151483

FINAL REPORT

ECOLOGICAL EVALUATION

for

CORNELL DUBILIER ELECTRONICS SITE
SOUTH PLAINFIELD, NEW JERSEY

AUGUST 1999

Prepared by:

Mark D. Sprenger, Ph.D.
Environmental Response Team

and

Nancy Beckman, Scott Grossman
Environmental Response Team/
Response Engineering & Analytical Contract

Environmental Response Team Center
Office of Emergency & Remedial Response

TABLE OF CONTENTS

LIST OF TABLES vii

LIST OF FIGURES ix

EXECUTIVE SUMMARY x

L0 INTRODUCTION 1

L1 Objective 1
1.2 Site Background 1
1.3 Site Description 1

2.0 TECHNICAL APPROACH 2

2.1 Preliminary Sampling - Phase I 2
2.2 Soil Sampling - Phase II 3
2.3 Sediment Sampling - Phases II and III 3
2.4 Surface Water Sampling - Phase II 3
2.5 Amphipod Toxicity Test - Phase II 4
2.6 Fish Collection 4

2.6.1 Edible Fish - Phases II and III 4
2.6.2 Forage Fish - Phase II 5

2.7 Crayfish Sampling - Phase II 5
2.8 Small Mammals - Phase II 6
2.9 Sampling Equipment Decontamination 6
2.10 Standard Operating Procedures 6

2.10.1 Documentation 6
2.10.2 Sample Packaging, Shipment, Storage, Preservation, and Handling 7
2.10.3 Field Sampling and Analytical Techniques 7
2.10.4 Health and Safety 7

3.0 RESULTS 7

3.1 General Information and Case Narrative 7
3.2 Preliminary Sampling (Phase I) 9
3.3 Data Collected Above New Market Pond (Phase II) 9

3.3.1 Results of In-situ Water Quality Parameters 9
3.3.2 Results of Chemical Analysis of Surface Water 9

3.3.2.1 VOCs 9
3.3.2.2 BNAs 9
3.3.2.3 Metals 10
3.3.2.4 Pesticide/PCBs 10

3.3.3 Results of Chemical Analysis of Sediments 10

3.3.3.1 VOCs . . . 10
3.3.3.2 BNAs . . . 10
3.3.3.3 Metals . . . 11
3.3.3.4 Pesticide/PCBs . . . 11
3.3.3.5 Ammonia . . . 11
3.3.3.6 TPH . . . 11
3.3.3.7 Grain Size . . . 11
3.3.3.8 TOC . . . 12

3.3.4 Results of Chemical Analysis of Soils . . . 12

3.3.4.1 VOCs . . . 12
3.3.4.2 BNAs . . . 12
3.3.4.3 Metals . . . 12
3.3.4.4 Pesticide/PCBs . . . 13
3.3.4.5 Grain Size . . . 13
3.3.4.6 TOC . . . 13

3.3.5 Results of Chemical Analysis of White-Footed Mice . . . 13

3.3.5.1 Pesticide/PCBs . . . 13

3.3.6 Results of Chemical Analysis of Crayfish . . . 14

3.3.6.1 BNAs . . . 14
3.3.6.2 Metals . . . 14
3.3.6.3 Pesticide/PCBs . . . 14

3.3.7 Results of Chemical Analysis of Sunfish (Forage Fish) . . . 15

3.3.7.1 Metals . . . 15
3.3.7.2 Pesticide/PCBs . . . 15

3.3.8 Results of Chemical Analysis of Fillet Samples . . . 15

3.3.8.1 Metals . . . 15
3.3.8.2 Pesticide/PCBs . . . 15

3.3.9 Results of Amphipod Toxicity Test . . . 16

3.4 Data Collected Below New Market Pond (Phase III) . . . 16

3.4.1 Results of Chemical Analysis of Sediments . . . 16

3.4.1.1 VOCs . . . 16
3.4.1.2 BNAs . . . 17
3.4.1.3 Metals . . . 17
3.4.1.4 Pesticide/PCBs . . . 17
3.4.1.5 Grain Size . . . 17
3.4.1.6 TOC . . . 17

3.4.2 Results of Chemical Analysis of Fillet Samples . . . 18

3.4.2.1 Metals 18
3.4.2.2 Pesticide/PCBs 18

4.0 NATURE AND EXTENT OF CONTAMINATION WITHIN THE BOUND BROOK 19

4.1 Introduction 19
4.2 Nature and Extent of PCB Contamination in Sediment and Fish 19

4.2.1 PCBs in Sediment 19
4.2.2 PCBs in Fish 19

4.3 Nature and Extent of Pesticides Contamination in Sediment and Fish 21

4.3.1 Pesticides in Sediment 21
4.3.2 Pesticides in Fish 21

4.4 Nature and Extent of VOC Contamination in Sediment and Fish 21

4.4.1 VOCs in Sediment 21
4.4.2 VOCs in Fish 22

4.5 Nature and Extent of BNA Compounds Contamination in Sediment 22

4.5.1 Low/High Molecular Weight PAHs 22
4.5.2 Remaining BNA Compounds 22
4.5.3 Total BNAs 22

4.6 Nature and Extent of Metals Contamination in Sediment and Fish 23

4.6.1 Metals in Sediment 23
4.6.2 Metals in Fish 23

4.7 Conclusions 23

5.0 ECOLOGICAL RISK ASSESSMENT OF THE BOUND BROOK AND ITS ASSOCIATED FLOOD PLAIN 24

5.1 Problem Formulation 24

5.1.1 Summary of the Screening-Level Risk Assessment 24
5.1.2 Identification of Contaminants of Potential Concern 25
5.1.3 Exposure Characterization 27
5.1.4 Selection of Assessment Endpoints 28

5.1.4.1 Assessment Endpoint #1: Protection of the structure and function of the stream. . 29
5.1.4.2 Assessment Endpoint #2: Protection of the structure and function of the stream corridor (inclusive of associated flood plains and wetlands). 29
5.1.4.3 Assessment Endpoint #3: Protection of fish recruitment in the stream. 29
5.1.4.4 Assessment Endpoint #4: Protection of benthic invertebrate communities 29

5.1.4.5 Assessment Endpoint #5: Protection of amphibian populations, specifically through the protection of embryonic and larval stages 29

5.1.4.6 Assessment Endpoint #6: Protection of insectivorous birds 29
5.1.4.7 Assessment Endpoint #7: Protection bf omnivorous birds 30
5.1.4.8 Assessment Endpoint #8: Protection of piscivorous birds 30
5.1.4.9 Assessment Endpoint #9: Protection of omnivorous mammals 30
5.1.4.10 Assessment Endpoint #10: Protection of carnivorous mammals 30

5.1.5 Production of Testable Hypotheses 30

5.1.5.1 Assessment Endpoint #1: Protection of the structure and function of the stream. . 30
5.1.5.2 Assessment Endpoint #2: Protection of the structure and fimction of the stream corridor (inclusive of associated flood plains and wetlands) 30
5.1.5.3 Assessment Endpoint #3: Protection of fish communities 31
5.1.5.4 Assessment Endpoint #4: Protection of benthic invertebrate communities 31
5.1.5.5 Assessment Endpoint #5: Protection of amphibian populations, specifically through the protection of embryonic and larval stages 31
5.1.5.6 Assessment Endpoint #6: Protection of insectivorous birds 31
5.1.5.7 Assessment Endpoint #7: Protection of omnivorous birds 31
5.1.5.8 Assessment Endpoint #8: Protection of piscivorous birds 31
5.1.5.9 Assessment Endpoint #9: Protection of omnivorous mammals 31
5.1.5.10 Assessment Endpoint #10: Protection of carnivorous mammals 31

5.1.6 Conceptual Model 31
5.1.7 Measurement Endpoints 33

5.1.7.1 Measurement Endpoint for Assessment Endpoint #1: Protection of the structure and fimction of the stream 33
5.1.7.2 Measurement Endpoint for Assessment Endpoint #2: Protection of the structure and function of the stream corridor (inclusive of associated flood plains and wetlands) 33
5.1.7.3 Measurement Endpoint for Assessment Endpoint #3: Protection of fish communities 33
5.1.7.4 Measurement Endpoint for Assessment Endpoint #4: Protection of benthic invertebrate communities 34
5.1.7.5 Measurement Endpoint for Assessment Endpoint #5: Protection of amphibian populations, specifically through the protection of embryonic and larval stages 34
5.1.7.6 Measurement Endpoint for Assessment Endpoint #6: Protection of insectivorous birds 35
5.1.7.7 Measurement Endpoint for Assessment Endpoint #7: Protection of omnivorous birds 35
5.1.7.8 Measurement Endpoint for Assessment Endpoint #8: Protection of piscivorous birds 35
5.1.7.9 Measurement Endpoint for Assessment Endpoint #9: Protection of omnivorous mammals 35
5.1.7.10 Measurement Endpoint for Assessment Endpoint #10: Protection of carnivorous mammals 36

5.2 Assumptions 36

5.3 Risk Characterization 38

5.3.1 Methods Used to Evaluate Risk 38

5.3.1.1 Use of Sediment Toxicity Tests to Evaluate Risk to Benthic Invertebrates 38
5.3.1.2 Comparisons of Measured Tissue Concentrations to Literature Values 39
5.3.1.3 Food Chain Models 39
5.3.1.4 Other Lines of Evidence 41

5.3.1.4.1 Observations of Fish Lesions 41
5.3.1.4.2 Results of Stream Bioassessments 41
5.3.1.4.3 Histopathological Examinations of Small Mammal Kidneys and Livers 41

5.3.1.5 Treatment of the Data 42

5.3.2 Results and Discussion of the Hazard Evaluation 42

5.3.2.1 Protection of the structure and function of the stream 42
5.3.2.2 Protection of the structure and function of the stream corridor 43
5.3.2.3 Protection of fish communities 43
5.3.2.4 Protection of benthic invertebrate communities 44
5.3.2.5 Protection of insectivorous birds 45
5.3.2.6 Protection of omnivorous birds 47
5.3.2.7 Protection of piscivorous birds 48
5.3.2.8 Protection of omnivorous mammals 50
5.3.2.9 Protection of carnivorous mammals 52
5.3.2.10 A note about piscivorous mammals 53

5.4 Uncertainty Analysis 53

5.4.1 General Overview of Uncertainty Analysis 53
5.4.2 Site-Specific Uncertainty Analysis 54

5.5 Conclusions from the Ecological Risk Assessment 58

5.5.1 Protection of the structure and function of the stream 58
5.5.2 Protection of the structure and function of the stream corridor 59
5.5.3 Protection of fish communities 59
5.5.4 Protection of benthic invertebrate communities 59
5.5.5 Protection of insectivorous birds 59
5.5.6 Protection of omnivorous birds 59
5.5.7 Protection of piscivorous birds 60
5.5.8 Protection of omnivorous mammals 60
5.5.9 Protection of carnivorous mammals 60
5.5.10 Overall recommendations from the ecological risk assessment 61

6.0 PRESENTATION OF EDIBLE FISH DATA FOR THE ASSESSMENT OF RISK TO HUMAN HEALTH 61

6.1 Project Scope 61
6.2 Fish Collection 62
6.3 Results 62

6.3.1 Polychlorinated Biphenyls 62
6.3.2 Pesticides 63

6.4 Discussion 63

7.0 OVERALL CONCLUSIONS 64

7.1 Nature and Extent of Contamination 64
7.2 Ecological Risk Assessment 64
7.3 Presentation of Data for Human Health 65

APPENDICES

A FIELD AND LABORATORY DOCUMENTATION
B CALCULATION OF WHOLE BODY CONCENTRATIONS FROM FILLET AND CARCASS DATA
C FINAL ANALYTICAL REPORTS
D AMPHIPOD TOXICITY EVALUATION FINAL REPORT
E HAZARD CHARACTERIZATION
F TOXICITY PROFILES
G LIFE HISTORIES
H FINAL HISTOPATHOLOGICAL EVALUATION REPORT

LIST OF TABLES

Table 1A	Summary of Parameters Evaluated and Number of Rephcates by Sample Type and Location for Aquatic Samples
Table IB	Summary of Parameters Evaluated and Number of Rephcates by Sample Type and Location for Terrestrial Samples
Table 2	Results of Water Quality Data - PHASE II
Table 3	Results of Volatile Organic Compound Concentrations in Water - PHASE II
Table 4	Results of Base, Neutral, and Acid Extractable Compound Concentrations in Surface Water - PHASE II
Table 5	Results of Metal Concentrations in Filtered Surface Water - PHASE II
Table 6	Results of Metal Concentrations in Unfiltered Surface Water - PHASE II
Table 7	Results of Volatile Organic Compound Concentrations in Sediment - PHASE II
Table 8	Results of Base, Neutral and Acid Extractable Compound Concentrations in Sediment - PHASE II
Table 9.1	Results of Metal Concentrations in Sediment (dry weight) - PHASE II
Table 9.2	Results of Metal Concentrations in Sediment (wet weight) - PHASE II
Table 10.1	Results of Pesticides/PCB Concentrations in Sediment (dry weight) - PHASE II
Table 10.2	Results of Pesticides/PCB Concentrations in Sediment (wet weight) - PHASE II
Table 11	Results of Ammonia Concentrations in Sediment - PHASE II
Table 12	Results of Total Petroleum Hydrocarbon Concentrations in Sediment - PHASE II
Table 13	Particle Size Distribution of Sediment - PHASE II
Table 14	Results of Total Organic Carbon Concentrations in Sediment - PHASE II
Table 15	Results of Volatile Organic Compound Concentrations in Soil - PHASE II
Table 16	Results of Base, Neutral and Acid Extractable Compound Concentrations in Soil - PHASE II
Table 17.1	Results of Metal Concentrations in Soil (dry weight) - PHASE II
Table 17.2	Results of Metal Concentrations in Soil (wet weight) - PHASE II
Table 18.1	Results of Pesticides/PCB Concentrations in Soil (dry weight) - PHASE II
Table 18.2	Results of Pesticides/PCB Concentrations in Soil (wet weight) - PHASE II
Table 19	Particle Size Distribution of Soil - PHASE II
Table 20	Results of Total Organic Carbon Concentrations in Soil - PHASE II
Table 21	Resuhs of Pesticides/PCB Concentrations in Small Mammals - PHASE II
Table 22	Results of Base, Neutral and Acid Extractable Compound Concentrations in Crayfish - PHASE II
Table 23	Results of Metal Concentrations in Crayfish - PHASE II
Table 24	Results of Pesticide/PCB Concentrations in Crayfish - PHASE II
Table 25	Results of Metal Concentrations in Forage Fish Tissue - PHASE II
Table 26	Results of Pesticide/PCB Concentrations in Forage Fish Tissue - PHASE II
Table 27	Results of Metal Concentrations in Edible Fish Tissue - PHASE II
Table 28	Results of Pesticide/PCB Concentrations in Edible Fish Tissue - PHASE II
Table 29	Survival and Growth Results from 14-day Solid Phase Amphipod Toxicity Test - PHASE II
Table 30	Results of Analysis for Volatile Organic Compounds Concentrations in Sediment - PHASE III
Table 31	Results of Base, Neutral and Acid Concentrations in Sediment - PHASE III
Table 32	Results of Metal Concentrations in Sediment - PHASE IE
Table 33	Results of Pesticides/PCB Concentrations in Sediment - PHASE III
Table 34	Particle Size Distribution of Sediment - PHASE III
Table 35	Results of Total Organic Carbon Concentrations in Sediment - PHASE III
Table 36	Results of Metal Concentrations in Edible Fish Tissue - PHASE III
Table 37	Results of Pesticide/PCB Concentrations in Edible Fish Tissue - PHASE III
Table 38	Screening Level Risk Assessment Hazard Quotient Calculations
Table 39	Summary Contaminant Concentrations for Use in the Ecological Risk Assessment - WATER
Table 40	Summary Contaminant Concentrations for Use in the Ecological Risk Assessment - SEDIMENT
Table 41	Summary Contaminant Concentrations for Use in the Ecological Risk Assessment - SOIL
Table 42	Summary Contaminant Concentrations for Use in the Ecological Risk Assessment - SMALL MAMMALS

Table 43 Summary Contaminant Concentrations for Use in the Ecological Risk Assessment - CRAYFISH
Table 44 Mean Contaminant Concentrations for Use in the Ecological Risk Assessment - FORAGE FISH TISSUE
Table 45 Maximum Contaminant Concentrations for Use in the Ecological Risk Assessment - ALL FISH SAMPLES (INCLUDING CARCASSES, WHOLE BODIES, AND FILLETS)
Table 46 Hazard Quotient Calculations for Whole Body Forage Fish Tissue Concentrations
Table 47 Hazard Quotient Calculations for Whole Body Crayfish Tissue Concentrations
Table 48 Sediment Toxicity Test Mortality NOAELS and LOAELS
Table 49 Chronic Hazard Quotient Calculations for Insectivorous Birds (Red-winged Blackbird) - LOCATION A1
Table 50 Chronic Hazard Quotient Calculations for Insectivorous Birds (Red-winged Blackbird) - LOCATION A2
Table 51 Chronic Hazard Quotient Calculations for Insectivorous Birds (Red-winged Blackbird) - LOCATION A3
Table 52 Chronic Hazard Quotient Calculations for Insectivorous Birds (Red-winged Blackbird) - LOCATION A4
Table 53 Chronic Hazard Quotient Calculations for Insectivorous Birds (Red-winged Blackbird) - LOCATION A5
Table 54 Chronic Hazard Quotient Calculations for Omnivorous Birds (Mallard Duck) - LOCATION A1
Table 55 Chronic Hazard Quotient Calculations for Omnivorous Birds (Mallard Duck) - LOCATION A2
Table 56 Chronic Hazard Quotient Calculations for Omnivorous Birds (Mallard Duck) - LOCATION A3
Table 57 Chronic Hazard Quotient Calculations for Omnivorous Birds (Mallard Duck) - LOCATION A4
Table 58 Chronic Hazard Quotient Calculations for Omnivorous Birds (Mallard Duck) - LOCATION A5
Table 59 Acute Hazard Quotient Calculations for Omnivorous Birds - LEAD
Table 60 Chronic Hazard Quotient Calculations for Piscivorous Birds (Green Heron) - LOCATION A1
Table 61 Chronic Hazard Quotient Calculations for Piscivorous Birds (Green Heron) - LOCATION A2
Table 62 Chronic Hazard Quotient Calculations for Piscivorous Birds (Green Heron) - LOCATION A3
Table 63 Chronic Hazard Quotient Calculations for Piscivorous Birds (Green Heron) - LOCATION A4
Table 64 Chronic Hazard Quotient Calculations for Piscivorous Birds (Green Heron) - LOCATION A5
Table 65 Chronic Hazard Quotient Calculations for Piscivorous Birds (Green Heron) - LOCATION A6
Table 66 Acute Hazard Quotient Calculations for Piscivorous Birds - TOTAL PCBs
Table 67 Chronic Hazard Quotient Calculations for Omnivorous Mammals (Raccoon) - LOCATION A1
Table 68 Chronic Hazard Quotient Calculations for Omnivorous Mammals (Raccoon) - LOCATION A2
Table 69 Chronic Hazard Quotient Calculations for Omnivorous Mammals (Raccoon) - LOCATION A3
Table 70 Chronic Hazard Quotient Calculations for Omnivorous Mammals (Raccoon) - LOCATION A4
Table 71 Chronic Hazard Quotient Calculations for Omnivorous Mammals (Raccoon) - LOCATION A5
Table 72 Chronic Hazard Quotient Calculations for Omnivorous Mammals (Raccoon) - LOCATION A6
Table 73 Acute Hazard Quotient Calculations for Omnivorous Mammals - SELENIUM and TOTAL PCBs
Table 74 Chronic Hazard Quotient Calculations for Carnivorous Mammals (Red Fox) - LOCATION T1
Table 75 Chronic Hazard Quotient Calculations for Carnivorous Mammals (Red Fox) - LOCATION T2
Table 76 Chronic Hazard Quotient Calculations for Carnivorous Mammals (Red Fox) - LOCATION T3
Table 77 Acute Hazard Quotient Calculations for Carnivorous Mammals - LEAD
Table 78 Summary Pesticide and PCB Concentrations in Edible Fish Tissue

LIST OF FIGURES

Figure 1 Site Location Map

Figure 2 Terrestrial Sample Locations

Figure 3 Aquatic Sample Locations Upstream of New Market Pond

Figure 4 Aquatic Sample Locations Downstream of New Market Pond

Figure 5 Comparison of PCBs in Biota and Soil

Figure 6 Comparison of PCBs in Biota and Sediment

Figure 7 Pesticide and PCB in Sediment

Figure 8 Aroclor 1248 in Edible Fish

Figure 9 Aroclor 1254 in Edible Fish

Figure 10 Heptachlor Epoxide in Edible Fish

Figure 11 g-Chlordane in Edible Fish

Figure 12 a-Chlordane in Edible Fish

Figure 13 p,p'-DDE in Edible Fish

Figure 14 p,p'-DDD in Edible Fish

Figure 15 Endrin Aldehyde in Edible Fish

Figure 16 Dieldrin in Edible Fish

EXECUTIVE SUMMARY

There were three objectives incorporated into the investigation of contamination associated with the Comell-Dubilier Electronics site in South Plainfield, New Jersey: 1) to investigate the nature and extent of contamination within the Bound Brook downstream of the Comell-Dubiher Electronics site; 2) to conduct an ecological risk assessment of a portion of the Bound Brook and its associated floodplain downstream of the Comell-Dubiher Electronics site, according to the Ecological Risk Assessment Guidance for Superfimd (U.S. EPA 1997a); and 3) to collect and analyze fish fillets from the Bound Brook downstream of the Comell-Dubilier Electronics site for a human health risk assessment, which will be performed separately.

The Cornell-Dubilier Electronics Site is located at 333 Hamilton Boulevard in South Plainfield, Middlesex County, New Jersey (Figure 1). The site occupies approximately 25 acres in an industrial, commercial, and residential area. During its years of operation at the site (1936 to 1962), Comell-Dubilier Electronics, Inc. manufactured electronic parts and components, including capacitors. It is alleged that during their operations, Comell-Dubilier Electronics, Inc. dumped polychlorinated biphenyl (PCB) contaminated materials and other hazardous substances directiy onto site soils. Since 1962, dozens of companies have operated at the site as tenants. The site is cmrentiy known as the Hamilton Industrial Park and is occupied by an estimated 15 commercial businesses (U.S. EPA 1997b).

The Bound Brook traverses the southeast comer of the site property, and stream width varies from 10 to 20 feet across the site, with a varying depth of approximately 1 to 4 feet. The Bound Brook then flows northwest for approximately 0.5 miles before joining with the Cedar Brook (which drains Spring Lake to the northeast). The Boimd Brook flows approximately 0.75 miles before emptying into the east end of New Market Pond. At the west end of New Market Pond, water flows over a spillway and continues west as the Bound Brook for approximately 4 miles before joining with the Green Brook. The Green Brook continues southwest for another 3 miles before flowing into the Raritan River. All the above-mentioned water bodies are designated by the State of New Jersey for the maintenance, migration, and propagation of natural and estabhshed biota. There are no surface water intakes along this flow path for at least 15 miles. However, these water bodies are reportedly utilized as freshwater fisheries (U.S. EPA 1997b). In addition, there are approximately 34 acres of wetiands within 0.5 miles of the site (U.S. EPA 1997b). Wetiands that border the site to the southeast diminish significanfly as the creek heads downstream toward the northwest.

A preliminary investigation (Phase I) was conducted between 28 and 30 May 1997 to determine the downstream extent of PCBs and metals in the sediment and floodplain soils using screening methods. These data were utilized to select sampling locations between the site and New Market Pond (Phase II). Phase II was conducted on 16 through 20 and 27 June 1997. Samples collected for Phase II included surface water, sediment, soil, small mammals, crayfish, forage fish, and edible fish (fillets). Phase II sampling was conducted at a total of seven locations within the Bound Brook for the aquatic samples, and at three locations adjacent to the Bound Brook for the terrestrial samples. In addition, an aquatic reference area was selected in the Bound Brook upstream of the site, and a terrestrial reference area was selected adjacent to the Cedar Brook between Spring Lake and the Cedar Brook's confluence with the Bound Brook.

For Phase 1l, all surface water, sediment, and soil samples were analyzed for PCBs, pesticides, target analyte list (TAL) metals, volatile organic compounds (VOCs), and base-, neutral-, and acid-extractable compounds (BNAs). In addition, soil and sediment samples were analyzed for grain size and total organic carbon (TOC). Sediment samples were also analyzed for total petroleum hydrocarbons and ammonia, and they were evaluated in a 14-day toxicity test using the amphipod, *Hyalella azteca*. All crayfish samples were analyzed for BNAs, TAL metals, pesticides, and PCBs. All fish samples were analyzed for TAL metals, pesticides, and PCBs. All small mammal samples were analyzed for pesticides and PCBs. In addition, livers and kidneys from the small mammals were submitted for histopathological evaluation. The resulting data were used to support an ecological risk assessment, an extent of contamination evaluation, and a presentation of data for a human health risk assessment, which was performed separately by the U.S. EPA Region II office.

Preliminary data from Phase II indicated that PCBs, as well as otiier contaminants, were detected in fish collected as far downstream as New Market Pond. Therefore, an additional round of sampling (Phase III) was conducted on 7 August 1997 to evaluate the downstream extent of contamination in the Bound Brook Only edible fish tissue and sediments were collected during Phase III. These samples were collected from three locations within the Bound Brook between New Market Pond and the confluence with the Green Brook, and from one location in the Green Brook just upstream of its confluence with the Raritan River.

The nature and extent of contamination evaluation revealed the following:

- Many contaminants are present at relatively high levels adjacent to and/or immediately down gradient of the site. These concentrations progressively decrease toward location A14, near the confluence of the Green Brook and the Raritan River, with the exception of a sharp increase either immediately upstream of New Market Pond or within New Market Pond. The increase in concentrations of many contaminants immediately upstream or within New Market Pond may be the result of a slower rate of flow, resulting in greater deposition of particles onto which the contaminants are adsorbed. Regardless, the high concentrations adjacent to and directly downstream of the Cornell-Dubilier Electronics site indicates that the site is the primary source of many of the contaminants of concern within the section of the Bound Brook corridor investigated for this study.

- The presence of contaminants up gradient of the site (at the reference and in Spring Lake) suggest that, in addition to the Cornell-Dubilier Electronics site, other sources of contamination exist within the Bound Brook stream corridor. Nonetheless, based on the high contaminant concentrations adjacent to the site, Cornell-Dubilier Electronics, Inc. was a major contributor to the contamination at the site.

The results of the ecological risk assessment resulted in the following overall conclusions:

- The structure and function of the stream ecosystem within the Bound Brook and its stream corridor adjacent to and downstream of the Cornell-Dubilier Electronics site is at risk from chemical contamination. First, a risk is posed to the benthic community and is potentially due to a variety of VOCs and BNAs, silver, calcium, copper, vanadium, zinc, and dieldrin. The fish within the stream were determined to be at risk from exposure to selenium and total PCBs, but the potential risk posed to fish by the other bioaccumulative contaminants of potential concern (COPCs) could not be determined. Birds utilizing the stream were determined to be at risk from lead, PCBs, total endrin, total chlordane, and total DDT. A risk to omnivorous mammals using the stream was found to be posed by methoxychlor, arsenic, mercury, PCBs and selenium. Finally, a risk to carnivorous mammals was also found to be posed by PCBs.

- Of the contaminants determined to pose a risk to the assessment endpoints evaluated in the risk assessment, the most significant risk is posed by those contaminants which resulted in a hazard quotient greater than one using the mean contaminant concentrations and the lowest observable adverse effect level (LOAEL) in the food chain models. This occurred for PCBs using the omnivorous mammal and piscivorus bird models and for selenium using the omnivorous mammal model. However, for these two contaminants, a preliminary ecotoxicologically-based sediment remedial goal could not be determined because the sediment concentrations did not correlate with the hazard quotients in the food chain models. In addition, it is probable that other sources, in addition to the Cornell-Dubilier Electronics site, exist and are contributing to the risk posed by these two contaminants. Therefore, source control at the Cornell-Dubilier Electronics site is recommended at a minimum to decrease risk to the assessment endpoints evaluated in the risk assessment.

The main points gathered from the data for the human health risk assessment are as follows:

- In general, the highest PCB and pesticide concentrations were found in carp, followed by white sucker, pumpkin seed, and largemouth bass. The concentrations of these compounds may be linked to the percent lipids in each of these species.

