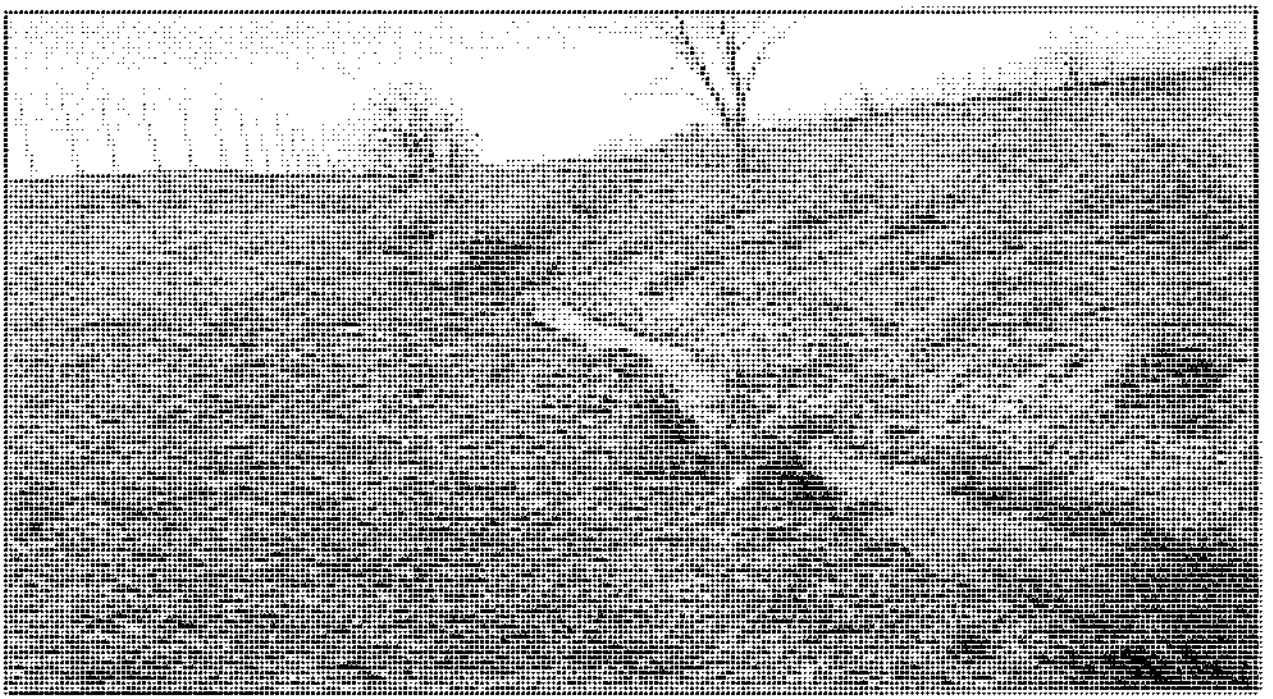
SITE PHOTOGRAPHS



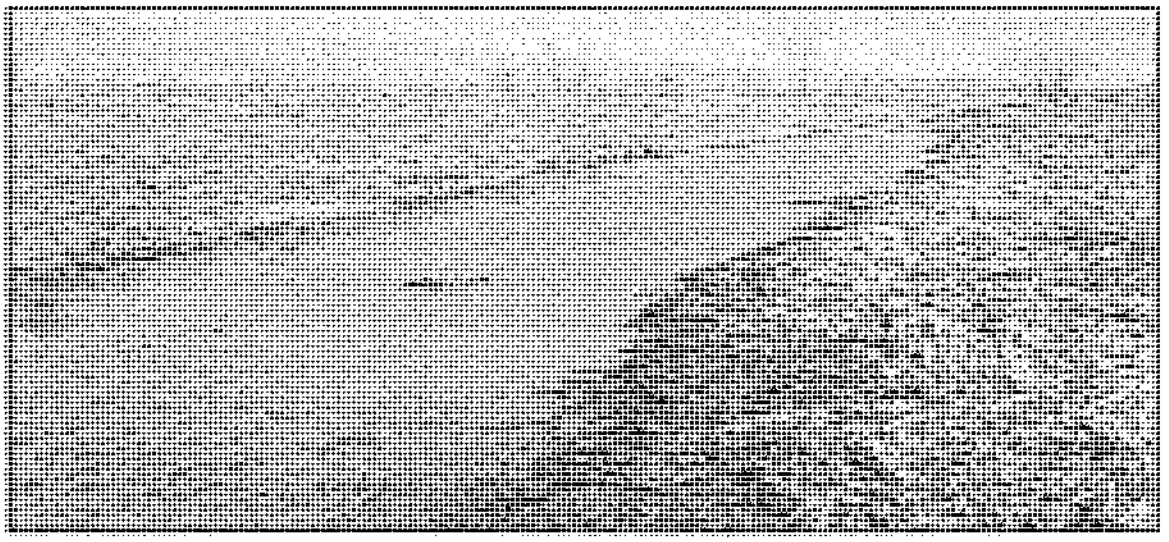


Photographs 1 and 2
Waters of the United States with wetlands in a drainage ditch between DSWA and New Castle County sewage treatment plant near the Delaware River identified as wetland area E-F on the Wetland Delineation Plan. Bottom photograph is the same drainage feature approximately 100 feet west of the first photograph.

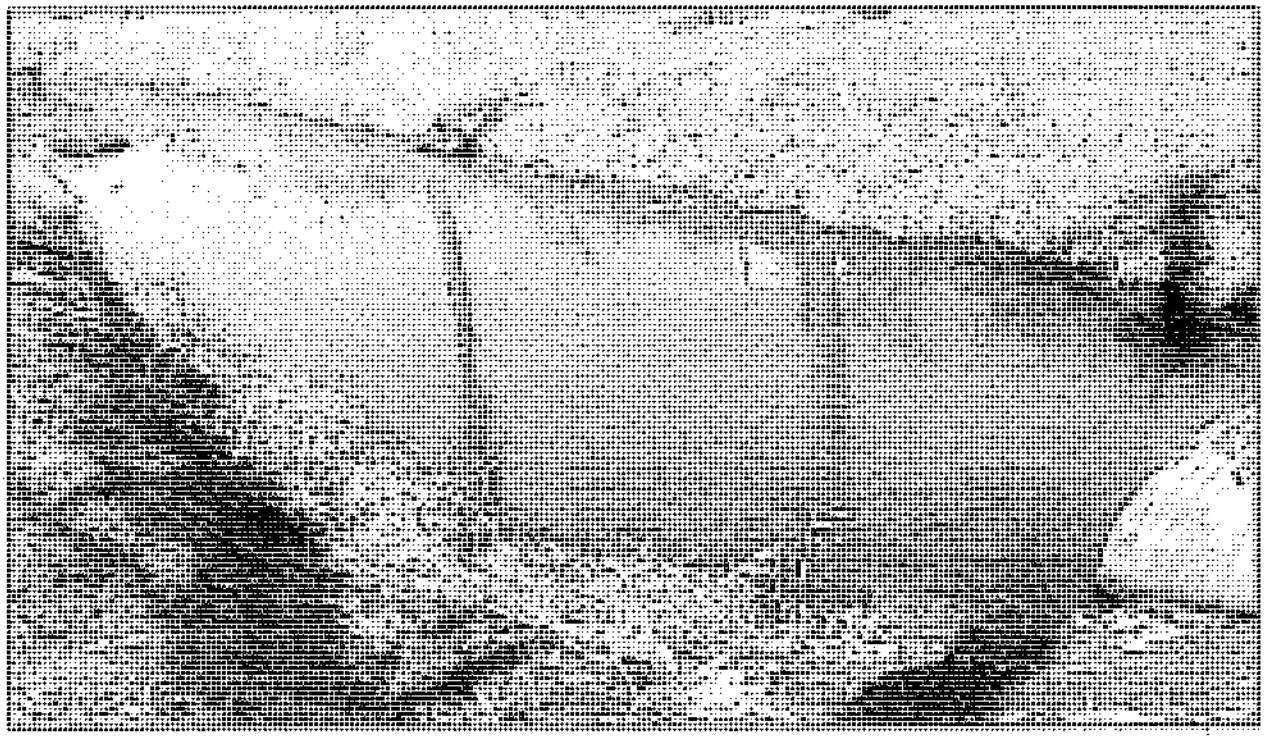


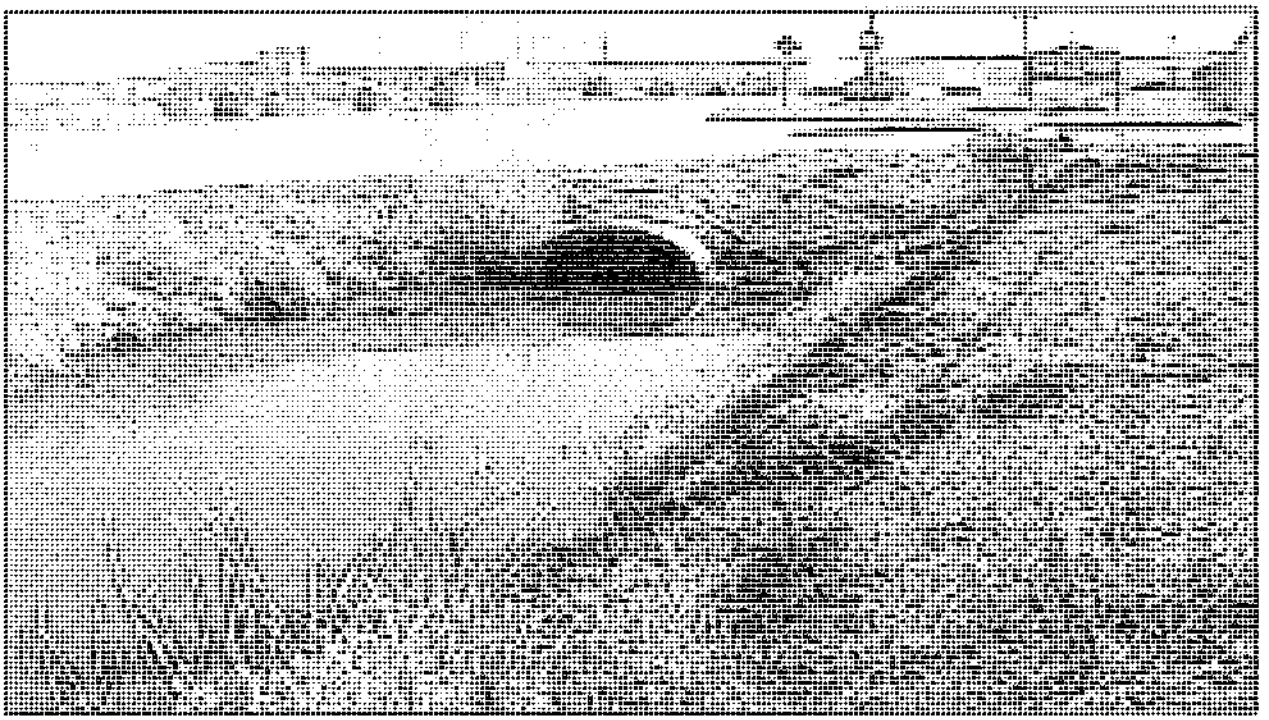


Photographs 3 and 4
Looking southeast and northwest in the drainage ditch between DSWA and New Castle County sewage treatment plant near wetland flag E-30.

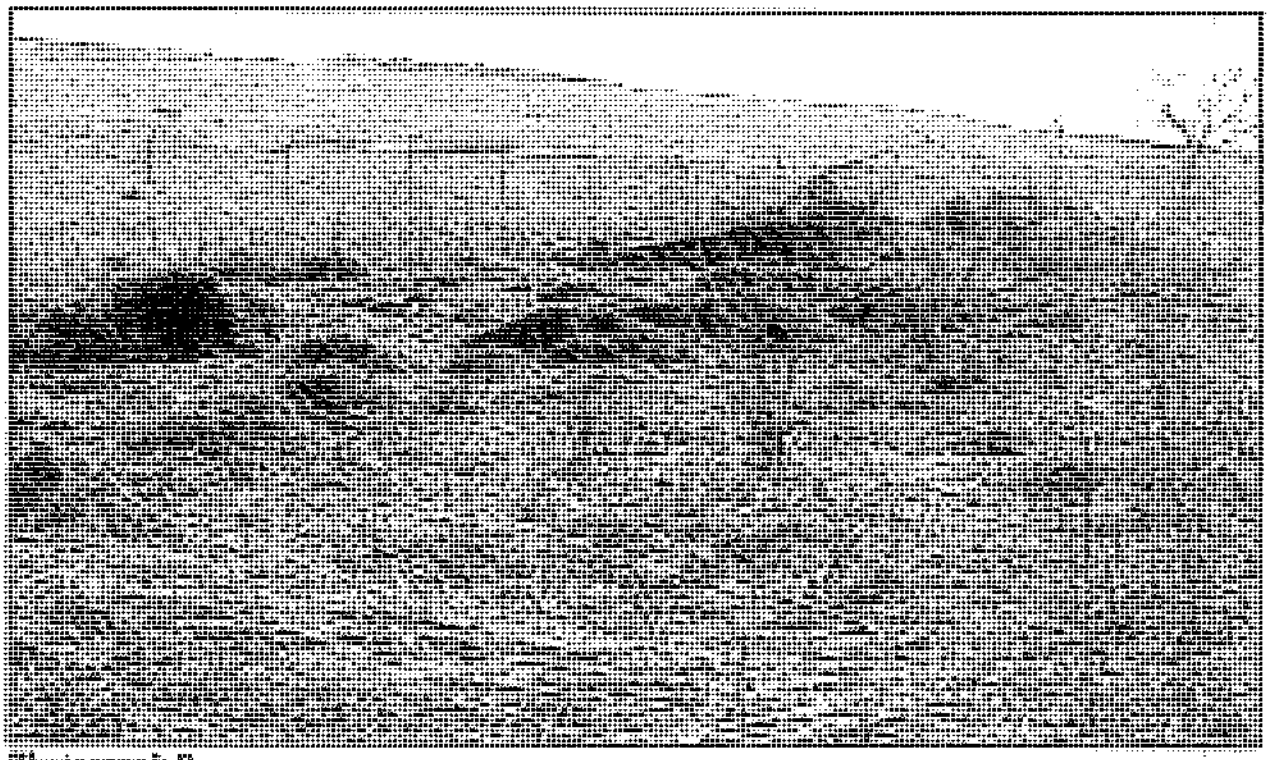


Photographs 5 and 6
Inflow area between DSWA and New Castle County sewage treatment plant, at wetland flag E-43, where runoff from storm drainage accumulates and forms a channel that flows to the Delaware River.





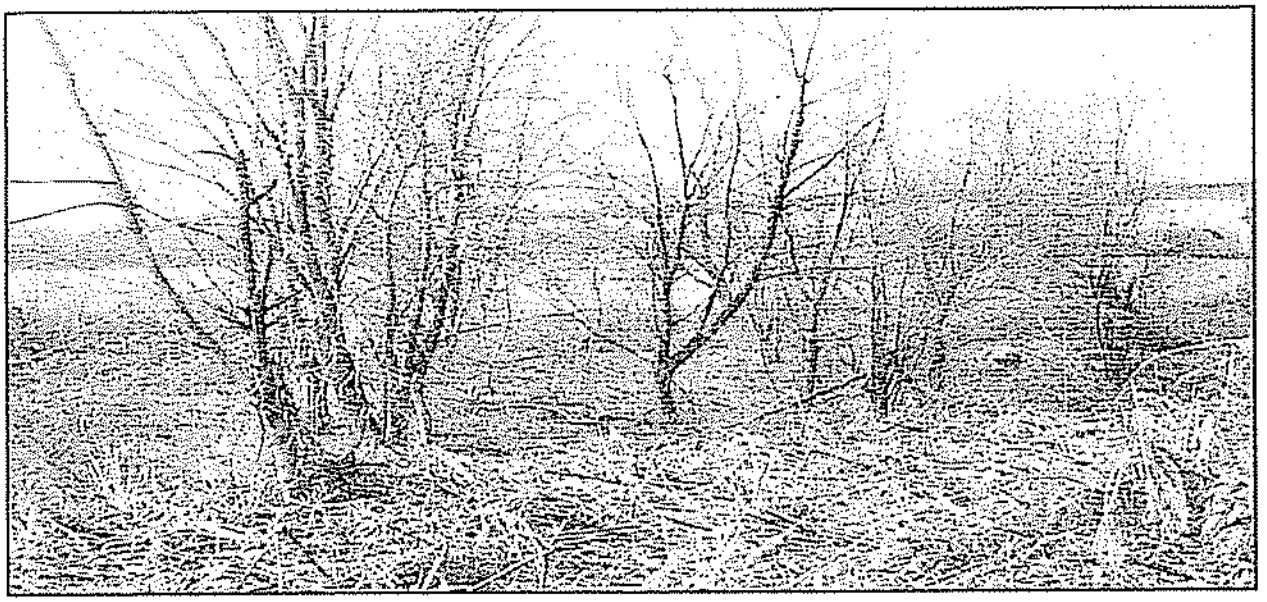
Photographs 7 and 8
Wetland labeled "A" at a drainage pipe located at the entrance of the DSWA. Wetlands were confined to the banks surrounding the ditch.