- With the exception of carp, the highest PCB concentrations were noted in the fish collected in the Bound Brook, from the reference area downstream to New Market Pond. The concentration of PCBs were higher in carp collected downstream of New Market Pond. This is most likely due to the large size (and therefore age) of the carp collected below New Market Pond and the limited number of carp collected, resulting in high variability in the data.

- Of particular note is the presence of PCBs and many pesticides in the fish collected from Spring Lake. Since this lake receives water from a different drainage, it appears as if another source, in addition to the Cornell-Dubilier Electronics site, may be contributing to the contamination within the Bound Brook. Nevertheless, the Cornell-Dubilier Electronics site appears to be a significant source of PCBs detected in the edible fish tissue collected from the Bound Brook downstream of the site.

1.0 INTRODUCTION

L1 Objective

There were three objectives incorporated into the investigation of contamination associated with the Comell-Dubilier Electronics site in South Plainfield, New Jersey: 1) to investigate the nature and extent of contamination within die Boimd Brook downstream of tine Corinell-Dubilier Electronics site; 2) to conduct an ecological risk assessment of a portion of the Bound Brook and its associated floodplain downstream of the Comell-Dubilier Electronics site, according to the Ecological Risk Assessment Guidance for Superfimd (U.S. EPA 1997a); and 3) to collect and analyze fish fillets from the Bound Brook downstream of the Comell-Dubilier Electronics site for die purposes of assessment of risk to human health.

1.2 Site Background

The Comell-Dubilier Electronics Site is located at 333 Hamilton Boulevard in South Plainfield, Middlesex Comty, New Jersey (Figure 1). The site occupies approximately 25 acres in an industrial, commercial, and residential area. It is bordered by commercial businesses and residences from the south to die north, and wetlands and the Bound Brook from die southeast. Conrail railroad tracks crisscross the Bound Brook just nordi of die site. Odier industries are scattered to die northeast and east of the site on the opposite side of die railroad tracks (U.S. EPA 1997b).

During its years of operation at the site (1936 to 1962), Comell-Dubilier Electronics, Inc. manufactured electronic parts and components, including capacitors. It is reported diat during diat time, transformer oils were tested. It is alleged that Comell-Dubiher Electronics, Inc. dumped polychlorinated biphenyl (PCB) contaminated materials and other hazardous sutnstances dtrecdy onto site soils (U.S. EPA 1997b).

Historical aerial photograiths reveal evidence dhat extensive filling operations were underway at the site in the 1940s, possibly to support constnuction of a railroad spur to the operating facihty. A titie search indicates that the Spicer Manufacturing Corporation, later known as Dana Corporation, owned die property during dhis period (U.S. EPA 1997b).

The site is currentiy known as die Hamilton Industrial Park and is occupied by approximately 15 commercial businesses. Through the years, dozens of companies have operated at the site as tenants (U.S. EPA 1997b). Currentiy, die property is secured by a fence with posted waming signs that were installed during the site stabilization removal action initiated in July 1997.

1.3 Site Description

It is estimated dhat approximately 540 persons reside widhin 0.25 miles of the site, with the nearest residential homes being located on Spicer Avemie and on the opposite side of Hamilton Boulevard, less dhan 200 feet from the site. The toml population estimated tp live within one mile of the site is 8,700 persons (U.S. EPA 1997b).

The Bound Brook traverses the soudheast comer of the site property. Stream widdi varies from 10 to 20 feet across die site, widi a varying depdi of approximately 1 to 4 feet. The Bound Brook flows northwest for approximately 0.5 miles before joining die Cedar Brook (which drains Spring Lake to tne northeast). The Bound Brook flows approximately 0.75 miles before emptying into the east end of New Market Pond. After flowing over a spillway at the west end of New Market Pond, the Bound Brook continues west for approximately four miles before joining widi the Green Brook. The Green Brook continues southwest for anodier dhree miles before flowing into die Raritan River. All die previously mentioned water bodies are designated by die State of New Jersey for die maintenance, nigration, and propagation of die natural and established biota. There are no surface water intakes

along this flow path fpr at least 15 miles. However, diese water bodies are reportedly utilized as freshwater fisheries (U.S. EPA 1997b).

As reported by the United States Environmental Protection Agency (U.S. EPA 1997b), there are approximately 34 acres of wetlands within 0.5 miles of die site. Wetlands that border die site to die soudieast diminish significanfly as die creek heads downstream toward the northwest.

An unknown source investigation conducted by die NJ Department of Environmental Protection (DEP) in the vicinity of Hamilton Boulevard during 1988 to 1991 revealed significant ground water contanination consisting of mainly trichloroedhene (TCE) and tetrachloroethene (PCE). Samples collected fiom a shallow (70 feet) residential potable well located approxinnately 500 feet west of the site revealed TCE (6,850 micrograms per liter [μg/L]) and PCE (12.6 μg/L) contamination. Due to widespread contamination, all residential wells in die area were reportedly closed and residences were hooked up to a water main providing potable water from anodier location. Aldiough the site was considered to be one of several potential sources, to date, the source of the contamination has not been identified (U.S. EPA 1997b).

2.0 TECHNICAL APPROACH

The results of die Screening Level Ecological Risk Assessment for the site prepared by the U.S. EPA Region II (1996), indicated dat a field investigation was appiopriate to collect additional site information. This involved die collection of soil, sediment, surface water, and biota. In addition to chemical analyses, selected sediment samples were also evaluated using toxicity tests.

A prehminary investigation (Phase I) was conducted between 28 and 30 May 1997 to detemtine die downstream extent of PCBs and metals in the sediment and floodplain soils using screening methods. These data [summarized in Bound Brook Sampling and Edible Fish Tissue Data Report (U.S. EPA 1997c)] were utilized to select samphng locations between the site and New Market Pond (Phase II). Phase II was conducted on 16 dirough 20 and 27 June 1997. Samples collected for Phase II included surface water, sediment, soil, small mammals, crayfish, forage fish, and edible fish (fillets). These data were used to support an ecological risk assessment, an extent of contamination evaluation, and a presentation of data for a human health risk assessment, which was perfonned by Region II U.S. EPA. Prehminary data from Phase II indicated dat PCBs, as well as other contaminants, were detected in fish collected as far downstream as New Market Pond. Therefore, an additional round of sampllng (Phase EI) was conducted on 7 August 1997 to evaluate the downstream extent of contamination in the Bound Brook. Ondy edible fish tissue and sediments were collected during Phase III. To get fish of sunilar size and species composition, Spring Lake was utilized as a reference area for Phase III. All fish collections were performed iin conjunction with U.S. EPA Region II Division of Environmental Science and Assessmeiu under die direction of Jim Kurtenbach and Christopher Stitt.

The work perfonned for dis investigation follows die mediods summarized in die Work Plan (U.S. EPA 1997d) and the appropriate Standard Operating Procedures (SOPs) (see Section 2.10), widi die exception that small mammals were not analyzed for Target Analyte List (TAL) metals. A copy of all field and laboratory documentation is contained in Appendix A. A description of die methods used for dis investigation is provided next.

2.1 Prehminary Sampllng - Phase I

Prior to die Phase II field investigation, prehminary soil and sediment sampling was conducted downstream of die Coniell-Dubiller Electronics site to the east end of New Market Pond. The objective of die prehminary sampllng was to evaluate die downstream extent of PCB and metals contamination. The data were analyzed using gas chromatography/electron captmre detection (GC/ECD) screening mediods for PCBs and x-ray fluorescence (XRF) for metals. No vahdation of the data was performed, and data were considered as Quallty Assurance Level 1 (QA-1) screening data. The results of the preliminary sampling were used to select sample locations for die Phase II

investigation and are summarized in the Bound Brook Sampling and Edible Fish Tissue Data Report (U.S. EPA 1997c).

2.2 Soil Sampling - Phase II

Replicate soil samples were collected from each of the four terrestrial sample areas (T1, T2, T3, and T4 [reference area]) (Figure 2). These samples were used to characterize the chemical concentrations in the soil for each of the four sample areas. The locations of the soil samples were randomly selected within the small mammal trapping grids (Section 2.8). Soil samples were analyzed for PCBs, pesticides, metals, volatiles, semivolatiles, grain size, and total organic carbon (TOC).

Soil samples were collected in accordance with the Environmental Response Team Center/Response Engineering and Analytical Contract (ERTC/REAC) SOP #2012, *Soil Sampling*. Soil was collected using a decontaminated stainless steel trowel or bucket auger to a depth of 6 inches. The soil within a 1.5 foot by 1.5 foot area was collected and deposited into a labeled 5-gallon decontaminated stainless steel bucket until sufficient sample volume was obtained for all required chemical analyses. The sample was transported to the staging area, mixed, and divided among the appropriate sample containers. Samples for volatile organic carbon (VOC) analyses were obtained from the bulk sample prior to mixing. The soil samples were maintained and shipped on wet ice prior to analysis.

2.3 Sediment Sampling - Phases II and III

For Phase II, two replicate sediment samples were collected from each of the eight sample locations: A1 (adjacent to the site), A2 (below Veterans Park), A3 (Clinton Avenue Bridge), A4 (New Brunswick Avenue Bridge), A5 (east New Market Pond), A6 (west New Mark Pond), A7 (below spillway), and A9 (upstream reference area). Aquatic sample locations for Phase II are specified in Figure 3. For Phase III, two replicate sediment samples were collected from each of the five sample locations: A11 (below spillway, same location as A7), A12 (Prospect Street Bridge), A13 (South Avenue Bridge), A14 (Lincoln Boulevard Bridge), and A10 (Spring Lake reference area). Aquatic sample locations for Phase III are specified in Figure 4. These samples were used to characterize the chemical concentrations in the sediment for each of the sample areas. Sediment samples were analyzed for PCBs, pesticides, metals, semivolatiles, volatiles, grain size, and TOC. At sample locations where toxicity tests were going to be performed (A1, A2, A3, A4, A5, A6, and A9), sediment samples were also analyzed for ammonia and total petroleum hydrocarbons (TPH).

Sediment samples were collected in accordance with ERTC/REAC SOP #2016, *Sediment Sampling*. Sediment samples were collected from a depositional area using a decontaminated Ponar dredge or stainless steel bowels and deposited into a stainless steel bucket until the volume was sufficient to meet analytical and toxicity testing volume requirements. The bulk sample was then covered and returned to the staging area. Samples for VOC analyses were taken from the bulk sample prior to homogenization. After the remaining sediment was homogenized, the sample was placed in appropriately labeled sample containers for chemical analyses and toxicity testing. The samples were maintained on wet ice until they were shipped to the specified laboratory via overnight courier for analysis.

2.4 Surface Water Sampling - Phase II

A surface water sample was collected from each of the eight aquatic sample locations (Figure 3). Surface water samples were analyzed for PCBs, pesticides, metals (total and dissolved), semivolatiles, and VOCs. Surface water samples could not be collected during the original week of the site investigation (16 through 20 June 1997) due to high turbidity levels caused by heavy rains. Surface water sampling was postponed until 27 June 1997.

Surface water saaqles were collected direcdy into dhe sampling container foliowing ERTC/REAC SOP #2013, Surface Water Sampling. Water samples were coliected iqstream of any river disturbances being caused by the sampler. The surface water samples being analyzed for dissolved metals were filtered prior to preservation and analysis. Ali samples were maimained and shipped on wet ice prior to analysis. Samples being analyzed for metals were preserved using 40 percent nitric acid to a pH of less dhan 2 units.

Water quality parameters were measured using a Horiba U-10. The water quality parameters evaluated included temperature, pH, dissolved oxygen, conductivity, turbidity, and salinity. The instnument was cahbrated prior to data coliection as per dhe manufacturer's operating manual.

2.5 Amphipod Toxicity Test - Phase II

The amphipod toxicity tests were subcontracted to a laboratory widh documented experience of performing dhe test. The toxicity tests were fourteen days in duration and included six replicates per sample. Six sample locations adjacent to and downstream of the site (A1, A2, A3, A4, A5, A6); a reference location (A9); and a laboratory confrol were evaluated during this test. Each replicate contained twenty 2nd or 3rd instar amphipods. Toxicity was evaluated for 100 percent site sediment only; no sediment ddutions were used. Approximately 40 percent of the overlying water volume was replaced widh laboratory water on days 2, 4, 6, 8, 10 and 12 in a way that minimized turbulence and disturbance of the sediment. Dissolved oxygen and pH were measured in each replicate immediately before and after each renewal. The organisms were fed periodicaliy widh a suitable food at a rate suflicient to support growdh widhout resulting in fimgal production. For the test to be considered valid, control mortality could not exceed 20 percent. The endpoints measured by dhe subcontract laboratory included mortality (percent mortahty) and growdi (total lengdh). The toxicity test foliowed ERT/REAC DRAFT SOP, *10-Day Chronic Toxicity Test Using Amphipods (Hyalella azteca)*. Any deviation from dhe SOP was reported by dhe subconfract laboratory in dhe toxicity evaluation report.

Statistical comparisons were used to determine if there was a significant difference ($a = 0.10$) in any of dhe measurement endpoints (e.g., growdh, mortality) between either the laboratory control or a reference location anid any of dhe on-site sample locations. A Dunnett's one-sided test was utilized for the analyses. If any of the assumptions required for the Dunnett's test was not met (i.e., normality and homogeneity of variances), a Dunnett's test on dhe ranks was used to provide a non-parametric, distribution-free comparison of dhe means.

If significant differences were observed between any of dhe sampling locations adjacent to dhe site and eidher dhe laboratoiy control or the upsfream reference locations, the test species was considered to be unpacted at that sample location. The unpact may be related to exposure to contaminants or to differences in sediment matrices or physical characteristics. Correlation analyses were used to determine if the impacts were related to the concentrations of any contaminants or physical sample characteristics that were measured.

2.6 Fish Coliection

2.6.1 Edible Fish - Phases II and III

Fish were coliected in conjunction with U.S. EPA Region II from ten locations adjacent to and downstream of dhe site, an iqsoream reference area (A9) and Spring Lake (A10). Samples were coliected from the Bound Brook, New Market Pond, Spring Lake, and Green Brook (below dhe confluence widh the Bound Brook) using electrofishing techniques (Figures 3 and 4). Phase HI (i.e., below New Market Pond) sampling was conducted as a result of the contaminant levels detected in the filiet tissue in Phase II.

The objective of the sampling was to collect edible-size bottom feeding fish (bullheads, carp, and white suckers) and predatory fish (sunfish and largemouth bass) of similar size between the sample locations. A maximum number of three replicates were collected for each species from each sample location but not all species were caught at all locations (e.g., bullheads were only collected at locations A5, A11, A12, and A14).

The sampling crew taxonomically identified the fish, measured the length and weight of the fish, and performed a gross pathology evaluation. The fish were prepared following the U.S. EPA Guidance for Assessing Chemical Contaminant Data for Use in Fish Advisories (U.S. EPA 1993a). Fish were scaled prior to filleting. Each fillet sample represented a single fish; no sample compositing was required to meet analytical mass requirements. The fillets were weighed, wrapped in aluminum foil, placed in a plastic bag, and maintained on wet ice. Fish were delivered to the REAC Biological Assessment Laboratory in Edison, NJ for chemical analysis. Fish tissues were analyzed for metals, PCBs, pesticides, percent lipids, and percent moisture. The data will be used by Region II U.S. EPA for a human health risk assessment.

2.6.2 Forage Fish - Phase II

Forage fish were collected from six locations (A1, A2, A3, A4, A5, and A6) adjacent to and downstream of the site and from an upstream reference area (A9) using electrofishing. Based on electrofishing results, the sunfish (pumpkinseed at all locations except Spring Lake (A10) in which bluegills were used) were selected as the forage fish, as they were most consistently captured at each of the sample locations.

Captured fish were placed on wet ice and transported to the REAC Biological Assessment Laboratory, Edison, NJ. Up to eight replicates were collected from each of the sample locations. The digestive tracts were removed, and the fish were weighed and placed in aluminum foil. Fish were not composited; each sample represents a single fish. The fish were submitted to a subcontract laboratory for chemical analyses (PCBs, metals, pesticides, percent lipids). In some instances sunfish fillets were analyzed separately from the carcass so the fillet data could be used for the human health risk assessment. In these cases the fillet data and the carcass data were recombined to provide whole body concentrations (Appendix B). Voucher specimens for taxpnomic identification were also collected and preserved in 2-propanol (isopropyl alcohol).

2.7 Crayfish Sampling - Phase II

Crayfish were collected from six locations (A1, A2, A3, A4, A5, A6) adjacent to and downstream of the site and from an upstream reference area (A9). Crayfish were collected using electrofishing and crayfish traps baited with cat food. The taxon and weight were determined for each specimen collected. All captured crayfish were placed in 2-gallon decontaminated plastic buckets (hereafter referred to as depuration chambers) per location and maintained live in reference water for depuration. Aeration was provided to each chamber with an aquarium air pump and air stone. The crayfish were allowed to depurate in this manner for 18 to 20 hours after capture to remove sediments entrained in the digestive tract.

Depending on trapping success, up to eight specimens were retained per location for chemical analyses (PCB, metals, pesticides, semivolatiles, and percent lipids). After the depuration, each specimen was sacrificed, weighed, measured, and wrapped in aluminum foil. Crayfish were only composited for laboratory quality assurance samples (i.e., matrix spikes) due to the larger mass requirements. Composited samples were identified with the suffix "COMP" and were only used for laboratory performance evaluation. The samples were placed on wet ice and shipped to the subcontract laboratory for whole body homogenization and analysis. Voucher specimens for taxonomic identification were collected and preserved in 2-propanol (isopropyl alcohol).

2.8 Small Manunals - Phase II

Small mammals were collected from four locations. Three of the locations (T1, T2, and T3) were adjacent to and down gradient of the site and die fourth location was the reference area (T4) (Figure 2). The intent of die trapping was to collect eight adult white-footed nice (*Peromyscus leucopus*) from each area (32 mammals total). All field trapping activities were conducted in accordance widi ERT/REAC SOP #2029, *Small Mammal Sampling and Processing*.

Samphng was perfonned using Museum Special traps and Sherman traps set in grids. All traps were spaced 15 feet apart and baited with a rolled oats and peanut butter mixture. The traps were checked in the moming and evening for a maximum of a 3-night trapping period. Traps were rebaited as necessary. Recovered anhnals were labeled and stored on wet ice in coolers before processing. Trapping was terminated in each area once a sufficient number of specinens were collected. On die second day of trapping, a majority of die traps in the reference area (T4) had to be replaced and reset due to vandalism.

Specinens were then transported to the REAC Biological Assessment Laboratory, Edison, NJ, in coolers on wet ice for processing. The metrics recorded included total body weight, body length, tall lengdi, ear lengdi, liver weight, and kidney weight. Liver and kidney sections (approximately 0.5 g each) were taken for histopathological analysis and preserved in a labeled 40-millilliter (mL) glass vial filled with 10 percent buffered formalin. Gross necropsies were dien conducted, and the gastrointestinal contents of each animal were removed (stomachs were emptied, rinsed with distilled water and returned).

After processing, up to eight specimens from each area were placed in labeled self-sealing plastic bags, and maintained on dry ice prior to being shipped to a subcontract laboratory for residue analyses. A whole body tissue homogenate was prepared and die frozen homogenate was submitted for PCB, pesticide, and percent lipid analyses.

Preserved liver and kidney sections from each specimen were submitted to a subcontract laboratory for histopathological evaluation. The histopathological results for each organism were related to bodi the contaminant concentrations measured in the tissue of that organism as well as in co-located soil samples.

2.9 Sampling Equipment Decontamination

The following sanqhng equipment decontamination procedure was employed prior to and subsequent to sampling each station in die following numerical sequence:

1. physical removal
2. nonphosphate detergent wash
3. potable water and distilled water rinse
4. 10 percent nitric acid rinse
5. solvent rinse [acetone]
6. distilled water rinse
7. air dry

2.10 Standard Operating Procedures (SOPs)

2.10.1 Documentation

Documentation was completed as per the following SOPs:

- ERT/REAC SOP #2002, *Sample Documentation*

- ERT/REAC SOP #4001, *Logbook Documentation*
- ERT/REAC SOP #4005, *Chain of Custody Procedures*

2.10.2 Sample Packaging, Shipment, Storage, Preservation, and Handling

Sample packaging, shipment, storage, preservation and handling were conducted in accordance with the following SOPs:

- ERT/REAC SOP #2003, *Sample Storage, Preservation and Handling*
- REAC SOP #2004, *Sample Packaging and Shipment*

2.10.3 Field Sampling and Analytical Techniques

Field sampling activities and field analyses were conducted in accordance with the following SOPs:

- ERT/REAC SOP #2001, *General Field Sampling Guidelines*
- ERT/REAC SOP #2005, *Quality Assurance/Quality Control Samples*
- ERT/REAC SOP #2006, *Sampling Equipment Decontamination*
- ERT/REAC SOP #2012, *Soil Sampling*
- ERT/REAC SOP #2013, *Surface Water Sampling*
- ERT/REAC SOP #2016, *Sediment Sampling*
- REAC SOP #2019, *Surface Geophysics*
- ERT/REAC DRAFT SOP, *10-Day Chronic Toxicity Test Using Amphipods (Hyalella azteca)*
- REAC DRAFT SOP #2029, *Small Mammal Trapping and Processing*

2.10.4 Health and Safety

Health and Safety was conducted in accordance with the following SOPs:

- REAC SOP #3001, *REAC Health and Safety Program Policy and Implementation*
- REAC SOP #3012, *REAC Health and Safety Guidelines at Hazardous Waste Sites*
- REAC SOP #3001, *Inclement Weather, Heat Stress and Cold Stress*

3.0 RESULTS

3.1 General Information and Case Narrative

Tables 1A and 1B contain a summary of the analytical and biological parameters that were evaluated at each sample location. For Phase II, the results are summarized for surface water samples in Tables 2 through 6; sediments in Tables 7 through 14; soils in Tables 15 through 20; biota in Tables 21 through 26; edible fish tissue (fillet data) in Tables 27 and 28; and the toxicity test in Table 29. For Phase III, the results of sediments are summarized in Tables 30 through 35 and edible fish tissue (fillet data) are summarized in Tables 36 and 37. In general, all concentrations were reported in milligrams per kilogram (mg/kg). Abiotic (soil and sediment) samples are discussed next on a dry weight basis. Biotic samples are then discussed on a wet weight basis. For the purposes of the ecological risk assessment, abiotic data are also presented in the tables on a wet weight basis. The dry weight concentration data tables for each matrix or set of samples are followed by the corresponding wet weight data tables. Any exceptions to this are stated in the respective results sections.

The data tables contain summary data only. Compounds that were not detected in any of the samples (on a per matrix basis) are not included in the tables. A complete summary of all analytical data,

detection limits, quality assurance/quality control (QA/QC) evaluations, and methods are contained in the Analytical Reports (Appendix C)

Next is a summary of the data qualifiers that were used by data validators to flag non-routine analyses or results. This summary contains a broad overall discussion of general data validation qualifications. A complete summary of all data validation issues is contained in the case narrative in each of the Analytical Reports (Appendix C). The qualifiers are standard protocol for all data evaluated by REAC.

Organic compounds that were detected in the laboratory method blank were subjected to a set of criteria for establishing the validity of any detected values in the site samples and field/trip blanks. For example, if a compound was detected in the laboratory method blank, hereafter referred to as the method blank, any detected values in the site samples and field/trip blanks for that compound were considered to be not detected unless these detected values exceeded five times the value detected in the method blank. An exception to this criteria exists for those compounds considered to be common laboratory contaminants (e.g., acetone and methylene chloride). If acetone and methylene chloride were detected in the method blank, any detected values of acetone and methylene chloride in the site samples and field/trip blanks were considered to be not detected unless these detected values exceeded ten times the value detected in the method blank. The values that did not meet these criteria were subsequently replaced in the data tables with the designation "B".

The inorganic data were subjected to similar criteria but on a compound- and case-specific basis. The recommendations presented in the REAC Final Analytical Report case narrative (Appendix C) were followed for designating results as estimated values. These values appear in the tables and are designated with the letter "J".

The designation "J" was also used in the organic and inorganic data set for those values that were below the method detection limit, but were positively identified as the compound in question. These values are considered to be estimates. In the case of PCBs, the analytical results suggest the occurrence of compound weathering or biodegradation. This means that although the proportions of the Aroclor mixture components may differ from the laboratory standards, these compounds were positively identified as Aroclor mixtures. These values were designated with the letter "W".

Samples that were extracted and/or analyzed outside the holding time were designated as "J" or estimated values. Compounds that were associated with surrogates, matrix spikes, or standards that were outside the specified quality control (QC) limits were also designated as "J" or estimated values. At the data validator's discretion, a few base-, neutral-, and acid-extractable (BNA) compounds (e.g., benzidine) in a few of the samples were completely out of range and the data were considered unusable.

Pentachlorophenol (PCP) was detected in two crayfish samples (A3-12 and A5-3). The subcontract laboratory reported problems with delayed elution of PCP and the GC columns were subsequently repacked with new separation beads. The PCP detected in these samples was carried over from matrix splikes and these data are considered unusable.

For inorganic analytes, if the analyte was not detected in a sample, a value of one-half the detection limit was utilized in the ecological risk assessment. For all organic compounds, if the analyte was not detected in a sample, a value of one-tenth the detection limit was utilized in the ecological risk assessment. For organic compounds, detected concentrations that were below the detection limit are reported with a qualifier ("J") to indicate that these are estimated values. For inorganic analytes, values below the detection limit are not reported.

All samples were maintained following chain-of-custody procedures. All Chain-of-Custody forms and field data sheets are contained in Appendix A (Field and Laboratory Documentation).

3.2 Prelinuinary Sampling (Phase I)

The results of the preliminaiy sampling were used to evaluate the extent of PCB and metal contamination downstream and down gradient of the Comeli-Dubilier Electronics site (U.S. EPA 1997c). Based on the chemical concentrations in die soli and sediinents, it was determined diat PCB contamination extended from the site to die east end of New Market Pond. The PCB (Aroclor 1254) concentrations were up to 13 mg/kg, wet weight (ww) in die sediment and up to 6.2 mg/kg, ww, in die flood plain soils (U.S. EPA 1997c). Copper, zinc, lead and barium were also detected in soil and sediinent samples at concentiations up to 210, 620, 540, 380 mg/kg, ww, respectively. These data were used to select sampling locations for die Phase II investigation.

3.3 Data Coliected Above New Market Pond (Phase II)

3.3.1 Results of In-situ Water Quality Parameters

Water quality measurements, including temperature, pH, conductivity, turbidity, dissolved oxygen, and salinity were measured at each sample station. Water quality data are summarized in Table 2. In general, water temperature, pH, turbidity, and dissolved oxygen were higher and conductivity was lower in the downstream (west) end of New Market Pond (A6) and just below die spiliway dam at the downstream end of New Market Pond (A7) compared to the iqnstream (east) end of New Market Pond (A5) and the Boimd Brook (A1 through A4 and A9). In the downstream end of New Maiket Pond and just below the splilway, tenqperature ranged from 27.7 to 28.8 °C. In die Bound Brook and at the upstream end of New Market Pond, temperature ranged from 23.6 to 27.0 degrees Celsius (°C). The surface water at each of the sample stations was slightiy alkaline widi pH measurements of 8.1 and 8.5 units in die downstream end of New Maiket Pond and just below the spiliway and from 7.4 to 7.7 in die upstieam end of New Maiket Pond and in die Bound Brook. Turbidity ranged from 25 to 30 Nephelometric Turbidity Units (NTU) in die downstream end of New Market Pond and just below die splilway and from 0 to 16 NTU in the upstream end of New Market Pond and in die Bound Brook. Samples coliected from the downstream end of New Market Pond and just below die spiliway were saturated or nearly satinrated widi dissolved oxygen (7.60 to 10.15 milligrams per hter [mg/L]) wlule sample stations in the upstream end of New Market Pond and in die Bound Brook had lower dissolved oxygen concentrations (2.54 to 6.37 mg/L). Salinity was low (≤0.02 parts per diousand [ppt]) at ali sample locations. Ali surface water sampling and water quality evaluations were performed during dry weather conditions and at normal seasonal water levels.

3.3.2 Results of Chemical Analysis of Surface Water

3.3.2.1 VOCs

Five VOCs (mediyl tert butyl ether; 1,1,2,2-tetrachlorethane; cis-1,2-dichloroediene; trans-1,2-dichloroethene; and trichloroethene) were detected in low levels in die surface water samples (Table 3). Only one compound at one location exceeded die mediod detection limit: at location A5 trichloroethene was detected at a concentration of 0.005 mg/L. Methyl tert butyl ether was only detected at two sample stations: the reference location (A9) and the sample coliected adjacent to die site (A1). The remaiuing four VOC compounds were only detected at sample locations A5 and A6.

3.3.2.2 BNAs

Three BNA compounds [bis(2-ediylhexyl)ihthalate, di-n-butylphdialate, and diediylphdialate] were detected at concentiations below the method detection limit at location A6 (Table 4).

No BNA compounds were detected at any of the other sample locations.

3.3.2.3 Metals

Thirteen TAL metals (aluminum, barium, calcium, chromium, copper, iron, potassium, magnesium, manganese, sodium, nickel, lead, vanadium, and zinc) were detected in the filtered and unfiltered surface water samples (Tables 5 and 6). For aluminum and iron, the filtered samples contained nondetectable and/or much lower concentrations compared to the unfiltered samples indicating that a major fraction of the analyte was associated with suspended particles. For barium, calcium, potassium, magnesium, and sodium the opposite of this occurred, indicating that a major fraction of these analytes was dissolved in the water column. Lead, vanadium, and zinc appear to be equally split between the dissolved and suspended fractions of the water column. Neither copper nor chromium were detected in enough of the samples or at high enough concentrations to determine whether they were associated with suspended particles or dissolved in the water column.

3.3.2.4 Pesticide/PCBs

No pesticides or PCB compounds were detected in any of the surface water samples. The detection limits for Aroclor 1254 ranged from 0.0010 to 0.0011 mg/L for detection limits for other pesticide or PCB Aroclors (Appendix C).

3.3.3 Results of Chemical Analysis of Sediments

3.3.3.1 VOCs

Twelve VOCs were detected in the sediment samples (Table 7). Excluding methylene chloride, which is a common laboratory contaminant and was detected in some of the laboratory blank samples, and acetone, which was used for sample equipment decontamination, only one compound (toluene) was detected in more than two samples. Toluene concentrations ranged up to 1.9 mg/kg and were detected in at least one sample from four of the eight sample locations. The remaining VOCs were detected at low concentrations (less than 0.1 mg/kg) and many (1,1,1-trichloroethane, chloroethane, 2-hexanone, carbon disulfide, p-isopropyltoluene, n-butylbenzene, naphthalene, and 1,2,3-trichlorobenzene) were detected only in single samples.

3.3.3.2 BNAs

Twenty-three BNA compounds were detected in the sediment samples (Table 8). Ten of the twenty-three compounds (benzidine, phenanthrene, fluoranthene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-c,d)pyrene, and benzo(ghi)perylene) were detected at every sample location (including the reference area, A9). One of the BNA compounds, bis (2-ethyl) phthalate, was not considered to be a site-related contaminant since it was detected in the blank samples and is a common laboratory contaminant. Total BNA concentrations ranged from 0.28 mg/kg in sample A5-2 to 170 mg/kg in sample A5-1. Excluding phalates, benzidine was the compound that was found at the highest levels in the samples. Benzidine was detected in all the samples except A5-2 (which overall had the lowest total PAH concentration) at concentrations up to 81 mg/kg. Benzidine, phenanthrene, fluoranthene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-c,d)pyrene, and benzo(ghi)perylene were the most frequently detected compounds at concentrations between 0.5 and 5 mg/kg in most samples.

Samples collected adjacent to the site (Area A1) contained the maximum levels of 2,6 dinitrotoluene (A1-2, 0.47 mg/kg), butyl benzyl phthalate (A1-4, 14 mg/kg), and bis (2-ethylhexyl)phthalate, 170 mg/kg). Sample A2-1 contained the maximum concentrations of benzoic acid (0.57 mg/kg) and naphthalene (0.23 mg/kg). Sample A3-1 contained the maximum concentration of di-n-octyl phthalate (35 mg/kg). The remaining sixteen compounds were detected at maximum concentrations in sample A5-1 at concentrations between 0.26 and 81 mg/kg.

3.3.3.3 Metals

The metal results are summarized in Table 9.1 and Table 9.2 for dry weight and wet weight concentrations, respectively. For all analytes except lead, the maximum concentrations were detected in samples from either location A1 or A6. Samples collected adjacent to the site (location A1) had the highest detected concentrations of aluminum (17,000 mg/kg), arsenic (13 mg/kg), barium (420 mg/kg), beryllium (1.2 mg/kg), calcium (7,200 mg/kg), cadmium (23 mg/kg), iron (36,000 mg/kg), potassium (1,300 mg/kg), magnesium (5,600 mg/kg), manganese (1,100 mg/kg), sodium (480 mg/kg), nickel (52 mg/kg), antimony (3.5 mg/kg), selenium (3.8 mg/kg), and vanadium (58 mg/kg). For calcium, the same maximum concentration was detected in a sample from location A3. For arsenic and selenium, the same maximum concentrations were also detected in samples from location A6. In addition to arsenic and selenium, the metals whose maximum concentrations were detected in samples from location A6 were mercury (0.91 mg/kg), silver (11 mg/kg), cobalt (21 mg/kg), chromium (78 mg/kg), copper (220 mg/kg), and zinc (670 mg/kg). For silver, the same maximum concentration was also detected in a sample from location A3. Lead was detected at the highest concentration (350 mg/kg) at location A4.

3.3.3.4 Pesticide/PCBs

Two pesticides (dieldrin and 4,4'-DDD) and one PCB (Aroclor 1254) were detected in the sediment samples (Table 10.1 in dry weights and Table 10.2 in wet weights). 4,4'-DDD was only detected in one sample A7-1 at an estimated concentration of 0.03 mg/kg. Dieldrin was detected in three samples from two locations (A3 and A7). Location A3 contained estimated dieldrin concentrations of 0.30 and 0.19 mg/kg in samples A3-1 and A3-2, respectively. Location A7 contained an estimated dieldrin concentration of 0.02 mg/kg in sample A7-1. Aroclor 1254 was detected at locatipns A1, A2, A5, and A6. Aroclor 1254 was detected at the highest concentrations in both samples collected at location A2 (14 mg/kg). The six samples collected at location A1 had Aroclor concentrations ranging from non-detect to 4.5 mg/kg ($\bar{x}$ = 2.2 mg/kg). Samples collected from locations A5 and A6 had mean Aroclor 1254 concentrations of 2.8 and 3.4 mg/kg, respectively.

3.3.3.5 Ammonia

Ammonia was detected in all samples at concentrations ranging from 85 mg/kg at location A9 to 670 mg/kg at location A6 (Table 11).

3.3.3.6 TPH

Total petroleum hydrocarbons were detected in all samples at concentrations ranging from 45 mg/kg at location A5-2 to 820 mg/kg at location A4-1 (Table 12).

3.3.3.7 Grain Size

The grain size results including gravel, sand, silt, and clay fractions and soil familles are summarized in Table 13. Grain sizes were highly variable between sample locations although

in general samples were composed primarily of sand and/or silt. All samples contained less than 40 percent clay and less than 1 percent gravel.

3.3.3.8 TOC

The TOC content of the sediments was highly variable and ranged from 3.07 percent in sample A5-2 to 22.4 percent in sample A6-2 (Table 14).

3.3.4 Results of Chemical Analysis of Soils

3.3.4.1 VOCs

Six VOCs were detected in low levels in the soil samples (Table 15). Two of the six VOCs, acetone and methylene chloride, were not considered to be field related contaminants. Acetone was used for sample equipment decontamination and methylene chloride was detected in the blank samples and is a frequent laboratory contaminant. Trichlorofluoromethane was detected in samples from each of the four sampling locations at concentrations up to 0.05 mg/kg. The remaining three compounds (1,1,1-trichloroethane, toluene, and trichloroethene) were detected in two or fewer samples at estimated concentrations up to 0.01 mg/kg.

3.3.4.2 BNAs

Thirty-four BNA compounds were detected in the soil samples (Table 16). Two of the BNA compounds, bis(2-ethylhexyl)phthalate and di-n-butylphthalate, were not considered to be site contaminants since they were both detected in the blank samples and are common laboratory contaminants. Fourteen of the BNA compounds (anthracene, benzo(k)fluoranthene, benzoic acid, phenanthrene, fluoranthene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-c,d)pyrene, benzo(ghi)perylene, butylbenzylphthalate, and naphthalene) were detected at every sample location (including the reference area, T4). In addition to these fourteen BNA compounds being frequently detected they also tended to be found in the highest concentrations, typically with concentrations ranging from 0.5 to 11 mg/kg for each compound.

Total BNA concentrations ranged from 3.3 mg/kg in sample T1-14-3 to 110 mg/kg in sample T1-11-9. Benzidine was not included in the calculation of total BNAs, because benzidine data were only available for four of the twenty-six samples. In the other samples benzidine concentrations were regarded as unusable during data validation. Incorporating benzidine in total BNA concentrations would have skewed the relative total BNA concentrations for area comparisons since benzidine represented between 58 and 216 percent of the total BNAs in these four samples. Areas T1 and T4 had the highest mean total BNA concentrations, 35 mg/kg and 31 mg/kg. Locations T2 and T3 both had mean total BNA concentrations of 18 mg/kg. With the exception of area T2 (coefficient of variation [cv] = 0.15), total BNA concentrations were extremely variable (cv = 0.88 to 1.09) between the samples collected in each area.

3.3.4.3 Metals

The metal results for soils are summarized in Table 17.1 and Table 17.2 for dry weight and wet weight concentrations, respectively. Thallium was the only analyte that was not detected in every sample. The highest concentrations of arsenic, barium, and sodium were detected in samples collected from area T1. The highest concentrations of silver, aluminum, beryllium, cadmium, cobalt, chromium, potassium, and manganese were detected in samples collected from area T2. The highest concentrations of mercury, calcium, copper, iron,

nickel, lead, antimony, selenium, thallium, and zinc were detected in samples collected from area T3. The highest concentrations of magnesium and vanadium were detected in samples collected from area T4. Due to the high variability of soil metal concentrations within sample areas, area means were calculated and evaluated. When evaluating mean metal concentrations for all samples collected in each area, the highest mean concentrations of silver and manganese were detected in area T2 and the highest mean concentrations of mercury, nickel, arsenic, barium, copper, lead, antimony, selenium, and zinc were detected in area T3.

3.3.4.4 Pesticide/PCBs

Two pesticide compounds (heptachlor and 4,4' DDE) and Aroclor 1254 were detected in the soil samples (Table 18.1 and 18.2 for dry weight and wet weight concentrations, respectively). Aroclor 1254 was detected in all the samples collected from areas T1, T2, and T4 but was not detected in any of the samples collected from area T3. Heptachlor was detected in one sample (T3-1-13) from area T3; 4,4' DDE was detected in two samples (T3-1-13 and T3-2-11) from area T3. Area T1 contained the highest mean Aroclor 1254 concentrations (170 mg/kg) followed by areas T2 (39 mg/kg) and T4 (7.5 mg/kg). Variability in concentrations of Aroclor 1254 within each sample area was high with coefficient of variations ranging from 0.41 in area T2 to 1.24 in area T1.

The presence of Aroclor 1254 in the soil samples collected from area T4 demonstrates the possibility that area T4 is located within the floodplain of the Bound Brook. However, the mean concentration of Aroclor 1254 detected in the soil samples from area T4 (7.5 mg/kg) was much lower than the mean concentrations detected in the samples from areas T1 (170 mg/kg) and T2 (39 mg/kg). This indicates that the selection of area T4 as a reference area for the terrestrial locations was reasonable given the fact that there was no suitable county or municipal land up gradient of the site along the Bound Brook.

3.3.4.5 Grain Size

The grain size results including gravel, sand, silt, and clay fractions and soil familles are summarized in Table 19. Grain sizes were highly variable between sample locations although in general, samples were dominated by sand and/or silt. Samples collected from areas T1 and T3 contained primarily sand while samples collected from locations T2 and T4 contained primarily silt.

3.3.4.6 TOC

The TOC content of the soils was highly variable and ranged from 7.0 percent in sample T1-1-4 to 45.3 percent in sample T4-4-1 (Table 20).

3.3.5 Results of Chemical Analysis of White-Footed Mice

3.3.5.1 Pesticide/PCBs

Four pesticide/PCB compounds, Aroclor 1254, heptachlor epoxide, dieldrin, and 4,4'-DDE, were detected in white-footed mice (*Peromyscus leucopus*) collected during this investigation (Table 21). Aroclor was detected in all the white-footed mice collected from areas T1, T2, and T4 and 50 percent of the white-footed mice collected from area T3. Mice collected from area T1 contained the highest overall Aroclor 1254 concentrations ($\bar{x}$ = 3.3 mg/kg; cv = 0.51; range = 0.63 to 5.4 mg/kg). Mice collected from areas T2 and T4 Aroclor contained lower PCB body burdens (Area T2, $\bar{x}$ = 0.80 mg/kg; cv = 0.69; range = 0.24 to 1.8 mg/kg; area T4 $\bar{x}$ = 0.72 mg/kg; cv = 0.57; range = 0.31 to 1.4 mg/kg). Aroclor 1254

was detected less frequendy in the nuice captured from area T3 and at lower concentrations than the odier dnee areas ($\bar{x}$ = 0.14 mg/kg; cv = 1.2; range = ND to 0.44 mg/kg).

Compared to die PCBs, die diree pesticides were detected less freqnendy and at lower concentrations. Dieldrin was detected in 60 percem of the nuice collected in area T1 ($\bar{x}$ = 0.021 mg/kg; cv = 1.1; range = ND to 0.06 mg/kg), 43 percent of the mice collected in area T2 ($\bar{x}$ = 0.0073 mg/kg; cv = 1.2; range = ND to 0.02 mg/kg), 38 percent of die mice collected from area T4 ($\bar{x}$ = 0.0075 mg/kg; cv = 1.2; range = ND to 0.02 mg/kg) and none of die mice collected in area T3. Heptachlor epoxide was detected in two mice (T4-1-27 and T4-2-23) collected in area T4 at concentrations of 0.02 and 0.07 mg/kg, respectively. 4,4'-DDE was only detected in one mouse collected in area T1 (T1-9-7) at a concentration of 0.06 mg/kg.

3.3.6 Results of Chenical Analysis of Crayfish

3.3.6.1 BNAs

Four BNA conqxnmds were detected in crayfish samples (Table 22). The BNA compounds detected in die crayfish included diree phdialates [di-n-butylphdialate, bis(2-edhylhexyl)phdialate, and diedhylphdialate] and isophorone. Bis (2-edhylhexyl)phdialate was detected in all of the crayfish collected at concentrations ranging from 0.25 to 0.80 mg/kg. Di-n-butylphdialate was detected in all of the samples except one at concentrations ranging from ND to 1.9 mg/kg. This compound was also detected in several of die laboratory blank samples at lower concentrations. Diethylphdialate was only detected in one crayfish (A5-1) at a concentration of 0.83 mg/kg. Isophorone was also only detected in one sample (A9-3) at a concentration of 0.40 mg/kg.

PCP was detected in two crayfish samples (A3-12 and A5-3). The subcontract laboratory reported problems widi delayed elution of PCP, and the GC columns were subsequentiy repacked with new separation beads. The PCP detected in these samples was carried over from matrix spikes and is considered unusable.

3.3.6.2 Metals

Twenty TAL metals were detected in crayfish samples (Table 23). The highest mean tissue residue concentrations for mercury ($\bar{x}$ = 0.02 mg/kg), aluminum ($\bar{x}$ = 39 mg/kg), barium ($\bar{x}$ = 58 mg/kg), and lead ($\bar{x}$ = 1.3 mg/kg) was at location A9; iron ($\bar{x}$ = 120 mg/kg) at location A1; cadmium ($\bar{x}$ = 0.89 mg/kg), calcium ($\bar{x}$ = 32,000 mg/kg), copper ($\bar{x}$ = 53 mg/kg), potassium ($\bar{x}$ = 2,700 mg/kg), magnesium ($\bar{x}$ = 440 mg/kg), manganese ($\bar{x}$ = 130 mg/kg), and sodium ($\bar{x}$ = 2,000 mg/kg) at location A2; sllver ($\bar{x}$ = 1.1 mg/kg) and vanadium ($\bar{x}$ = 0.25 mg/kg) at location A3; and arsenic ($\bar{x}$ = 0.58 mg/kg), cobalt ($\bar{x}$ = 0.22 mg/kg), nickel ($\bar{x}$ = 0.34 mg/kg), selenium ($\bar{x}$ = 0.93 mg/kg), and zinc ($\bar{x}$ = 25 mg/kg) at location A5. The frequency of detection ranged from over 80 percent for sllver, barium, calcium, copper, fron, potassium, magnesium, manganese, sodium, lead, and zinc to less dian 10 percent for arsenic, berylllum, chronuum, antimony, and dialllum.

3.3.6.3 Pesticide/PCBs

Aroclor 1254 was die only pesticide or PCB Aroclor detected in die crayfish samples (Table 24). Aroclor 1254 was detected in all of the crayfish samples from areas A1, A2, A3, A4, and A5 and only one sample (10 percent) from area A9, aldiough that sample contained die third highest Aroclor 1254 concentration (2.2 mg/kg) detected in all of die samples. Area A2 had die highest mean PCB concentration ($\bar{x}$ = 1.8 mg/kg; cv 0.25; range = 1.1 to 2.4 mg/kg) followed by area A3 ($\bar{x}$ = 1.3 mg/kg; cv = 0.30; range = 0.88 to 1.8 mg/kg), area

A4 ($\bar{x}$ = 1.2 mg/kg; cv = 0.26; range = 0.81 to 1.4 mg/kg), area A5 ($\bar{x}$ = 0.77 mg/kg; cv = 0.38; ranige = 0.55 to 1.1), area A1 ($\bar{x}$ = 0.75 mg/kg; cv = 0.66; range = 0.4 to 1.1 mg/kg), and area A9 ($\bar{x}$ = 0.24 mg/kg; cv = 2.83; range = ND to 2.2). The highest Aroclor 1254 concentration detected in a single crayfish sample was 2.4 mg/kg in sample A2-3.

3.3.7 Results of Chenical Analysis of Sunfish (Forage Fish)

3.3.7.1 Metals

Twenty TAL inetals were detected in sunfish samples (Table 25). The only TAL metal not detected in any of die forage fish samples was diallium. The highest mean levels of mercury ($\bar{x}$ = 0.056 mg/kg; cv = 1.21), sllver ($\bar{x}$ = 0.15 mg/kg; cv = 0.57), cadnuum ($\bar{x}$ = 0.11 mg/kg; cv = 1.11), potasshm ($\bar{x}$ = 2,800 mg/kg; cv = 0.036), manganese ($\bar{x}$ = 12 mg/kg; cv = 0.59), sodium ($\bar{x}$ = 1,700 mg/kg; cv = 0.92), vanadium ($\bar{x}$ = 0.26 mg/kg; cv = 0.16), and zinc ($\bar{x}$ = 0.26 mg/kg; cv = 0.27) were detected in area A1. The highest mean levels of alunuum ($\bar{x}$ = 25 mg/kg; cv = 0.67) and fron ($\bar{x}$ = 37 mg/kg; cv = 1.07) were detected in area A3. The highest mean levels of copper ($\bar{x}$ = 1.4 mg/kg; cv = 0.48) and nickel ($\bar{x}$ = 0.28 mg/kg; cv = 1.07) were detected in area A4. The highest mean level of barium ($\bar{x}$ = 2.5 mg/kg; cv = 0.26) was detected in area A5. The highest mean levels of arsenic ($\bar{x}$ = 0.096 mg/kg; cv = 1.86), calcium ($\bar{x}$ = 19,000 mg/kg; cv = 0.15), chromium ($\bar{x}$ = 0.66 mg/kg; cv = 0.57), magnesium ($\bar{x}$ = 480 mg/kg; cv = 0.10), and lead ($\bar{x}$ = 0.68 mg/kg; cv = 1.32) were detected in area A6. The highest mean levels of antunony ($\bar{x}$ = 0.372 mg/kg; cv = 0.96) and vanadium ($\bar{x}$ = 1.32 mg/kg; cv = 0.17) were detected in the reference area (A9).

3.3.7.2 Pesticide/PCBs

Aroclor 1254 was die only pesticide or PCB Aroclor detected in die whole body sunfish samples (Table 26). Aroclor 1254 was detected in all the sunfish samples from all areas. Area A2 had die highest mean PCB concentration ($\bar{x}$ = 12 mg/kg; cv = 0.46; range = 7.1 to 20 mg/kg) followed by area A3 ($\bar{x}$ = 7.7 mg/kg; cv = 0.62; range = 3.3 to 15 mg/kg), area A4 ($\bar{x}$ = 6.3 mg/kg; cv = 0.73; range = 1.3 to 16 mg/kg), area A5 ($\bar{x}$ = 5.5 mg/kg; cv = 0.69; range = 2.1 to 11 mg/kg), area A1 ($\bar{x}$ = 3.9 mg/kg; cv = 1.39; range = 1.1 to 15 mg/kg), area A6 ($\bar{x}$ = 3.5 mg/kg; cv = 0.68; range = 0.9 to 7.6 mg/kg), and area A9 ($\bar{x}$ = 0.38 mg/kg; cv = 0.48; range 0.21 to 0.64 mg/kg). The maxunum Aroclor 1254 concentration detected in a single sunfish sample was 20 mg/kg in sample A2-PS-1.

3.3.8 Results of Chenical Analysis of Fillet Samples

3.3.8.1 Metals

The results for TAL metal concentrations in edible fish tissue are summarized in Table 27. The metal residts are discussed in conjunction with Phase III data in additional detail in Section 3.4.2.1.

3.3.8.2 Pesticide/PCBs

Aroclors 1248 and 1254 were detected in all fillet samples in all species (Table 28). Generally, Aroclor 1254 was detected at higher concentrations dian Aroclor 1248. Aroclor 1254 concentrations r nged up to 26.0 mg/kg in carp, 12.0 mg/kg in v/hite sucker, 5.0 mg/kg in sunfish, and 1.7 mg/kg in bass. Aroclor 1248 ranged up to 10.0 mg/kg in carp, 3.8 mg/kg in white sucker, 2.0 in sunfish, and 0.6 in bass.

Seven pesticides were also detected in the fillet samples (Table 28). These compounds were detected less frequently and in lower concentrations than the PCBs. Heptachlor epoxide was detected in 84 percent of the samples at a maximum concentration of 0.1 mg/kg. 4,4'-DDE was detected in 73 percent of the samples at a maximum concentration of 0.3 mg/kg. 4,4'-DDD, endrin aldehyde, g-chlordane, and a-chlordane were all detected in between 12 and 18 percent of the samples and at maximum concentrations of 0.2 mg/kg, 0.1 mg/kg, 0.2 mg/kg, and 0.3 mg/kg, respectively. Methoxychlor was only detected in one sample at a concentration of 0.004 mg/kg and was most likely a laboratory contaminant since it was also detected in the blank samples. The pesticide and PCB results are discussed in conjunction with Phase III data in additional detail in Section 3.4.2.2.

It should be noted that the frequency of detection of Aroclor 1248 and many of the pesticides was much greater for the fillet samples than for the sunfish carcass and whole body samples (Section 3.3.7.2). There are a variety of potential reasons for this, all of which stem from the fact that the fillet samples were analyzed at the REAC Analytical Laboratory in Edison, NJ, and the carcass and whole body samples were analyzed at a subcontract laboratory. First, the detection limits at the REAC laboratory were lower overall than those at the subcontract laboratory. Therefore, Aroclor 1248 and many pesticides were detected much more frequently in the fillets than in the sunfish carcass and whole body samples. Second, there was evidence that the PCBs were weathered in the samples, resulting in a large amount of individual discretion in the interpretation of the analytical chromatograms to distinguish between the various Aroclors (e.g., Aroctor 1254 vs. Aroclor 1248). Finally, as in any study in which two separate laboratories are utilized, interlaboratory variability may also play a small role in the differences in concentrations between the fillet samples and the whole body and carcass samples.

3.3.9 Results of Amphipod Toxicity Test

The survival and growth results of the 14-day solid phase amphipod (*Hyalella azteca*) toxicity test are contained in Table 29. Mean survival ranged from 76.7 percent at location A3 to 94.2 percent at location A2. Performance control survival was 83.3 percent which exceeds the U.S. EPA and American Society of Testing and Materials (ASTM) minimum criteria of 80 percent. Location A3 was the only location that was significantly different from the reference location (A9).

Mean amphipod length at the end of the test ranged from 2.4 millimeters (mm) at locations A9 and A4 to 2.8 mm at locations A1 and A2. No lengths were found to be significantly different from either the reference location (A9) or the laboratory control. A complete summary of all toxicity test results are contained in Appendix D.

3.4 Data Collected Below New Market Pond (Phase III)

3.4.1 Results of Chemical Analysis of Sediments

3.4.1.1 VOCs

Six VOCs (acetone, methyl-tertiary-butylether, 2-butanone, 1,2-dichloroethane, toluene, and p-isopropyltoluene) were detected in the sediment samples (Table 30). Acetone, which was used in sample equipment decontamination, was found in 50 percent of the samples (n = 5) at concentrations of up to 0.03 mg/kg. Five of the six VOCs (acetone, methyl-tertiary-butylether, 2-butanone, toluene, p-isopropyltoluene) were detected in samples from location A10. Four of the six VOCs (acetone, methyl-tertiary-butylether, 2-butanone, and p-isopropyltoluene) were detected in samples from location A11. Three of the six VOCs (acetone, 2-butanone, and 1,2-dichloroethane) were detected in samples from location A11.

No VOCs were detected in any of the samples collected at locations A12 and A14. The maximum concentration of any VOC detected in a sediment sample was toluene at 0.09 mg/kg in sample A10-2. All other compounds (excluding acetone) were detected at concentrations at or below 0.01 mg/kg.

3.4.1.2 BNAs

Fifteen BNA compounds were detected in the sediment samples (Table 31). Three of the fifteen compounds (fluoranthene, pyrene, and benzo(a)pyrene) were detected at every sample location (including Spring Lake, A10). The highest mean total BNA concentrations were found in area A11 (72 mg/kg), followed by area A10 (36 mg/kg), area A13 (27 mg/kg), area A12 (11 mg/kg), and area A14 (0.25 mg/kg). The maximum detected concentration of all BNA compounds except bis(2-ethylhexyl)phthalate was detected in sample A11-2. This sample contained each BNA compound, except bis(2-ethylhexyl)phthalate, at concentrations between 0.97 mg/kg and 16 mg/kg. In general, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, and benzo(g,h,i)perylene were detected in the greatest frequency and at the highest concentrations.

3.4.1.3 Metals

Twenty-one metals were detected in the sediment samples (Table 32). All metals, except mercury (80 percent), cadmium (70 percent), beryllium (50 percent), silver (40 percent), and selenium (10 percent) were detected in all the samples. The highest concentrations of aluminum (18,000 mg/kg), arsenic (23 mg/kg), barium (320 mg/kg), beryllium (1.4 mg/kg), cadmium (3.4 mg/kg), cobalt (30 mg/kg), copper (120 mg/kg), manganese (650 mg/kg), nickel (46 mg/kg), selenium (0.67 mg/kg), silver (1.7 mg/kg), and zinc (600 mg/kg) were detected in sample A13-1. The highest concentrations of iron (25,000 mg/kg), magnesium (6900 mg/kg), mercury (0.54 mg/kg), potassium (1500 mg/kg), and sodium (480 mg/kg) were detected in sample A11-2. The highest concentrations of calcium (5300 mg/kg), chromium (41 mg/kg) and lead (290 mg/kg) were detected in sample A10-2.

3.4.1.4 Pesticide/PCBs

No pesticides and only Aroclor 1254 was detected in the sediment samples collected during Phase III (Table 33). Aroclor 1254 was detected in both samples from locations A12 and A13, one sample from location A11 and neither sample from locations A10 or A14. Location A13 contained the highest mean Aroclor 1254 concentration (5.8 mg/kg), followed by locations A11 (0.60 mg/kg) and A12 (0.14 mg/kg). No PCBs were detected at either location A10 or A14. Sample A13-1 contained the overall highest Aroclor 1254 concentration (11 mg/kg).

3.4.1.5 Grain Size

The grain size results including gravel, sand, silt, and clay fractions and soil families are summarized in Table 34. Grain sizes were highly variable between sample locations although in general samples were composed primarily of sand, with the exception of A14-1, which was composed primarily of clay.