Photograph 9

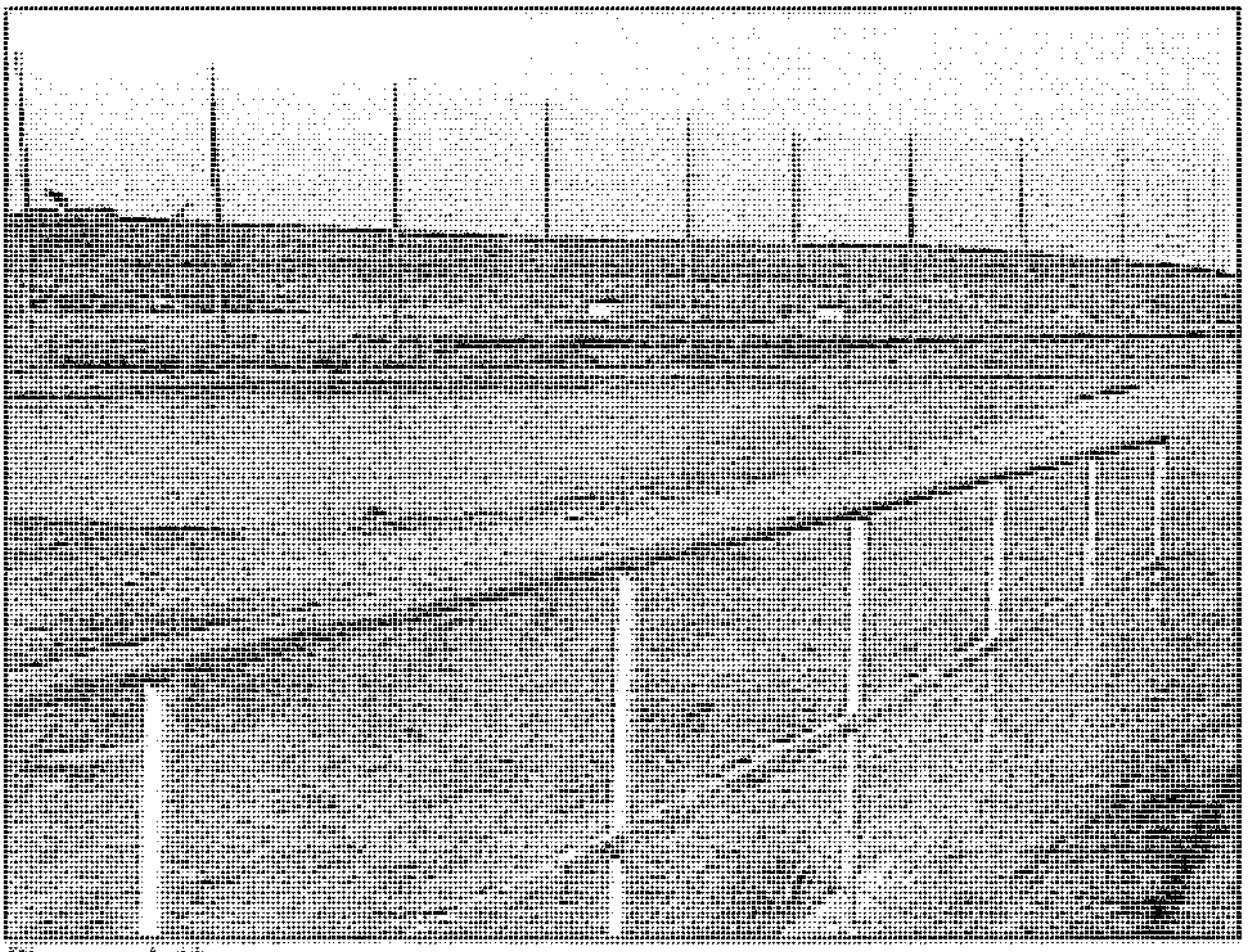
At marked "B" hydric soils were found along with more than one species of hydrophyte. Soils were not saturated, however the presence of hydric soils and hydrophytes indicated hydrology.

Photograph 10
Wetland "G" had soils, hydrology and more hydrophyte diversity than other similar areas along I-495.



Photograph 11
Red maples dominated wetland area "J" along with phragmities. The soil exhibited mottling and drainage patterns were evident.

Photograph 12
Reed canary grass and red maples were found at this depression feature "K" along the Christina River. Saturation and water stained leaves with prominent mottling were signs of hydrology within this wetland.



Photograph 13

The sample taken at the stormwater basin did not have any wetland indicators present. The stormwater basin is located near the southern portion of Tax Parcel No. 26-059.00-003.

APPENDIX B

HYDRIC SOIL LIST

Hydric Soil List - New Castle County, Delaware

Map Unit Symbol	Map Unit Name	Occurrence
Ba	Bayboro silt loam	Whole map unit
ElA	Elkton sand loam, 0 to 2 percent slopes	Whole map unit
EmA	Elkton silt loam, 0 to 2 percent slopes	Whole map unit
Fa	Fallsington sandy loam	Whole map unit
Fs	Fallsington loam	Whole map unit
Gp	Gravel pits and quarries	Floor of pit
Ha	Hatboro silt loam	Whole map unit
HbA	Hatboro silt loam, local alluvium, 0 to 3 percent slopes	Whole map unit
Jo	Johnston loam	Whole map unit
KeA	Keyport silt loam, 0 to 2 percent slopes	Depressions
KeB2	Keyport silt loam, 2 to 5 percent slopes, moderately eroded	Depressions
KrA	Kinkora silt loam, 0 to 3 percent slopes	Whole map unit
KrB	Kinkora silt loam, 3 to 8 percent slopes	Depressions
MtA	Mattapex silt loam, 0 to 2 percent slopes	Depressions
Mv	Mixed alluvial land	Whole map unit
Ot	Othello silt loam	Whole map unit
Po	Pocomoke loam	Whole map unit
StB	Silty and clayey land, gently sloping	In depressions
Tm	Tidal marsh	Whole map unit
WcA	Watchung and Calvert silt loams, 0 to 3 percent slopes	Whole map unit

(DE FOTG Notice No. 135, February 26, 1991)

APPENDIX C

WETLAND DATA FORMS

WETLAND DATA FORM
1987 CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL

Project: Cherry Island Landfill Date: 2/19/02 Flag No. A2 Community: UPLAND
Location: CHERRY ISLAND LANDFILL - ENTRANCE CAPE 1
Disturbances? MAINTAINED DRAINAGE SWALE

VEGETATION: Sample taken on upland banks of watercourse

	Dominant Species, Percent	Strata	Indicator		Dominant Species, Percent	Strata	Indicator
1	Lamium amplexicaule	H	NL	10			
2	TALL FESCUE (FESTUCA ARUNDINACEA)	H	FACU	11			
3				12			
4	Phragmites australis	H	FACW	13			
5	SETARIA GLAUCA (FOX TAIL)	H	FAC	14			
6	Lycopus americana	H	OBL	15			
7	MUGWORT (ARTEMISIA ANNUA)	H	FACU	16			
8	BLUE GRASS (POA PRATENSIS)	H	FACU	17			
9				18			

Percent of Dominants OBL, FACW or FAC: 3/7 Morph/Phys Adaptations?

Remarks:

SOILS:
Mapped Series & Phase: Othello-Fallsington-Urban Hydric Classification? No

Horizon	Depth	Matrix Color(s)	Mottles	Other
A	0-10"	10YR 3/1	N	
Bg	10-16"	2.5Y 3/1	Y MANY/PROMINENT	

Gleyed ✓ Sulfidic Odors ____ Concretions ____ Reduced ✓ Red Parent Material ____

Remarks:

HYDROLOGY:
Surface Water Depth: N Depth to Free Water: N Depth to Saturated Soil: N
Water Marks: ____ Water Stained Leaves: ____ Sediment Deposits: ____
Drift Lines: ____ Ox. Root Channels: ____ Other: ____
Weather Conditions:
Remarks: BOG AND BANKS DESCRIPTION

WETLAND DETERMINATION:

			Rational and Comments:
Hydrophytic Vegetation:	Yes	No	
Hydric Soils:	Yes	No	Hydric Colors in probable Fill
Wetland Hydrology:	Yes	No	
Is Area A Wetland?	Yes	No	
Is Area A Watercourse?	Yes	No	

Wildlife\Ecological Observations:

Determined By: [signature]

WETLAND DATA FORM
1987 CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL

Project: Cherry Island Landfill Date: 2-19-02 Flag No. B1 Community: Elderberry
Location: Along western fenceline
Disturbances? Right of Way area, disturbed soils

VEGETATION:

	Dominant Species, Percent	Strata	Indicator		Dominant Species, Percent	Strata	Indicator
1	SAMBUCUS CANADENSIS	S	FACW-	10			
2	VERBENA HASTATA	H	FACW+	11			
3	POLYGONUM PERFOLIATUM	H	FAC*	12			
4	POLYGONUM SAGITTATUM	H	OBL	13			
5	POLYGONUM PENSYLVANICUM	H	FACW	14			
6	PHYTOLACCA AMERICANA	H	FACU+	15			
7	CIRSIUM ARVENSE	H	FACU	16			
8				17			
9				18			

Percent of Dominants OBL, FACW or FAC: 5/7 Morph/Phys Adaptations?

Remarks:

SOILS:

Mapped Series & Phase: Othello-Falsington-Urban Hydric Classification? No

Horizon	Depth	Matrix Color(s)	Mottles	Other
Fill 1	0-6"	10YR 5/1	MANY PROMINENT	
Fill 2	6-16"	2.5YR 5/3	MANY PROMINENT	WET

Gleyed ✓ Sulfidic Odors ____ Concretions ____ Reduced ✓ Red Parent Material ____

Remarks: SATURATED @ 6"

HYDROLOGY:

Surface Water Depth: N Depth to Free Water: N Depth to Saturated Soil: 6"
Water Marks: ____ Water Stained Leaves: ____ Sediment Deposits: ____
Drift Lines: ____ Ox. Root Channels: ____ Other: ____
Weather Conditions:
Remarks:

WETLAND DETERMINATION:

			Rational and Comments:
Hydrophytic Vegetation:	(Yes)	No	
Hydric Soils:	(Yes)	No	
Wetland Hydrology:	(Yes)	No	
Is Area A Wetland?	(Yes)	No	
Is Area A Watercourse?	Yes	(No)	

Wildlife\Ecological Observations:

Determined By: [signature]

WETLAND DATA FORM

1987 CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL

(E#F Series)

Project: Cherry Island Landfill Date: 3-6-02 Flag No. E1 Community: Phragmites
Location: Sample taken at E1 Flag No seperate Flag placed at sample hole.
Disturbances? Yes, Completely disturbed site, delineation of drainage ditch with Ea

VEGETATION:

	Dominant Species, Percent	Strata	Indicator		Dominant Species, Percent	Strata	Indicatc
1	Phragmites australis	H	FACW	10			
2	Polygonum (Cont) sp.	H	* FACW	11			
3	Leersia oryzoides	H	OBL	12			
4				13			
5				14			
6				15			
7				16			
8				17			
9				18			

Percent of Dominants OBL, FACW or FAC: 3/3 Morph/Phys Adaptations?

Remarks: * Probable wetland indicator status

SOILS:

Mapped Series & Phase: Othello-Fallsington-Urban Hydric Classification? No

Horizon	Depth	Matrix Color(s)	Mottles	Other
Fill 1	0-4"	2.5 Y 4/2	No	
Fill 2	4-16"	5 Y 4/1	Many Prominent	

Gleyed ✓ Sulfidic Odors ____ Concretions ____ Reduced ✓ Red Parent Material ____

Remarks:

HYDROLOGY:

Surface Water Depth: 1/2" Depth to Free Water: Surface Depth to Saturated Soil: Surfa

Water Marks: ✓ Water Stained Leaves: ✓ Sediment Deposits: ✓

Drift Lines: ✓ Ox. Root Channels: ✓ Other:

Weather Conditions:

Remarks:

WETLAND DETERMINATION:

			Rational and Comments:
Hydrophytic Vegetation:	(Yes)	No	
Hydric Soils:	(Yes)	No	
Wetland Hydrology:	(Yes)	No	
Is Area A Wetland?	(Yes)	No	
Is Area A Watercourse?	(Yes)	No	

Wildlife\Ecological Observations:

Determined By: Peter C. Bacon

WETLAND DATA FORM

1987 CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL

(E & F Series)

Project: Cherry Island Landfill Date: 3-6-02 Flag No. E2L Community: Phragmites
Location:
Disturbances? Yes, Man-made ditch

VEGETATION:

	Dominant Species, Percent	Strata	Indicator		Dominant Species, Percent	Strata	Indicator
1	Phragmites australis	H	FACW	10			
2	Leersia oryzoides	H	OBL	11			
3	Polygonum sp.	H	FACW	12			
4				13			
5				14			
6				15			
7				16			
8				17			
9				18			

Percent of Dominants OBL, FACW or FAC: _____ Morph/Phys Adaptations? _____

Remarks: Vegetated Waterway Sample on waters edge
* Probable indicator strains

SOILS:

Mapped Series & Phase: Othello-Fallsington-Urban Hydric Classification? No

Horizon	Depth	Matrix Color(s)	Mottles	Other
Fill	0-16"	5Y 4/1	Many Prominent High chroma	

Gleyed ✓ Sulfidic Odors ____ Concretions ____ Reduced ✓ Red Parent Material ____

Remarks:

HYDROLOGY:

Surface Water Depth: 1" Depth to Free Water: Surface Depth to Saturated Soil: Surface
Water Marks: ✓ Water Stained Leaves: ✓ Sediment Deposits: ✓
Drift Lines: ✓ Ox. Root Channels: ✓ Other:
Weather Conditions:
Remarks:

WETLAND DETERMINATION:

			Rational and Comments:
Hydrophytic Vegetation:	Yes	No	
Hydric Soils:	Yes	No	
Wetland Hydrology:	Yes	No	
Is Area A Wetland?	Yes	No	
Is Area A Watercourse?	Yes	No	

Wildlife\Ecological Observations:

Determined By: [signature]

WETLAND DATA FORM

1987 CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL

Project: Cherry Island Landf. Date: 3-6-02 Flag No. E43 (E & F series) Community: Fall Panicum
Location:
Disturbances? Yes, Man made ditch, Mowed in this area

VEGETATION: (WE 43 Flagged at Sample Hole)

	Dominant Species, Percent	Strata	Indicator		Dominant Species, Percent	Strata	Indicator
1	Panicum dichotomiflorum	H	FACW-	10			
2	Echinochloa muricata	H	FACW+	11			
3				12			
4				13			
5				14			
6				15			
7				16			
8				17			
9				18			

Percent of Dominants OBL, FACW or FAC: 2/2 Morph/Phys Adaptations?

Remarks:

SOILS:

Mapped Series & Phase: Othello-Fallsington-Urban Hydric Classification? No

Horizon	Depth	Matrix Color(s)		Mottles	Other
Fill	0-16"	10 Y 5/1	60%	Many prominent High Chroma	
		5GY 2.5/1	40%		

Gleyed ✓ Sulfidic Odors ____ Concretions ____ Reduced ✓ Red Parent Material ____

Remarks:

HYDROLOGY:

Surface Water Depth: 1/2" Depth to Free Water: Surface Depth to Saturated Soil: Surface
Water Marks: ____ Water Stained Leaves: ✓ Sediment Deposits: ____
Drift Lines: ____ Ox. Root Channels: ✓ Other:
Weather Conditions:
Remarks:

WETLAND DETERMINATION:

			Rational and Comments:
Hydrophytic Vegetation:	(Yes)	No	
Hydric Soils:	(Yes)	No	
Wetland Hydrology:	(Yes)	No	
Is Area A Wetland?	(Yes)	No	
Is Area A Watercourse?	(Yes)	No	

Wildlife\Ecological Observations:

Determined By: [signature]

WETLAND DATA FORM
1987 CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL

Project: Cherry Island Date: 3-12-02 Flag No. AA G Series Community: Wetland
Location: AA By Sanitary Sewer
Disturbances? Fill
(G)

VEGETATION:

	Dominant Species, Percent	Strata	Indicator		Dominant Species, Percent	Strata	Indicato
1	Purple Loosestrife	H	FACW+	10			
2	Phragmites australis	H	FACW	11			
3	Polygonum sp	H	FACW*	12			
4	Foxtail Setaria glauca	H	FAC	13			
5				14			
6				15			
7				16			
8				17			
9				18			

Percent of Dominants OBL, FACW or FAC: 4/4 Morph/Phys Adaptations?
Remarks: + probable wetland indicator status

SOILS:

Mapped Series & Phase: Othello-Fallsington-Urban Hydric Classification? No

Horizon	Depth	Matrix Color(s)	Mottles	Other
Fill	0-16"	2.5Y 4/1	High Chr. many distinct	

Gleyed X Sulfidic Odors ____ Concretions ____ Reduced X Red Parent Material ____
Remarks:

HYDROLOGY:

Surface Water Depth: None Depth to Free Water: 14" Depth to Saturated Soil: 0
Water Marks: None Water Stained Leaves: None Sediment Deposits: None
Drift Lines: None Ox. Root Channels: YES Other:
Weather Conditions: Last Rain 9 Days Prev. ≈ 1"
Remarks:

WETLAND DETERMINATION:

			Rational and Comments:
Hydrophytic Vegetation:	(Yes)	No	
Hydric Soils:	(Yes)	No	
Wetland Hydrology:	(Yes)	No	
Is Area A Wetland?	(Yes)	No	
Is Area A Watercourse?	Yes	(No)	

Wildlife\Ecological Observations:

Determined By:

J1-9

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Project/Site: Cherry Island	Date: 3-14-02
Applicant/Owner: DSWA	County: New Castle
Investigator: Jenny Egan - Project Geologist	State: DE
Do Normal Circumstances exist on the site? Yes (No)	Community ID: RED MAPLE
Is the site significantly disturbed (Atypical Situation)? (Yes) No	Transect ID:
Is the area a potential Problem Area? Yes No	Plot ID: J1-9
(If needed, explain on reverse)	

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Acer Rubrum	S-T	FACW	9.		
2. Phragmites australis	G	FACW	10.		
3.			11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC). FACW 2/2

Remarks:

HYDROLOGY

___ Recorded Data (Described in Remarks)
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

X No Recorded Data Available

Field Observations:

Depth of Surface Water: N (in.)