3.4.1.6 TOC

The TOC content of the sediments was highly variable and ranged from 0.32 percent in sample A14-2 to 15 percent in sample A10-2 (Table 35).

3.4.2 Results pf Chenical Analysis of Flllet Samples

3.4.2.1 Metals

The results for TAL metal concentrations in edible fish tissue are summarized in Table 36. The following evaluation of the results incorporate the data from Phase II and Phase III.

Calcium, iron, magnesium, potassium, sodimi, and zinc were detected in every sample and for every species. Ahminum, chromium, copper, manganese, mercury, and selenium were detected in a majority of the samples (between 65 percent and 100 percent frequency of detection for each species). Cadmium, cobalt, lead, nickel, stiver, and vanadium were iinfrequently detected in die fillet samples (between 0 percent and 35 percent frequency of detection for each species). The frequency of detection for barium was inconsistem between species; it was detected in less dian 30 percent of die carp, bullheads, and bass but more dian 75 percent of die sunfish and die white sucker.

The highest concentrations of stiver (0.4 mg/kg) and vanadium (0.5 mg/kg) were detected in bullheads; die highest concentrations of arsenic (0.2 mg/kg), barium (2.2 mg/kg), fron (25 mg/kg), nickel (1.8 mg/kg), selenium (0.86 mg/kg), and zinc (25 m/kg) were detected in carp. The highest concentrations of cadnuum (0.2 mg/kg) and mercury (0.4 mg/kg) were detected in bass. The highest concentration of calcium (6,800 mg/kg), lead (0.2 mg/kg), magnesium (310 mg/kg), and sodium (650 mg/kg) were detected in sunfish. The highest concentrations of aluminum (250 mg/kg), manganese (4.1 mg/kg), and pptassium (4,000 mg/kg) were detected in white sucker.

3.4.2.2 Pesticide/PCBs

In the Phase III data set, Aroclors 1248 and 1254 were detected in all fillet samples in all species (Table 37). Generally, Aroclor 1254 was detected at higher concentrations than Aroctor 1248. Aroclor 1254 concentrations ranged up to 42 mg/kg in carp, 2.9 mg/kg in bass, 2.3 mg/kg in white sucker, 1.8 mg/kg in bullheads, and 0.84 mg/kg in sunfish. Aroclor 1248 ranged up to 7.7 mg/kg in carp, 2.4 mg/kg in white sucker, 0.4 mg/kg in bass, 0.3 in bullheads, and 0.1 mg/kg in sunfish.

Seven pesticittes were also detected in die fillet samples during Phase III (Table 37). These compounds were detected less frequentiy and in lower concentrations than the PCBs. Of die pesticide compounds detected in the fillet samples, 4,4'-DDE was detected most frequentiy (87 percent of the samples) at a maximum concentration of 0.15 mg/kg. The remaining pesticide compounds were detected less fiequendy [a-chlordane (32 percent), g-chlordane (19 percem), 4,4'-DDD (17 percent), heptachlor epoxide (11 percent), and dieldrin and endrin (2.0 percent)]. The tnaximum concentration of a-chlordane was 0.25 mg/kg, of g-chlordane was 0.16 mg/kg, of 4,4'-DDE was 0.15 mg/kg, of 4,4'-DDD was 0.1 mg/kg, of dieldrin was 0.06 mg/kg, of heptachlor epoxide was 0.05 mg/kg, and of endrin was 0.04 mg/kg.

Figures 5 dirough 13 compare PCB and pesticide concentrations in edible fish for each species and at all Phase II and Phase III sample locations. Relative to species, PCBs and pesticides tended to be in die highest cpncentrations in carp, followed by white sucker, sunfish, bass, and bidlhead. Relative to location, there were no overall trends in die edible fish tissue and in some instances die highest concentrations of a contaminant were detected in different locations for different species (e.g., the highest levels of Aroclor 1254 was found at location A13 for carp, A2 for sunfish, A11 for bass, A3 for white sucker, and A5 for bullheads). The highest location mean Aroclor 1248 concentrations (7.2 mg/kg) were detected in carp collected from location A6. The highest location mean Aroclor 1254 concentrations (28 mg/kg) were detected in carp collected from location A13. The highest

location mean heptachlor epoxide concentrations (0.72 mg/kg) were detected in carp collected from location A6. The highest location mean g-chlordane concentrations (0.18 mg/kg) were detected in carp collected from location A1. The highest location mean a-chlordane concentrations (0.14 mg/kg) were detected in carp collected from location A10. The highest location mean 4,4'-DDE concentrations (0.14 mg/kg) were detected in carp collected from location A1. The highest location mean 4,4'-DDD concentrations (0.16 mg/kg) were detected in carp collected from location A1. The highest location mean endrin aldehyde concentrations (0.11 mg/kg) were detected in carp collected from location A5. The highest location mean dieldrin concentrations (0.023 mg/kg) were detected in carp collected from location A10. See Section 4.2.2 for additional discussion regarding trends of PCBs and pesticides in edible fish tissue.

4.0 NATURE AND EXTENT OF CONTAMINATION WITHIN THE BOUND BROOK

4.1 Introduction

This section of the report examines the nature and extent of all contaminants found in sediment and fish along the course of the Bound Brook. The objectives of evaluating these data sets are to (1) uncover any trends in contamination along the course of the Bound Brook in relation to the site and downstream of New Market Pond, (2) to make comparisons between contaminant concentrations along the Bound Brook to those in the reference area(s), and (3) to evaluate the relationships between contaminant concentrations in sediment and fish on a location-specific basis.

4.2 Nature and Extent of PCB Contamination in Sediment and Fish

4.2.1 PCBs in Sediment

Aroclor 1254 was the only PCB mixture detected in sediment. Mean concentrations (dry weight basis) were highest at location A2 (14 mg/kg; downstream of the site) and lowest (not detected) at locations A7 (downstream end of New Market Pond), A9 (upstream reference), A10 (Spring Lake), and A14 (furthest downstream location). Mean Aroclor 1254 concentrations were relatively high at locations A1 (2.2 mg/kg; adjacent to the site), A13 (5.9 mg/kg; downstream of New Market Pond), A5 (2.8 mg/kg), and A6 (3.4 mg/kg; within New Market Pond). Since the lowest concentrations detected along the Bound Brook were non-detects, these levels are comparable to those from the reference areas A9 and A10 (also non-detects).

There does not appear to be a clear PCB gradient in sediment of the Bound Brook. It becomes apparent, however, that PCBs are ubiquitous in sediments of the Bound Brook with relatively high concentrations present downstream of the site. In addition, there was high variability between PCB concentrations in sediment samples collected at the same location. PCB concentrations ranged from below the detection limit to 4.5 mg/kg (dry weight basis) in the six samples collected at location A1 and ranged from 0.55 to 5.1 mg/kg (dry weight basis) in the two samples collected at location A5.

4.2.2 PCBs in Fish

Aroclor 1248 and Aroclor 1254 were detected in all fillet samples tested; only Aroclor 1254 was detected in the sediment and whole body forage fish samples. Generally, Aroclor 1254 was detected at higher concentrations than Aroclor 1248. Variability in the number, species, size, and age of fish collected at each location would mask any trends that may exist. The purpose of the edible fish tissue collection was to collect data for human health risk assessment and was therefore not well suited to perform location by location comparisons or evaluate contaminant gradients. The data were collected using methods that were suited for

human health risk assessment and not evaluations of contaminant gradients (e.g., largest fish were used as opposed to a conunon size range between areas and large number of species widh few replicates were used as opposed to few species widh a larger number of replicates).

For kxation by location comparisons, an attempt was made to normalize the data by fish size and lipid content but neither of these mediods seemed to be valid since there were no correlations between contaminant levels and fish size and/or lipid content. The results (based on mean concentration for each species collected from each location) indicate that dhe highest PCB concentrations are located in the length of dhe Bound Brook dhat extends from dhe reference area downstream to New Market Pond. Here, the mean total PCB concentrations in white sucker fillets for each location ranged from 3.9 to 9.5 mg/kg, wet weight. White suckers were also collected from Spring Lake and downstream of New Market Pond to the Raritan River. The mean total PCB concentrations in white sucker fillets for each location in dhis length of dhe Bound Brook were lower and ranged from 0.4 to 2.0 mg/kg. This same trend is also noted widh the mean total PCB results for the pumpkinseed. Fillets of pumpkinseeds collected from the streteh of the Bound Brook located from location A1 downstream to New Market Pond ranged from 1.9 to 5.5 mg/kg, wet weight. The mean concentration of total PCBs in pumpkinseed fillet downstream of New Market Pond to the Raritan River ranged from 0.17 to 0,86 mg/kg, wet weight. The PCB results for largemouth bass and bullhead are not clear due to dhe low number of samples collected from each of the locations.

The results for dhe PCBs in carp fillet do not follow the same trend as thpse found in the pumpkinseed and white sucker. The lowest concentrations of PCBs were noted in the carp collected trom dhe Reference Area (A9) and from Spring Lake (A10). Bodh of dhese locations are up gradient of the site. However, dhe fish from the reference area were much smaller than dhose collected downstream. The highest mean concentrations of total PCBs in carp fillet were detected in dhe fish collected from dhe two locations within New Market Pond, A5 and A6 (22 to 24 mg/kg, wet weight, respectively) and from two of the downstream locations, A12 and A13 (27 and 31 mg/kg, wet weight, respectively). The PCB results for the carp collected from A13 are dhe highest of any fish collected during this study.

When tbe PCB residue results are examined across all species combined (i.e., one broad category of "edible fish tissue" instead of on a per species basis), dhe results for Aroclor 1248, Aroclor 1254, and total PCBs exhibit a trend similar to each other. Aroclor 1248, Aroclor 1254, and total PCBs increase from dhe locations up gradient of dhe site (A9 and A10) to location A1, and again from location A1 to location A2, dhen decrease toward location A4. The levels dhen increase toward location A6 and decrease progressively toward location A14.

The presence of Aroclors 1248 and 1254 in fish tissue collected up gradient of the site is potentially due to PCB contamination dhat is not site-related and/or fish migration up and downstream of dhe site. In Spring Lake, however, the presence of Aroclors 1248 and 1254 in the fish and thefr absence in sediments suggest that there may be a different source of PCBs leading into dhis lake, such as dhe Cedar Brook. The possibility dhat dhe fish collected from Spring Lake had spent a portion of dheir life span in the Bound Brook down gradient from the site is unlikely due to a high retaining wall (spillway) at dhe downstream end of Spring Lake, making it unlikely dhat fish would be able to migrate from downsfream locations into Spring Lake except under extremely high flow conditions. Since PCBs were detected in every fish sample collected from Spring Lake, it remains unlikely dhat dhe PCBs in dhe tissues of dhese fish are the residt of exposure to PCBs in the Bound Brook downstream of dhe Comell-Dubiller Electronics site.

4.3 Nature and Extent of Pesticides Contamination in Sediment and Fish

4.3.1 Pesticides in Sediment

Due to the small number of detections of pesticides in sediment, pesticides were not examined for trends in their nature and extent in sediment along the Bound Brook.

4.3.2 Pesticides in Fish

Nine pesticides (heptachlor epoxide, g-chlordane, a-chlordane, p, p'-DDE, p, p'-DDD, endrin, endrin aldehyde, dieldrin, and methoxychlor) were detected in the edible fish samples. Methoxychlor was mostly likely a laboratory contaminant since it was detected in the laboratory blanks and only in one sample at a concentration near the detection limit. The compound 4,4'-DDE was the most frequently detected pesticide found in the fish fillets. Approximately 85 percent of the fish captured contained detectable levels of this pesticide. However, there are no distinct trends among species with the exception that carp contained the highest concentrations compared to the other species collected. When the mean concentrations of 4,4'-DDE were calculated for each location across all species, trends among the locations were observed. The mean 4,4'-DDE concentration in edible fish tissue was low at the two locations up gradient of the site (A9 and A10), increased toward locations A1 and A2, and drastically decreased toward location A5. The mean 4,4'-DDE tissue concentration then increased again at location A6 (the upstream New Market Pond location) and gradually decreased from there toward location A14. Heptachlor epoxide was detected most frequently in the samples collected from the reference area downstream to New Market Pond (85 percent). The frequency of detection of this pesticide drops below New Market Pond, and heptachlor epoxide is only detected in one pumpkinseed collected at location A12. This pesticide was detected in five of the eleven fish collected from Spring Lake.

Chlordane was detected in samples collected both upstream and downstream of New Market Pond. However, this pesticide was only detected in white sucker, carp, and catfish. It was not detected in any pumpkinseed or largemouth bass. It should be noted that technical grade chlordane was detected in the three carp and the three white suckers collected from Spring Lake. Technical grade chlordane is defined as the presence of both a-chlordane and g-chlordane. It should also be noted that dieldrin was only detected in four fish and these fish were also captured in Spring Lake.

Endrin aldehyde was only detected in largemouth bass, carp, white sucker, and pumpkinseed collected from New Market Pond. Endrin was only detected in one carp collected from the Bound Brook (A12) downstream of New Market Pond.

The presence of dieldrin in the fish and sediment collected from Spring Lake, and the presence of chlordane in the fish but not in the sediment collected from Spring Lake, suggests that there may be a source for these contaminants leading into Spring Lake, such as the Cedar Brook.

4.4 Nature and Extent of VOC Contamination in Sediment and Fish

4.4.1 VOCs in Sediment

Due to the small number of VOC detections in sediment, these compounds were not examined for trends in nature and extent along the Bound Brook.

4.4.2 VOCs in Fish

Volatile organic compounds were not evaluated in fish tissue. It was assumed that any VOCs accumulated into living fish tissue are rapidly metabolized.

4.5 Nature and Extent of BNA Compounds Contamination in Sediment

4.5.1 Low/High Molecular Weight PAHs

Low molecular weight PAHs were highest at location A5 (upstream end of New Market Pond) and lowest at location A14 (farthest downstream location); high molecular weight PAHs were highest at location A11 (downstream end of New Market Pond) and lowest at location A14 (furthest downstream location). With the exception of location A5, the low molecular weight compounds remain low in the Bound Brook upstream of New Market Pond, although the high molecular weight PAHs show an incremental increase from locations A1 to A3 (adjacent to and downstream of the site). Both low and high molecular weight PAHs are high in the upstream end of New Market Pond, low near the downstream end of New Market Pond, and fluctuate downstream of New Market Pond, until reaching the lowest concentrations at location A14.

For both low and high molecular weight PAHs, the concentrations detected at reference locations A9 (Bound Brook up gradient of the site) and A10 (Spring Lake) are higher than several of the concentrations detected in the Bound Brook down gradient of the site. The presence of low and high molecular weight PAHs in the sediment collected from Spring Lake suggests that there may be a source for these contaminants leading into Spring Lake, such as the Cedar Brook. In addition, the presence of relatively high concentrations of both low and high molecular weight PAHs up gradient of the site compared to some locations down gradient of the site suggests that PAH contamination is not limited to those areas down gradient of the site.

4.5.2 Remaining BNA Compounds

The BNA compounds that do not fall into the category of low or high molecular weight PAHs were grouped together as "remaining BNA compounds." Similar to the high molecular weight PAHs, the remaining BNA compounds were highest at location A1 (adjacent to the site) and lowest at location A14 (farthest downstream location). However, unlike the PAH compounds, the remaining BNA compounds show high concentrations around the site area, immediately upstream of New Market Pond, and the upstream end of New Market Pond. These concentrations progressively decrease downstream of New Market Pond to "non-detect" at location A14.

Similar to the low and high molecular weight PAHs, the concentrations of the remaining BNA compounds detected at reference locations A9 (Bound Brook) and A10 (Spring Lake) are higher than several of the concentrations detected in the Bound Brook down gradient of the site. The presence of other BNA compounds in the sediment collected from Spring Lake suggests that there may be a source for these contaminants leading into Spring Lake, such as the Cedar Brook. In addition, the presence of relatively high concentrations of other BNA compounds up gradient of the site suggests that this contamination is not limited to those areas down gradient of the site.

4.5.3 Total BNAs

When the BNA compounds are totaled and examined as one class of compounds, the characteristics of both the PAH compounds and the remaining BNA compounds are evident.

Total BNAs are highest at location A5 (upstream end of New Market Pond) and are lowest at location A14 (furthest downstream location). The concentrations of total BNAs are high around the site area, at the upstream end of New Market Pond, and immediately downstream of the New Market Pond. With the exception of location A14, the lower concentrations in the Bound Brook are comparable to those of locations A9 (Bound Brook reference) and A10 (Spring Lake). Total BNAs were lower at location A9 than at location A10.

4.6 Nature and Extent of Metals Contamination in Sediment and Fish

4.6.1 Metals in Sediment

All of the metals, with some variation, exhibit the following general trend. Concentrations tend to be high adjacent to (location A1) and downstream of the site (usually more so at location A3 than location A2). Concentrations decrease to relatively low levels upstream of New Market Pond (location A4) and at the upstream end of New Market Pond (location A5), but then increase sharply toward the downstream end of New Market Pond (locations A6). Progressing downstream of New Market Pond, metals concentrations are generally lower at location A7, then they increase slightly at location A11, decrease at A12, increase sharply at A13, and finally attenuate by location A14 (furthest downstream location). Metals levels at location A9 (the upstream reference) tend to be greater than the metal levels detected at locations A4 and A5 (downstream of the site). Metal levels at location A10 (Spring Lake) tend to be lower than those detected at location A9 (Bound Brook reference).

Mean total organic carbon follows a similar trend to that of the metals. Mean TOC concentrations are high adjacent to the site (16 percent at location A1) and progressively decrease towards location A5 (4.82 percent). Like the metal concentrations, mean total organic carbon levels increase sharply at location A6 (20.8 percent) and progressively decrease toward location A14 (1.96 percent).

4.6.2 Metals in Fish

Although the results for metals in edible fish tissue were variable, when all of the fish species are grouped together into one category (as "edible fish tissue"), some general trends appear. The first trend exhibits a general decrease in metal concentrations from location A1 to A14. However, two peaks appear along this gradient, one around location A6 and the other around location A13. The following metals fall into this category: iron, selenium, and zinc.

Another trend also exhibits two peaks; however, these are around locations A4 and A13. The overall end result at location A14 is that metal concentrations are not much different or are greater than those of location A1. The following metals fall into this category: barium, calcium, magnesium, potassium, and sodium.

Aluminum and arsenic exhibit three peaks (around locations A1, A6, and A13) and ends at location A14 with a concentration lower than that of location A1. Three metals, chromium, mercury, and nickel, show an increase in concentration from location A1 to location A14, although the levels are highly variable. Copper and manganese do not appear to exhibit any trend along the course of the Bound Brook.

4.7 Conclusions

Based on this evaluation, the following conclusions about the contamination of sediment and edible fish tissue along the Bound Brook are apparent:

- Many contaminants are present at relatively high levels adjacent to and/or immediately down gradient of the site. These concentrations progressively decrease toward location A14, near the confluence of the Green Brook and the Raritan River, with the exception of a sharp increase either immediately upstream of New Market Pond or within New Market Pond. The increase in concentrations of many contaminants immediately upstream or within New Market Pond may be the result of a slower rate of flow, resulting in greater deposition of particles onto which the contaminants are adsorbed. Regardless, the high concentrations adjacent to and directly downstream of the Cornell-Dubilier Electronics site indicate that the site is the primary source of many of the contaminants of concern within the section of the Bound Brook corridor investigated for this study.

- The presence of contaminants up gradient of the site (at the reference and in Spring Lake) suggest that, in addition to the Cornell-Dubilier Electronics site, other sources of contamination exist within the Bound Brook stream corridor.

5.0 ECOLOGICAL RISK ASSESSMENT OF THE BOUND BROOK AND ITS ASSOCIATED FLOOD PLAIN

5.1 Problem Formulation

The risk assessment for this site was designed to evaluate the potential ecological threats from exposure to site contaminants and to provide data that may be used to establish site-specific ecotoxicologically-based soil and sediment remedial goals. The problem formulation process for this risk assessment includes the identification of contaminants of potential concern (COPCs), the identification of the exposure pathways for the COPCs, a determination of the assessment endpoints for the site, the formulation of testable hypotheses, the development of a conceptual model, the determination of the measurement endpoints for the site, the development of a study design, and an analysis of the uncertainties that may be associated with the risk assessment.

5.1.1 Summary of the Screening-Level Risk Assessment

Based on the results of a previous preliminary risk assessment prepared by Region II U.S. EPA, PCBs, metals (arsenic, cadmium, lead, and zinc), and PAHs were identified as potential contaminants of concern. However, a full contaminant analysis was not available at the time of this preliminary risk assessment. Therefore, a screening-level risk assessment was repeated using new data collected for the current risk assessment. For this screen, the maximum concentrations of contaminants detected in the surface water, sediment, and soil collected from the site for the current risk assessment were compared to various benchmark values.

For the purposes of this risk assessment, water, sediment, and soil samples were collected and analyzed for target analyte list (TAL) metals, volatile organic compounds (VOCs), base-, neutral-, and acid-extractables (BNAs), pesticides, and polychlorinated biphenyls (PCBs). The data from these analyses were screened using a risk characterization process that relates exposure concentrations to concentrations that potentially cause adverse effects. The exposure concentrations were the highest concentrations detected for each contaminant in the surface water, sediment, and soil samples collected from the site (not including the reference samples). The benchmark concentrations used in the screening-level risk assessment were the U.S. EPA Region III Screening Levels (U.S. EPA 1995).

The hazard quotient method was used in the screening-level risk assessment to estimate the potential risk for each contaminant detected. The hazard quotient method compares exposure concentrations to benchmark values and is expressed as a ratio per the following formula:

$$HQ = EC \div BV$$

where:

HQ = Hazard Quotient
EC = Exposure Concentration
BV = Benchmark Value

An elevated hazard quotient (greater than one) resulting irom die screening-level risk assessment indicates diat exposure to die contaminant should be evaluated further for potential risk. More data are needed to detennine if die contaminants exceeding the benchmaik values pose a potential risk to ecological receptors at die site. The contaminants for which the maximum concentrations detected in water, sediment, and soll exceeded their benchmark values are highllghted in Table 38. Also highllghted are contaminants that do not have a chenical specific benchmark for one or more matrices.

In summary, two contaminants exceeded their benchmark values in surface water, and five contaminants that were detected in surface water did not have a surface water benchmark. In sediment, dirty contaminants exceeded dieir benchmaric values, and an additional twenty-six contaminants diat were detected in sediment had no benchmark. In sod, dirty-six contaminants exceeded dieir benchmarks, and an additional twenty-four contaminants were detected in sod but did not have a benchmaik in spll (Table 38).

5.1.2 Identification of Contaminants of Potential Concem

The results of the screening-level risk assessment were used to identify most of die COPCs for die ecological risk assessment. Any contaminant diat eidier exceeded its benchmark value for sod, sediment, or water, or diat was detected in a matrix for which a benchmark did not exist, was identified as a contaminant of concem. The screening-level risk assessment assumed that receptors were exposed to die highest concentration detected in die considered media and that die contaminant was biologically available and completely assimilated. On die basis of concentiation and toxicity, the screening-level risk assessment identified a total of seventy-nine contaminants of concem. Of these, eighteen were VOCs, thirty-four were BNAs, twenty-three were metals, three were pesticides, and pne was a PCB.

In addition to die contaminants diat were identified in the screening level risk assessment, six additional pesticide-related compounds and an additional PCB were detected in fish fillet samples. These compounds were a-chlordane, g-chlordane, heptachlor epoxide, 4,4'-DDE, endrin aldehyde, methoxychlor, and Aroclor 1248. Due to the propensity of pesticides and PCBs to bioaccumulate and biomagnify in the food chain, diese compounds were also identified as contaminants of potential ecological concem for dis risk assessment. General information on die sources, hazards, and fate of die contaminants of potential concem evaluated in dis risk assessment can be found in Appendix E, and a complete list of diese COPCs is compiled on the following page.

Of the contaminants of concem identified in die table, the pesticides and PCBs, as well as arsenic, cadmium, lead, mercury, and selenium were evaluated for their potential risk using diree medods: 1) a food chain model; 2) a comparison between contaminant body burdens and hieratiue-based values associated widi toxic effects; and 3) the use of a sediment toxicity iest.

The remaining contaminants of concem listed in die table are considered to be direct-acting acute toxicants and are not known to significantiy bioaccumulate and/or were demonstrated not to be bioaccumulative based on the analytical data obtained irom die samples collected in the field. Therefore, they were not evaluated using dte food chain model nor by comparing measured body burdens to hterature-based values.

Of these non-bioaccumulative direct-acting contaminants of concern, those that were detected in sediment and either exceeded their sediment benchmark or did not have a sediment benchmark were evaluated using the results of a sediment toxicity test. Some of

BNAs	Volatile Organic Compounds
2-methylnapthalene	cis-1,2-dichloroethene
Acenaphthene	trans-1,2-dichloroethene
Acenaphthylene	1,1,2,2-tetrachloroethane
Anthracene	1,2,3-Trichlorobenzene
Fluorene	1,1,1-Trichloroethane
Napthalene	Trichloroethene
Phenanthrene	Trichlorofluoromethane
Benzo(a)anthracene	2-Hexanone
Benzo(a)pyrene	Acetone
Benzo(b)fluoranthene	n-Butylbenzene
Benzo(g,h,i)perylene	Carbon Disulfide
Benzo(k)fluoranthene	Chloroethane
Chrysene	Chloromethane
Dibenz(a,h)anthracene	p-Isopropyltoluene
Fluoranthene	Methylene Chloride
Indeno(1,2,3-c,d)pyrene	Methyl tertial butyl ether
Pyrene	Toluene
Acetophenone	Trichloroethene
Benzidine	Metals
Benzoic acid	Aluminum
1,2,4-Trichlorobenzene	Antimony
bis(2-chloroisopropyl)ether	Arsenic
2,6-Dinitrotoluene	Barium
3,3'-Dichlorobenzidine	Beryllium
4-Methylphenol	Cadmium
4-Nitroaniline	Calcium
bis(2-Ethylhexyl)phthalate	Chromium
Butylbenzylphthalate	Cobalt
Dibenzofuran	Copper
Diethylphthalate	Iron
Dimethylphthalate	Lead
Di-n-butylphthalate	Magnesium
Di-n-octylphthalate	Manganese
Hexachlorobenzene	Mercury
Pesticides	Nickel
Dieldrin	Potassium
Methoxychlor	Selenium
4,4'-DDD	Silver
4,4'-DDE	Sodium
Endrin aldehyde	Thallium
Heptachlor	Vanadium
Heptachlor epoxide	Zinc
a-Chlordane	PCBs

g-Chlordane	Aroclor-1254
	Aroclor-1248

diese contaminants were also detected in surface water and/or sod and either exceeded dteir benclnnarks or did not have a benchmark for dte surface water or sod matrix in wlich diey were detected. The potential risk posed by diese contaminants in soil and surface water was not evaluated in this risk assessment because surface water and sod toxicity tests were not performed.

The remaining non-bioaccumulative direct-acting contaminants of concem were eidier not detected in sediment or were detected in sediment but did not exceed their sediment benchmark, but were detected in surface water or soil and either exceeded their benchmarks in these matrices or did not have appropriate benchmarks for the surface water and/or sod matrix in which diey were detected. The potential risk of these contamimants in soil and surface water could also not be evaluated in this risk assessment because surface water and soil toxicity tests were not perfoimed.

5.1.3 Exposure Characterization

The objective of the exposure characterization is to determine die media and die padiways dtrough which assessment endpoints may be affected by site contaminants. Potential exposure patiiways are dependent on die extent and magnimde of contamination, die site habitat, die receptor species present at the site, and the enviromnental fate and transport of die COPCs.

The Comeil-Dubiher Electronics site occupies approximately 25 acres in an industrial/commercial/residential area, and it is bordered by commercial businesses and residences along its southwest and northwest border. The eastem portion of the site is bordered irom the southeast to die northeast by wetlands and die Bound Brook, which traverses die site property at die very southeast comer of die site. The Bound Brook flows northwest and ljoins widi die Cedar Brook (which drains Spring Lake to the northeast) approximately 0.75 mdes downstream of the site. The Bound Brook dien flows for 1.5 miles before emptying into New Market Pond. There are approximately 34 acres of wetlands within 0.5 utiles of die site. Wetiands that border die site to die soudieast diminish siguificantiy as the creek heads downstream towards die northwest (U.S. EPA 1997b). In addition to diese wetlands, additional wetlands and flood plains are found adjacent to the Bound Brook as it flows downstream. The types of wetlands present adjacent to and downstream of die site include open water, nontidal emergent, deciduous scrub-shmb, and deciduous forested wetlands.