Depth of Free Water in Pit: N (in.)

Depth to Saturated Soil: 0 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- X Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- X FAC-Neutral test
- ___ Other (Explain in Remarks)

Remarks:

RAIN NIGHT BEFORE 3-13-02

J

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____
Field Observations
Taxonomy (Subgroup): _____ Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure etc.
0-10"	Fill (A)	2.5Y 2.5/1			worked, rounded
10-20"	B	2.5Y 3/1	2.5YR 3/6	Very Prominent	

Hydric Soil Indicators:

- ____ Histosol
- ____ Histic Epipedon
- ____ Sulfidic Odor
- ____ Aquic Moisture Regime
- X Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ____ Concretions
- ____ High Organic Content in Surface Layer in Sandy Soils
- ____ Organic Streaking in Sandy Soils
- ____ Listed on Local Hydric Soils List
- ____ Listed on National Hydric Soils List
- ____ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	No	(Circle)
Wetland Hydrology Present?	Yes	No	
Hydric Soils Present?	Yes	No	

(Circle)
Is this sampling point within a Wetland? Yes No

Remarks:

Approved by HQUSACE 3/92

K 1-7

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Project/Site: Chaney Island	Date: 3-14-02
Applicant/Owner: DSWA	County: Nccc
Investigator: Jenny Egan Prg. Geologist	State: DE
Do Normal Circumstances exist on the site? Yes (No)	Community ID: RED MAPLE
Is the site significantly disturbed (Atypical Situation)? (Yes) No	Transect ID:
Is the area a potential Problem Area? Yes No	Plot ID: K 1-7
(If needed, explain on reverse)	

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Acer Rubrum	T	FACW	9.		
2. Phalaris arundinacea	H	FACW+	10.		
3. Cherry Choke	T		11.		
4. FALSE INDIGO			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC). 2/2

Remarks:

DEPRESSION W/ RED MAPLE + REED CANARY

HYDROLOGY

___ Recorded Data (Described in Remarks)
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

X No Recorded Data Available

Field Observations:

Depth of Surface Water: X (in.)

Depth of Free Water in Pit: X (in.)

Depth to Saturated Soil: 0 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- X Saturated in Upper 12 inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 inches
- X Water-Stained Leaves
- ___ Local Soil Survey Data
- X FAC-Neutral test
- ___ Other (Explain in Remarks)

Remarks:

RAIN ON 3-13-02

K

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____
Field Observations
Taxonomy (Subgroup): _____ Confirm Mapped Type? Yes No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure etc.
0-4	A?	10YR 4/3	X		
5-16	B?L	10YR 3/1	2.5YR 5/8	PROMINENT	
16-18	FL	2.5YR 3/6			SAND

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- ___ Aquic Moisture Regime
- X Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks: SAND SATURATED
SAT. AT TOP LAYER

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	No	(Circle)
Wetland Hydrology Present?	Yes	No	
Hydric Soils Present?	Yes	No	

(Circle)
Is this sampling point within a Wetland? Yes No

Remarks:

Approved by HQUSACE 3/92

R 1-15

Sheet 1

R

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Project/Site: Cherry Isl	Date: 3-19-02
Applicant/Owner: DSWA	County: Ncco
Investigator: Jenny Egan - Project Geologist	State: DE
Do Normal Circumstances exist on the site? Yes (No)	Community ID:
Is the site significantly disturbed (Atypical Situation)? (Yes) No	Transect ID:
Is the area a potential Problem Area? Yes No	Plot ID: P 1-15
(If needed, explain on reverse)	

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Red Maple	T	FACW+	9.		
2.			10.		
3.			11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC).

Remarks:

HYDROLOGY

___ Recorded Data (Described in Remarks)
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

X No Recorded Data Available

Field Observations:

Depth of Surface Water: 0 (in.)

Depth of Free Water in Pit: 0 (in.)

Depth to Saturated Soil: 0 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- X Inundated
- X Saturated in Upper 12 inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 inches
- X Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral test
- ___ Other (Explain in Remarks)

Remarks:

R

SOILS

Map Unit Name
(Series and Phase): _____ Drainage Class: _____

Field Observations
Confirm Mapped Type? Yes No

Taxonomy (Subgroup): _____

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure etc.
0-12"	Fill	10YR 3/2		many	

Hydric Soil Indicators:

- ____ Histosol
- ____ Histic Epipedon
- ____ Sulfidic Odor
- ____ Aquic Moisture Regime
- X Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ____ Concretions
- ____ High Organic Content in Surface Layer in Sandy Soils
- ____ Organic Streaking in Sandy Soils
- ____ Listed on Local Hydric Soils List
- ____ Listed on National Hydric Soils List
- ____ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	No	(Circle)
Wetland Hydrology Present?	Yes	No	
Hydric Soils Present?	Yes	No	

(Circle)

Is this sampling point within a Wetland? Yes No

Remarks:

Approved by HQUSACE 3/92

IX. TOPOGRAPHICAL AND SITE LOCATION MAPS

According the Delaware Rules Governing Solid Waste (DRGSW), Section 4.B.1.a.(7), the permit application for a solid waste facility must include topographical and site location maps of the proposed landfill. These maps must show topographic evaluations surveyed with reference to mean sea level, as well as relevant narrative descriptions. The information required by DRGSW 4.B.1.a.(7)(a-d), and the location where the information is presented, are identified below:

- *The legal boundaries of the property as determined by a survey performed by a registered surveyor; the names of the present owners of the proposed site and of all adjacent lands; and a description of all title, deed, or usage restrictions affecting the proposed permit area.*

  The legal boundaries of the property are presented in Part IV (i.e., Proof of Property Ownership), and on Drawing 3 (i.e., Existing Conditions) of the Permit Application Drawings.

- *The boundaries of the facility over the estimated total life of the proposed operation, including the boundaries of land that will be affected in each sequence of disposal activity.*

  These are presented in Drawing 3 of the Permit Application Drawings.

- *The boundaries of land where solid waste will be stored at any time over the estimated total life af the proposed operation.*

  These are presented in Drawing 3 of the Permit Application Drawings.

- *The locations and names of all water supply wells or surface water intakes within 1 mile of the disposal site boundaries.*

  As shown in the report by Gilbert [1984], the site was not constructed within a wellhead protection area. To the best of our knowledge, no new wells have been installed since 1984.

X. PROOF OF ZONING APPROVAL AND FEDERAL STATE AND LOCAL PERMITS

Proof of zoning approval and all applicable Federal, State, and Local Permits are addressed in Delaware Rules Governing Solid Waste (DRGSW), Section 4, regarding permit requirements and administrative procedures for solid waste facilities. According to the regulations presented in Section 6406(a)(15) of the Delaware Environmental Protection Act, 7 Delaware Code, Chapter 64, the Delaware Solid Waste Authority (DSWA) is exempt from regulations governing zoning approval for solid waste facilities. Therefore, proof of zoning approval is not required for the proposed expansion of the DSWA's Cherry Island Landfill.

Prepared for:

Delaware Solid Waste Authority
1128 South Bradford Street
Dover Delaware 19903

CLOSURE PLAN

Northern Solid Waste Management Center
Wilmington, New Castle County, Delaware

Contract No. S01445NC

Prepared by:

GEOSYNTEC CONSULTANTS
10015 Old Columbia Road, Suite A-200
Columbia, Maryland 21046

Project No. ME0250

September 2003

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1. INTRODUCTION

1.1 Terms of Reference

The purpose of this report is to address the requirements for landfill closure and post-closure care for the expansion of the Cherry Island Landfill (CIL) at the Northern Solid Waste Management Center (NSWMC) located in Wilmington, New Castle County, Delaware. The landfill is owned by the Delaware Solid Waste Authority (DSWA). In this report, the requirements of the Delaware Regulations Governing Solid Waste (DRGSW), Section 5.J (i.e., Closure), and 5.K (i.e., Post-Closure Care) are addressed.

This report was prepared by Ms. Carrie H. Pendleton, Mr. Paul J. Botek, and Mr. Michael F. Houlihan, P.E., and was reviewed by Mr. Eric S. Steinhauser, P.E., all of GeoSyntec Consultants (GeoSyntec) in accordance with the internal peer review policy of the firm. This report was prepared to fulfill a requirement of Contract No. S01445NC (Contract) issued on 17 December 2001 by DSWA.

1.2 Regulatory Requirements and Closure Plan Organization

This Closure Plan has been prepared to meet the closure and post-closure care requirements for sanitary landfills, as defined in DRGSW Sections 5.J and 5.K and related sections. The required content of closure plans is presented in DRGSW § 5.J.3. The required Closure Plan contents and the location where the requirements are addressed in this plan are as follows:

- in the remainder of Section 1, definitions and an overview of closure and post-closure care activities for CIL are presented;
- the methods, procedures, and processes that will be used to close CIL (DRGSW § 5.J.3.a) are described in Section 2;
- pre-closure activities (DRGSW § 5.J.3.c) are described in Section 3;
- a description of the closure system components (DRGSW § 5.J.3.b) is presented in Section 4;
- closure and post-closure cost estimates (DRGSW § 5.J.3.d) are presented in Section 5;

- a post-closure care plan (DRGSW § 5.J.3.e and § 5.K) is presented in Section 6; and
- a landfill gas control plan (DRGSW § 5.J.3.f) is presented in Section 7.

1.3 Definitions

The following definitions are used throughout this Closure Plan. These definitions are consistent with the definitions presented in DRGSW § 3, but they have been clarified to better describe activities that will be performed for closure and post-closure care of the CIL.

- "*Closure*" is defined as cessation of waste disposal operations at CIL and completion of construction of a closure system over waste disposal areas. The activities to be performed during closure (as described in this section) are intended to minimize the need for further maintenance of the landfill and to prevent the escape of solid waste, leachate, or landfill gas constituents to the environment, as required by DRGSW § 5.J.1. Closure will include pre-closure and final closure activities, as defined below:
  - "*Pre-Closure*" is defined as closure activities that will be performed after cessation of waste disposal operations in a portion of the CIL but before the cessation of all waste disposal operations at CIL.
  - "*Final Closure*" is defined as final capping of the entire landfill disposal area, completion of the surface-water management system and site access roads, revegetation of all disturbed areas, construction of the post-closure landfill gas removal system, and development of post-closure use features (if any).
- "*Interim Landfill Cover*" is defined as a temporary cover system placed over the final grading layer after final waste grades are achieved in an area of the landfill. Long-term Interim Cover is not required but may be used at DSWA's discretion to minimize infiltration of rainwater and the escape of landfill gas during the period between cessation of waste disposal operations and construction of the final capping system required under DRGSW § 5.H.
- "*Post-Closure Care*" is defined as the maintenance and monitoring activities that will be performed during the 30-year post-closure care period (as required

by DRGSW § 5.K). Post-closure care includes all activities that will be performed following closure, such as: operation of the leachate, landfill gas, and surface-water management systems; long-term maintenance; and environmental monitoring.

In this Closure Plan, the "Drawings" refer to the drawing package entitled, "*Permit Drawings for Landfill Expansion, Cherry Island Landfill*", Wilmington, Delaware, Contract No. SO1445NC, by GeoSyntec Consultants dated 13 June 2004. These drawings are included in Appendix VIb-A (i.e., Reduced Size Set of Permit Drawings) of the Engineering Report (i.e., Part VIb of the Permit Modification Application).

1.4 Overview of Closure and Post-Closure Care Activities

1.4.1 Introduction

CIL will be closed according to the closure requirements of the DRGSW. In this section, an overview is presented of the activities that will be performed for closure and post-closure care of CIL, and references are provided for the location in this report where the activities are described in more detail.

1.4.2 Required Submittals and Notifications

DSWA will make several submittals and notifications, as required by DRGSW § 5.J.2, to describe its intentions for closure and post-closure care to DNREC and the public. These submittals and notifications are identified below.

- As required under DRGSW § 5.J.2.a, this Closure Plan has been prepared and is being submitted as part of the initial application for permit to dispose waste at CIL. The engineering design and layout of the closure system is described in more detail in Part VIb, Section 4.5 of this Permit Modification Application document.
- Written notification of DSWA's intent to close CIL will be provided to DNREC at least 180 days before the date of final receipt of waste, as required in DRGSW § 5.J.2.b. As described in Part VIb, Section 4.5 of this Permit Modification Application, the anticipated date of final receipt of waste for CIL,

based on the configuration of CIL shown on Drawing 86, will be in 2025. Therefore, in early 2025, DSWA will set a preliminary date for notification of intent to close the landfill.

- DSWA will not commence closure of CIL until a closure permit has been issued for the facility, as required by DRGSW § 5.J.2.c. When DSWA issues its notification of intent to close CIL, a closure schedule and revised Closure Plan will also be submitted to DNREC, as required under DRGSW § 5.J.2.c. Once the closure permit has been issued (according to DRGSW § 5.J.2.d), the Closure Plan will be executed as described in the terms of the permit.

- A copy of this Closure Plan will be maintained at the CIL facility at all times during facility operation and throughout the post-closure care period, as required by DRGSW § 5.J.2.e.

- A notification in the deed to the CIL property will be made at the time of closure, as required under DRGSW § 5.K.5. The notification will indicate that the land has been used as a solid waste disposal site and that the use of the land is restricted under DRGSW.

1.4.3 Closure Construction Activities

To close CIL, DSWA will perform several activities that are intended to minimize the need for further maintenance of the landfill and minimize the potential for escape of solid waste, leachate, and landfill gas constituents. These closure activities will include construction of the following features: (i) the interim landfill cover, over portions of the landfill if needed; (ii) the capping system; (iii) the permanent landfill gas management system (if needed); and (iv) the surface-water management system. Construction activities associated with each of these features is briefly described in the following paragraphs.

Interim Landfill Cover. Because the CIL will be constructed in stages, some areas of the landfill will be filled to final grade before other areas. DSWA may construct an interim landfill cover over areas that have been filled to final grade before the date of cessation of all waste disposal operations. The purposes of constructing interim cover over these areas are: (i) to minimize the amount of infiltration into the landfill prior to construction of the final cover; and (ii) to control landfill gas prior to the construction of the permanent landfill gas management system. Interim cover will consist of a one-foot

(0.3-m) thick layer of soil that meets the DRGSW requirements for the final grading layer, as described in Section 3.4 of this report.

Capping System. DSWA will construct a capping system over all waste disposal areas after waste in an area has been filled to the final permitted grades. As described on Page 2, closure activities may be performed in stages involving closure of portions of the landfill that have been filled to final grades, but before the entire CIL is filled and closed. It is assumed that such "pre-closure" activities can be performed as a normal part of facility operations without obtaining a closure permit, as is currently done at DSWA's Central Solid Waste Management Center (CSWMC) and Southern Solid Waste Management Center (SSWMC). The capping system will consist of one or a combination of the two capping alternatives currently permitted [Weston, 1992]. These capping system alternatives and closure system components are described in Section 4 of the report, entitled "*Northern Solid Waste Management Center, Cherry Island Landfill, Phase IV Disposal Area, Hydrogeological Geotechnical and Landfill Capping Report*", prepared by Weston [1992] attached to this permit modification application in Volume 14. The cover system will be constructed in stages as the facility is developed; it is expected that, at the time of final disposal of waste in the landfill, there will be about 40 acres of landfill that has not been capped yet. Depending upon the cover system selected, construction of the final cover will be performed over a period of approximately two to four years after final closure of the CIL, during which time the permanent landfill gas management system and the surface-water management system will also be constructed. If future landfill cells are permitted adjacent to CIL that result in future overfilling in areas of the proposed expansion, then the final landfill cover will not be constructed in these areas until after the overfill areas are completely filled; such activities, if any, would be described in a future application for permit modification.