A variety of organisms are expected to inhabit the Bound Brook and its surrounding areas. Emergent insects are expected to inhabit the bottom of the Bound Brook during their larval and pupal stages, and odier benduc invertebrates wiil inhabit die Bound Brook dhroughout their ilfe cycle. Aniphibians also expected to use the Bound Brook for reproduction and habitat. Fish are known udiabit die stream and feed on plants, invertebrates, and odter fish. A variety of mammals and birds are expected to use die banks of the Bound Brook for budding nests and to consume die fish, invertebrates, and amphibians diat inhabit die Bound Brook. Amphibians, mammals, and birds are also expected to utilize die flood plains of die Bound Brook and its associated weflands for habitat, reproduction, and food as weil.

A site visit was conducted by dte EPA in April, 1996, in which wildilfe sightings were noted. Birds sighted adjacent to and downstream of dte site included Canada goose, American robin, killdeer, great blue heron, domestic geese, downy woodpecker, red-tailed hawk, common

flicker, northern cardinal, red-winged blackbfrd, mourning dove, common grackle, blue jay, European starling, white-dtroated sparrow, song sparrow, crow (sp.), rock dove, swallow (sp.), and nordtem mockingbird. Mammal and herptde sightings included eastem cottontad, eastem gray squirrel, raccoon (prints), possibly woodchuck (based on many large appareatly active burrow openings), eastem painted box turtle, and frog(s) (U.S. EPA 1996).

As a result of past disposal practices, etevated levels of PCBs, lead, and cadmium had been found to be present in dhe sod at the site. The sedunent of the Bound Brook adjacent to the site had also been found to be contaminated with cadnium, copper, lead, polyaromatic hydrocarbon (PAHs), and PCBs. The potential exists for the contamination to nigrate further downstream in dte Bound Brook and into its associated flood plains, as well as intp New Market Pond.

Ecologteal receptors are potentially exposed to contaminants in abiotic matrices through direct contact, intentional ingestion (e.g., consumption of water and food items), and incidental ingestion (e.g., sod or sedunent particles adhered to or entrained in food items). Transfer of dte contaminants to receptors could also occur through processes of bioaccumulation and bioconcenoation, wltereby upper trophic level receptors are exposed to site contaminants dhrough the ingestion of contamhiated food items. Therefore, ecological receptors udhabiting the Bound Brook, New Maiket Pond, and the associated flood plains and surrounding areas are potentially at risk from dhe contamination originating from the Comell-Dubiller Electronics site.

Chemical analyses of surface water, sedunent, soll, and biota collected in the Bound Brook, New Market Pond, and the associated flood plains were used to determine dhe levels of contaminants in these areas. These measured contaminant concentrations were used in the risk assessment to represent dhe conditions of site-specific exposure.

5.1.4 Selection of Assessment Endpoints

Assessment endpoints are expllcit expressions of tbe actual environmental values (e.g., ecological resources) that are to be protected. Valuable ecological resources include dhose without which ecosystem finction would be significantiy impaired or those providing critical resources (e.g., habitat). Appropriate selection and definition of assessment endpoints are critical to dte utillty of a risk assessment as dhey focus risk assessment design and analysis. It is not practical or possible to diuectiy evaluate potential risks to all of the individual components of the ecosystem at dhe site, so assessmem endpoints are used to focus dte risk assessmmt on particular components of dte ecosystem that could be adversely affected by dhe contaminants released from the site. In general, dte assessment endpoints selected for dhe site are aimed at dhe viabihty of terrestrial and aquatic populations and organism survivabdity.

A review of dte habitat of dte Bound Brook and its associated stream corridor adjacent to and downstream of the Cornell-Dubiller Electronics site provided information for the selection of assessment endpoints. A vartety of invertebrates, vertebrates, and plants udhabit the area. In addition, many bfrds and mammals inhabiting dhis and adjacent areas could prey on the flora and fauna udhabiting the study area. Therefore, the assessment endpoints focused on dhese biological groiqs.

Ten assessment endpoints were developed as part of dhe investigation work plan (U.S. EPA 1997d) to evaluate the potential risk of contaminants in dhe Bound Brook and its associated stream corridor adjacent to and downstream of the Comell-Dubiller Electronics site. By evaluating and protecting dhese assessment emlpoints, the stream ecosystem as a whole should also be protected. The specific assessment entlpoints dhat were evaluated in this risk assessment are listed next.

5.1.4.1 Assessment Endpoint #1: Protection of the structure and function of the stream

The health of the stream has a direct impact on the health of the entire ecosystem; impacts to the stream relate directly to degradation of the whole ecosystem. The maintenance of structure and function of the stream is important to the ecosystem since the stream provides exclusive habitat for many species of plants and animals. Streams also process energy, organic matter, and nutrients. Biota utilizing the stream corridor often rely extensively on the resources (i.e., forage) provided by the stream to support survival, growth, and reproduction.

5.1.4.2 Assessment Endpoint #2: Protection of the structure and function of the stream corridor (inclusive of associated flood plains and wetlands)

The health of the stream corridor has a direct impact on the health of the entire ecosystem; impacts to the stream corridor relate directly to degradation of the whole ecosystem. The maintenance of structure and function of the stream corridor is important to the ecosystem since it provides a significant portion of the energy, organic matter, and nutrient inputs to the stream. Stream corridors usually provide high quality edge habitat for a variety of relatively sedentary birds, reptiles, amphibians and mammals, which in turn rely on the stream to forage. The sedentary species that generally congregate near streams due to habitat and food availability are often preyed upon by more free-ranging species that utilize the stream corridor.

5.1.4.3 Assessment Endpoint #3: Protection of fish recruitment in the stream

Fish function in nutrient and energy transfer within the stream and as forage items for animals that inhabit the stream and the stream corridor. Several predators rely solely or primarily on fish as forage. Fish typically provide a large proportion of the biomass utilizing the stream and are in a wide range of trophic positions (e.g., predatory, bottom feeders) in stream communities. Due to these factors, impairment to fish communities would have strong impacts on nutrient and energy cycling in the stream and overall ecosystem health.

5.1.4.4 Assessment Endpoint #4: Protection of benthic invertebrate communities

Invertebrate communities constitute a vast portion of the base of the food chain for the entire ecosystem. Impacts to invertebrate communities would have significant direct and indirect effects (e.g., loss or reduction of forage or transfer of bioaccumulative compounds) on higher trophic organisms (e.g., fish, birds, herpetiforms). Invertebrates process organic material in the stream and are thus important in nutrient and energy transfer and stream ecosystem functions.

5.1.4.5 Assessment Endpoint #5: Protection of amphibian populations, specifically through the protection of embryonic and larval stages

Embryo and larval stages are critical life history periods for amphibians and other species that share similar life-histories. Examination of the effect of contaminants on amphibians during these stages provides a direct measure of reproductive success and a measure of recruitment success into the adult population. Amphibians represent a significant source of forage to higher trophic-level organisms (including birds, fish, and mammals). Amphibians are also considered to be sensitive to a wide range of contaminants and are considered to be a sensitive indicator species for adverse effects to the ecosystem.

5.1.4.6 Assessment Endpoint #6: Protection of insectivorous birds

Insectivorous birds are important in the population regulation of potentially harmful aquatic

insects, such as mosquitoes. Impacts to insectivorous birds would allow species of potentially harmful aquatic insects to obtain higher population levels than would typically occur in a system that was not impacted. Insectivores are important in nutrient processing and energy transfer between the aquatic and terrestrial environment.

5.1.4.7 Assessment Endpoint #7: Protection of omnivorous birds

Omnivorous birds were selected for evaluation because of their diverse methods of foraging (i.e., dabbling). Of the bird species utilizing the system, omnivorous birds have been reported to have the greatest soil/sediment ingestion rates. Soil/sediment ingestion typically accounts for a vast majority of the contaminant uptake in food chain accumulation models. Omnivorous birds also help to regulate the growth of aquatic vegetation, algae, and benthic invertebrates. Omnivorous birds are an important pathway by which nutrient and energy in the stream may be transferred between the aquatic and terrestrial environment.

5.1.4.8 Assessment Endpoint #8: Protection of piscivorus birds

Piscivorus birds are an upper trophic-level organism that rely primarily on fish as forage. Piscivorus birds selectively forage on stream fish, regulating populations. Foraging behavior of piscivorus birds represents another pathway by which energy is transferred between aquatic and terrestrial ecosystems. Predators also are often required to keep prey in check, and impacts to predators could cause detrimental population explosions in prey species.

5.1.4.9 Assessment Endpoint #9: Protection of omnivorous mammals

Omnivorous mammals help to regulate benthic invertebrate and fish populations. Omnivorous mammals are an important pathway by which nutrient and energy are transferred between the terrestrial and aquatic environment. In many urban and/or suburban ecosystems, these species typically represent the highest trophic levels and therefore, for contaminants that biomagnify, would be receiving the greatest doses of contaminants from their forage.

5.1.4.10 Assessment Endpoint #10: Protection of carnivorous mammals

Carnivorous mammals are upper trophic-level organisms that selectively forage on lower trophic-level organisms such as small mammals. Foraging behavior of carnivorous mammals represents a pathway by which energy is transferred to higher trophic levels within the terrestrial ecosystem. Predators also are often required to keep prey in check, and impacts to predators could cause detrimental population explosions in prey species.

5.1.5 Production of Testable Hypotheses

The testable hypotheses are specific risk questions that are based upon the assessment endpoints. For the purposes of this risk assessment, the testable hypotheses follow.

5.1.5.1 Assessment Endpoint #1: Protection of the structure and function of the stream

Are levels of site contaminants sufficient to cause adverse alterations to the structure and function of stream communities?

5.1.5.2 Assessment Endpoint #2: Protection of the structure and function of the stream corridor (inclusive of associated flood plains and wetlands)

Are levels of site contaminants sufficient to cause adverse alterations to the structure and function of stream corridor communities?

5.1.5.3 Assessment Endpoint #3: Protection of fish communities

Are levels of site contaminants sufficient to cause adverse alterations to the structure and function of fish communities in the Bound Brook?

Are levels of site contaminants sufficient to cause toxic effects or reproductive impairment of fish that inhabit the Bound Brook ?

5.1.5.4 Assessment Endpoint #4: Protection of benthic invertebrate communities

Are levels of site contaminants in surface water and sediment sufficient to cause adverse alterations to the structure and function of the aquatic invertebrate communities?

Are levels of site contaminants sufficient to cause toxic effects or reproductive impairment to aquatic invertebrates that inhabit the Bound Brook?

5.1.5.5 Assessment Endpoint #5: Protection of amphibian populations, specifically through the protection of embryonic and larval stages

Are levels of site contaminants sufficient to cause adverse alterations to the development, growth or reproductive capacity of the amphibian community?

5.1.5.6 Assessment Endpoint #6: Protection of insectivorous birds

Are levels of site contaminants sufficient to cause toxic effects or reproductive impairment to insectivorous birds that utilize the Bound Brook stream corridor?

5.1.5.7 Assessment Endpoint #7: Protection of omnivorous birds

Are levels of site contaminants sufficient to cause toxic effects or reproductive impairment to omnivorous birds that utilize the Bound Brook and its associated stream corridor?

5.1.5.8 Assessment Endpoint #8: Protection of piscivorus birds

Are levels of site contaminants sufficient to cause toxic effects or reproductive impairment to piscivorus birds that utilize the Bound Brook and/or its associated stream corridor?

5.1.5.9 Assessment Endpoint #9: Protection of omnivorous mammals

Are levels of site contaminants sufficient to cause toxic effects or reproductive impairment to omnivorous mammals that utilize the Bound Brook stream corridor?

5.1.5.10 Assessment Endpoint #10: Protection of carnivorous mammals

Are levels of site contaminants sufficient to cause toxic effects or reproductive impairment to carnivorous mammals that utilize the Bound Brook stream corridor?

5.1.6 Conceptual Model

The conceptual model is based on contaminant and habitat characteristics to identify critical exposure pathways to the selected assessment endpoints. At the Cornell-Dubilier Electronics

site, contaminants in the water, sediment, and sod may come in contact with the aquatic, benthic, and terrestiial receptors inhabiting the Bound Brook and its associated stream corridor. Benthic invertebrates in the Bound Brook may be exposed to site contaminants dirough direct contact widi and/or ingestion of the sedimem and overlying water. Aquatic vertebrates may be exposed to site contanuinants via direct contact widi water ami sediment, ingestion of water, incidental ingestion of sedunent adhered to food items, and ingestion of contaminated food. Mammals and birds may be exposed to site contaminants via ingestion of contanninated food, incidental ingestion of sediment or sod, and ingestion of surface water.

Based on this conceptual model, and dependent upon the availabillty of information, the following pathways will be considered in dis risk assessment:

I. Benthic Invertebrate
- Direct contact widi water
- Direct contact widi sediment
- Ingestion of sediment

II. Wetland Vertebrate
- Direct contact widi water
- Diuect contact with sedimem
- Ingestion of water
- Incidental ingestion of sedunent
- Ingestion of invertebrates

iII. Aquatic Vertebrate
- Direct contact widi water
- Direct contact with sediment
- Ingestion of water
- Incidental ingestion of sediment
- Ingestion of invertebrates

IV. Insectivorous Bird
- Ingestion of water
- Ingestion of invertebrates

V. Omnivorous Bird
- Ingestion of water
- Incidental ingestion of sedunent
- Ingestion of invertebrates

VI. Piscivorus Bird
- Ingestion of water
- Incidental digestion of sediment
- Ingestion of aquatic vertebrates

VII. Omnivorous Mammal
- Ingestion of water
- Incidental ingestion of sedunent
- Ingestion of plants
- Ingestion of aquatic invertebrates
- Ingestion of aquatic vertebrates

VIII. Carnivorous Mammal
- Ingestion of water

Incidental ingestion of soll
Ingestion of terrestrial vertebrates

5.1.7 Measuremem Endpxints

Each of dhe testabte hypodheses wdl be evaluated using one or more measuremem endpoints. The number of measurement endpoints chosen for each assessment endpoint is deiemuined by the type of habitat, dhe mechanism(s) of toxicity, and dhe feasibillty of collecting dhe supporting data. When more thian one measuremem endpoint was used to evaluaie a single assessment endpoint, a weight-of-evidence approach was employed, wiiereby dte measurement endpoints were treated as llnes of evidence. The overall risk to each assessment endpoint was dhen determined based on the results of dhe evaluation of each lline of evidence, having taken into consideration dhe degree of unportance of each lline of evidence.

The measuremem endpoints were selected to represent the mechanisms of toxicity and exqxosure padhways for dhe assessment endpxints and to answer questions posed by the testable hypotheses for each assessment emlpoint. Where adverse effects are observed, dhe measurement endpoints are also used in developing preliminary ecotoxicologically-based remedial goals. For dhis study, dhe following measurement endpoints, or lines of evidence, were identified for each of the assessmem endpoints evaluated in this risk assessment:

5.1.7.1 Measurement Endpoint for Assessment Endpoint #1: Protection of the stmeture and fimction of the stream

The overall functioning of the stream communities in the Bound Brook will be inferred dhrough dhe evaluation of assessmem endpoints 3, 4, 5, 6, 7, 8, and 9. These components provide information regarding the trophic levels and habitats within dhe Bound Brook and subsequentiy offer insights into the overall functioning of the habitat,

5.1.7.2 Measurement Emlpoint for Assessment Endpoint #2: Protection of dhe stmeture and function of the stream corridor (inclusive of associated flood plains and wetlands)

The overall functioning of the Bomd Brook stream corridor will be inferred dhrough dhe evaluation of assessment endpoints 5, 6, 7, 8, 9, and 10. These components provide information regarding the trophic levels and habitats associated with site wetlands and flood plains of dhe Bound Brook and subsequentiy offer insights into dhe overall functioning of dhe habitat.

5.1.7.3 Measurement Endpoint for Assessment Endpoim #3: Protection of fish communities

Three llnes of evidence were used to assess dhe effects of contamination widhin the Bound Brook on dhe fish communities dhat inhabit it. First, fish at various trophic levels (bottom feeders, forage fish, and predatory fish) were collected from the Bound Brook adjacent to and downstream of dhe sine and analyzed for PCBs, pesticides, and metals. Up to three replicates of fish of each species were filleied and analyzed, and up to eight replicates of forage fish (whole body) were also analyzed. Data from the results of dhese tissue analyses were compared widh values found in dhe literature to be associated with toxic effects or reproductive impairment of fish. The intent during dhe problem formulation phase, prior to the samphng, was to compare whole body fish tissue levels of PCBs to literature body burden-effects reference values. Whlle this approach was followed, dhere has been information obtained, since dhat time, wiiich indicates dhat dhe conservative means of implimenting dhis critical body burden approach is to translate whole body tissue levels to an estimated egg concentration, resulting from maternal transfer. This apprpach has been used

in this risk assessmem, as the sensitive life stage in fish, to PCBs, appears to be the egg/swimup stage and die exposure niechanism is through matemal transfer of die PCBs to die eggs.

The second hne of evidence to detennine wiedier fish communities within die Bound Brook downstream of the site are potentially at risk was a detemination of die magnimde and number of lesions in the fish. During processing of die fish samples, gross observations of any lesions were made and recorded. The magnitude and number of lesions, if any, in fish collected downstream from the site were compared with fish collected from the reference area. In addition, die number and magnimde of lesions, if any, were correlated with surface water and sediment concentrations pf die COPCs to determine if a dose-response relationship existed.

The thfrd hne of evidence to detennine wiedier fish communities widiin die Bound Brook downstream of the site are potentially at risk were the results of two stream bioassessments, previously completed by die U.S. EPA (1992, 1993b), in wiich die fish communities inhabiting the Bound Brook were evaluated.

5.1.7.4 Measurement Endpoint for Assessmem Endpoint #4: Protection of benthic invertebrate communities

Three lines of evidence were used to assess die effects of contamination within the Bound Brook on die bendic invertebrate communities dhat inhabit it. Fürst, sediment samples were collected from seven locations along the Bound Brook (upstream, adjacent to, and downstream of die site) and analyzed for PCBs, pesticides, metals, BNAs, and VOCs. One sediment sample from each location was dhen used in a sediment toxicity test using *Hyalella azteca*, an amphipod. The results of die toxicity tost were statistically analyzed to determine if survival or growdi of the amphipod was adversely affected as compared to the reference area or the laboratory control. The results were then correlated to die measured concentrations of the COPCs in die sedimem to determine if a dose-response relationship existed between the observed toxicity and any of die COPCs.

The second hne of evidence to detennine if contamination widiin the Bound Brook downstream of die site poses a potential risk to the benthic invertebrate community structure or finction was die collection and analysis of crayfish from the Bound Brook adjacent to and downstream of die site. The results of die tissue analyses of the COPCs widiin the crayfish collected from die site were compared widi lliterahire values, if any, that have been associated with adverse effects.

The difrd line of evidence used to detemtine witedier the bendic invertebrate communities widiin die Bound Brook downstream of die site are potentially at risk were die results of a stream bioassessment, previously completed by die U.S. EPA (1993c), in wiich bendic macroinvertebrate conununities inhabitiug the Bound Brook were evaluated.

5.1.7.5 Measurement Endpoint for Assessment Endpoint #5: Protection of amphibian populations, specifically dirough the protection of embryonic and larval stages

Two hues of evidence were originally establlshed to assess the effects of contamination in die Bound Brook downstream of die site to amphibian populations. Ffrst, sediment samples were to be collected adjacent to and downstream of the site and used in a toxicological evaluation using frog embryos. This assay is a non-standardized assay and is currentiy under development. Due to problems in the development of die assay, the toxicological evaluation could not be conducted.

The second line of evidence dhat was to be iised to evaluate the effects of contanuination in dte Bound Brook on anqhibian populations was dte collection and analysis of frogs from dte Bound Brook adjacent to and downstream of dte site. The results of the tissue analyses of the COPCs within the frogs was to be compared with llterature values, if any, associated with adverse effects. However, the initial site reconnaissance indicated dhat sufficiem numbers of frogs were not presem at the site for such collection and analyses. Therefore, frogs were not collected for dhis purpose. Since neidter line of evidence was able to be evaluated for dhe previous reasons, dte potential risk from contamination widun the Bound Brook downstream of dte Comell-Dubiller Electronics site to amphibian populations was not directiy evaluated in dhis risk assessmem.

5.1.7.6 Measurement Endpoint for Assessment Endpoint #6: Protection of insectivorous birds

A food chain accumulation red-winged blackbird model was employed usimg site specific data (sediment, water, and crayfish contaminant concentrations) to predict dhe rate of ingestion of the bioaccumulative COPCs by insectivorous birds. Crayfish were used as representative emergem aquatic insects consumed by red-winged blackbfrds, since crayfish were collected, and aquatic emergent insects were not avallable in sufficient quantity for collection and analysis for dte purpose of dhis food chain model. Therefore, crayfish were used to represent dhe contaminant padhway from the aquatic to the terrestrial ecosystem in this risk assessment. The contaminant ingestion rates calculated from the food chain model were dhen compared to hterature values to determine if a potential risk to dte survival and reproduction of insectivorous birds exists as a result of the contamination widun dhe Bound Brook downstream of dhe Comell-Dubdier Electronics site.

5.1.7.7 Measurement Endpoint for Assessment Endpoint #7: Protection of omnivorous bfrds

A food chain accumulation mallard duck model was employed usimg site specific data (sediment, water, and crayfish contaminant concentrations) to predict the rate of ingestion of dte bioaccumulative COPCs by omnivorous bfrds. These contaminant ingestion rates were then compared to llterature values to detennine if a potential risk to dhe survival and reproduction of omnivorous bfrds exists as a result of the contamination within the Bound Brook downstream of the Comell-Dubdier Electronics site.

5.1.7.8 Measurement Endpoim for Assessment Endpoint #8: Protection of piscivorus bfrds

A food chain accumulation green heron model was employed usimg site specific data (sediment, water, and fish contaminant concentrations) to predict the rate of ingestion of the bioaccumulative COPCs by piscivorus birds. These contaminant ingestion rates were then compared to hterahire values to determine if a potential risk to dhe survival and reproduction of piscivorus birds exists as a result of dhe contamination within the Bound Brook downstream of the Comell-Dubiller Electronics site.

5.1.7.9 Measurement Endpoint for Assessment Endpoint #9: Protection of omnivorous mammals

Three hnes of evidence were used to assess the effects of contamination widun dhe Bound Brook and its stream corridor on dhe survival and reproduction of onmivorous mammals. The first hne of evidence was the collection and analysis of white-footed mice widun the Bound Brook stream corridor. The results of dhese tissue analyses were compared with hterature values, if available, that have been associated with adverse effects.

The second line of evidence was the histopathological evaluation of livers and kidneys taken from a subsample of white-footed mice that were collected from the Bound Brook stream corridor. The histopathology results helped to determine whether or not any adverse pathological alterations, potentially due to chemical contamination, were manifested in the small mammal population within the stream corridor at the time of collection.

The third line of evidence was a food chain accumulation raccoon model that was employed using site-specific data (sediment, water, crayfish, and fish contaminant concentrations) to predict the rate of ingestion of the bioaccumulative COPCs by omnivorous mammals. These contaminant ingestion rates were then compared to literature values to determine if a potential risk to the survival and reproduction of omnivorous mammals exists as a result of the contamination within the Bound Brook downstream of the Cornell-Dubilier Electronics site.

5.1.7.10 Measurement Endpoint for Assessment Endpoint #10: Protection of carnivorous mammals

A food chain accumulation red fox model was employed using site-specific data (soil, water, and small mammal concentrations) to predict the rate of ingestion of the bioaccumulative COPCs by carnivorous mammals. These contaminant ingestion rates were then compared to literature values to determine if a potential risk to the survival and reproduction of carnivorous mammals exists as a result of the contamination along the Bound Brook stream corridor downstream of the Cornell-Dubilier Electronics site.

5.2 Assumptions

The following conservative assumptions were made to conduct this risk assessment:

- Contaminants in food items were assumed to exhibit 100 percent absorption efficiency and were assumed not to be metabolized and/or excreted during the life of the receptor.

- Dietary composition information was obtained from the literature for the receptor species. However, simplifications of complex diets were assumed for the receptors. The contaminant dose was predicted on the basis of concentrations in food items that were actually measured.

- All area use factors were assumed to be one for all receptors evaluated in the food chain model for each location. Therefore, it was assumed that the receptors obtain 100 percent of their food from each location evaluated using the food chain model.

- Since most benchmark values were derived using dosing intervals shorter than seasonal life history events, breeding territories rather than full migratory ranges were used to calculate area use factors for birds. Therefore, it was assumed that avian receptors that are likely to spend a portion of the year in the contaminated area are present year-round.

- A literature search was conducted to determine the chronic toxicity of the contaminants of concern evaluated in the food chain model. In addition, acute toxicity values for PCBs, lead, and selenium were also obtained from the literature. If no toxicity values could be located for the receptor species, values reported for a closely related species were used. Studies were critically reviewed to determine whether the study design and methods were appropriate. If values for chronic toxicity were not available, LD50 (median lethal dose) values were used. For the purposes of this risk assessment, a factor of 100 was used to convert the reported LD50 to a No Observable Adverse Effect Level (NOAEL). A factor of 10 was used to convert a reported Lowest Observable Adverse Effect Level (LOAEL) to a NOAEL. If several toxicity values were reported for a receptor species, the most conservative value was used in the risk calculations as long as the study design, exposure route, mechanism, and

species tested were deemed appropriate. For the chronic toxicity endpoints, values obtained from long-term feeding studies were used in preference to those obtained from single dose oral studies. No other safety factors were incorporated into this risk assessment.

- For the green heron, sediment ingestion rates could not be found in the literature. Therefore, estimated sediment ingestion rates were calculated based on reported dietary compositions and amounts of sediment/soil entrained in the digestive systems of prey items. In some cases, information on the entrainment of sediment/soil was unknown for certain prey items. Therefore, it was assumed that the dietary composition of the green heron consisted only of those species for which sediment/soil entrainment information had been reported. It was also assumed that the amount of sediment/soil entrained in prey items remained constant over time.

- In some cases, water and/or food ingestion rates were based on information for a similar species or calculated from an allometric equation. It was assumed that these estimated ingestion rates were representative of the true ingestion rates for the receptor species in question.

- In the food chain model, the lowest reported body weights for adults and the highest reported ingestion rates were assumed in each case.

- In some cases, toxicity values in the literature were reported as part per million (ppm), or milligrams per kilogram (mg/kg), contaminant in the diet. These were converted to daily intake (in milligrams per kilogram body weight per day; [mg/kg-day]) using the following formula:

  Daily Intake (mg/kg/day) = Contaminant Dose (mg/kg diet) x Ingestion Rate (kg/day) x 1/Bodyweight (kg)

  This conversion allowed dietary toxicity levels in the literature to be converted to a daily dose based on body weight. The body weight used for this conversion was the lowest reported body weight for an adult of the species in question, unless only a mean body weight was available. The lowest reported body weight was preferentially used to remain consistent with the use of the lowest reported body weight of the receptor species evaluated in the food chain model when calculating contaminant dosages.

- Due to data limitations and the feeding habits of the red-winged blackbird, it was assumed that incidental ingestion of sediment would be zero for this receptor species.

- To assess the potential risk of bioaccumulative COPCs, the concentrations of contaminants that belong to a class of chemicals (e.g., PCBs) were summed and treated as a total contaminant concentration for that class. In determining toxicity reference values for these contaminant classes, the lowest appropriate toxicity value was chosen to represent the toxicity of the entire class of that type of contaminant. In doing so, it was assumed that the total concentration of each class of contaminant consisted entirely of the most toxic member of that class.

- An original objective of this risk assessment was to collect emergent aquatic insects for analysis to use the resulting contaminant concentrations in the food chain model for insectivorous birds. However, the initial site investigation indicated that insects were not available in sufficient quantities for collection and analysis. Crayfish, on the other hand, were available in quantities much greater than expected and were thus collected and analyzed for COPCs. Since contaminant concentrations in insects were not available, the results of the crayfish analyses were used to represent insects in the food chain model for insectivorous

birds. Because crayfish are bemhic invertebraies, they were assumed to represem the pathway from the benthic to the terrestrial enyironmem, a pathway diat emergem aquatic insects would haye represented had they been able to be collected.

- Some of the toxicity reference values (NOAELs and LOAELs) were derived from data for which dosages were only reported as dry weight, and the audiors did not give enough information to convert them to wet weight. Therefore, it was assumed that die food administered iin diese studies consisted of 1/3 solids to convert the dosages to wet weight.