Permanent Landfill Gas Management System. Before construction of the final landfill cover, DSWA will construct enhancements to the permanent landfill gas management system, if needed. The design of the permanent landfill gas management system is described in Part VIb, Section 4.4 of the Permit Modification Application report and is illustrated on Drawings 71 through 77. As shown on the drawings, the gas system will consist of a series of horizontal and vertical gas extraction pipes that will be installed in phases throughout the operating life of the landfill. At the time of final closure or closure of a portion of the landfill, the adequacy of the gas management system will be confirmed and, if modifications are needed to provide adequate

collection of landfill gas in an area, then the modifications will be designed and constructed at that time.

Permanent Surface-Water Management System. During construction of the landfill capping system, the permanent surface-water management system will be constructed. The design of the system is presented in detail in Part V, Section 4.7 of the Permit Modification Application report. During construction and filling of CIL, the system will be used for both sediment control and storm-water management; after closure (i.e., after all surfaces have been seeded and stabilized), the system will be used only for storm-water management. The permanent surface-water management system described in the permit application report is designed to manage runoff from the entire CIL capping system. If future landfill cells are permitted adjacent to CIL that result in overfilling of portions of the proposed expansion area, then the system described in this permit application may need to be revised to address the adjacent cells.

I.4.4 Post-Closure Care, Maintenance, and Monitoring

After closure of CIL has been completed, DSWA will provide post-closure care, maintenance, and monitoring in accordance with the requirements of DRGSW § 5.K. In general, this will include: (i) operating the landfill to manage leachate, landfill gas, and surface water; (ii) monitoring ground water, surface water, and air at the site to detect releases of leachate, landfill gas, or waste; (iii) maintaining the leachate management, landfill gas management and surface-water management systems; and (iv) in the event of a problem, notifying the proper authorities of the problem and addressing the problem. DSWA's plan for providing post-closure operation, maintenance, and monitoring is presented in Section 6 of this Closure Plan. Further, DSWA plans to continue to use the site for other (as yet undetermined) solid waste management activities (e.g., recycling, composting, etc.) throughout the post-closure period.

The need for long-term maintenance of the landfill is described in Section 2.5. As described in Section 2.5 and as described in Section 6.6, after the first five years of post-closure care, the need for continued post-closure care will be reevaluated for each component of post-closure care (i.e., leachate management, landfill gas, groundwater monitoring, and capping system). The purpose of the reevaluation will be to support a request to the Department under DRGSW § 5.4K.1.C, that if post-closure care is no longer needed as described in this Post-Closure Plan, then it will be terminated or the length of post-closure care will be reduced.

2. METHODS, PROCEDURES, AND PROCESSES FOR LANDFILL CLOSURE

2.1 Introduction

In this Section, the methods, procedures, and processes that will be employed by DSWA to close the CIL disposal area are presented. The methods, procedures, and processes described in this section have been selected to meet the performance requirements of DRGSW § 5.J.1.a and b, which are:

- minimize the need for further maintenance of the landfill; and
- minimize the post-closure escape of solid waste, leachate, and landfill gases to the surface water, ground water, or atmosphere.

In the following sections, descriptions are provided of the methods, procedures, and processes that will be used to minimize the post-closure escape of solid waste (Section 2.2), leachate (Section 2.3), and landfill gas (Section 2.4) to the surface water, ground water, and atmosphere. Also, the need for long-term maintenance of the landfill is addressed (Section 2.5).

2.2 Containment of Solid Waste

The design of CIL provides for containment of solid waste throughout the entire period of landfill operation, closure, and post-closure care and minimizes the possibility for release of solid waste to the environment. Design features that will provide for containment of solid waste through the closure and post-closure period include: the liner system; the perimeter berm; the long-term interim cover; and the capping system. These features are described below.

- *Landfill Liner System.* The landfill liner system is designed to contain and to prevent a release of solid waste (including any liquid wastes that may exist in the landfill) to the environment. As shown on Drawing 42, the liner system will extend beneath all areas that will receive solid waste. The design and operation plan for CIL include techniques that are intended to minimize the possibility of damage to the liner system during the life of the landfill, including: (i) thorough construction quality assurance measures to identify and

remediate problems with the liner system during construction; (ii) specific operation measures for waste placement and cap construction that minimize the possibility of damage to the liner system; (iii) and monitoring of the landfill during operation and after closure to identify problems with the liner system. Using these techniques, the landfill will be effective in containing solid waste throughout the post-closure period.

- *Perimeter Berm.* The landfill is designed having a perimeter berm to provide containment of solid waste. The berm is illustrated on Drawing 37 through Drawing 41. As shown on the drawings, the berm is approximately 70 feet (21 m) high around the CIL disposal area. The berm is designed to provide stability to the landfill and to contain waste within the landfill cell. A large majority of the perimeter berm is constructed as a mechanically stabilized earth (MSE) berm. As shown on the drawings, the berm will be constructed in many areas having two tiers, an upper tier on which the landfill gas management system features and stormwater management features will be constructed and a lower tier on which the leachate removal and transmission system features will be constructed. The primary purpose of constructing the berm in tiers is to enhance stability. The landfill liner completely covers the interior of the wall, which together contain the solid waste within the landfill cell.

- *Interim Cover.* In some areas, DSWA may elect to construct an interim cover in areas where solid waste operations have ceased. In these areas, the cover would provide containment of waste and would limit the potential for excessive soil erosion, which could cause exposure and possibly a release of solid waste.

- *Capping System.* Two candidate capping alternatives are available for the site as described in Section 4 of the report prepared by Weston [1992] (see Volume 14). Selection of the appropriate capping system will be based on site conditions and the potential for the site to adversely impact the environment at the time of site closure.

2.3 Containment of Leachate

The design of CIL provides for containment of leachate throughout the landfill operation, closure, and post-closure care period and minimizes the possibility for

release of leachate from the landfill to the environment. Design features that will provide for containment of leachate throughout the closure and post-closure period include: (i) the landfill liner and leachate collection system; (ii) the leachate removal and transmission system; (iii) leachate treatment procedures; and (iv) the capping system. These features are described below.

- *Liner and Leachate Collection System.* The liner system and leachate collection system will provide containment of leachate throughout the post-closure care period. The liner system is illustrated on Drawing 42. As shown on Drawing 42, the liner system consists of either a natural soil liner (per DRGSW § 5.C.2.b) or a composite liner (per DRGSW 5.C.2.a). All areas will have a leachate collection system above the liner. The liner system is designed to minimize leakage of leachate into the environment; as described in Part VIb, Section 4.2 of the Permit Modification Application, the liner system has a calculated efficiency of over 99.9 percent. The leachate collection system is designed to route leachate from within the disposal areas to the perimeter of the landfill for removal. This system is designed to minimize the head of leachate (i.e., thickness of leachate) on the liner, and therefore will reduce the volume of leakage through the liner system.

- *Leachate Removal and Transmission System.* As described above, leachate will be transmitted from the disposal area to the perimeter of the landfill, where it will be removed from the landfill. The leachate removal system will be operated throughout the post-closure period to remove leachate that is collected in the sumps. The transmission system will act to route leachate from the landfill cell to the off-site Publicly-Owned Treatment Works (POTW) (which currently is the City of Wilmington Wastewater Treatment Plant). The transmission piping system will consist of a double-walled HDPE pipe and will have a secondary containment (i.e., witness) pipe. The double-walled piping system will allow detection of leakage within the piping system and will provide for containment of leachate outside of the landfill cell area.

- *Leachate Treatment System.* Throughout the post-closure period, leachate that is removed from the landfill will be transmitted to the POTW, where it will be treated to remove contaminants and then discharged in accordance with the POTWs discharge permit. If, at some point in the future leachate quality analysis indicates that constituent concentrations in the leachate meet

applicable discharge guidelines or can be treated passively (e.g., through a reed bed or wetland), then DSWA would petition DNREC to alter the treatment methods for leachate at the site according to the provisions and procedures described in Section 6.6 of this Closure Plan.

- *Capping System.* Two capping alternatives are available for the site as described in Section 4 of the report prepared by Weston [1992] (Volume 14). Regardless of the alternative selected, a cap will be constructed over all areas of the landfill that receive solid waste. The capping system will be maintained throughout the post-closure period. The cap will reduce the amount of infiltration that enters the landfill, thereby minimizing the amount of leachate that is generated during the post-closure period. The cap will also prevent the release of leachate from the landfill sideslopes in leachate 'break-outs'.

2.4 Containment of Landfill Gas

The design of CIL provides for containment of landfill gas throughout the landfill operation, closure, and post-closure care period and minimizes the possibility for release of landfill gas from the landfill to the environment. Design features that will provide for containment of landfill gas through the closure and post-closure periods include the landfill liner system, the capping system, and the active gas management system. These features are described below.

- *Landfill Liner System.* The landfill liner system will prevent the escape of landfill gas by eliminating the possibility of downward or lateral migration of landfill gas into the ground beneath the landfill and subsequent lateral migration of gas.

- *Final Capping System.* Two candidate capping alternatives are available for the site as described in Section 4 of the report prepared by Weston [1992] (Volume 14). Regardless of the alternative selected, the capping system will cover all waste througbout the post-closure care period and will be designed to prevent the discharge of landfill gas to the atmosphere at concentrations exceeding applicable state and federal emissions guidelines. The capping system will be tied into the liner system at the perimeter berm to provide complete containment of the landfill gas.

- *Active Landfill Gas Management System.* As described in Section 1.4.3, an active landfill gas management system will be constructed for CIL and will be operated as needed during the post-closure period. The system will consist of a network of vertical and horizontal wells to remove landfill gas, transmission pipes to convey the gas from the landfill, and a flare to burn landfill gas. The system will also be tied into other potential sources for release of landfill gas, such as the leachate riser pipes and the leachate cleanout pipes. The gas management system will be fully automated and will operate continuously at all times throughout the post-closure period.

2.5 Long-Term Landfill Maintenance

The CIL closure system has been designed to minimize maintenance throughout the post-closure period, as required by DRGSW § 5.J.1.a. Features of the design that minimize maintenance include:

- drainage terraces to limit the length of surface-water sheet flow off of the cap slopes and thus limit erosion of the final cap soils;
- relatively flat drainage channels and short downchutes (instead of long downchutes, culverts, or piping systems) to route drainage off the final cap at low, non-erosive velocities;
- gravity drainage of leachate (where possible) from the landfill to reduce the need for repair, replacement, or maintenance of leachate removal pumps;
- accelerated settlement (through the use of Prefabricated Vertical Drains or PVDs) at the perimeter of the landfill to reduce the amount of long-term maintenance needed for the leachate, landfill gas, and surface-water conveyance features;
- durable, hearty grasses for the cover that limit stormwater runoff and thus minimize erosion of the topsoil and vegetative support soil layers; and
- drainage features that transition gradually, instead of abruptly, to prevent concentrations of flow that could damage the cap.

3. PRE-CLOSURE ACTIVITIES

3.1 Overview

Pre-closure activities are defined in Section 1.3 as activities performed after cessation of waste disposal operations in parts of the landfill. Pre-closure activities will be performed in order to: (i) minimize generation of leachate and landfill gas at the site; (ii) enhance landfill gas collection prior to final closure; and (iii) enhance storm-water management. As described in Part VI (i.e., Operation and Maintenance Plan) of this Permit Modification Application, the landfill will be developed in several phases. As a result, at any point in time, different areas of the landfill may be closed, fully developed, partially-developed, or under construction. The phased development of the landfill is illustrated on Drawings 80 through 85 in Appendix VIb-A (i.e., Reduced Size Set of Permit Drawings) of this Permit Modification Application.

Pre-closure of the landfill may include any or all of the following activities:

- final landfill grading, as necessary to comply with the final cap system contours shown on Drawing 78 (i.e., Final Landfill Grading Plan);
- placement of interim cover over portions of CIL;
- placement of the final capping system over the surface of the previously-placed intermediate cover;
- revegetation of the final capping;
- construction of portions of the cover access roads and cover terraces;
- establishment of the surface-water drainage system on the final capping system; and
- installation of the landfill gas recovery wells and/or headers and connection of the headers to the landfill gas recovery system.

DSWA will evaluate site conditions on a continual basis and will perform pre-closure activities as required in order to meet the following goals: (i) minimize the generation of leachate requiring treatment and disposal; (ii) control landfill gas emissions; and (iii) minimize the need for maintenance of the landfill intermediate cover or final grading layer. DSWA will discuss specific pre-closure activities with DNREC before implementation.

3.2 Final Grading of Landfill

After the final receipt of waste in an area and before construction of the final cap, the surface of the landfill will be graded such that the computed post-settlement elevation of the intermediate cover layer is the required depth below the contours shown on Drawing 78 (i.e., Final Landfill Grading Plan). The purpose of final grading will be to provide smooth grades on the final cap, to repair any damage caused by erosion of the intermediate cover, to provide proper surface-water drainage for the cap, and to prepare the cap for construction of the capping system. DSWA will attempt to minimize the amount of final grading that is needed by filling CIL as closely as possible to the required grades.

3.3 Miscellaneous Relocation of Waste

During final grading of the landfill cover, some areas may require grading of waste in order to achieve the design final cover grades. Such grading may be needed to provide smooth slopes, to allow construction of cover access roads, or to provide proper drainage of cover terraces. If such grading is required, DSWA will excavate the waste, following the health and safety precautions as described in Part V (i.e., Operation Manual), and will identify areas of CIL to receive the waste. Relocated waste will be covered with daily and intermediate cover (i.e., 0.5-ft (0.15-m) thick layer of cover soil) before the end of the day that it is relocated.

3.4 Interim Cover

Based on the specific needs of DSWA, after an area has been filled to the computed post-settlement final grades as shown on Drawing 78 (i.e., Final Landfill Grading Plan) DSWA may elect to place an interim cover over parts of the landfill. As described in Section 1.3 of this Part, the purposes of placing the interim cover would be to: (i) control landfill gas; (ii) minimize the amount of infiltration into the landfill; and (iii) minimize the amount of maintenance needed for intermediate cover or final grading layer surfaces. Also, because it can be easily removed (as described below), use of an interim cover may allow inexpensive access to the waste for possible alternative uses (e.g., waste-to-energy fuel, recycling, or landfill overfilling). The interim cover systems would include a relatively low-permeability soil layer over the intermediate cover layer or final grading layer or other interim cover approved by DNREC.

4. DESCRIPTION OF CLOSURE SYSTEM COMPONENTS

4.1 Introduction

The closure system will consist of several components, including a capping system, a landfill gas management system, and a surface-water management system. The currently permitted capping system will be used and a description of the capping components can be found in the report prepared by Weston [1992] (Volume 14 of this Permit Modification Application). The leachate management system, which will be operated during the post-closure period, is not considered to be a closure system component because it will have already been constructed and in operation before final closure. In this section, the capping, gas management, and surface-water management components of the closure system are described.

4.2 Landfill Gas Control System

Landfill gas will be controlled by removing the gas from the landfill through an active gas collection system and then routing the gas to a flare. As described in Part VIb, Section 4.4 of this Permit Modification Application, enhancements to the permanent system will be installed, if needed, to control landfill gas after closure of the landfill. The active gas collection system will be operated until active emission control is no longer necessary. Gases will be prevented from escaping the landfill by the capping system. Regardless, a gas monitoring program (which is described in Section 6.4.4 of this Closure Plan) will be implemented to test for the presence of landfill gases outside of the landfill.

4.3 Surface-Water Management System

At closure, the surface-water management system will be modified to meet the goals of post-closure care. During operation of the landfill, the system will have the duel purposes of: (i) managing stormwater; and (ii) minimizing erosion and off-site sedimentation. After closure, the primary purpose of the system will shift from erosion and sediment control (because all surfaces will be stabilized with vegetation) to storm-water management (i.e., conveyance of stormwater in a non-erosive manner to the Delaware or Christina Rivers). To modify the storm-water management system for long-term post-closure use, the low-flow sediment dewatering devices will be removed and the sediment will be cleaned from the basins.

5. COST ESTIMATES

5.1 Introduction

In this section, cost estimates are presented for CIL final closure system construction and post-closure care. The cost estimates are presented to address the requirements of DRGSW § 5.J.3.d. Costs for construction of CIL, operation of CIL, and any activities related to interim closure or pre-closure of CIL are not addressed in this estimate.

5.2 Closure Construction Cost Estimate

Estimates of capital closure costs for the 24-in. thick clay cover capping system and the geomembrane cover system are included in Table 1. The closure cost estimates include those costs that will be incurred during: (i) construction of the 40-acre (16-ha) area final capping system for CIL; (ii) removal of construction equipment from the site; and (iii) establishment of the permanent landfill gas management system enhancements. As shown on Table 1, the estimated cost in 2003 dollars is $4,800,000 for the 24-in. thick clay cover and $4,510,000 for the geomembrane cover.

5.3 Post-Closure Care Cost Estimate

An estimate of the post-closure cost for maintenance of the candidate closure systems for the CIL is presented in Table 2. The post-closure cost estimate includes the cost of:

- environmental quality monitoring (i.e., sampling and analysis of ground water, surface water);
- inspections of the final cap system, gas control system, storm-water management system, leachate collection system, and perimeter road;
- leachate removal, storage and hauling; and
- maintenance of the above-referenced systems.

As shown on Table 2, the estimated cost of post-closure care in 2003 is $8,098,000 for the 24-in. thick clay cover and $7,846,000 for the geomembrane cover. The

estimate is based on a post-closure care period of 30-years as required by DRGSW § 5.K.1.a.

5.4 Financial Assurance

The DSWA provides documentation of compliance with the requirements of a State-approved Financial Assurance Mechanism for closure and post-closure care by 31 December of each year. This certification is provided for the DSWA's most recent fiscal year, which ends on 30 June of each year. A copy of the most recent certification, dated 9 December 2003, is provided in Appendix XI-1. The financial assurance certification for the next year (i.e., to be submitted by 31 December 2004) will be based on the least expensive DNREC-approved closure and post-closure care option for the facility. As described in Sections 5.2 and 5.3, the closure and post-closure cost estimates for the two cover alternatives are provided in Tables 1 and 2, respectively.

6. POST-CLOSURE CARE

6.1 Regulatory Requirements

This post-closure care plan addresses the requirements of DRGSW § 5.J.3.e and 5.K. As required by DRGSW § 5.K.2, maintenance will be performed for the cap system, all vegetation associated with CIL, the leachate management system, the ground-water monitoring system, the landfill gas management system, the storm-water management system, and other miscellaneous site features, as described below. An inspection schedule for post-closure maintenance is presented in Table 3. In addition, ground water, storm water, leachate, and landfill gas will be monitored as described in Section 6.4. In this section, operation, maintenance, and monitoring of the landfill throughout the 30-year, post-closure care period are described.

6.2 Post-Closure Operation

During the post-closure care period, leachate and landfill gas will continue to be generated at the landfill. Accordingly, the leachate management system and the landfill gas management system will be operated, maintained, and monitored routinely as described in the Operation and Maintenance Manual, (i.e., Part V of this Permit Modification Application). Other features of the landfill will only be maintained and monitored. Operation of the leachate and landfill gas management systems will be performed according to the procedures described in the Operation and Maintenance Manual until such time that leachate and landfill gas are either not produced or are produced in limited quantities or with limited concentrations such that they are not harmful to human health or the environment. At that time, DSWA will demonstrate to DNREC (using the approach described in Section 6.6 of this Closure Plan) that management of leachate and landfill gas is no longer necessary and, upon DNREC's approval, will cease operation of the leachate and landfill gas management systems.

6.3 Post-Closure Maintenance

6.3.1 Access Roads

On-site access roads will he maintained in a passable condition at all times during the post-closure period. As shown on the engineering plans, all access roads will have

gravel surfaces except for the entrance access road, which will be paved. All access roads will be inspected quarterly for conditions that would prevent passage of vehicles (sucb as ruts, ponded water, wasbouts, gullies, ice or other frozen precipitation, or obstacles). If needed, repairs will be made to keep the roads passable.

6.3.2 Vegetation

Vegetation (including permanent and screening vegetation) will be maintained in a condition that will minimize erosion of on-site soils and will help screen the site from public view. During the post-closure period, maintenance will consist of inspections, quarterly and after major storm events (i.e., 24-hour, 10-year or greater storm return frequency), to identify locations of excessive erosion, washout, poor vegetation density, and damaged vegetation. If required, the identified areas will be regraded and/or revegetated.

During landscaping inspections, all on-site slopes will be inspected for stability. The inspector will attempt to identify any signs of sloughing of the slope surface, bulging at the toes of slopes, tension cracks at the tops of slopes, and other conditions that may indicate slope instability. If areas of instability are identified, DNREC will be notified and appropriate remedial measures will be implemented.

6.3.3 Mechanically Stabilized Earth Walls

The mechanically stabilized earth (MSE) walls will be maintained in a condition that ensures waste and leachate will be contained and the structural integrity of the wall is not compromised. During the post-closure period the MSE wall will be inspected periodically to identify signs of leakage, cracks or stress, and slumping or sliding. Maintenance of the MSE wall may require additional reinforcement or replacement of component parts to ensure continued operation.

6.3.4 Surface-Water Management System

The surface-water management system, consisting of all surface-water drainage ditches (both permanent and temporary), culverts, sedimentation basins, and associated sedimentation basin structures, will be maintained in a condition that allows continuous

control of surface water at the site. During the post-closure period, all drainage ditches, culverts, and storm-water basins will be inspected quarterly and after major storm events (i.e., 24-hour, 10-year or greater storm return frequency) for conditions that would restrict flow, such as:

- washouts;
- excessive sediment in ditches or culverts;
- dislodged riprap; or
- gullies or erosion.

Washouts, excessive erosion, and gullies will be repaired by regrading the areas to the proper elevations (as shown on the engineering plans), revegetating, or applying rip-rap. Ditches having excessive deposits of sediment (i.e., 8 in. (20 cm) in depth or greater) will be cleaned. Dislodged rip-rap will be replaced as necessary.

6.3.5 Leachate Collection System

Routine maintenance will be performed on the leachate collection system to prevent clogging of the system. Maintenance will consist of cleaning all accessible leachate collection pipes (identified on Drawing 45). Cleaning will be performed annually during the post-closure period (unless experience indicates a lesser cleaning frequency is acceptable) until the leachate collection and leachate transmission, removal, and storage systems are taken out of service (as described in Section 6.6 of this Closure Plan).

6.3.6 Leachate Removal and Transmission

The components of the leachate removal and transmission system will be routinely inspected and maintained during the post-closure period to ensure that the system functions properly and that leachate is not released to the environment. Inspections of the leachate removal and transmission system (i.e., leachate pumps, riser houses, and leachate transmission lines) will be performed quarterly to check for malfunctioning pumps, broken lines, malfunctioning meters and values, and damaged leachate riser

houses. In addition, the electrical controls for the leachate transmission system will be checked to ensure that they are functioning properly.

Leachate will be sampled quarterly and will be tested to determine the concentration of chemical constituents. If, during the post-closure period, the chemical constituents in the leachate do not exceed the parameters concentrations identified in the permit for the facility, then the leachate collection system will be taken out of service. However, the leachate collection system will be left in place in the event that these features are needed at a future date.

6.3.7 Landfill Gas Removal System

The landfill gas removal system will be routinely inspected and maintained to provide continuous collection, transmission, and destruction of landfill gas at the site. Gas recovery and transmission system components (including well heads, header pipes, condensate wells, connections between the wells and final cap geomembrane, (if the geomembrane cover alternative is used) and the flare station) will be inspected on a quarterly basis during the post-closure period for signs of damage to the components and for evidence of leaks in the gas transmission lines. Based on experience with similar gas management systems at other DSWA facilities, routine maintenance involves tightening or replacement of fittings and occasional replacement of well heads. Details of maintenance procedures for the landfill gas management system are included in Part V (i.e., Operation and Maintenance Manual) of this Permit Modification Application.

6.3.8 Environmental Monitoring System

All components of the environmental monitoring system (including ground-water monitoring wells, surface-water monitoring stations, leachate monitoring ports, and gas monitoring locations) will be inspected during each sampling event. The components will be inspected for damage and will be repaired or replaced, if necessary.

6.3.9 Miscellaneous Site Activities

Maintenance of other site features will be performed during the post-closure period on a routine basis, as described below.

- The site perimeter fence will be inspected quarterly for breaks in the fence and to ensure that the gates are working properly. The fence and gates will be repaired as needed to provide continuous access control around the entire site.
- The scales (if still in operation) will be inspected and calibrated at least annually.
- Buildings (including the office building, scale house, and maintenance building) will be inspected annually and will be maintained to provide continuous support for landfill maintenance and monitoring activities.

Also, as required by DRGSW § 5.K.3:

- standing water will not be allowed to accumulate on the landfill;
- open burning will not be performed on the landfill;
- no activity that has not been approved in advance by DNREC will be performed at the landfill; and
- access to the landfill will be limited to only those persons who are engaged in approved post-closure activities.

6.4 Post-Closure Monitoring

6.4.1 Introduction

In this section, the activities that DSWA will perform to monitor the site throughout the post-closure care period are described. These activities include ground-water, surface-water, landfill gas, and leachate monitoring. The sampling and analysis for environmental monitoring services will be performed either by DSWA or by its contractor. Presented in the following sections are the specific monitoring procedures that are required by DRGSW § 5.D.4, 5.E.3, 5.F.4, and 5.G.

6.4.2 Ground-Water Monitoring

Ground water will be monitored throughout the post-closure care period, as required in DRGSW § 5.G and as specified in the permit. The site-specific groundwater monitoring requirements will be reviewed periodically during the post closure period.

- All monitoring wells will be maintained and protected in accordance with the "*Regulations Governing the Construction of Water Wells*".
- Abandonment of monitoring wells due to construction activities will be performed in accordance with the terms of "*Regulations Governing the Construction of Water Wells*."

6.4.3 Surface-Water Monitoring

Surface water will be monitored to evaluate compliance with the requirements of DRGSW § 5.F.4. Surface water monitoring will be performed in accordance with the requirements of the permit.

6.4.4 Landfill Gas Monitoring

Landfill gas will be monitored as required by DRGSW § 5.E.3. The control and management of landfill gas will be performed in conformance with: (i) the Delaware Regulations Governing the Control of Air Pollution; (ii) the DRGSW; and (iii) the Landfill Gas Monitoring Plan for the site that will be prepared within 60 days from issuance of the permit. Also, as shown in Part V (i.e., Operation and Maintenance Manual) of the Permit Modification Application, odors will be prevented from escaping the site boundary through the use of engineered collection and/or combustion systems. The post-closure gas monitoring procedures are described below.

- Gas monitoring will be performed: (i) in confined spaces (i.e., buildings on the landfill property within 1,000 ft (300 m) of the landfill) and (ii) outside the landfill in either gas monitoring probes or ground-water monitoring wells that have screen intervals above the water table.

- Gas monitoring parameters will include at least methane and oxygen.
- After DNREC issues a permit, DSWA will submit a gas-monitoring plan for approval. Gas monitoring will then be conducted in accordance with the approved monitoring plan.
- Results of gas monitoring will be submitted to DNREC as part of the annual report for the facility.

6.4.5 Leachate Monitoring

Leachate will be monitored as required by DRGSW § 5.D.4. The specific post-closure leachate monitoring procedures are described below.

- The leachate monitoring system is designed to measure the rate and quantity of leachate flow and is designed to allow sampling of the leachate; such measurements and samples will be made during the post-closure care period.
- Within 45 days following the issue of a permit, DSWA will submit a leachate-monitoring plan to the Department for approval for monitoring of leachate. Sucb plan will include the sampling locations, frequency and analytical requirements as well as quality control and quality assurance procedures. Leachate monitoring will be performed throughout the post-closure period in accordance with the approved plan..
- Test methods used to analyze samples will be those described in the most current legal edition of EPA Publication SW-846 "Test Methods for Evaluating Solid Waste – Physical and Chemical Methods" . If SW-846 does not contain a test method for a required parameter, that parameter will be tested according to methods described in the most recent edition of the EPA Publication "Methods of Chemical Analysis for Water and Wastes" or of Standard Methods for Examination of Water and Wastewater.

6.4.6 Geotechnical Monitoring

Geotechnical monitoring will be conducted throughout the post closure care period. Geotechnical monitoring will include periodically obtaining readings from on site instruments including piezometers, settlement plates, and inclinometers. A Geotechnical Monitoring Plan has been prepared and is included in Part V (i.e., Operation and Maintenance Manual) of this Permit Modification Application. The Geotechnical Monitoring Plan describes the monitoring locations, procedures, and frequency that will be employed throughout the post-closure period.

6.5 Post-Closure Use

The future use of the CIL site is discussed in this section as required by DRGSW § 5.J.3.e.(3). In addition to landfill operations, the site may be used for composting, wood chipping, and recycling operations. Other than continued landfill operations, DSWA currently plans to use the site in the future for idle grassed and forested land.

6.6 Duration of Post-Closure Care

Post-closure care will be provided in accordance with the requirements of DRGSW § 5.K.1. In this section of DRGSW, the general requirements for post-closure care are defined, including specific post-closure care activities and the duration of the post-closure care period. The requirements of DRGSW § 5.K.1 regarding the duration of post-closure care include the following:

- the duration of post-closure care will be 30 years after the completion of closure;
- the Department may remove required elements of the post-closure care plan if it determines that they are no longer needed to protect human health and the environment;
- at any time after the first five years of the post-closure period, the Department may reduce the length of post-closure care if it determines that such care is not needed to protect human health and the environment;

- prior to the end of post-closure care, the Department may extend the post-closure care period if it determines that an extended period is necessary to protect human health and the environment; and

- the Department will require actions to mitigate threats to human health and the environment if evidence exists of a contaminant release that could significantly threaten human health or the environment.

Based on these requirements, a performance-based approach will be applied to the duration of post-closure care at the CIL. In general, this will consist of implementing the following approach.

- First, the requirements of the Post-Closure Care plan (i.e., as described in Sections 6.1 through 6.5 of this Plan) will be implemented beginning at the completion of closure.

- At any time after the first year of post-closure care, an evaluation will be made of the need to continue post-closure care for each of the four components of post-closure care (i.e., leachate management, landfill gas management, groundwater monitoring, and cap system). The approach for evaluating the need for continued post-closure care is outlined in Table 4. Depending on the outcome of the evaluation, the post-closure care plan may be revised so that it better reflects the actual threat of the landfill to human health and the environment.

- If changes are made to the post-closure care plan as a result of the evaluation of the need for continued post-closure care, then a demonstration will be made to DNREC that the changes are reasonable based on the available information and the evaluations. No changes in post-closure care will be made before DNREC formally approves such changes to the Closure Plan and the permit for the facility. If the outcome of the evaluation is inconclusive (e.g., no change to the post-closure care plan is indicated by the data and evaluations), then post-closure care will continue as required in the post-closure plan.

- Additional evaluations of the need for continued post-closure care may be performed when additional data exist that could result in a different outcome

of the evaluation. This includes evaluation outcomes that could indicate the need for a longer post-closure period or additional elements of the post-closure plan.

6.7 Facility Contact

The facility contact is as follows:

Ms. Robin M. Roddy, P.E.
Northern Solid Waste Management Center
Cherry Island Landfill
1706 E. 12th Street
Wilmington, Delaware 19809
Phone: (302) 764-5385
Fax: (302) 764-5386

7. LANDFILL GAS CONTROL PLAN

7.1 Introduction

A gas control and monitoring system will be installed and maintained at CIL to address the requirements of DRGSW § 5.E. In general, the gas control system will be operated in a manner that:

- removes gas from CIL and prevents accumulation of gas at either on-site or off-site locations;
- prevents releases of gas that could cause damage to vegetation; and
- prevents landfill gas odors at or beyond the CIL property boundary.

In this section, the landfill gas control system is described and the manner in which the system addresses the requirements of DRGSW § 5.E. is described.

7.2 Description of Landfill Gas Control System

Landfill gas will be managed by removing the gas from the landfill through an active gas collection system and then routing the gas to a flare. As described in Part VIb, Section 4.2 of this Permit Modification Application, a permanent system will be installed, if needed, to control landfill gas after closure of the landfill. The active gas collection/flaring system will be operated until the post-closure maintenance of the landfill facility ceases. Gases will be prevented from escaping the landfill by the liner and cover systems. Still, a gas monitoring program (presented in Section 6.4.4 of this Closure Plan) will be implemented to test for the presence of landfill gases outside of the landfill.

7.3 Landfill Gas Monitoring

Landfill gas monitoring will be performed as required by DRGSW § 5.E.3. Landfill gas monitoring activities are described in Section 6.4.4 of this Closure Plan.

7.4 Response Actions

In the event that landfill gas is detected in facility structures or at the property boundary in excess of 25 percent of the LEL, then the following response activities will be performed:

- take immediate steps to protect human health and the environment;
- immediately notify DNREC;
- within seven days of detection, place a note in the operating record that states the levels detected and the steps taken to protect human health and the environment; and
- within 60 days of detection, implement a plan to remediate the release, place a copy of the plan in the operating record, and notify DNREC that the plan has been implemented.