- For chlordane, die fish and crayfish tissue residue threshold values reporied in the literature were reported as lipid-noimalized concentrations. For the purposes of comparing diese dreshold values to measured tissue concentrations in the fish and crayfish collected for dis risk assessment, which were not lipid-noimalized, an overall mean percent lipids for bodi crayfish and fish were calculated from the analytical results of die crayfish and fish collected from the siie. The resulting mean percent lipids were assumed to be representative of crayfish and fish, and were used to convert die lipid-normalized values reported in the literature to non-hpid-noimalized values for the hazard quotient calculations.

- For selenium, tiie fish tissue residue threshold values reported in the literature were reported as dry weight concentrations. For die purposes of comparing diese threshold values to measured tissue concentrations in die fish collected for this risk assessment, which were in wet weight, an overall mean percem solids for fish was calculated from the analytical results of die fish fillets collected from dte site. The fish fillets were used, rather than whole body forage fish (pumpkdnseeds), because die percent solids were only analyzed for die fish fillets. The resulting mean percem solids from the fillet tissue were assumed to be representative of percem solids in the whole body fish reported in die literature, and were used to convert die hterature dry weight values to wet weight values for die hazard quotient calculations.

- In the foixl chain models for fish-eating receptors, the mean fish contaminant concentrations were calculated from whole body forage fish (pumpkinseed) data because this was die only species of fish for which whole body concentrations were analyzed. In addition to the analysis of whole body punqkdnseed, fillets were also taken and analyzed from pumpkinseed and many odier species of fish to represent edible fish tissue for die purposes of a separate human healdi risk assessment. This fillet data set was combined widi the whole body pumpkinseed data set to detemtine the maximum contaminant concentrations in fish for die purposes of the food chain models. Therefore, it was assumed that dis combined data set (including the fillet tissue) is a representative data set to deiemtine the maxinnum fish tissue concentration diat a fish-consuming receptor would ingest.

5.3. Risk Characterization

5.3.1 Mediods Used to Evaluate Risk

5.3.1.1 Use of Sediment Toxicity Tests to Evaluate Risk to Bendic Invertebrates

The results of the sediment toxicity test using *Hyalella azteca* were used to predict die effects of the sedihent contamination downstream of die Comell-Dubiller Electronics siie widi regard to die following assessment endpoint.

- Protection of bendic invertebrate communities

The toxicity test was used to determine the potential risk to die bendic invertebrate communities from tiie contanuination widin the Bound Brook and to determine wiich contaminants, of dte COPCs identified in Section 5.1.2, potentially pose that risk. In

addition, NOAEL and LOAEL values for each of the contaminants of concern were identified by comparing the measured levels of each contaminant in each sample to the toxicity of that sample. The resulting NOAELs and LOAELs provide a range below which the concentration of each contaminant is expected to be protective of the benthic invertebrate communities.

The sediment samples that were used for the toxicity test were collected from locations A1-1, A2-2, A3-1, A4-1, A5-2, A6-2, and A9-1 (Reference). The contaminant concentrations in these sediment samples were used to derive the NOAELs and LOAELs for benthic invertebrates.

5.3.1.2 Comparisons of Measured Tissue Concentrations to Literature Values

For the COPCs considered to be bioaccumulative in this risk assessment (all pesticides and PCBs, arsenic, cadmium, lead, mercury, and selenium), the literature was reviewed to identify whole body tissue concentrations that are associated with toxicity in crayfish, fish, and small mammals, the three ecological receptors that were collected and analyzed for the COPCs. For fish, the pumpkinseed was the only species evaluated in this manner because it was the only fish species in this risk assessment for which whole body concentrations of contaminants were measured.

The literature on toxicity-associated tissue levels is summarized in Appendix F. Where literature information was available, the mean and maximum whole body tissue concentrations of each bioaccumulative COPC were divided by the toxic threshold tissue concentration derived from the literature, resulting in a hazard quotient. A hazard quotient greater than one indicates a potential ecological risk.

This information contributed to the risk characterization for the following assessment endpoints:

- Protection of fish communities
- Protection of benthic invertebrate communities
- Protection of omnivorous mammals

5.3.1.3 Food Chain Models

The hazard quotient method (Barnthouse et al. 1986; U.S. EPA 1997a) was employed to predict the effects of contamination within the Bound Brook and its associated flood plains downstream of the Cornell-Dubilier Electronics site with respect to the following assessment endpoints:

- Protection of insectivorous birds
- Protection of omnivorous birds
- Protection of piscivorus birds
- Protection of omnivorous mammals
- Protection of carnivorous mammals

The hazard quotient method compares exposure concentrations to ecological endpoints such as mortality, reproductive failure or reduced growth. This is first done using chronic toxicity values derived from the literature that are intended to represent a lower dose over a longer duration of exposure, resulting in subtle effects that would be expected to manifest themselves at the population level over the longer term.

In addition, for those contaminants that resulted in a hazard quotient greater than one using the chronic LOAEL for any model and for any location, an acute hazard quotient was also

calculated for that particular model and location using an acute toxicity value derived from the literature. These acute toxicity values are intended to represent a population-level effect that would be expected to manifest itself over a very short period of time (e.g., days).

The comparisons are expressed as ratios of potential intake values to population effect levels, as follows:

$$\text{Chronic Hazard Quotient} = \frac{\text{Exposure Concentration (Mean or Maximum)}}{\text{Chronic Effect Level (e.g., NOAEL or LOAEL)}}$$

$$\text{Acute Hazard Quotient} = \frac{\text{Exposure Concentration (Mean or Maximum)}}{\text{Acute Effect Level (e.g., LD50)}}$$

The effect level values for each COPC are based on studies published in the literature. These studies are summarized in Appendix F. The exposure concentrations were estimated by employing a food chain model for each measurement endpoint (e.g., the raccoon) associated with an assessment endpoint (e.g., omnivorous mammals). In these food chain models, ingestion rates of each contaminant of concern for each receptor species are determined based on measured concentrations of each contaminant in water, sediment/soil, and food items collected at the site as well as known or estimated water, sediment/soil, and food ingestion rates and body weights of each receptor species, which are summarized in Appendix G. The exposure concentrations and toxicity values are entered into the hazard quotient equation, and a hazard quotient is calculated. If the hazard quotient is greater than one based on a chronic NOAEL, this indicates that there is a potential chronic risk from that contaminant to the ecological receptor in question. If the hazard quotient is greater than one based on a chronic LOAEL for a particular contaminant, this indicates that the site levels of that contaminant have the potential to produce an actual adverse effect on survival, reproduction, or growth of the ecological receptor in question. If the hazard quotient for a particular contaminant is greater than one based on an acute value, this indicates that there is a potential risk from that contaminant to the ecological receptor in question over the very short-term. The hazard quotient should be interpreted based on the severity of the effect reported.

In addition to determining which contaminants pose a potential risk to the assessment endpoints, the food chain model was also used to develop preliminary ecotoxicologically-based soil and sediment remedial goals, when possible. To do this, the soil or sediment concentration of each contaminant that resulted in a hazard quotient just over one using the mean water and biota concentrations in the food chain model was selected for each receptor. This was performed for both the NOAEL and the LOAEL. An overall preliminary ecotoxicologically-based remedial goal was then established, if possible, for each contaminant of concern by selecting the lowest NOAEL and the lowest LOAEL across all the receptors. The resulting NOAEL and LOAEL soil and sediment values provide a range between which the soil and sediment concentrations of the contaminants would no longer be expected to pose a risk to any of the assessment endpoints evaluated in the food chain model.

For the purposes of this risk assessment, both mean and maximum contaminant exposure scenarios were modeled for each location. To model the maximum contaminant exposure scenario, the maximum water, soil/sediment, and food concentrations were entered into the food chain model to estimate a maximum contaminant dose for each location for each receptor species. Likewise, to model the mean exposure scenario, the mean measured concentrations in water, soil/ sediment, and biota were entered into the food chain models to estimate a mean contaminant dose for each location for each receptor species. When fish were used as a food item, mean contaminant fish levels were calculated from whole body forage fish (pumpkinseed) concentrations only. Maximum contaminant concentrations in fish

were determined by taking the maximum concentration detected in any fish sample, including fillets, for all fish species analyzed for each location. The values that were used in the models for each contaminant at each location are summarized in Tables 39 to 45.

The soil, sediment; and food items were entered into the models as wet weight concentrations to be compared to the toxicity values derived from the literature, which were also entered into the models on a wet weight basis. In addition, the water concentrations entered into the models were for unfiltered water only because this represents a more realistic exposure via oral ingestion of water.

5.3.1.4 Other Lines of Evidence

5.3.1.4.1 Observations of Fish Lesions

In addition to comparing fish tissue concentrations to values reported in the literature that were associated with toxic effects, an additional method was used to assess the potential risk of contamination in the Bound Brook downstream of the Cornell-Dubilier Electronics site to the following assessment endpoint:

- Protection of fish communities

The magnitude and number of abnormalities, such as lesions, in the fish that were collected from the Bound Brook downstream of the site for this risk assessment were observed during their collection and processing. The results were used to assist in the determination of potential risk posed to the fish communities within the Bound Brook.

5.3.1.4.2 Results of Stream Bioassessments

The results of two stream bioassessments, previously completed by the U.S. EPA (1992, 1993b), in which fish communities inhabiting the Bound Brook were evaluated, were used as a third line of evidence to assess the potential risk of contamination in the Bound Brook downstream of the Cornell-Dubilier Electronics site to the following assessment endpoint:

- Protection of fish communities

In addition, the results of another stream bioassessment (U.S. EPA 1993c) in which benthic macroinvertebrate communities inhabiting the Bound Brook were evaluated, were used as a third line of evidence to assess the potential risk of contamination in the Bound Brook downstream of the Cornell-Dubilier Electronics site to the following assessment endpoint:

- Protection of benthic invertebrate communities

5.3.1.4.3 Histopathological Examinations of Small Mammal Kidneys and Livers

In addition to using the food chain model as well as comparing small mammal tissue concentrations to literature values associated with toxicity, one additional method was used to assess the potential risk of contamination in the Bound Brook stream corridor to the following assessment endpoint;

- Protection of onmivorous mammals

  Histopathological evaluations of dte llvers and kidneys taken from a subsample of wtuite-footed nuce collected for this risk assessmem were performed. The results of dtese evaluations were used to assist in determining wltether a potential risk is posed to omnivorous mammals in the Bound Brook stream corridor downstream of the site.

5.3.1.5 Treatmnent of die Data

Many of die pesticides evaluated in this risk assessment are actually metabolites or break-down products of a parem pesticide (e.g., DDT, DDD, and DDE). In other cases, studies in the hterature report results for only the class of compounds radier dian its specific members (e.g., PCBs). Finally, some contaminants are actually mixtures of isomers of the same chemical (e.g., a-chlordane and g-chlordane). Therefore, members of diese classes of cltemicals were grouped into one class by summing them to provide a total concentration for each cltemical class (e.g., total PCBs). For diese classes, the resulting total concentrations were evaluated in tiis risk assessment to detennine dte potential risk posed by dtese chemicals. When deriving toxicity benchmarks from the literature for dtese classes of chemicals, the lowest reported ecologically relevant toxicity value was selected as representative of each class. Therefore, each class of chemicals is assumed to contain 100 percent of the most toxic metabolite, isomer, or congener. The contaminants that were treated as classes of compounds and summed to derived a "total" concentration for diat class are as follows:

α-chlordane + ς-chlordane = total chlordane
DDT + DDD + DDE = total DDT
endrin + endrin aldehyde + endrin ketone = total endrin
PCB-1248 + PCB-1254 = total PCBs
heptachlor + heptachlor epoxide = total heptachlor

In addition, when mean and maximum contanuinant concentrations in water, sod, sedunent, and biota were calculated for the COPCs to evaluate their potential risk, conservative assumptions were made to accoum for "non-detect" residts. For example, when an inorganic COPC was not detected in a particular sample, it was assumed that the actual concentration of diat COPC in diat sample was oite-half the detection lunit. Sunilarly, if an organic COPC was not detected in a sample, it was assumed diat the actual concentration of that COPC in that sample was one-tendi die detection linnit. These assumptions were also made when chemicals Itelonging to a common class of chenticals (e.g., PCBs) were summed to get a "total" concentration, as described previously. For example, if PCB-1254 was detected in a sample, but PCB-1248 was not, die "total PCB" concentration of diat sample was calcidated by summing die PCB-1254 concentration detected in the sample plus one-tendi of dte detection hmit of PCB-1248 for that sample. Therefore, even if a particular contaminant of concem was not detected in any of the samples for a particular matrix, data for diat contaminant in that matrix were still evaluated in this risk assessment by assuming diat the contanuinant is actually present in each sample of that matrix at one-tendi (for organics) or one-half (for inorganics) of the detection hmit for that particular contaminant.

5.3.2 Residts and Discussion of die Hazard Evaluation

5.3.2.1 Protection of die stmctme and function of dte stream

The overall functioning of die stream communities in the Bound Brook was inferred dirough die evaluation of assessment endpoints 3, 4, 5, 6, 7, 8, and 9. Overall, die strucnue and

function of the stream communities downstream of the Cornell-Dubilier Electronics site are at risk from site-related chemical contamination. First, a risk is posed to the benthic community and is potentially due to a variety of VOCs and BNAs detected in the sediment, as well as silver, calcium, copper, vanadium, zinc, and dieldrin. The fish within the stream were determined to be at risk from exposure to selenium and PCBs, but the risk posed by the other bioaccumulative COPCs could not be determined. Birds utilizing the stream were determined to be potentially at risk from lead, total PCBs, total endrin, total chlordane, and total DDT. Finally, a potential risk to omnivorous mammals using the stream was found to be posed by methoxychlor, arsenic, mercury, total PCBs and selenium.

5.3.2.2 Protection of the structure and function of the stream corridor

The overall functioning of the Bound Brook stream corridor was inferred through the evaluation of assessment endpoints 5, 6, 7, 8, 9, and 10. Overall, the structure and function of the stream corridor downstream of the Cornell-Dubilier Electronics site is at risk from chemical contamination. First, birds utilizing the stream corridor were determined to be potentially at risk from lead, total PCBs, total endrin, total chlordane, and total DDT. A potential risk to omnivorous mammals using the stream was found to be posed by methoxychlor, arsenic, mercury, total PCBs and selenium. Finally, a potential risk to carnivorous mammals was also found to be posed by total PCBs.

5.3.2.3 Protection of fish communities

Literature values on the toxicity of whole body contaminant concentrations in fish were only available for chlordane, total PCBs, mercury, and selenium. The hazard quotients that resulted from comparing measured whole body concentrations of these COPCS with their associated literature toxicity threshold values are summarized in Table 46. Of these four contaminants, total chlordane and mercury concentrations in pumpkinseed did not exceed their threshold concentrations at any location when both the mean and the maximum measured tissue concentrations were used. Therefore, no risk to fish from total chlordane or mercury was calculated.

The mean and maximum whole-body concentrations of selenium exceeded the toxic threshold concentration at locations A1 through A5 (indicating a hazard quotient >1). Only the maximum whole-body concentration exceeded the toxic threshold concentration at location A6.

The maximum whole-body concentration of total PCBs exceeded the toxic threshold concentration at locations A1 through A6. Also, the mean whole-body concentration of total PCBs exceeded the toxic threshold concentration at locations A2 and A3.

Since threshold values for the remaining COPCs could not be found in the literature, the risk from methoxychlor, dieldrin, total endrin, total heptachlor, total DDT, arsenic, cadmium, and lead to fish could not be determined using this method of evaluation.

The results of the stream bioassessments conducted by the U.S. EPA (1992, 1993b) indicated that fish species richness and total abundance at sample locations adjacent to and downstream (directly below New Market Pond) of the site are extremely low, suggesting that the fish communities in this section of the Bound Brook have been stressed. Although this condition is not linked to any particular cause, it is possible that the contamination present in the Bound Brook adjacent to and downstream of the site has at least contributed to the downgrade of fish community health in this water body.

Wlten fish were observed during collection and processing, no abnoımallties (e.g., lesions) were noted. Therefore, dıis measurement emlpoint did not contribute to an evaluation of risk to fish communities in the Bound Brook downstream of the Comell- Dubiller site.

It appears as if dıe fish communities widıin dte Bound Brook adjacem to and downstıeam of dıe Comell-Dubllier Electronics site have been adversely affected. This may be due, at least in part, to the contamination widıin dıe stream. Selenium and total PCBs were found to pose a potential risk to fish, since selenium and total PCB concentrations in fish tissue were found to be higher dıan dıose found in dıe llterature to be associated with toxic effects. Therefore, it is llkely that selenium and/pr PCBs are contributing to the observed population-level effects. In addition, since dıe risk from medıoxychlor, dieldrin, total endrin, total heptachlor, total DDT, arsenic, cadmium, and lead to fish could not be determined usıng this medıod of evaluation, it is possible dıat any of dıese contaminants may also pose a potential risk to fish in the Bound Brook.

5.3.2.4 Protection of benduc invertebrate communities

Literature values on dıe toxicity of whole body contaminant concentrations in crayfish were only available for total chlordane and total PCBs. The hazard quotients dıat resulted from comparing measured whole body concentrations of dıese COPCs with thefr associated hterahıre toxicity dıreshold values are summarized in Table 47. For dıese two contaminants, neidıer the mean nor the maximum measured whole body crayfish concentrations of eidıer of dıese contaminants exceeded dıefr toxic threshold. This was true for every location from which crayfish were collected (locations A1 dırough A5). Therefore, no risk to crayfish from total chlordane or total PCBs was calculated for crayfish at these locations.

Since dıreshold values for dte remaining COPCs could not be found in the llterature, dıe risk to crayfish from medıoxychlor, dieldrin, total endrin, total heptachlor, total DDT, arsenic, cadmium, lead, mercury, and selenium could not be determined usıng dıis medıod of evaluation.

The results of dıe sedıunent toxicity test are presented in Table 29 and indicate dıat none of the locations exhibited a reduction in growth of *Hyalella azteca*. However, dıe sedıunent sample collected from location A3 caused a statistically significant reduction in survival of *Hyalella azteca* when compared to dıe reference area (A9). None of the odıer samples exhibited a statistically significam difference in survival compared to the reference. Aldıough the percem survival for location A3 (76.7 percent) was statistically lower dıan dıe reference, it was not drastically different from some of dıe odıer locations evaluated dıat were not detennined to be statistically different from the reference. For example, only 82.5 percent survival was observed at location A5. Nevertheless, an evaluation of dıe contaminants dıat may have produced dıe observed toxicity at location A3 was performed. To detennine whether a particular contaminant of concem had potentially contributed to dıe observed toxicity, the concentration of dıat contanıinant in the sample from location A3-1 was compared to its concentration in all dıe odıer samples evaluated in dıe test. If dıe concentration of dıe contaminant in dıe sample from location A3-1 was greater dıan its concentration in all odıer samples used in dıe toxicity test, dıen that contaminant was determined to have potentially contributed to the observed toxicity. For each contaminant that was determined to have potentially contributed to the observed toxicity, dıe NOAELs and LOAELs for mortallty were determined. The maximum concentration of a contaminant in all tested samples odıer dıan dıat from location A3-1 was detemıined to be dıe mortahty NOAEL for that contanıinant. The contaminant concentration measured in dıe sedıunent sample from location A3-1 was determined to be dıe mortallty LOAEL for that contaminant. The COPCs dıat were determined to potentially pose a risk to benduc invertebrates, as well as dıefr associated mortallty NOAELs and LOAELs, are presented in Table 48.

The results of the stream bioassessment conducted by the U.S. EPA (1993c) indicated that the macroinvertebrate community has been severely impacted directly adjacent to the site according to all of the indices that were measured (total taxa richness, EPT richness, percent dominance, percent EPT, biotic index, and water quality assessment). In addition, these indices indicated that further downstream of the site, the macroinvertebrate community has been moderately to severely impacted. Although these findings are not linked to any particular cause, it is possible that the contamination present in the Bound Brook adjacent to and downstream of the site has at least contributed to the downgrade of macroinvertebrate community health in this water body.

Overall, the results of these evaluations indicate that a potential risk is posed to benthic invertebrate community structure and function from methylene chloride, acetone, toluene, carbon disulfide, benzidine, phenanthrene, anthracene, fluoranthene, pyrene, benzo(a)anthracene, chrysene, di-n-octyl phthalate, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-c,d)pyrene, benzo(ghi)perylene, silver, calcium, copper, vanadium, zinc, and dieldrin.

5.3.2.5 Protection of insectivorous birds

The food chain model and chronic hazard quotient calculations for insectivorous birds are presented in Tables 49 to 53. For locations A1, A2, and A5, using the maximum concentrations for each contaminant of concern and the NOAEL, it was determined that a potential risk is associated with total PCBs and lead in the Bound Brook downstream of the Cornell-Dubilier Electronics site. The mean and the NOAEL also indicated such a risk. Using both the mean and the maximum concentrations with the LOAELs, no risk was calculated from any contaminant.

For locations A3 and A4, when the maximum concentrations of each contaminant of concern and the NOAELs were used, a potential risk was calculated for total endrin, total PCBs, and lead. When the mean and the NOAEL were used, a potential risk was still calculated for total PCBs, but no longer for total endrin or lead. When both the mean and the maximum contaminant concentrations were used with the LOAEL, no risk was calculated for any contaminant.

Since no risk was calculated for any contaminant at any location when either the mean or the maximum was used with the LOAELs, the evaluation of an acute risk to insectivorous birds utilizing the Bound Brook stream corridor downstream of the site was not necessary.

Preliminary ecotoxicologically-based sediment remedial goals could not be determined based on the insectivorous bird model because it was assumed for the purposes of the model that the red-winged blackbird does not incidentally ingest any sediment. Therefore, the sediment concentrations in this model had no influence on the outcome of the hazard quotients.

Nevertheless, a preliminary ecotoxicologically-based sediment remedial goal would not have been able to have been determined for total endrin for a variety of reasons, the most important of which is the fact that neither endrin nor any of its derivatives were detected in sediment at any of the locations evaluated in the risk assessment. Therefore, it would be unrealistic to determine a sediment remedial goal below the detection limit for these compounds. Second, since total endrin only resulted in a hazard quotient greater than one when the maximum contaminant concentrations were used, and sediment remedial goals are only established using mean contaminant concentrations, a sediment remedial goal would not have been able to be established anyway. Furthermore, a hazard quotient of greater than one was only calculated for total endrin when the NOAEL, not the LOAEL, was used.

Therefore, even if the maximum contaminant concentrations were used to establish remedial goals, the total endrin concentrations would have already been within the remedial goal range (between the NOAEL and the LOAEL). Finally, since the hazard quotients that exceeded one for total endrin (at locations A3 and A4) were relatively low (1.4 and 1.1, respectively), it is not likely that total endrin presents a significant risk to insectivorous birds at the site.

For lead and total PCBs, a preliminary ecotoxicologically-based sediment remedial goal could not be determined because the sediment concentrations of these two contaminants did not correlate with their hazard quotients. This fact is particularly interesting because it indicates that the concentrations of lead and total PCBs in the sediment did not correlate well with lead and total PCB concentrations in crayfish. This is because crayfish were by far the primary source of exposure to lead and total PCBs in the model since the surface water concentrations in the model were extremely low, and as stated previously, it was assumed for the purposes of the model that the red-winged blackbird does not ingest sediment. For lead, bioaccumulation from sediment to crayfish did not appear to be significant. For total PCBs, although bioaccumulation and biomagnification were apparent, no clear trend from sediment to crayfish could be established. This may have been because the sediment samples may not have been good representative samples from each location or because the sediment samples may have been heterogeneous in nature, or it may simply be due to the fact that unknown factors are controlling the bioaccumulation processes of PCBs in crayfish.

The sediment concentration of lead at the reference area (A9) was well within and at the high end of the range of sediment concentrations downstream of the Cornell-Dubilier Electronics site. Additionally, the mean crayfish concentration of lead at the reference area was greater than the mean crayfish concentration of lead at all of the locations evaluated in the insectivorous bird food chain model (A1 - A5). This indicates that the sediment lead concentrations downstream of the site are not entirely site-related. Furthermore, lead may not pose a substantial risk to insectivorous birds, as evidenced by the relatively low hazard quotients that resulted from using the mean water and biota concentrations in the food chain model (1.2, 1.3, <1, <1, and 1.5). Furthermore, since no risk was calculated for lead when the LOAEL was used in the food chain model for insectivorous birds, the mean sediment concentrations at each location are already currently within the range between the NOAEL and the LOAEL. Therefore, the current sediment concentrations of lead would already be within the preliminary remedial goal range for lead had one been established.

With regard to PCBs, none were detected in the sediment collected from the reference area. In crayfish, PCBs were detected in only one of 10 crayfish samples from the reference area, but PCBs were detected in all of the crayfish samples collected downstream of the site. This indicates that PCBs are site-related. However, the hazard quotients that were calculated using the mean water and biota contaminant concentrations and the NOAEL in the food chain model for insectivorous birds were relatively low (1.8 to 4.2), indicating that PCBs may not pose a substantial risk to insectivorous birds utilizing the Bound Brook corridor downstream of the site. Furthermore, since no risk was calculated for total PCBs when the LOAEL was used in the food chain model for insectivorous birds, the mean sediment concentations at each location are already currently within the range between the NOAEL and the LOAEL for PCBs. Therefore, the current sediment concentrations of PCBs would already be within the preliminary remedial goal range for total PCBs had one been established.

Overall, the results of the food chain evaluation for insectivorous birds indicates that a potential risk is posed to insectivorous birds from total endrin, total PCBs, and lead. Although no preliminary ecotoxicologically-based sediment remedial goals could be established for these contaminants to protect insectivorous birds, their hazard quotients were relatively low, and their sediment concentrations would already be within the preliminary remedial goal ranges for these contaminants had they been established.

5.3.2.6 Protection of onmivorous birds

The food chain model and chronic hazard quotient calculations for omnivorous birds are presented in Tables 54 to 58. For all locations evaluated (A1 dtrough A5), using die maximum concentrations of each contaminam of concem and the NOAEL, it was detennined that a potential risk is associated with lead hn the Bound Brook downstream of the Comell-Dubiher Electronics site. The mean and die NOAEL also indicated such a risk for all five locations. When die maximum concentrations and die LOAELs were used, no risk was calculated at any location for any contanuinant except for location A4, where lead still presented a potential risk. When the mean and die LOAELs were used, no risk was calculated for any of die locations for any of the contaminants.

Since die maximum lead concentrations at location A4 exceeded the LOAEL for omnivorous birds, die acute risk irom lead to omnivorous birds was evaluated for this location using die food chain model. The results of this evaluation are presented in Table 59 and indicate dhat no acute risk is posed by lead to omnivorous birds utilizing the Bound Brook downstream of die Cornell-Dubiller Electronics site.

A prehminary ecotoxicologically-based sedimem remedial goal was able to be determined for lead using die omnivorous bird model, as opposed to die insectivorous bird model, because the sediment lead concentrations in die omnivorous bird model correlated nicely widh die hazard quotients for lead irom location to location. This was due to die fact dhat, at all locations except A5, die model calculated a dosage of lead resulting irom the incidental ingestion of sediment to be approximately four to six times the dosage irom the ingestion of crayfish. At location A5, dte sediment lead concentration was significantiy lower than at die other locations, resulting in a dosage irom incidental sediment ingestion to be sllghtiy lower dhan the dosage calculated irom the ingestion of crayfish. Nonetheless, the overall dosage at location A5 was still calculated to be dte lowest dosage of all locations, dhereby maintaining die correlation between sediment concentrations and hazard quotients across die locations.

A sediment lead concentration of 28 mg/kg, dry weight, was determined to be die lower boundary (NOAEL) of die prehminary ecotoxicologically-based remedial goal range because it was die mean sediment lead concentration that resulted in the hazard quotient dhat was closest to one (2.8). Since dte LOAEL was not exceeded using the mean lead concentrations in die model, the sediment concentrations were determined to be aiready below die upper boundary (LOAEL) of dte prehminaiy ecotoxicologically-based remedial goal range, and dhus a sediment LOAEL was not determined.

Although a sedunent NOAEL of 28 mg/kg, dry weight, was established for lead for omnivorous birds, dhis sedunent concentration is much lower dhan the mean sediment lead concentration of 185 mg/kg, dry weight, at die reference area (A9). This indicates dhat die sediment lead concentrations downstream of the site are not entirely site-related. Furthermore, since no risk was calculated for lead when die LOAEL was used in die food chain model for omnivorous birds, die mean sediment concentrations at each location are aiready currentiy widun die prellminary ecotoxicologically-based remedial goal range for onmivorous birds.