The remediation plan described above will contain a description of the following:

- the nature of the problem;
- the extent of the problem, including work performed by DSWA to evaluate the extent of the problem; and
- a proposed remediation plan, including the engineering analyses performed to estimate the effectiveness of the proposed solution.

8. REFERENCES

Scheutz, C. and Kjeldsen, P., (2002) *"Methane Oxidation of Organic Compounds in Landfill Cover Soils"* Proceedings of the 25th Annual Landfill Symposium, SWANA, Monterey, CA, March 25-28, pp.115-123.

TABLE 1

FINAL CLOSURE CONSTRUCTION COST ESTIMATE [1,2]

Cherry Island Landfill Expansion Project
Wilmington, Delaware
DSWA Contract No. S01445NC

Item No.	Description	Units	Quantity	Unit Price ($)	24" Clay Cover Cost ($)	Geomembrane Cover Cost ($)
1	Mobilization	Lump sum	1	100,000	100,000	100,000
2	Site preparation	Acre	40	2,500	100,000	100,000
3	Fine grading of existing intermediate cover	Acre	40	1,500	60,000	60,000
4	Improvements and maintenance to sediment ponds and sediment traps	Lump sum	1	50,000	50,000	50,000
5	Furnish and install 24" clay cap at 1×10^{-7} cm/sec	CY	129,040	15.00	1,936,000	N/A
6	Furnish and install 18" stabilized sludge protective cover layer	CY	96,780	8.00	774,200	774,200
7	Furnish and install 6" topsoil layer	CY	32,260	25.00	806,500	806,500
8	Furnish and install geocomposite drainage layer	SF	1,742,400	0.30	N/A	522,700
9	Furnish and install geomembrane cover	SF	1,742,400	0.35	N/A	609,800
10	Furnish and install geotextile cushion layer	SF	1,742,400	0.21	N/A	365,900
11	Construct and install anchor trench	LF	4,000	7.00	N/A	28,000
12	Construct and install geomembrane boots for gas collection wells and geotechnical instruments	acre	40	3,000	N/A	120,000
13	Furnish, install, maintain, and remove temporary erosion and sediment control devices	Lump sum	1	75,000	75,000	75,000
14	Furnish and install permanent seed and mulch	Acre	40	1,750	70,000	70,000
15	Repair and complete permanent gravel access road	CY	2,000	29.00	58,000	58,000
16	Active gas collection system improvements (wells and electrical system) – by Contractor	Lump sum	1	150,000	150,000	150,000
17	Remove Temporary Ditches, Adjacent Temporary Protection, and Section of Geocomposite	LF	4,000	5.00	20,000	20,000
18	Construction quality assurance field work and reporting	Lump sum	1	400,000	400,000	400,000
19	Project surveying	Lump sum	1	100,000	100,000	100,000
20	Demobilization	Lump sum	1	100,000	100,000	100,000
TOTAL:					$4,800,000	$4,510,000

Notes:
1 Cost Estimate is based on an assumed final closure construction area of 40 acres.
2 Cost Estimate is based on previously approved final cover cross-section

TABLE 2

POST-CLOSURE COST ESTIMATE

Cherry Island Landfill Expansion Project
Wilmington, Delaware
DSWA Contract No. S01445NC

	24" Clay Cover	Geomembrane Cover
1. ENVIRONMENTAL MONITORING		
a. Semi-Annual		
i. Sampling (2 events for 30 years at $3,000 each)	$180,000	$180,000
ii. Shipping (2 events for 30 years, 15 samples at $110 each)	99,000	99,000
iii. Analyses (2 events for 30 years, 15 samples at $850 each)	765,000	765,000
b. Annually		
i. Sampling (included in semi-annual sampling)	0	0
ii. Shipping (1 event for 30 years, 12 samples at $110 each)	39,600	39,600
iii. Analyses (1 event for 30 years, 12 samples at $1,500 each)	540,000	540,000
Item 1 Subtotal:	**$1,623,600**	**$1,623,600**

TABLE 2
POST-CLOSURE COST ESTIMATE
(continued)

	24" Clay Cover	Geomembrane Cover
2. INSPECTIONS		
a. Quarterly cover inspection (120 inspections, 4 hrs each at $50/hr)	$24,000	$24,000
b. Quarterly landfill gas recovery system inspection (120 inspections, 4 hrs each at $50/hr)	24,000	24,000
c. Quarterly storm-water management system inspection (120 inspections, 4 hrs each at $50/hr)	24,000	24,000
d. Annual leachate collection system inspection (30 inspections, 8 hrs each at $50/hr)	12,000	12,000
e. Quarterly leachate removal and transmission system inspection (120 inspections, 4 hours each at $50/hr)	24,000	24,000
f. Quarterly leachate recirculation system inspection (120 inspections, 4 hrs each at $50/hr)	24,000	24,000
g. Quarterly perimeter and road inspections (120 inspections, 4 hrs each at $50/hr)	24,000	24,000
Item 2 Subtotal:	**$156,000**	**$156,000**

3. LEACHATE MANAGEMENT

24" Clay Cover: Estimate the post-closure leachate generation rate to be approximately 110 gallons per acre per day. Total 30-year leachate production equals approximately 301,125,000 gallons. Leachate transport and treatment costs (gallons at $0.0023/gallon).

TABLE 2
POST-CLOSURE COST ESTIMATE
(continued)

	24" Clay Cover	Geomembrane Cover
Item 3 Subtotal for 24" Clay Cover	**$692,600**	
Geomembrane Cover: Estimate the post-closure leachate generation rate to be approximately 70 gallons per acre per day. Total 30-year leachate production equals approximately 191,625,000 gallons. Leachate transport and treatment costs (191,625,000 gallons at $0.0023/gallon).		
Item 3 Subtotal for Geomembrane Cover:		**$440,700**
4. MAINTENANCE		
a. Leachate transmission system		
i. Pump replacement (replace each of 6 pumps once every 10 years for 30 years or 18 pumps at $20,000 each)	$360,000	$360,000
ii. Meter replacement (replace each of 3 control panels once during post-closure at $4,500 each)	13,500	13,500
iii. Flush system (once per year for 30 years at $3,000 per flushing)	90,000	90,000
Subtotal (4a):	**$463,500**	**$463,500**
b. Surface and ground water monitoring		
i. Well replacement (replace each of 2 wells once at $4,000 per well)	$8,000	$8,000

TABLE 2
POST-CLOSURE COST ESTIMATE
(continued)

	24" Clay Cover	Geomembrane Cover
ii. Well maintenance, miscellaneous ($1,000 per year for 30 years)	30,000	30,000
Subtotal (4b):	**$38,000**	**$38,000**
c. Surface water controls/cover regrading (assume that any necessary grading can be performed in one week per year; rent equipment for regrading and surface ditch sediment removal):		
i. 1 CAT D-4 Dozer ($860/day, 5 days/yr, for 30 years)	$129,000	$129,000
ii. 1 CAT 953 Loader ($1,080/day, 5 days/yr, for 30 years)	162,000	162,000
iii. 1 Dump truck (15 cy) ($540/day, 5 days/yr, for 30 years)	81,000	81,000
iv. 1 Crew with foreman, 1 laborer ($480/day, 5 days/year, for 30 years)	72,000	72,000
Subtotal (4c):	**$444,000**	**$444,000**
d. Final Cover Maintenance		
i. Assume that equipment on-site for surface water/cover controls can also perform final cover repairs	_____	_____

TABLE 2
POST-CLOSURE COST ESTIMATE
(continued)

		24" Clay Cover	Geomembrane Cover
ii.	Assume cover repair/soil amendment requirements of approximately one foot over 5% of the entire cover: (5%)(1 ft) (250 acres) = 20,167 cy from the removed sedimentation @ $6/cy for 30 years)	$3,630,000	$3,630,000
iii.	Assume that 2% of the site requires revegetation each year (2%)(250 acres)($5,000/acre for 30 years)	$750,000	$750,000
	Subtotal (4d):	**$4,380,000**	**$4,380,000**
e.	Landfill Gas Management and Leachate Recirculation System	$300,000	$300,000
	Subtotal (4e):	**$300,000**	**$300,000**
	Item 4 Subtotal:	**$5,626,000**	**$5,626,000**
	TOTAL POST-CLOSURE OPERATION COST FOR 30 YEARS (2003 DOLLARS):	**$8,098,000**	**$7,846,000**

TABLE 3

POST-CLOSURE MAINTENANCE INSPECTION SCHEDULE

Cherry Island Landfill Expansion Project
Wilmington, Delaware
DSWA Contract No. S01445NC

Item	Inspection Frequency
Access Roads	Quarterly
Vegetation	Quarterly and after major storm events[1]
Storm-Water Management System	Quarterly and after major storm events[1]
Equipment	Monthly
Leachate Collection System	Annually
Leachate Removal Transmission System	Quarterly
Leachate Storage Area	Daily (during use)
Landfill Gas Recovery System	Quarterly
Environmental Monitoring System	During sampling events
Security Fence and Signs	Quarterly
Perimeter Fence	Quarterly
Landfill Scales	Annually
Buildings	Annually

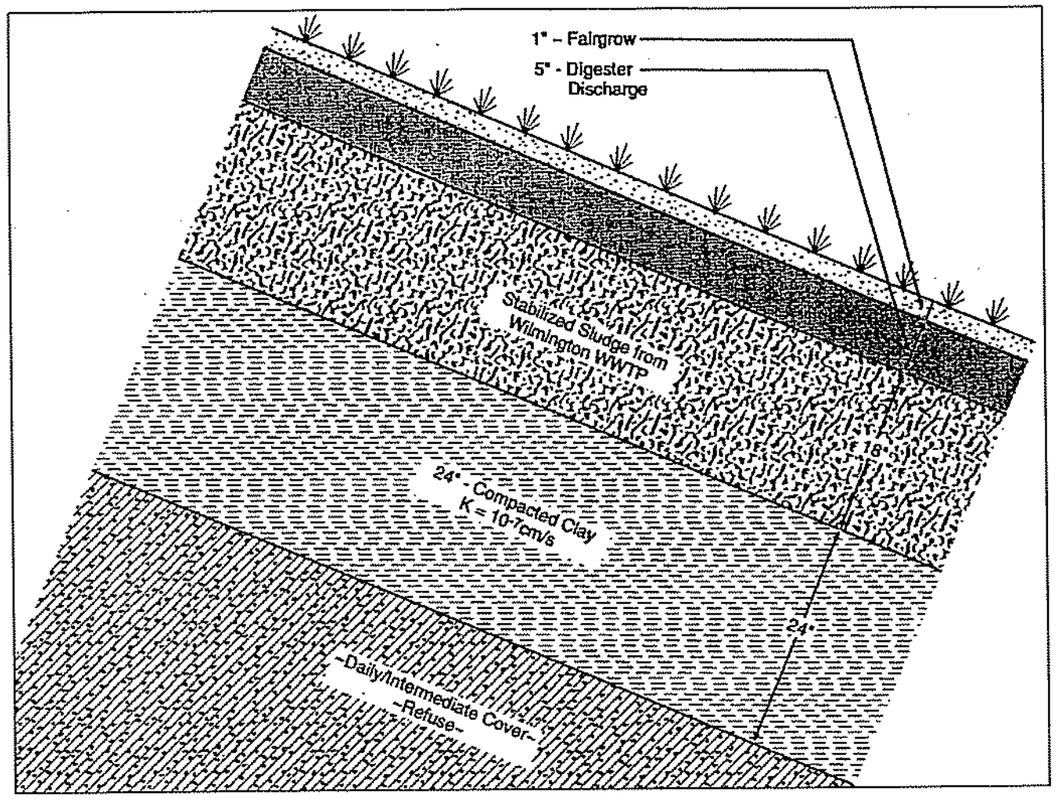
Note: [1] "Major storm events" are defined as the 24-hour, 10-year or greater storm return frequency.

TABLE 4

APPROACH FOR EVALUATING NEED FOR CONTINUED POST-CLOSURE CARE

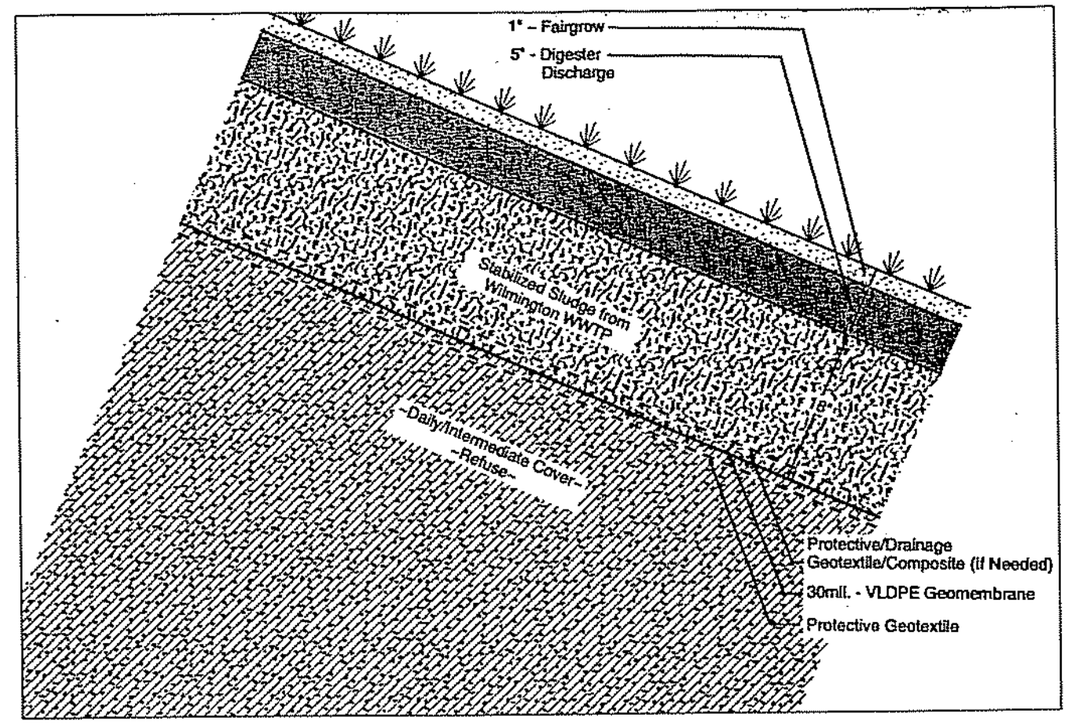
Cherry Island Landfill Expansion Project
Wilmington, Delaware
DSWA Contract No. S01445NC

Component of Post-Closure Care (PCC)	Purpose of PCC Component	Criteria for Demonstrating that PCC of Component is no Longer Necessary (as per DRGSW §5.K.1.c)	Demonstration Approach
Leachate Management System (LMS)	Contain and treat leachate to prevent adverse impacts of leachate to surface water and ground water.	No risk of impacts from uncontrolled releases of leachate. In addition, operation of LMS must not be necessary to maintain geotechnical stability.	Show that uncontrolled releases of leachate of current quality and quantity will not violate water quality standards in receiving surface-water or groundwater. Also, show that geotechnical stability is not affected.
Landfill Gas Management System	Control of potential impacts of landfill gas with regard to: • Compliance with Clean Air Act; • Lateral migration (explosive potential); • Groundwater / Vadose Zone; and • Odor.	No potential for future violation of DRGSW § 5.E.1.b. (i.e., no potential for lateral gas migration problems) and no potential for future exceedance of Clean Air Act standards.	Show that annual volume and quality of gas generated at site is such that elimination of gas management will not result in violation of DRGSW § 5.E.1.b. or any other applicable Federal or State regulation or permit requirement.
Groundwater Monitoring System	Verify that there are no unacceptable impacts to groundwater from leachate release or gas migration from site.	Status of leachate and gas evaluations is such that potential impacts to groundwater are acceptable (i.e., time required for impacts to have been detected has passed).	Confirm that ground-water monitoring has been performed at least as long as the time required for impacts for hypothetical leachate and gas release to have been detected at compliance location.
Cover System	Control of one or more of the following: • Infiltration (i.e., generation of leachate); • Gas emission / migration; • Direct exposure to waste; and/or • Geotechnical stability.	Loss of, or changes to, cover integrity must not adversely affect any of the purposes listed. Long-term condition of cover must be compatible with end-use obligations for the site.	Evaluate effect of cover integrity on all other aspects of PCC and end-use. Ensure compatibility between cover maintenance program and requirements for cover from other PCC components.



COVER ALTERNATIVE 1

(SEE NOTE)
NO SCALE



COVER ALTERNATIVE 2

(SEE NOTE)
NO SCALE

NOTE:

1. DETAIL TAKEN FROM ROY F WESTON, INC., "DELAWARE SOLID WASTE AUTHORITY, NORTHERN SOLID WASTE MANAGEMENT CENTER – CHERRY ISLAND LANDFILL, PHASE IV DISPOSAL AREA, HYDROGEOLOGIC, GEOTECHNICAL, AND LANDFILL CAPPING REPORT" DATED AUGUST 1992.

CAPPING SYSTEM ALTERNATIVES			
GEOSYNTEC CONSULTANTS COLUMBIA, MARYLAND			
PROJECT NO.	ME0250	FILE NO.	0250F1005
DOCUMENT NO.		FIGURE NO.	1

ATTACHMENT XI-A
Financial Assurance Documentation

DELAWARE SOLID WASTE AUTHORITY

Board of Directors
Richard V. Pryor
Chairman
Ronald G. McCabe
Vice Chairman
J. Donald Isaacs
Theodore W. Ryan
Phyllis M. McKinley
William J. DiMondi

N.C. Vasuki, P.E., DEE
Chief Executive Officer

Pasquale S. Canzano, P.E., DEE
Chief Operating Officer

December 30, 2003

Ms. Nancy Marker
Program Manager II
Solid & Hazardous Waste Management Branch
DNREC
89 Kings Highway
P.O. Box 1401
Dover, DE 19903

RE: Financial Assurance Mechanism Certification - GASB 18

Dear Ms. Marker:

Attached please find the documentation necessary to certify DSWA's compliance with the requirements of the state approved Financial Assurance Mechanism for Closure and Post-Closure Care. The certification is for the Fiscal Year ending June 30, 2003.

The Audited Financial Statements submitted as part of the certification documentation have not been officially issued by the Board of Directors and therefore are marked draft. When the Board officially issues the financial statements you will be forwarded a clean copy. There are no anticipated changes to the current draft.

As of June 30, 2003, the DSWA has no outstanding bonded debt on its books, thus there are no bond rating confirmations from the rating agencies.

If you have any questions please feel free to contact me.

Sincerely,

Ronald J. Peters, Sr.
Chief Financial Officer

lhb\c:\win\finasapg03.rjp

cc: N. C. Vasuki, P.E., DEE
P. S. Canzano, P.E., DEE
R. P. Watson, P.E., DEE
T. E. Houska, P.E.

1128 S. Bradford Street, P.O. Box 455, Dover, Delaware 19903-0455
Phone: (302) 739-5361 Fax: (302) 739-4287

CITIZENS' RESPONSE LINE: 1-800-404-7080 www.dswa.com

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CERTIFICATION OF COMPLIANCE
WITH FINANCIAL ASSURANCE MECHANISM
FOR CLOSURE AND POST CLOSURE CARE COSTS

I, Ronald J. Peters, Sr., Chief Financial Officer of the Delaware Solid Waste Authority, do hereby certify that the Delaware Solid Waste Authority has:

1) No outstanding bonds as of June 30, 2003.

2) Received an unqualified opinion from its independent auditor following their audit of the financial statements of the Authority for the fiscal year ended June 30, 2003. The audit was conducted in accordance with all applicable GAAP and GAAS standards for governmental entities (Exhibit 1).

3) Calculated its liability for closure and post closure care costs in accordance with GASB Statement No. 18 and this liability has been fully disclosed in the Authority's audited financial statements for the fiscal year ended June 30, 2003.

WITNESS: Julann H. Baker SIGNED: Ronald J. Peters

DATE: 12-9-03

llbb\c:finasapp03.rjp

& Associates Ltd

A member of The elko Advisory Group LLC

Albert L. Elko
Michael J. Reinking
Joseph J. Glowacki
Robert G. Morlock
Marc R. Simmons
Michael Pozielli
Gregory D. Stratoti
Leonard V. Santivasi
John J. Nihill
Richard J. Thomas

CERTIFIED PUBLIC ACCOUNTANTS

CERTIFICATION OF COMPLIANCE

WITH FINANCIAL ASSURANCE MECHANISM

FOR CLOSURE AND POST CLOSURE CARE COSTS

I, Richard J. Thomas, CPA, CVA, Shareholder of Elko & Associates Ltd, Certified Public Accountants engaged as independent auditors of the Delaware Solid Waste Authority, do hereby certify that the information in the Authority's Chief Financial Officer's letter of **Certification of Compliance with Financial Assurance Mechanism for Closure and Post Closure Care Costs** is consistent with the Authority's audited financial statements for the year ended June 30, 2003.

WITNESSS: Marc R. Simmons SIGNED: [signature]

DATE: 12/8/03

2 West Baltimore Avenue, Suite 210 • Media, PA 19063 • 610-565-3930 • Fax: 610-566-1040
2901 Jolly Road • Plymouth Meeting, PA 19462 • 610-279-9100 • Fax: 610-279-7100
608 North Broad Street, Suite 310 • Woodbury, NJ 08096 • 856-845-6660 • Fax: 856-845-7184

ATTACHMENT XI-B
FAA Letters

DELAWARE SOLID WASTE AUTHORITY

Board of Directors
Richard V. Pryor
Chairman
Ronald G. McCabe
Vice Chairman
J.Donald Isaacs
Theodore W. Ryan
Phyllis M. McKinley
John P. Healy
William J. DiMondi

N.C. Vasuki, P.E., DEE
Chief Executive Officer

Pasquale S. Canzano, P.E., DEE
Chief Operating Officer

May 10, 2001

Mr. Bill Merritt
Eastern Regional Office
Air Traffic Division, AEA-530
JFK International Airport
Fitzgerald Federal Building
Jamaica, NY 11430

Dear Mr. Merritt:

Re: Determination of No Hazard to Air Navigation
Aeronautic Study No. 99-AEA-2721-OE

This letter follows up on e-mails sent on March 29, 2001 and May 1, 2001.

Per our telephone conversations regarding the determination of no hazard to air navigation, Aeronautical Study No: 99-AEA-2721-OE (Prior Study No: 95-AEA-0754-OE), you believe that no further action is required on our part and that the landfill will be labeled on FAA plans as fully constructed to elevation 311' which includes warning lights for airplanes.

This determination was set to expire on April 23, 2001. It was made for the extension of the height of our landfill. As we discussed, it will be many years before the height of the landfill will reach the elevation described in the determination.

Should you have any questions please feel free to call.

Very truly yours,

Anne Germain, P.E.
Manager of Engineering

sld/g:merrittltr

1128 S. BRADFORD STREET • P.O. BOX 455 • DOVER, DELAWARE 19903-0455
PHONE (302) 739-5361 • FAX (302) 739-4287
CITIZENS' RESPONSE LINE (800) 404-7080

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Federal Aviation Administration
EASTERN REGION, AEA-520
BLDG 111, JFK INTL AIRPORT
JAMAICA, NEW YORK 11430

AERONAUTICAL STUDY
No: 99-AEA-2721-OE
PRIOR STUDY
No: 95-AEA-0754-OE

OCT 1 99

ISSUED DATE: 10/23/99

RODNEY F. ALEXANDER
DELAWARE SOLID WASTE AUTHORITY
P.O. BOX 455
DOVER, DE 19903

** DETERMINATION OF NO HAZARD TO AIR NAVIGATION **

The Federal Aviation Administration has completed an aeronautical study under the provisions of 49 U.S.C., Section 44718 and, if applicable, Title 14 of the Code of Federal Regulations, part 77, concerning:

Description: LANDFILL

Location: WILMINGTON DE
Latitude: 39-43-30.00 NAD 83
Longitude: 075-30-50.00
Heights: 263 feet above ground level (AGL)
311 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

-As a condition to this determination, the structure should be marked and/or lighted in accordance with FAA Advisory Circular 70/7460-1J, Obstruction Marking and Lighting, Chapters 3(Marked), 4, 5(Red), & 13.

-It is required that the enclosed FAA Form 7460-2, Notice of Actual Construction or Alteration, be completed and returned to this office any time the project is abandoned or:

✓ At least 10 days prior to start of construction (7460-2, Part I)

✓ Within 5 days after construction reaches its greatest height (7460-2, Part II)

This determination expires on 04/23/01 unless:

(a) extended, revised or terminated by the issuing office or
(b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case the determination expires on the date prescribed by the FCC for completion of construction or on the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE POSTMARKED OR DELIVERED TO THIS OFFICE AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE.

-As a result of this structure being critical to flight safety, it is

required that the FAA be kept apprised as to the status of this project. Failure to respond to periodic FAA inquiries could invalidate this determination.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, frequency(ies) or use of greater power will void this determination. Any future construction or alteration, including increase in heights, power, or the addition of other transmitters, requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

A copy of this determination will be forwarded to the Federal Communications Commission if the structure is subject to their licensing authority.

If we can be of further assistance, please contact our office at 718-553-2560. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 99-AEA-2721-OE.

William E. Merritt
Specialist, AIRSPACE BRANCH

(DNE)

7460-2 Attached

Form Approved OMB No. 2120-0001

SUPPLEMENTAL NOTICE

Submission Instructions: For Advance Notice of Actual Construction or Alteration. Complete items 1, 2, 3A(1), 3A(2), and 6. If applicable, also complete items 4 and 5. Detach Part 1. Fold and tape at bottom. Mail to the FAA Regional Office for your area. Part 1A is provided for your file.

Aeronautical Study No.
99-AEA-2721-OE

U.S. Department of Transportation
Federal Aviation Administration

Notice of Actual Construction or Alteration

(Please Type or Print on this Form)

1. Construction

A. Type and Description of Construction
☐ New
☐ Alteration

B. Owner of Structure

2. Construction Location — Height

A. Coordinates *(To hundredths of seconds, if known)*
Latitude 0 ' "
Longitude 0 ' "

B. Location *(City, State, include street Address if any)*
WILMINGTON, DE

C. Construction Heights
Site Elevation FL AMSL
Structure Height Ft. AGL
Total Height *(Structure & Site)* Above Mean Sea Level FL AMSL

D. Site Elevation Determined By
☐ Actual Survey
☐ USGS 7.5' Quad Chart
☐ Other *(Specify)*

E. Reference datum of coordinates
☐ NAD 27
☐ NAD 83
☐ Other *(Specify)*

F. Name of Nearest Public-Use or Military Airport *(Include Distance and Direction from the Airport)*

3. Construction Notifications

A. Notification (Notice is Critical to Flight Safety — FAR Part 77 Required) ★	Date	B. Construction/Project	Date
★ (1) Construction will start *(Submit at least 48 hrs. in advance)*		(1) Project Abandoned	
(2) Estimated Completion		(2) Construction Dismantled	
★ (3) Structure Reached Greatest Height *(Submit within 5 days)*			

4. Marking and Lighting

A. Marked
☐ Yes ☐ No ☐ Temporary

B. Lighted
☐ Medium Intensity White
☐ Dual (Medium Intensity White & Red)
☐ High Intensity White
☐ Dual (High Intensity White & Red
☐ Red
☐ None

5. Antenna Requiring FCC License

A. Call Sign	B. Frequency	C. Date Applied for FCC Construction Permit	D. Date Construction Permit Issued

6. Preparer's Certification

...mitted By. (If submitted by a proponent's representative, please also complete item B.)

A. Proponent's Representative
Name:
Address:
Tel. No.: *(Include Area Code)*

A. Construction Proponent
Name:
Address:
Tel. No.: *(Include Area Code)*

I hereby certify that the information provided is true, complete, and correct to the best of my knowledge.

Signature	Title	Date

Notice is required by 14 Code of Federal Regulations, part 77 pursuant to 49 U.S.C., Section 44718. Persons who knowingly and willingly violate the notice requirements of part 77 are subject to a civil penalty of $1,000 per day until the notice is received, pursuant to 49 U.S.C., Section 46301 (a).

Airspace Branch

Carl Zimmermann, Branch Manager (x-2616)
Robert P. Alexander, O/E Specialist NY, NJ, WV (x-4546)
Bill Merritt, O/E-Airspace Specialist, DC, DE, MD, PA (x-2560)
[illegible]nk Jordan, O/E-Airspace Specialist, VA (x-4521)
[illegible]ta Patterson, Airspace Tech, VA, DC, DE, MD (x-2610)
Angelique Leonard, Airspace Tech, NJ, PA (x-2611)
Kathleen Cunningham, Airspace Tech, NY, WV (x-2614)
Stu Cohen, Environmental Specialist (x-4522)

Dial 718-553+extension for person listed.

Federal Aviation Administration
Eastern Region Air Traffic Division

Airspace Branch, AEA-520

Fitzgerald Federal Building # 111
J.F. Kennedy Int'l Airport
Jamaica, NY 11430

AIRSPACE BRANCH WEBSITE

HTTP://WWW.FAA.GOV/REGION/AEA/ATSOEAAA/FRAMEDOC.HTM

E-Mail Bill.Merritt@faa.gov

APPENDIX 2. OBSTACLE ACCURACY STANDARDS, CODES AND SOURCES

HORIZONTAL

Code	Tolerance	
1	+20'	(6 m)
2	+50'	(15 m)
3	+100'	(30 m)
4	+250'	(75 m)
5	+500'	(150 m)
6	+1000'	(300 m)
7	+1/2 NM	(900 m)
8	+1 NM	(1800 m)
9	Unknown	

VERTICAL

Code	Tolerance	
A	+3'	(1 m)
B	+10'	(3 m)
C	+20'	(6 m)
D	+50'	(15 m)
E	+125' (Army 100')	(38 m)
F	+250'	(75 m)
G	+500'	(150 m)
H	+1000'	(300 m)
I	Unknown	

XII. FINANCIAL ASSURANCE

Section 4.A.11 of the Delaware Regulations Governing Solid Waste (DRGSW) require that the owner or operator of a solid waste facility provide assurance that the financial costs associated with closure, post-closure care, and corrective action can be met throughout the life of the facility until released from these requirements by the Delaware Department of Natural Resources and Environmental Control (DNREC). The regulation also identifies several candidate mechanisms that owners or operators may use to demonstrate financial assurance under Section 4.A.11. In this section, financial assurance is demonstrated for the Cherry Island Landfill expansion area, as required under DRGSW.

DRGSW requires that financial assurance be provided in the amount equal to the sum of: (i) the cost of closing the facility at the time during the life of the facility that would cost the most; (ii) the cost of providing post-closure care for the facility for a period of 30 years and (iii) the cost of providing any corrective action that is required of the facility. Because no corrective action is required for the facility, the amount of financial assurance that is required is the sum of the cost of closure plus the cost of providing post-closure care. The cost of closure is provided on Table XII-1. The cost was developed based on the following assumptions:

- The maximum amount of area that will require closure when the facility closes will be 40 acres.
- Costs are based on 2003 prices for similar work done at the facility.
- The type of cover that would be constructed is the currently permitted cap, whose barrier layer consists of either 24-inches of clay with a maximum hydraulic conductivity of 1×10^{-7} cm/sec, or a minimum 30 mil geomembrane. Both barrier layers will be covered with 18-inches of protective cover and 6-inches of topsoil.

Based on these assumptions, the estimated cost for closure is $4,800,000 for a 24-inch Clay Cover and $4,510,000 for a Geomembrane Cover, as shown at the end of Table XII-1.

The cost of post-closure care is provided on Table XII-2. The cost was developed based on the following assumptions.

- The duration of post-closure care will be 30 years.
- Operation and maintenance costs during the post-closure care period will be equal to the current costs for similar materials or services.
- The present worth of 30 years of post-closure care is calculated using no discount factor.

Based on these assumptions, the estimated cost for post-closure care is $8,098,000 for a 24-inch Clay Cover and $7,846,000 for a Geomembrane Cover, as shown at the end of Table XII-2. Certification of DSWA's financial assurance mechanism is documented in Attachment XII-A. .

TABLE XII-1

FINAL CLOSURE CONSTRUCTION COST ESTIMATE [1,2]

Cherry Island Landfill Expansion Project
Wilmington, Delaware
DSWA Contract No. S01445NC

Item No.	Description	Units	Quantity	Unit Price ($)	DRGSW Cover Cost ($)	E/T Cover Cost ($)
1	Mobilization	Lump sum	1	200,000	200,000	200,000
2	Site Preparation	Lump sum	1	150,000	150,000	150,000
3	Furnish and Install Final Grading Layer	CY	64,533	8.00	516,264	516,264
4	Improvements and Maintenance to Sediment Ponds and Sediment Traps	Lump sum	1	50,000	50,000	50,000
5	Furnish and Install Vegetative Support Soil Layer 3-ft thick	CY	115,000	8.00	N/A	920,000
6	Furnish and Install Topsoil Layer 1-ft thick	CY	64,533	21.00	1,355,193	1,355,193
7	Furnish and Install Riprap for Access Road Drainage Ditches	CY	1,800	88.00	158,400	158,400
8	Furnish and Install Cover Geocomposite Drain	SF	1,742,400	0.30	522,720**	N/A
9	Furnish and Install Geomembrane Cover	SF	1,742,400	0.35	609,840**	N/A
10	Furnish and Install Geotextile Separation Layer for Access Road and Ditch	SF	225,500	0.21	47,355	47,355
11	Furnish and Install Access Road Wearing Surface	CY	2,000	29.00	58,000	58,000
12	Furnish, Install, Maintain, and Remove Erosion and Sediment Control Devices	Lump sum	1	75,000	75,000	75,000
13	Furnish and Install Trees and other Specialized Vegetation for Evapotransporitave Cover	Ac	40	10,000	N/A	400,000
14	Furnish and Install Permanent Seed and Mulch	SY	193,600	0.12	23,232	23,232
15	Construct and Install Anchor Trench	LF	4,000	5.50	22,000	N/A
16	Furnish, Construct, and Maintain Temporary Ditches and Adjacent Temporary Protection	LF	4,000	8.00	32,000	32,000
17	Remove Temporary Ditches, Adjacent Temporary Protection, and Section of Geocomposite	LF	4,000	5.00	20,000	20,000
18	Active Gas Collection System Improvements (wells and electrical system) – by Contractor	Lump sum	0	150,000	0	0
19	Project Surveying	Lump sum	1	100,000	100,000	100,000
20	Demobilization	Lump sum	1	120,000	120,000	120,000
	TOTAL:				**$4,060,004**	**$4,225,444**

Notes:
1 Cost Estimate is based on an assumed final closure construction area of 40 acres.
2 Cost Estimate is based on Cover Alternative C, the E/T Cover.