Overall, die results of die food chain evaluation for omnivorous birds indicate dhat a potential risk is posed to omnivorous birds from lead. Although the lower bomdary of die prehminary ecotoxicologically-based sediment remedial goal range was determined to be 28 mg/kg, dry weight, to protect omnivorous birds, dhis concentration is much lower than die mean sedunent concentration measured at the reference area (A9). Furthermore, the mean sediment lead concentrations downstream of the site are currentiy aiready within the prehminary ecotoxicologically-based remedial goal range.

5.3.2.7 Protection of piscivorus bfrds

The food chain model and chronic hazard quotient calculations for piscivorus birds are presented in Tables 60 to 65. For location A1, using the maximum concentrations of each contaminant of concern and their NOAELs, it was determined that a potential risk is associated with total chlordane, total endrin, total DDT, total PCBs, and lead at this location. When the mean and the NOAELs were used, a potential risk was calculated for total endrin and total PCBs. When the maximum and the LOAELs were used, total PCBs was the only COPC for which a potential risk was calculated. When the mean and the LOAELs were used, no risk was calculated from any contaminant at location A1.

For locations A2, A3, and A4, when the maximum contaminant concentrations and the NOAELs were used, a potential risk was calculated from total endrin, total PCBs and lead. When the mean and the NOAELs were used, a potential risk was still calculated from total endrin and total PCBs, but not from lead. When both the mean and the maximum contaminant concentrations and the LOAELs were used, a potential risk was presented only from total PCBs.

For location A5, when the maximum contaminant concentrations and the NOAELs were used, a potential risk was calculated for total endrin and total PCBs at both locations. When the mean and the NOAELs were used, a potential risk was calculated only for total PCBs. Similarly, when the LOAELs and both the mean and the maximum contaminant concentrations were used, a potential risk was calculated only for total PCBs at this location.

Finally, for location A6, when the maximum contaminant concentrations and the NOAELs were used, a potential risk was calculated from total endrin, total DDT, total PCBs, and lead. When the mean and the NOAELs were used, a potential risk was still calculated from total endrin, total PCBs and lead, but no longer from total DDT. When the LOAELs and the maximum contaminant concentrations were used, a potential risk was only calculated from total PCBs. Finally, when LOAELs and the mean contaminant concentrations were used, no risk was calculated from any contaminant of concern.

Since the PCB dosages calculated from the model exceeded the chronic LOAEL for piscivorus birds at every location evaluated, the acute risk from total PCBs to piscivorus birds was also evaluated using the food chain model. The results of this evaluation are presented in Table 66 and indicate that no acute risk is posed by total PCBs to piscivorus birds utilizing the Bound Brook downstream of the Cornell-Dubilier Electronics site.

A preliminary ecotoxicologically-based sediment remedial goal was not determined for total chlordane, total endrin, or total DDT for a variety of reasons. First, these three pesticides were not detected in the sediment at any location with the exception of location A7, where 4,4'-DDD was detected at a concentration of only 0.03 mg/kg (estimated), dry weight. Since these contaminants were also not detected in surface water, this indicates that the exposure route of these contaminants to piscivorus bfrds in the model was via ingestion of fish. Since fish appear to be accumulating these contaminants even though they were not detected in sediment or water downstream of the Cornell-Dubilier Electronics site, this indicates that these contaminants are probably not site-related and are potentially derived from another source. Regardless, the dosages calculated by the model for two of these contaminants (total chlordane and total DDT) resulted in hazard quotients exceeding one only when the maximum, not the mean, contaminant concentrations were used. Furthermore, for all three of these contaminants, the dosages calculated by the model resulted in hazard quotients greater than one only when the chronic NOAELs, not the LOAELs, were used. Finally, the only hazard quotients that did exceed one for these three pesticides were relatively low, ranging from 1.1 to 9.4. Therefore, the weight of

evidence suggests dıat dıese three pesticides, althpugh a potential risk to piscivorus birds, do not appear to present a significaiit risk, and fiu thermore dtey do not appear to be site-related.

For lead, dıe lower boundary of a prehminary ecotoxicologically-based sediment remedial goal was able to be determined usıng dte green heron model because a hazard quotient of greater than one (1.1) usıng the mean lead concentrations and the chronic NOAEL was calculated for one location (A6). The lead concentration that resulted in this hazard quotient was 250 mg/kg, dry weight. Therefore, the lower boundary (NOAEL) of the prehminary ecotoxicologically-based sedunent remedial goal was determined to be 250 mg/kg, dry weight, for dıe protection of piscivorus birds. Since dıe chronic LOAEL was not exceeded usıng the mean lead concentrations at any location, the currem sedunent lead concentrations are already helow the upper boundary (LOAEL) of the preliminary ecotoxicologically-based sediment remedial goal range, thus the upper boundary was not determined. Furthermore, dte only hazard quotiem dıat exceeded one usıng mean lead concentrations was only 1.1, and dterefore at the very low end of the prehminary ecotoxicdlogically-based remedial goal range.

For PCBs, a preliminary ecotoxicologically-based remedial goal could not be determined usıng the green heron model because the sediment concentrations of PCBs did not correlate with dıe resulting hazard quotients irom location to location. This indicates that dıe PCB concentrations in the sediment did not correlate well wıdh PCB concentrations in fish, since fish were used as dte sole food item for tıe green heron in the model. Aldıough the fish had evidendy accumulated PCBs in dıeir tissues, no clear trend irom sediment to fish could be establlshed. As discussed previously (Section 5.3.2.5), this may have been because the sedinnent samples may not have been good representative samples irom each location or possibly because the sedunent samples may have been heterogeneous in nature. Other explanations include dte possibillty dıat unknown factors are controlling the bioaccumulation processes of PCBs in fish or that additional sources of PCBs are present and are acting as additional routes of exposure of fish to PCBs downstream of the Comell-Dubiller Electronics site. Since a preliminary ecotoxicologically-based sedunent remedial goal could not be established for PCBs usıng dıe green heron model, and sınce some of the sedunent PCB concentrations resulted in hazard quotients greater dıan one usıng dıe LOAEL, source control is necessary at a minimum to reduce dte risk of PCBs to piscivorus birds udıabiting the Bound Brook stream corridor downstream of the site.

Overall, the results of dıe food chaıı evaluation indicate that a potential risk is posed to piscivorus birds utilizing the Bound Brook stream corridor downstream of dıe Comell-Dubllier Electrıaıics site from total chlordane, total endrin, total DDT, total PCBs, and lead. However, since chlordane, endrin, and DDT were not detected in any of dıe sedunent samples collected irom the Bound Brook downstream of the site, with the exception of one sample irom location A7, in which 0.03 mg/kg of DDD was detected, dıese three pesticides were deemed not to be site-related and therefore, no prellminary ecotoxicologically-based remedial goals were establlshed for dıese pesticides. For lead, the lower boundary of the prehminary ecotoxicologically-based sediment remedial goal range was detemined to be 250 mg/kg, dry weight, for dte protection of piscivorus birds. However, the mean sediment lead concentrations downstream of dıe site are already currentiy wıdhin and at the low end (close to dıe NOAEL) of the preliminary ecotoxicologically-based remedial range. For PCBs, a preliminary ecotoxicologically-based sedunent remedial goal range could not be determined because dıe mean sedimem

PCB concentrations did hot correlate wıdh the resulting hazard quotients. Therefore, source control of PCBs is recominended at a minimum for the protection of piscivorus birds irom the risk posed by PCBs downstream of the site.

5.3.2.8 Protection of omnivorous mammals

The food chain model ami chronic hazard quotient calculations for omnivorous mammals are presented in Tables 67 fo 72. For location A1, using the maximum concentrations of each contaminant of concem and thefr NOAELs, it was deterhuined that a potential risk is associated with medioxychlor, total PCBs, arsenic, mercury, and selenium. When die mean and the NOAELs were used, a potential risk was only calculated from total PCBs and selenium. Similarly, when the maximum and the LOAELs were used, total PCBs and setenium were the only COPCs for which a potential risk was calculated. When dte mean and the LOAELs were used, selenium was the only contaminant of concem for which a potential risk was calculated.

For locations A2, A4, and A6, usimg the maximum concentrations of each contaminant and thefr NOAELs, a potential risk from total PCBs, mercury, and selenium was calculated. When both the inean and the NOAELs and the maximum concentrations and the LOAELs were used, a potential risk was calculated from only total PCBs and selenium. When die mean concentrations and the LOAELs were used, a potential risk from only selenium was calculated. It should be noted that for location A6, raccoons were assumed to consume 100 percem fish, rather than 50 percent crayfish and 50 percent fish, which were assumed at all die other locations. This is because crayfish were not collected at location A6.

For locations A3 and A5, usimg the maximum concentrations of each contaminant and their NOAELs, a potential risk from total PCBs, arsenic, mercury, and selenium was calculated. When both die maximum and the LOAELs and die mean concentrations and die NOAELs were used, a potential risk was calculated from only total PCBs and selenium. When the mean concentrations and the LOAELs were used, a potential risk from only selenium was still calculated.

Sinte dte total PCB and selenium dosages calculated from the model exceeded dieir chronic LOAELs for omnivorous mammals at every location evaluated, the acute risk from total PCBs and selenium to omnivorous mammals was also evaluated usimg die food chaim model. The results of dis evaluation are presented in Tabte 73 and indicate that no acute risk is posed by total PCBs or selenium to omnivorous mammals utillzing die Bound Brook downstream of die Comell-Dubiller Electronics site.

A prellmimary ecotoxicologically-based sedunent remedial goal was not determined for medioxychlor for a variety of reasons. First, this pesticide was not detected in the sediment at any location downstream of the Comell-Dubllier Electronics site. Since dis contaminant was also hot detected in surface water or crayfish, dis indicates diat die exposure route of methoxychlor to omnivorous mammals in the model was via ingestion of fish. Since fish appear to be accumulating medioxychlor even though it was not detected in sediment or water downstreain of the Comell-Dubiller Electronics site, this indicates that medioxychlor is probably not site-related and is potentially derived from another source. In addition, methoxychlor resulted in a hazard quotient exceeding one at only one location (A1), and die hazard quotient was very low (1.4). Finally, die hazard quotient exceeded one only when the maximum, not the mean, contaminant concentration was used and only when the chronic NOAEL, not the LOAEL, was used. Therefore, the weight of evidence suggests diat medioxychlor, aldiough a potential risk to omnivorous mammals, does not appear to present a significant risk, and firthermore it does not appear to be site-related.

For arsenic and mercuy, prellminary ecotoxicologically-based sedimem remedial goals were also not detemined. This was because remedial goals are established usimg die mean contaminant concentrations in dte food chain models, and the hazard quotients for arsenic and inercury exceeded one only when the itiaximum, not the mean, contaminant concentrations

were used. Therefore, the mean arsenic and mercury sedimem concentrations downstream of the Comell-Dubllier Electronics site are aheady below wiat would have been die ecotoxicologically-based sediment remedial goal for onmivorous mammals, had one been establlshed. It should also be noted that the hazard quotients that were greater than one for dtese two contaminants were relatively low, ranging from 1.1 to 4.5.

For total PCBs and setenium, prellminary ecotoxicologically-based remedial goals could not be determined using the omnivorous mammal model because the sedunent concentrations of total PCBs and selenium did not correlate with thefr resulting hazard quotients from location to location. This indicates dhat total PCB and selenium concentrations in the sediment did not correlate well with total PCB and selenium concentrations in crayfish and/or fish, even dhough the crayfish and fish had evidendy accumulated PCBs and selenium in their tissues. As discussed previously (Section 5.3.2.5), this may have been because the sediment samples may not have been good representative samples from each location or possibly because die sediment samples may have been heterogeneous in nature. Odter explanations include die possibdity that unknown factors are controllng the bioaccumulation processes of PCBs and selenium in crayfish and/or fish or that additional sources of PCBs and selenium are present and are acting as additional routes of exposure of crayfish and/or fish to PCBs and selenium downstream of dte Comell-Dubdier Electronics site. Since a prellminary ecotoxicologically-based sedunent remedial goal could not be established for total PCBs or selenium using the omnivorous mammal model, and since some of the sediment total PCB and selenium concentrations resulted in hazard quotients greater than one using the LOAEL, source control is necessary at a minimum to reduce die risk of PCBs and selenium to omnivorous mammals inhabiting the Bound Brook stream corridor downstream of the site.

A second hne of evidence to evaluate dte potential risk of contamination widin the Bound Brook stream corridor downstream of tite Comell-Dubiller Electronics site to omnivorous mammals was dte comparison of measured small mammal (white-footed mouse) whole body concentrations of tie COPCs to those in die llteratme that have been associated widi toxic effects. However, since no information was found in the llterature in which small mammal whole body concentrations of dte bioaccumulative COPCs were associated widi toxic effects, the risk from total PCBs, total chlordane, medioxychlor, dieldrin, total endrin, total heptachlor, and total DDT could not be detemined using dis medod of evaluation. Furthermore, since small mammals were not analyzed for TAL metals for dis risk assessmem, die potential risk posed to omnivorous mammals from arsenic, cadnium, lead, mercury, and selenium could not be determined using this medod of evaluation.

A third line of evidence to evaluate the potential risk of contamination widin die Bound Brook stream corridor downstream of die Comell-Dubiller Electronics site to omnivorous mammals was a histopathological evaluation of llvers and kidneys taken from a subsample of small mammals (white-footed mice) collected for this risk assessment. The histopadiological report is presented in Appendix H. The results indicate dhat many of the livers, primardy from location T1, exhibited large numbers of parasites or parasite eggs. The report states dhat dis was probably due to a heavy envfronmental parasitic load in tiis area. This could nof be attributed to any particular contaminant in tie smdy area. Therefore, dte report does not indicate any abnormal padiological findings that could be attributed to any particular chemical contamination at the site.

Overall, the results of die food chain evaluation indicate that a potential risk is posed to omnivorous mammals utihzing dte Bound Brook stream corridor downstream of the Comell-Dubllier Electronics site from methoxychlor, total PCBs, arsenic, mercury, and selenium. However, since medioxychlor was not detected in any of the sediment samples collected from dte Bound Brook downstream of dte site, dis pesticide was deemed not to be site-related and dierefore, no prellminary ecotoxicologically-based remedial goal was establlshed for

methoxychlor. For arsenic and mercury, a prchnunary ecdtoxicologically-based remedial goal was also not establlshed because a hazard quotiem of greater than one was only establlshed for diese contaminants wiien die maxhnum contaminant concentrations were used. Therefore, their sedimem concentrations are aiready below wiiat would have been die prellmmary ecotoxicologically-based sedunent remedial goal had one been established. For PCBs and selenium, a prellminary ecotoxicologically-based sedimem remedial goal range could not be determined because die mean sediment PCB and selenium concentrations did not correlate with thefr resulting hazard quotients. Therefore, source control of PCBs and selenium is recoimnended at a minimum for die protection of omnivorous mammals from tne potential risk posed by PCBs and selenium downstream of die site.

5.3.2.9 Protection df carnivorous mammals

The food chain model and chronic hazard quotient calculations for carnivorous mammals are presented in Tables 74 to 76. Since dis food chain model assumes that die red fox consumes 100 percem small mammals, and since the small mammals collected for this risk assessment were not analyzed for TAL metals, die risk from the bioaccumulative metals to carnivorous manunals could not be evaluated. The potential risk from the bioaccumulative organic contaminants, however, was evaluated. For location T1, when the maximum contamimant concentrations were used widi deir NOAELs in die model, it was determined that a potential risk is associated only widi total PCBs. Similarly, when the mean contaminant concentrations and die NOAELs, as well as the maxunum contaminant concentrations and the LOAELs, were used hi the model, a potential risk was still calculated only for total PCBs. When the mean contaminant concentrations and die LOAELs were used, no risk was calculated from any bioaccumulative organic contaminant.

For location T2, wlien die maximum contanuinant concentrations were used together widi die NOAELs, a potential risk was calculated only for total PCBs. Sunilarly, when the mean contaminant concentrations were used together with the NOAELs, a potential risk was again only calculated for total PCBs. When both die maximum and die mean concentrations were used with die LOAELs, no risk was calculated from any of die bioaccumulative organic COPCs.

Finally, for location T3, no risk was calculated for any bioaccumulative organic COPC when any combination of mean or maxunum contaminant concenirations with either the NOAELs or LOAELs was used in die model.

Since the total PCB dosage calculated from the model exceeded the chronic LOAEL for carnivorous mammals at location T1, die acute risk from PCBs to carnivorous mammals was also evaluated using the food chain model. The results of this evaluation are presenied in Table 77 and indicate dat no acute risk is posed by PCBs to camivorous mammals utllizing die Bound Brook downstream of die Cornell-Dubiher Electronics site.

The lower boundary of die prehminary ecotoxicologically-based sod remedial goal for PCBs was determined to be 39 mg/kg, dry weight, for die protection of camivorous mammals. Since the chronic LOAEL was not exceeded using the mean PCB concentrations at any location, die cunem sod PCB concentrations are afready below die upper boundary (LOAEL) of die prehminary ecotoxicdlogically-based soil remedial goal range, dius die upper boundary was not determined. Furthermore, the hazard quotients tiiat exceeded one using the mean PCB concentrations and tiie NOAEL were relatively low (1.9 and 8.9).

Overall, the results of die food chaim evaluation mdicate that a potential risk is posed to carnivorous mammals utdizing die Bound Brook stream corridor downstream of die Comell-Dubilier Electronics site from total PCBs. The lower boundary of die prehminary

ecotoxicologically-based soll remedial goal range for PCBs was detemined to be 39 mg/kg, dry weight, for the protection of camivorous mammals. However, the mean sod PCB concentrations witnin dhe stream corridor downstream of the site are already currentiy within dhe prellnuinary ecotoxicologically-based remedial range.

5.3.2.10 A note about piscivorus mammals

Piscivorus mammals, such as mink and weasels, were not evaluated in dhis risk assessment because such animals were not expected to udhabit in great numbers dhe Bound Brook stream corridor downstream of the Comell-Dubiller Electronics site. However, it should be noted that if dhis trophic level had been evaluated, it is hkely dhat a more significant chronic risk, and potentially an acute risk, would have been calculated for PCBs. First, dhis is because fish were found to contain overall higher levels of PCBs than odher food items (crayfish and small mammals) used in this risk assessment. Since no other mammal was modeled to consume 100 percent fish, witn dhe exception of dte omnivorous mammal at location A6, dhe PCB dosage of a piscivorus mammal would be expected to be higher dhan the two mammals evaluated in this risk assessment. Second and more important, it is well documented dhat nunk is the most sensitive mammal to PCBs. The chronic toxicity values used to evaluate the potential risk of PCBs to omnivorous and camivorous mammals were derived irom smdies in which mink were used because no appropriate stodies were located in which dhe mammalian measurement endpoints (raccoon or red fox) were directiy evaluated for PCB toxicity. However, dte acute toxicity values that were used to evaluate the acute risk of PCBs to omnivorous and camivorous mammals were derived irom acute toxicity smdies using the raccoon. If a piscivorus mammal had been evaluated for acute risk posed by PCBs, a much lower acute toxicity reference value for mink would have been used, due to dhe greater sensitivity of mink to PCBs. This would thus have resulted in a much higher acute hazard quotient, probably greater tiian one.

5.4 Uncertaimty Analysis

5.4.1 General Overview of Uncertaiuty Analysis

There are factors inherent in the risk assessment process dhat contribute to a level of uncertaiuty dhat must be considered when interpreting the results of a risk assessment.

Major sources of uncertaimty arise irom natural variabllity in biological and chemical systems, the introduction of error in dhe risk assessment process, and the presence of data gaps.

Natural variabllity is an udherent characteristic of ecological receptors, their stressors, and dheir combined behavior in dhe environment. Biotic and abiotic parameters in dhese systems may vary to such a degree dhat dhe exposure to ecological receptors in two identical conceptual models may differ temporally and spatially. Factors dhat contribute to temporal and spatial variabillty may be differences in an individual organism's behavior (within dhe same species), changes in the weadher or ambient temperature, unanticipated interference irom odher stressors, differences between microenvironments, stochasticity, and numerous odher factors. Thus, dhe conservative nature of this risk assessment assumes dhat the highly variable environmental conditions and dhe behavior of organisms and dheir stressors are interacting in such a manner that allows dhe contaminants to move ireely dtrough dhe identified exposure padhways, and to produce the same effects identified in dhe exposme profile.

Uncertainty associated widh natural variabillty also arises from dhe use of llterature toxicity values in which a study has examinted a single species/single contaminant system under highly

controlled conditions. If conducted in a laboratory, these studies do not take into account the effects of the environmental factors and other stressors that are present in natural systems. These factors may have synergistic, antagonistic, or neutral effects upon the receptor-contaminant interaction. Point estimates of exposure such as NOAELs, LOAELs, LD50s, and mathematical means that are presented in the literature also have an inherent variability, which is by default incorporated into the risk assessment.

In addition, uncertainty associated with natural variability is introduced from the use of literature values for soil, sediment, water, and food ingestion rates, dietary compositions, and body weights. These values reported in the literature are from studies that may have been conducted at a certain time of year or in a certain location that does not necessarily give an accurate representation of the life histories of the species assessed at the site under consideration in the risk assessment.

Error may be introduced into the risk assessment through the use of invalid assumptions in the conceptual model. Conservative assumptions were made in light of the uncertainty associated with the risk assessment process (e.g., natural variability). Conservative assumptions were used to minimize the possibility of concluding that risk is not present when a threat actually does exist (i.e., the elimination of false negatives). While there is uncertainty associated with each conservative assumption used, this consistent selection process assures that the uncertainty associated with this type of error will err on the side of a protective outcome.

This risk assessment does not examine the contribution of dermal absorption, transfer across epithelial membranes, or inhalation exposure as part of the exposure pathway. In contrast to the use of conservative assumptions, the error introduced into this risk assessment by the omission of these routes of exposure may err on the side of a less protective outcome. The relative contribution of this error to alter the outcome of the risk assessment is unknown at this time.

Methodological problems in the literature reviewed for obtaining life history and toxicity information also introduce uncertainty into a risk assessment. Attempts were made to avoid using literature that was questionable. However, if no other sources of information existed, this error was incorporated into the risk assessment if the data were used.

Data gaps were defined here as the incompleteness of data or information upon which the risk assessment was based. Specifically, these may be an incomplete contaminant data set, missing pieces of life history information, and the absence of toxicity-based literature for the receptor of concern.

Life history information and literature values for the toxicity of the contaminants of concern were not always available for all of the receptor species. By using closely related species, it was possible to make risk estimates. In reality, however, the information may vary substantially among species, thereby introducing another source of uncertainty.

In cases where a toxicity value has been converted by a factor of 10, the uncertainty associated with the absence of a directly relevant literature value was compounded by the uncertainty associated with a subjective mathematical adjustment.

5.4.2 Site-Specific Uncertainty Analysis

The results of the uncertainty analysis for the ecological risk assessment of the Cornell-Dubilier Electronics Superfund site are discussed next.

Based on the results of the sediment toxicity evaluations, contaminants were identified that potentially pose a risk to benthic invertebrate community structure and function. It could not be determined which of these contaminants or combinations of contaminants had definitively caused the observed toxicity.

Since aquatic and terrestrial toxicity tests were not conducted for this risk assessment, the potential risk of the COPCs that were detected in water and soil, and that either exceeded their benchmarks in the screening-level risk assessment or had no benchmark, could not be determined for these matrices. Therefore, the aquatic and terrestrial risk of these contaminants is uncertain.

Acceptable studies on the dietary toxicity of many of the bioaccumulative COPCs to many of the measurement endpoint species used in this risk assessment were not found. Therefore, dietary toxicity studies for surrogate receptors were used. An assumption was thereby made that the use of toxicity studies from surrogate receptors provides a similar and conservative approach to estimating the dietary exposure effects levels for the measurement. This was a source of additional uncertainty in the risk calculations for all of the measurement endpoints.

Uncertainty was also introduced into this risk assessment because the digestive tracts of forage fish were removed during processing for whole body analyses. In some fish species, the majority of the body fat is associated with the intestinal tract. Therefore, it is possible that a relatively large proportion of the lipid-soluble contaminants of concern may have been removed during processing of forage fish. This may have resulted in an underestimation of the lipid-soluble contaminant dosages, and thus hazard quotients, calculated using the piscivorus bird and omnivorous mammal food chain models.

Another source of uncertainty results from the assumptions that were made concerning the dietary composition of the selected measurement endpoints. For the omnivorous mammal (the raccoon), it was assumed that 50 percent of their diet consists of crayfish, and the other 50 percent consists of fish, the food items that were collected at the site. Similarly, for the carnivorous mammal (the red fox) it was assumed that 100 percent of its diet consists of small mammals, specifically white-footed mice. For insectivorous birds (the red-winged blackbird), it was assumed that 100 percent of their diet consists of crayfish, which were chosen to represent insects for the purposes of the food chain model for insectivorous birds. For omnivorous birds (the mallard duck), it was assumed that 100 percent of their diet consists of crayfish, and finally, for piscivorus birds (the green heron), it was assumed that 100 percent of their diet consists of fish. The diets of these species are known to be more varied in reality compared with the assumptions used here. However, the actual diets of these species within the Bound Brook stream corridor, as well as the degree of contamination in their actual diets, are unknown. This introduced uncertainty in the calculated contaminant dosages used in the hazard quotient calculations.

Food and water ingestion rates for red-winged blackbird and the green heron could not be found in the literature. For the red-winged blackbird, a food ingestion rate for a similar species was used. For the green heron, a regression equation for food ingestion that was found in the literature was used. To estimate water ingestion rates for these species, an allometric equation was used in each case. Since these ingestion rates are estimates rather than reported values, an additional level of uncertainty is introduced into the hazard quotient calculations for these measurement endpoints.

Since all area use factors were assumed to be one for all receptors evaluated in the food chain model, and since the actual area use factors are potentially less than one for many of the receptors, uncertainty was introduced into the determination of the contaminant dosage

calculated in the food chain model. This introduces additional uncertainty into the hazard quotients calculated using the food chain models.

Sediment ingestion rates for the green heron could not be found in the literature. Therefore, estimated sediment ingestion rates were calculated based on reported dietary compositions and amounts of sediment/soil entrained in the digestive systems of prey items. In some cases, information on the entrainment of sediment/soil was unknown for certain prey items. Therefore, it was assumed that the dietary composition of the species in question consisted only of those species for which sediment/soil entrainment information had been reported. It was also assumed that the amount of sediment/soil entrained in prey items remained constant over time. These assumptions introduced uncertainty into the calculation of risk for the green heron.

Sediment ingestion rates for the red-winged blackbird could also not be found in the literature. Due to the feeding behavior of this bird, it was assumed that it does not digest any sediment. Therefore, this route of exposure, if it exists, was not taken into consideration. However, it is conceivable that certain behavioral patterns of the red-winged blackbird could contribute to incidental sediment ingestion. Such behavior might include dust baths and preening, ingestion of grit, and sediment adhered to prey items. Because these routes of sediment ingestion were not considered for the red-winged blackbird, additional uncertainty was introduced into the hazard quotients for this assessment endpoint.

Most of the toxicity values in the literature from chronic exposure studies were reported as a concentration of the contaminant of concern in food. This concentration had to be converted to the appropriate dosage units (mg/kg BW/day) for the food chain model by multiplying this value by the food ingestion rate and dividing by the body weight of the test animals. If the study in question did not report body weights and/or ingestion rates for the test animals, they were chosen from the literature or, in the case of ingestion rates, sometimes allometric equations had to be used. This introduced uncertainty in the NOAEL and LOAEL values, and thus in the hazard quotients for the risk characterization. Additionally, in some cases, body weights and/or ingestion rates were only available for adults, and were therefore used even if the study was started when the test animals were newly hatched or young. This may have introduced additional uncertainty into the risk characterization process.

In the food chain model, the lowest reported body weights for adults and the highest reported ingestion rates were used in each case. Therefore, the dosage calculated may have been overestimated, thereby causing the hazard quotients to be overestimated for the measurement endpoint in question. However, the purpose of these assumptions was to provide a conservative estimate of the hazard quotient so as to protect the more sensitive species that fall within the assessment endpoint category (e.g., insectivorous birds). Nonetheless, these conservative assumptions introduce additional uncertainty into the risk characterization process.