TABLE XII-2

POST-CLOSURE COST ESTIMATE

Cherry Island Landfill Expansion Project
Wilmington, Delaware
DSWA Contract No. S01445NC

	DRGSW Cover	E/T Cover
1. ENVIRONMENTAL MONITORING		
a. Semi-Annual		
i. Sampling (2 events for 30 years at $3,000 each)	$180,000	$180,000
ii. Shipping (2 events for 30 years, 15 samples at $110 each)	99,000	99,000
iii. Analyses (2 events for 30 years, 15 samples at $850 each)	765,000	765,000
b. Annually		
i. Sampling (1 event for 30 years at $200 each)	6,000	6,000
ii. Shipping (1 event for 30 years, 12 samples at $110 each)	39,600	39,600
iii. Analyses (1 event for 30 years, 12 samples at $1,500 each)	540,000	540,000
Item 1 Subtotal:	**$1,629,600**	**$1,629,600**

TABLE XII-2
POST-CLOSURE COST ESTIMATE
(continued)

	DRGSW Cover	E/T Cover
2. INSPECTIONS		
a. Quarterly cover inspection (120 inspections, 4 hrs each at $50/hr)	$24,000	$24,000
b. Quarterly landfill gas recovery system inspection (120 inspections, 4 hrs each at $50/hr)	24,000	24,000
c. Quarterly storm-water management system inspection (120 inspections, 4 hrs each at $50/hr)	24,000	24,000
d. Annual leachate collection system inspection (30 inspections, 4 hrs each at $50/hr)	6,000	6,000
e. Quarterly leachate removal and transmission system inspection (120 inspections, 4 hours each at $50/hr)	24,000	24,000
f. Quarterly leachate recirculation system inspection (120 inspections, 4 hrs each at $50/hr)	24,000	24,000
g. Quarterly perimeter and road inspections (120 inspections, 4 hrs each at $50/hr)	24,000	24,000
Item 2 Subtotal:	**$150,000**	**$150,000**
3. LEACHATE MANAGEMENT		
DRGSW Cover: Estimate the post-closure leachate generation rate to be approximately 110 gallons per acre per day. Total 30-year leachate production equals approximately 301,125,000 gallons. Leachate transport and treatment costs (gallons at $0.0023/gallon).		
Item 3 Subtotal for DRGSW Cover	**$692,587**	

TABLE XII-2
POST-CLOSURE COST ESTIMATE
(continued)

	DRGSW Cover	E/T Cover
E/T Cover: Estimate the post-closure leachate generation rate to be approximately 150 gallons per acre per day. Total 30-year leachate production equals approximately 410,625,000 gallons. Leachate transport and treatment costs (410,625,000 gallons at $0.0023/gallon).		
Item 3 Subtotal for E/T Cover:		**$944,437**
4. MAINTENANCE		
a. Leachate transmission system		
i. Pump replacement (replace each of 6 pumps once every 10 years for 30 years or 18 pumps at $20,000 each)	$360,000	$360,000
ii. Meter replacement (replace each of 3 control panels once during post-closure at $4,500 each)	13,500	13,500
iii. Flush system (once per year for 30 years at $3,000 per flushing)	90,000	90,000
Subtotal (4a):	**$463,500**	**$463,500**
b. Surface and ground water monitoring		
i. Well replacement (replace each of 2 wells once at $4,000 per well)	$8,000	$8,000
ii. Well maintenance, miscellaneous ($1,000 per year for 30 years)	30,000	30,000
Subtotal (4b):	**$38,000**	**$38,000**

TABLE XII-2
POST-CLOSURE COST ESTIMATE
(continued)

	DRGSW Cover	E/T Cover
c. Surface water controls/cover regrading (assume that any necessary grading can be performed in one week per year; rent equipment for regrading and surface ditch sediment removal):		
i. 1 CAT D-4 Dozer ($860/day, 5 days/yr, for 30 years)	$129,000	$129,000
ii. 1 CAT 953 Loader ($1,080/day, 5 days/yr, for 30 years)	162,000	162,000
iii. 1 dump truck (15 cy) ($540/day, 5 days/yr, for 30 years)	81,000	81,000
iv. 1 crew with foreman, 1 laborer ($480/day, 5 days/year, for 30 years)	72,000	72,000
Subtotal (4c):	**$444,000**	**$444,000**
d. Final Cover Maintenance		
i. Assume that equipment on-site for surface water/cover controls can also perform final cover repairs	_____	_____
iia. **DRGSW Cover:** Assume cover repair/soil amendment requirements of approximately one foot over 5% of the entire cover: (5%)(1 ft) (250 acres) = 20,167 cy from the removed sedimentation @ $6/cy for 30 years)	$3,630,000	_____

TABLE XII-2
POST-CLOSURE COST ESTIMATE
(continued)

		24" Clay Cover	Geomembrane Cover
ii.	Assume cover repair/soil amendment requirements of approximately one foot over 5% of the entire cover: (5%)(1 ft) (250 acres) = 20,167 cy from the removed sedimentation @ $6/cy for 30 years)	$3,630,000	$3,630,000
iii.	Assume that 2% of the site requires revegetation each year (2%)(250 acres)($5,000/acre for 30 years)	$750,000	$750,000
	Subtotal (4d):	**$4,380,000**	**$4,380,000**
e.	Landfill Gas Management and Leachate Recirculation System	$300,000	$300,000
	Subtotal (4e):	**$300,000**	**$300,000**
	Item 4 Subtotal:	**$5,626,000**	**$5,626,000**
	TOTAL POST-CLOSURE OPERATION COST FOR 30 YEARS (2003 DOLLARS):	**$8,098,000**	**$7,846,000**

DELAWARE SOLID WASTE AUTHORITY

Board of Directors
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Chief Operating Officer

December 30, 2003

Ms. Nancy Marker
Program Manager II
Solid & Hazardous Waste Management Branch
DNREC
89 Kings Highway
P.O. Box 1401
Dover, DE 19903

RE: Financial Assurance Mechanism Certification - GASB 18

Dear Ms. Marker:

Attached please find the documentation necessary to certify DSWA's compliance with the requirements of the state approved Financial Assurance Mechanism for Closure and Post-Closure Care. The certification is for the Fiscal Year ending June 30, 2003.

The Audited Financial Statements submitted as part of the certification documentation have not been officially issued by the Board of Directors and therefore are marked draft. When the Board officially issues the financial statements you will be forwarded a clean copy. There are no anticipated changes to the current draft.

As of June 30, 2003, the DSWA has no outstanding bonded debt on its books, thus there are no bond rating confirmations from the rating agencies.

If you have any questions please feel free to contact me.

Sincerely,

Ronald J. Peters, Sr.
Chief Financial Officer

lhb\c:\win\finasapg03.rjp

cc: N. C. Vasuki, P.E., DEE
P. S. Canzano, P.E., DEE
R. P. Watson, P.E., DEE
T. E. Houska, P.E.

1128 S. Bradford Street, P.O. Box 455, Dover, Delaware 19903-0455
Phone: (302) 739-5361 Fax: (302) 739-4287

CITIZENS' RESPONSE LINE: 1-800-404-7080 www.dswa.com

Printed on Recycled Paper

CERTIFICATION OF COMPLIANCE
WITH FINANCIAL ASSURANCE MECHANISM
FOR CLOSURE AND POST CLOSURE CARE COSTS

I, Ronald J. Peters, Sr., Chief Financial Officer of the Delaware Solid Waste Authority, do hereby certify that the Delaware Solid Waste Authority has:

1) No outstanding bonds as of June 30, 2003.

2) Received an unqualified opinion from its independent auditor following their audit of the financial statements of the Authority for the fiscal year ended June 30, 2003. The audit was conducted in accordance with all applicable GAAP and GAAS standards for governmental entities (Exhibit 1).

3) Calculated its liability for closure and post closure care costs in accordance with GASB Statement No. 18 and this liability has been fully disclosed in the Authority's audited financial statements for the fiscal year ended June 30, 2003.

WITNESS: Julann H. Baker SIGNED: Ronald J. Peters

DATE: 12-9-03

lhb\c:finasapg03.rjp

& Associates Ltd

A member of The elko Advisory Group LLC

Albert L. Elko
Michael J. Reinking
Joseph J. Glowacki
Robert G. Morlock
Marc R. Simmons
Michael Pozielli
Gregory D. Stratoti
Leonard V. Santivasi
John J. Nihill
Richard J. Thomas

CERTIFIED PUBLIC ACCOUNTANTS

CERTIFICATION OF COMPLIANCE

WITH FINANCIAL ASSURANCE MECHANISM

FOR CLOSURE AND POST CLOSURE CARE COSTS

I, Richard J. Thomas, CPA, CVA, Shareholder of Elko & Associates Ltd, Certified Public Accountants engaged as independent auditors of the Delaware Solid Waste Authority, do hereby certify that the information in the Authority's Chief Financial Officer's letter of **Certification of Compliance with Financial Assurance Mechanism for Closure and Post Closure Care Costs** is consistent with the Authority's audited financial statements for the year ended June 30, 2003.

WITNESSS: Marc R. Simmons SIGNED: [signature]

DATE: 12/5/03

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XIII. SITING CRITERIA

Siting restrictions for municipal waste landfills are presented in DRGSW Section 5.A.1 through 5.A.4. The manner in which the proposed design meets the siting requirements of § 5.A.1 through § 5.A.3 is presented below.

- As required by DRGSW § 5.A.1, the CIL is located in an area where the potential for degradation of land, air, or water quality is minimal; as described in the siting report [Gilbert and Associates, 1981] for the CIL, the site is located in an industrialized area that was previously impacted by dredge material management activities and, as described in the engineering report (Part VIb, Volume 7), the landfill has been designed in a manner that is highly protective of the environment.

- As required by DRGSW § 5.A.2, the CIL is designed to meet the design standards of DRGSW § 5.B (as described in Section 2.0 of Part VIb, Volume 7).

- Because the landfill is not located within five miles (8 km) of an airport runway, the notification requirement of DRGSW § 5.A.3 does not apply. Nonetheless, as described in the bullet below, the FAA has confirmed in a letter to DSWA dated 10 May 2001 that the proposed final elevation of the CIL poses no hazard to air navigation.

The siting restrictions of DRGSW § 5.A.4 are identified below, along with a description of the manner in which the proposed development meets the requirements.

- *No cell shall be located within the 100-year floodplain.* As described in Gilbert [1982], the proposed landfill disposal areas are not located within the 100-year floodplain. The elevation of the 100-year floodplain in the vicinity of the site is 10 ft. msl, as shown on Drawings 3 and 4 of the engineering plans in Appendix VIb-A (Volume 8). All development will occur at elevation 20 ft. or higher. Therefore, the landfill layout is in compliance with this restriction.

- *No cell shall be located in an area that may cause or contribute to the degradation of any state or federally regulated wetlands unless it is demonstrated that there is no impact to the wetland or the impact is mitigated.* As described in a report by Duffield Associates [2002] (see Appendix VIII-D to the Environmental Assessment Report in Part VIII, Volume 1), wetland areas exist near the CIL site. The locations of the wetland areas, as shown in the report by Duffield Associates [2002] and on Drawing 3 (i.e., General Site Plan –

Existing Conditions), are located along the Christina River and to the north of the Phase III disposal area. As shown on Drawing 4 (i.e., Landfill Expansion Development Plan), development of the landfill will not occur in these wetland areas. Therefore, the landfill layout is in compliance with this restriction.

- *No cell shall be constructed within one mile (1.6 km) of any state or federal wildlife refuge, wildlife area, or park, unless specifically exempted from this requirement by the Department.* As shown in the report by Gilbert [1982], there are no parks, refuges, or wildlife areas within one mile (1.6 km) of the proposed CIL area. Comparison of the vicinity map provided by Gilbert [1982] with current map of the area within one mile of the CIL site indicates that the surrounding area has not changed significantly from 1982. In addition, evaluation of the information compiled by DNREC, found in the New Castle County online GIS database, indicates that there are no critical natural areas within one mile of the CIL site. Therefore, the landfill layout is in compliance with this restriction.

- *No cell shall be constructed within 10,000 ft. (3,048 m) of an airport used by turbojet aircraft or 5,000 ft. (1,524 m) of an airport used by piston-type aircraft unless a waiver is granted by the Federal Aviation Administration.* As shown in the report by Gilbert [1982], no such airports exist within the specified distances of the CIL expansion areas. In addition, as confirmed in a letter to the FAA from DSWA dated 10 May 2001, the proposed final elevation of the CIL poses no hazard to air navigation and no further action is required from DSWA. Therefore, the landfill layout is in compliance with this restriction.

- *No cell shall be constructed sa as to be in conflict with any locally adopted land use plan or zoning requirement.* The CIL is in compliance with the local land use plan and local zoning requirements (i.e., the site is classified as General Industrial). Also, DSWA is exempt from local zoning requirements. Therefore, this restriction does not apply to the site.

- *No cell shall be constructed within the wellhead protection area of a public water supply well or well field or a formally designated aquifer resource protection area.* As shown in the report by Gilbert [1984], the site was not constructed within such an area. In addition, as described below, the CIL site is located in a Groundwater Management Zone, and hence, no drinking wells are allowed in the area. Therefore, the landfill layout is in compliance with this restriction.

- *No cell shall be constructed within 200 ft. (60 m) of a fault that has had displacement during Holocene time.* As shown in the faults map provided by the United States Geological Survey, there are no faults that has had

displacement in Holocene geologic time in Wilmington, Delaware area. Hence, the CIL site is not located within 200 ft. (60 m) of a fault that has had displacement in Holocene geologic time. Therefore, the landfill layout is in compliance with this restriction.

- *No cell shall be constructed within a seismic impact zone unless it can be demonstrated that all containment structures, including liners, leachate collection systems and surface water control systems, are designed to resist the maximum horizontal acceleration in lithified earth material for the site.* The CIL site is located within a seismic impact zone as defined in the DRGSW § 5.A.4h. As shown in Appendix VIb-D.3 of the engineering report (Volume 10), the landfill can withstand the estimated maximum horizontal acceleration.

- *In unstable areas, unless engineering measures have been incorporated in the design to insure the integrity of the structural components of the waste facility (including liners, leachate collection systems, run-on/run-off control, capping and anything affecting the containment and/or possible release of contaminants.).* The CIL is located over a soft foundation (i.e., soft dredge and alluvium deposits). Hence, to improve the foundation conditions at the CIL, the design of the landfill includes the construction of a perimeter reinforced berm, and the installation of prefabricated vertical drains. Details of the analysis are presented in Section 3.3.1 of the Engineering Report and the supporting calculations are provided in Appendices VIb-D.1 through VIb-D.6.

- *In areas where valuable aquifers would be threatened by contaminant releases, unless viable alternatives have been dismissed and stringent design measures have been incorporated to minimize the possibility and magnitude of releases.* The expansion project will occur within the City of Wilmington, where groundwater use or extraction of the underlying the site is prohibited by DNREC (Memorandum of Agreement between the Division of Air and Waste Management and the Division of Water Resources for the City of Wilmington, August 2001).

- *Within 200 feet of the facility property boundary unless otherwise approved by the Department.* During the 85% design meeting held on 7 November 2002, at DSWA's offices in Dover, Delaware, DSWA presented to DNREC the proposed footprint of the CIL expansion showing that along the north portion of Phase III, the footprint was located approximately as close as 120 ft from the property boundary. The landfill footprint was expanded closer to the property boundary to allow installation of prefabricated vertical drains under the reinforced perimeter berm (and outside the existing waste footprint). Although the proposed footprint of the CIL expansion is located within 200 ft of the property boundary at some locations, no discernible impacts are expected

because: (i) construction activities will be performed within DSWA property boundary; (ii) stormwater BMP will be implemented at the site to avoid off-site migration of surface water and/or sediments; and (iii) there are no potential receptors in the vicinity as the proposed expansion is bounded by the waste water treatment lagoons to the north, the Delaware River to the east, and the Christina River to the south.