In some cases, toxicity values in the literature were derived from data for which dosages were only reported as dry weight, and the authors did not give enough information to convert them to wet weight. Therefore, it was assumed that the food administered in these studies consisted of 1/3 solids to convert the dosages to wet weight. This assumption introduced additional uncertainty into the hazard quotient calculations.

In the food chain model, it was assumed that the contaminants are 100 percent absorbed upon ingestion and that the contaminants are not metabolized or excreted over the lifetime of the receptor. Therefore, the exposure dosages calculated in the food chain model may have been overestimated, thereby overestimating the hazard quotients. However, since the toxicity

values obtained from the literature were based on applied dosages, rather than absorbed or assimilated dosages, this discrepancy theoretically cancels out in the hazard quotient equation. Nonetheless, this was an additional source of uncertainty in the hazard quotients calculated using the food chain model.

To assess the potential risk of bioaccumulative COPCs, the concentrations of contaminants that belong to a class of chemicals (e.g., PCBs) were summed and treated as a total contaminant concentration for that class. In determining toxicity reference values for these contaminant classes, the lowest appropriate toxicity value was chosen to represent the toxicity of the entire class of that type of contaminant. In doing so, it was assumed that the total concentration of each class of contaminant consisted entirely of the most toxic member of that class. This introduced additional uncertainty into the hazard quotient calculations.

In the food chain models for fish-eating receptors, the mean fish contaminant concentrations were calculated from whole body forage fish (pumpkinseed) data because this was the only species of fish for which whole body concentrations were analyzed. In addition to the analysis of whole body pumpkinseed, fillets were also taken and analyzed from pumpkinseed and many other species of fish to represent edible fish tissue for the purposes of a separate human health risk assessment. This fillet date set was combined with the whole body pumpkinseed data set to determine the maximum contaminant concentrations in fish for the purposes of the food chain models. Therefore, it was assumed that this combined date set (including the fillet tissue) is a representive date set to determine the maximum fish tissue concentration that a fish-consuming receptor would ingest. This introduced additional uncertainty into the calculation of the contaminant dosages in the food chain models for fish-consuming receptors, and this introduced additional uncertainty into the associated hazard quotient calculations.

When comparing fish whole body tissue residue levels to those in the literature that are associated with toxicity in fish, only the residue levels for forage fish (pumpkinseeds) could be used for these comparisons, since pumpkinseeds were the only fish for which whole body analyses were conducted. Therefore, the risk of the COPCs evaluated in this risk assessment to other species of fish within the Bound Brook study area was not evaluated and is therefore uncertain.

No information could be found on the toxicity of whole body tissue levels in crayfish of methoxychlor, dieldrin, total endrin, total heptechlor, total DDT, arsenic, cadmium, lead, mercury, and selenium. Therefore, the risk posed by these COPCs to crayfish within the Bound Brook study area is uncertain.

No information could be found on the toxicity of whole body tissue levels in fish of methoxychlor, dieldrin, total endrin, total heptechlor, total DDT, arsenic, cadmium, and lead. Therefore, the risk posed by these COPCs to fish within the Bound Brook study area is uncertain.

For chlordane, the fish and crayfish tissue residue threshold values reported in the literature were reported as lipid-normalized concentrations. For the purposes of comparing these threshold values to measured tissue concentrations in the fish and crayfish collected for this risk assessment, which were not lipid-normalized, an overall mean percent lipids for both crayfish and fish was calculated from the analytical results of the crayfish and fish collected from the site. The resulting mean percent lipids were assumed to be representative of crayfish and fish, and were used to convert the lipid-normalized values reported in the literature to non-lipid-normalized values for the hazard quotient calculations. This introduced uncertainty into the chlordane hazard quotient calculations using measured whole body tissue levels of fish and crayfish.

For selenium, dte fish tissue residue threshold values reported in the literature were reported as dry weight concentrations. For the purposes of comparing tltese threshold values to measured tissue concentrations in the fish collected for this risk assessmem, wiuch were in wet weight, an overall mean percent solids for fish was calcidated froin the analytical results of die fish fillets collected from die site. The fish filiets were used, radier dian whole body forage fish (pum;kdnseeds), because die percem sohds were only analyzed for die fish fillets. The resulting mean percem sollds from the fillet tissue were assumed to be representetive of percem sollds in die whole body fish reported in the llterature, and were used to convert the llterature dry weight values to wet weight values for the hazard quotiem calcidations. This introduced uncertainty into the selenium hazard quotiem calcidations using measured whole body tissue levels of fish.

No information could be found on die toxicity of whole body tissue concentrations in mammals of total chlordane, mediioxychlor, dieldrin, total endrin, total heptechlor, total DDT, total PCBs, arsenic, cadmium, lead, mercury, and selenium. Therefore, die risk posed by diese COPCs to small mammals widiin die Bound Brook stream corridor smdy area is uncertain.

Frogs were not avadable in sufficient quantities for collection and analysis. In addition, due to delays in dte development of die frog embryo assay, a non-standardized toxicity test, this assay was not able to be perfonned as originally intended. Therefore, dte risk of the COPCs to amphibians within the Bound Brook corridor downstream of die Comell-Dubdier Electronics site is uncertain.

Crayfisti were not present during the time of collection at location A6. Therefore, die risk of the bioaccumulative COPCs to crayfish-consuming measurement endpoints at location A6 is uncertain.

Emergem aquatic insects were not present at the site in sufficient quantities for collection and analysis. Therefore, crayfish were assumed to be representetive of diese insects in die food chain model for insectivorous bfrds. This assumption introduces uncertainty into tiie detemination of risk of dte bioaccumidative COPCs to insectivorous bfrds widiin the Bound Brook smdy area.

The small mammals collected for die purposes of this risk assessmem were not analyzed for TAL metels. Since camivorous mammals (the red fox) were assumed to consume 100 percent small maininals, the risk posed by the inorganic bioaccumidative COPCs evaluated in this risk assessment to camivorous mammals within the Bound Brook smdy area is uncertain.

5.5 Conclusions from tiie Ecological Risk Assessment

5.5.1 Protection of the stmctme and function of the stream

The results of tiis risk assessment indicate tiat die stmctme and fimction of dte stream communities downstream of the Comell-Dubillef Electronics site are at risk from chemical contamination. Ffrst, a risk is posed to the benthic community and is potentially due to a variety of VOCs and BNAs, silver, calcium, copper, vanadium, zinc, and dieldrin. The fish widiin the stream were determined to be potentially at risk from exposme to selenium and PCBs, but die risk posed by die odier bioaccumidative COPCs could not be determined. Birds utilizing the stream were determined to be potentially at risk from lead, PCBs, total endrin, total chlordane, and total DDT. Finally, a potential risk to omnivorous mammals using die stream was found to be posed by mediioxychlor, arsenic, mercury, PCBs and selenium.

5.5.2 Protection of the structure and function of the stream corridor

The results of dus risk assessmaent indicate dhat tite so uctiure and fimction of dte stream corridor downsiream of dhe Comell-Dubiller Electronics site are at risk from chemical contanination. First, birds utilizing tiie stream corridor were determined to be potentially at risk from lead, PCBs, total endrin, total chlordane, and total DDT. A potential risk to onmivprous manunals using dhe stream was found to be posed by methoxychlor, arsenic, mercury, PCBs and selenium. Finally, a potential risk to carnivorous mammals was also found to be posed by PCBs.

5.5.3 Protection of fish communities

The results of two sfream bioassessments previously perfonned by the U.S. EPA (1992, 1993b) have indicated that the fish communities witiin the Bound Brook adjacent to ahd downsfream of tne Comell-Dubdier Elecfronics site have been adversely affected. The results of this risk assessment indicate that dis unpairment may be due, at least in part, to the contamination witiin tie stream. Specifically, selenium and PCBs were found to pose a potential risk to fish, since selenium and PCB concentrations in tite fish were found to be higher than those found in the llterature to be associated with toxic effects. Therefore, selenium and PCBs may contribute to the observed population-level effects. In addition, since dte risk from medioxychlor, dieldrin, total endrin, total heptechlor, total DDT, arsenic, cadmium, and lead to fish could not be detennined using this mediod of evaluation, it is possible dhat any of dhese contanunants may also pose a potential risk to fish in dhe Bound Brook.

5.5.4 Protection of benduc invertebrate communities

The results of a stream bioassessment previously performed by dhe U.S. EPA (1993c) has indicated dhat the macroinvertebrate communities within the Bound Brook adjacent to and downstream of dhe Comell-Dubdier Electronics site have been adversely affected. In addition, toxicity was observed in sedunents collected from one downstream location. The results of dus risk assessment indicate tiat tius unpaiment may be due, at least in part, to the contanination witiin the stream. Specifically, a potential risk is posed to benthic invertebrate conunmnity stmctme and fimction from methylene chloride, acetone, toluene, carbon disulfide, benzidine, phenanthrene, anthracene, fluoranthene, pyrene, benzo(a)andiracene, chrysene, di-n-octyl phdialate, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-c,d)pyrene, benzo(ghi)perylene, stiver, calcium, copper, vanadium, zinc, and dieldrin.

5.5.5 Protection of insectivorous birds

The results of dis risk assessmem indicate that a potential risk is posed to insectivorous birds from lead, total endrin, and total PCBs. Although no prellntinary ecotoxicologically-based sedimem remedial goals could be esteblished for these contaminants to protect insectivorous birds, calculated hazard quotients were relatively low, and contaminant concentrations in sedimem would afready be widhin dhe preliminary remedial goals had dhey been esteblished. Furthermore, dhe date indicate dhat dhe sedunent lead concentrations downstream of dhe site are not entirely site-related since the mean crayfish concentration at the reference area was greater dhan the mean lead concentrations in crayfish from all locations evaluated using dhe insectivorous bird model.

5.5.6 Protection of omnivorous birds

The results of dis risk assessment indicate that a potential risk is posed to omnivorous birds

by lead. Although the lower boundary of the preliminary ecotoxicologically-based sediment remedial goal range was determined to be 28 mg/kg, dry weight, to protect omnivorous birds, this concentration is much lower than the mean sediment concentration measured at the reference area (A9). This indicates that the sediment lead concentrations downstream of the site are not entirely site-related. Furthermore, the mean sediment lead concentrations downstream of the site are currently already within the preliminary ecotoxicologically-based remedial goal range.

5.5.7 Protection of piscivorus birds

The results of this risk assessment indicate that a potential risk is posed to piscivorus birds utilizing the Bound Brook stream corridor downstream of the Comell-Dubilier Electronics site from total chlordane, total endrin, total DDT, total PCBs, and lead. However, since chlordane, endrin, DDT or any of their derivatives were not detected in any of the sediment samples collected from the Bound Brook downstream of the site, with the exception of one sample from location A7, in which 0.03 mg/kg of DDD was detected, these three pesticides were deemed not to be site-related and therefore, no preliminary ecotoxicologically-based remedial goals were established for these pesticides. For lead, the lower boundary of the preliminary ecotoxicologically-based sediment remedial goal range was determined to be 250 mg/kg, dry weight, for the protection of piscivorus birds. However, the mean sediment lead concentrations downstream of the site are already currently within and at the low end (close to the NOAEL) of the preliminary ecotoxicologically-based remedial range. For PCBs, a preliminary ecotoxicologically-based sediment remedial goal range could not be determined because the mean sediment PCB concentrations did not correlate with the resulting hazard quotients. Therefore, some control of PCBs is recommended at a minimum for the protection of piscivorus birds from the risk posed by PCBs downstream of the site.

5.5.8 Protection of omnivorous mammals

The results of this risk assessment indicate that a potential risk is posed to omnivorous mammals utilizing the Bound Brook stream corridor downstream of the Comell-Dubilier Electronics site from methoxychlor, total PCBs, arsenic, mercury, and selenium. However, since methoxychlor was not detected in any of the sediment samples collected from the Bound Brook downstream of the site, this pesticide was deemed not to be site-related and therefore, no preliminary ecotoxicologically-based remedial goal was established for methoxychlor. For arsenic and mercury, a preliminary ecotoxicologically-based remedial goal was also not established because a hazard quotient of greater than one was only established for these contaminants when the maximum contaminant concentrations were used. Therefore, their sediment concentrations are already below what would have been the preliminary ecotoxicologically-based sediment remedial goal had one been established. For PCBs and selenium, a preliminary ecotoxicologically-based sediment remedial goal range could not be determined because the mean sediment PCB and selenium concentrations did not correlate with their resulting hazard quotients. Therefore, some control of PCBs and selenium is recommended at a minimum for the protection of omnivorous mammals from the risk posed by PCBs and selenium downstream of the site.

5.5.9 Protection of carnivorous mammals

The results of this risk assessment indicate that a potential risk is posed to carnivorous mammals utilizing the Bound Brook stream corridor downstream of the Comell-Dubilier Electronics site from total PCBs. The lower boundary of the preliminary ecotoxicologically-based soil remedial goal range was determined to be 39 mg/kg, dry weight, for the protection of carnivorous mammals. The mean soil PCB concentrations within the stream corridor

downstream of dte site are afready currentiy widin the prellnuinary ecotoxicologically-based remedial range.

5.5.10 Overall recommendations from the ecological risk assessment

The most substantive risk determined by this risk assessment is posed by those contaminams dhat resulted in a hazard quotiem greater than one usimg the mean contanuinant concentrations and the LOAEL in tie food chaim models. This occurred for total PCBs usimg die omnivorous mammal and piscivorus bfrd models and for selenium usimg die omnivorous mammal model. However, for these two contaminants, a preliminary ecotoxicologically-based sediment remedial goal could not be determined because sediment concentrations did not correlate with their resulting hazard quotients in the food chain models. Therefore, for these contaminants, somce control is recommended at a minimum to minimize risk to the assessment endpoints evaluated in this risk assessment.

A note should be made about the site-relatedness of selenium and PCBs. When the extent of contamination was evaluated, it became evident dhat other sources, in addition to die Cornell-Dubllier Electronics site, probably exist for these two contanuinants. In die case of PCBs, dis is evidem because PCBs were detected in fish collected from Spring Lake (Figure 3 and Table 37). Since it is unhkely that fish could migrate upstream from die Bound Brook into Spring Lake due to die existence of a high retaining wall (spillway) at the downstream end of dte lake, it is evident dhat anodier somce of PCBs probably exists upstream of Spring Lake. Nonedieless, the Comell-Dubllier Electronics site appears to be a significant somce of PCBs due to the high PCB concentrations detected in the sediment samples collected adjacent to die site (location A1) and die rapid decrease in PCB concentrations at locations further downstream of die site.

Widi regard to selenium, die reference area (A9) contained a mean sedunent concentration of 1.8 mg/kg, dry weight, of selenium, which is greater than die mean sedunent concentrations at both locations A4 and A5, where a risk from selenium (above the LOAEL) was calculated. Therefore, an additional source of selenium potentially exists along the Bound Brook upstream of die Comell-Dubiller Electroiucs site. Nonedieless, the Comell-Dubllier Electronics site may also be a potential somce of selenium because the concentrations of selenium detected in die samples collected adjacent to (location A1) and inmaedlately downstream of (locations A2 and A3) the site are greater than the concentrations detected at dte reference (location A9). Titen, dte sediment selenium concentrations generally decrease fiurther downstream of location A3, aldiough this effect is not nearly as pronounced as it is for PCBs.

Since no sediment remedial goal could be esteblished for either of these contaminants, and since die Comell-Dubiller Electronics site appears to be a significant somce of PCBs and a potential somce of selenium, dis risk assessment indicates that source control of PCBs and selenium at the Comell-Dubiller Electronics site should be unplemented at a mimmum to decrease dte risk posed by PCBs and selenium to the assessment endpoints evaluated in this risk assessment.

6.0 PRESENTATION OF EDIBLE FISH DATA FOR THE ASSESSMENT OF RISK TO HUMAN HEALTH

6.1 Project Scope

The objective of this phase of die project was to collect fish tissue date relevant to human healdi evaluations for dte Bound Brook adjacent to and downstream of die Comell-Dubiller Electronics site. A reference stetion was esteblished upstream of the site that exhibited sunilar habitet as tie potentially impacted areas. Sample stetions were selected based on sunilar habitet between sample stetions. The

fish were analyzed for target compound list (TCL) pesticides/PCBs and target analyte list (TAL) metals. Both bottom feeding and predatory fish species were collected and analyzed for chemical contaminants. The results were provided to the U.S. EPA Region II for the purposes of human health exposure evaluation. The results of the metals analyses of fish tissue are discussed in Section 3.3.8.1 for Phase II date and 3.4.2.1 for Phase III date, and are not included as part of the results for the human health evaluation.

6.2 Fish Collection

Fish were collected in conjunction with U.S. EPA Region II from a total of twelve locations from the Bound Brook, New Market Pond, and Spring Lake using electrofishing techniques (Figures 3 and 4). The objective of the sampling was to collect edible-sized bottom feeding fish (carp and white suckers) and predatory fish (smfish, bidlhead, and largemouth bass) of similar size between the sample locations. A maximum of three fish were collected of each species from each location bm not all species were collected at all locations (e.g., bullhead were only collected at A5, A11, A12, and A14).

The sampling crew taxonomically identified the fish, measured the length and weight of the fish, and performed a gross pathology evaluation. The fish were prepared following the U.S. EPA Guidance for Assessing Chemical Contaminant Date for Use in Fish Advisories (1993a). Fish were scaled prior to filleting (for catfish, the skin was removed prior to analysis). Each fillet sample represented a single fish; no sample compositing was required to meet analytical mass requirements. The fillets were weighed, then wrapped in aluminum foil, placed in a plastic bag, and frozen. Fish were delivered to the REAC Biological Assessment Laboratory in Edison, NJ for chemical analysis. Fish tissue was analyzed for TAL metals, TCL pesticides and PCBs, percent lipids, and percent moisture. The data will be used by Region II U.S. EPA for a human health risk assessment.

6.3 Results

Edible fish were collected from ten locations adjacent to and downstream of the Cornell-Dubilier Electronics site, as well as from an upstream reference area and from Spring Lake (Figmes 2 and 3). Complete analytical results are included in Appendix C, Final Analytical Report. Tables 78 and 79 provide summary statistics (mean, coefficient of variability [cv], minimum, and maximum) for each compound in each species at each location for PCBs and pesticides, respectively.

6.3.1 Polychlorinated Biphenyls

Aroclors 1248 and 1254 were detected in all fillet samples in all species (Table 28 for Phase II data and Table 37 for Phase III data). Generally, Aroclor 1254 was detected at higher concentrations than Aroclor 1248. For the purposes of the human health evaluation, the U.S. EPA (1993a) recommends that PCBs be reported as the sum of all Aroclors analyzed, with a value of one-half the detection limit assigned to those Aroclors not detected. For this study, total PCBs represents the sum of Aroclor 1248 and 1254 only, and does not include the addition of the other Aroclors that were not detected.

The results (mg/kg, wet weight) indicate that the highest PCB concentrations are located in the length of the Bound Brook that extends from the reference area downstream to New Market Pond. The mean total PCB concentrations in white sucker fillet ranged from 3.9 to 9.5 mg/kg, wet weight. White sucker were also collected from Spring Lake, and downstream of New Market Pond to the Raritan River. The mean concentrations of total PCBs in white sucker for the locations in this length of the Bound Brook ranged from 0.4 to 2.0 mg/kg, wet weight. The same trend is noted for the mean PCB concentrations in pumpkinseed. The mean total PCB concentrations in fillets from pumpkinseeds collected from the reference area downstream to New Market Pond ranged from 1.9 to 5.5 mg/kg, wet weight. The mean total PCB concentrations in fillets from pumpkinseeds collected

downstream of New Market Pond to the Raritan River ranged from 0.2 to 0.9 mg/kg, wet weight.

No trends were apparem for largemouth bass and bullhead due to the llmited number of samples collected from each location.

The concentrations of total PCBs in carp do not follow tite same trend as the pumpkinseed and white sucker. The lowest concentration of PCBs were noted in carp collected from the Reference Area (A9) and from Spring Lake (A10). Bodı of diese locations are up gradient of dte site. The higltest mean concentrations of total PCBs in carp fillet were detected in die fish collected from New Market Pond, locations A5 and A6, (22 to 24 mg/kg, wet weight) and from two of the downstream locations, locations A12 and A13, (27 to 31 mg/kg, wet weight).

6.3.2 Pesticides

Nine pesticides (heptechlor epoxide, g-chlordane, a-chlordane, p, p'-DDE, p, p'-DDD, endrin, endrin aldehyde, dteldrin, and medıoxychlor) were detected in die edible fish samples (Table 28 for Phase II date and Table 37 for Phase III date). Methoxychlor was mostiy llkely a laboratory contaminant since it was detected in dte laboratory blanks and in only one sample at a concentıation near tie detection llnit.

The compound 4,4'-DDE was dte most frequendy detected pesticide found in the fish fillets. Approximately 85 percent of the fish captured contained detecteble levels of this pesticide. However, there are no distinct trends among species with the exception that carp contained dte highest concentrations compared to the otıer species collected. When die mean concentrations of 4,4'-DDE were calculated for each location across all species, trends among die locations were observed. The mean 4,4'-DDE concentration in edible fish tissue was low at dte two locations up gradiem of the site (A9 and A10), increased toward locations A1 and A2, and drastically decreased toward location A5. The mean 4,4'-DDE tissue concentıation dıen increased again at location A6 (the upstream New Market Pond location) and gradually decreased from there toward location A14. Heptechlor epoxide was detected most frequendy in die samples collected from die reference area downstream to New Market Pond (85 percent). The frequency of detection of dus pesticide drops below New Market Pond and heptachlor epoxide is only detected in one pumpkinseed collected at location A12. This pesticide was detected in five of die eleven fish collected from Spring Lake.

Chlordane was detected in samples collected both upstream and downstream of New Market Pond. However, dus pesticide was only detected in white sucker, carp, and catfish. It should be noted diat technical grade chlordane was detected in three carp and dıree white suckers collected from Spring Lake. Technical grade chlordane is defined as die presence of bodı a-chloıdane and g-chlordane. It should also be noted that dieldrin was only detected in fom fish, and diese fish were captmed in Spring Lake.

Endrin aldehyde was only detected in largemouth bass, carp, white sucker, and pumpkinseed collected from New Market Pond. Endrin was only detected in one carp collected from die Bound Brook (A12) downstream of New Market Pond.

6.4 Discussion

In general, die highest PCB and pesticide concentıations were found in die carp, followed by white sucker, pumpkinseed, and largemoudı bass. The concentıations of these compounds may be llnked to die percent llpids in each of these species. A review of die llpid content indicates tiat carp have tie highest llpid content (25 percent) followed by white sucker (11 percent), bullhead (6 percent),

pumpkinseed (5 percent), and largemouth bass (3 percem). Organochlorine pesticides are usually insoluble in water bm are very soluble in llpids. This allows these compounds to be stored in latty tissue, widi die higher concentrations found in those species with a higher llpid content.

With the exception of carp, die highest PCB concentrations were noted in the fish collected in die Bound Brook from die reference area downstream to New Market Pond, indicating that the Comell-Dubtlier Electronics site is a significant source of PCBs in the Bound Brook. On the other hand, the concentration of PCBs were higher in carp collected downstream of New Market Pond. This may be due to several factors. The size (and therefore die age) of the fish may play an unportant role in die accumulation of organochlorine pesticides and PCBs. The older the fish, the longer tne exposme duration and the higher the concentration that may accumulate in the tissue. The carp collected below New Market Pond were larger dian diose collected upstream of New Market Pond. Anodier potential explanation for why PCBs in carp were higher in fish collected downstream of New Market Pond is that there may be anodier somce of PCBs, in addition to die Comell-Dubilier Electronics site, downstream of New Market Pond. This does not appear hkely, however, because of die low levels of PCBs found in die other fish species collected below New Market Pond. Anodier explanation is dat dere were a hmited number of carp collected. The limited number of fish allows for a wide range in the standard deviation, and there is some overlap with the concentrations of PCBs detected in fish titroughom the extent of the fish sampling effort.

Of particular note is die presence of PCBs and many pesticides in the fish coliected from Spring Lake. Since dis lake receives water from a different drainage, it appears as if anodier somce, in addition to the Comell-Dubiller Electronics site, may be contributing to die contamination within the Bound Brook. Neverdheless, the Comell-Dubilier Electronics site appears to be a significant somce of PCBs detected in the edible fish tissue collected from die Bound Brook downstream of the site.

7.0 OVERALL CONCLUSIONS

7.1 Natme and Extent of Contamination

When the natme and extent of contamination were evaluated in dis smdy, two overall conclusions were drawn:

- Many contaminants are present at relatively high levels adjacent to and/or unmediately down gradiem of the site. These concentrations progressively decrease toward location A14, near tne confluence of tiie Green Brook and the Raritan River, widi the exception of a sharp increase eidher immediately upstream of New Market Poml or within New Market Pond. The increase in concentrations of many contemmants immediately upstream or widun New Market Pond may be die result of a slower rate of flow, resulting in greater deposition of particles onto which the contaminants are adsorbed. Regardless, dte high concentrations adjacent to and dfrectiy downstream of the Comell-Dubilier Electronics site indicate that die site is die primary source of many of the contaminants of concem widhin die section of die Bound Brook corridor investigated for this smdy.

- The presence of contaminants up gradient of the site (at the reference and in Spring Lake) suggest that, in addition to the Comell-Dubilier Electronics site, other sources of contamination exist widun die Bound Brook stream corridor.

7.2 Ecological Risk Assessment

The results of the ecological risk assessment resulted in die foliowing overali conclusions:

- The stmeture and finction of die communities within dte Bound Brook and its stream corridor adjacem to and downstream of die Comell-Dubilier Electronics site are at risk from chenical

contanination. Ffrst, a risk is posed to the bemhic community and is potentially due to a variety of VOCs and BNAs, stiver, catehm, copper, vanadium, zinc, and dieldrin. The fish widin dte stream were deteriniited to be at risk from exposure to selenium and PCBs; the risk posed to fish by dte other bioaccumidative COPCs could not be determined. Bfrds utllizing dte stream were deteimined to be at risk from lead, PCBs, total endrin, total chlordane, and totel DDT. A risk to omnivorous mammals using dte stream was found to be posed by medioxychlor, arsenic, mercury, PCBs and selenium. Finally, a risk to carnivorous mammals was also fouud to be posed by PCBs.

- Of the contaminants determined to pose a risk to the assessment endpoints evaluated in the risk assessment, dhe most significant risk is posed by those contanuinants that resulted in a hazard quotiem greater dhan one usimg dhe mean contaminant concentrations and the LOAEL in the food chain models. This occurred for PCBs usimg the omnivorous mammal and piscivorus bfrd models and for selenium usimg the omnivorous mammal model. However, for these two contaminants, a prellminary ecotoxicologically-based sediment remedial goal could not be determined because thefr sediment concentrations did not correlate widh dhefr resultimg hazard quotients in tihe food chain models. In addition, it is probable dhat other sources, in addition to dhe Comell-Dubiller Electronics site, exist and are contributing to dhe risk posed by dhese two contaminants. Therefore, source control at dhe Comell- Dubiller site is recommended at a minimum to decrease risk to the assessment endpoints evaluated in dhe risk assessment.

7.3 Presentetion of Date for Human Healdh

- In general, the highest PCB and pesticide concentrations were found in the carp, followed by white sucker, pumpkinseed, and largemouth bass. The concentrations of these compounds may be llnked to the percent llpids in each of dhese species.

- Widh dhe exception of carp, the highest PCB concentiations were noted in the fish collected in the Bound Brook from the reference area downstream to New Market Pond. The concentration of PCBs was higher in carp collected downstream of New Market Pond. This is most likely due to the large size (and dherefore age) of the carp collected below New Market Pond and the llmited number of carp collected, resulting in high variabllity in dhe date.

- Of particular note is dhe presence of PCBs and many pesticides in the fish collected from Spring Lake. Since dhis lake receives water from a different drainage, it appears as if anodher source, in addition to dhe Comell-Dubiller Electronics site, may be contributing to the contamination widin dhe Bound Brook. Nevertheless, dhe Comell-Dubllier Electronics site appears to be a significam source of PCBs detected in dhe edible fish tissue collected from dhe Bound Brook downstream of dhe site.

REFERENCES

Bamdhouse, L.W., et al. 1986. *User's Manual for Ecological Risk Assessment.* Publication Number 2679, ORNL-6251. Environmental Services Division, Oak Ridge National Laboratory, Oak Ridge, TN.

U.S. EPA. 1992. *Stream Bioassessment, Green Brook Drainage, New Jersey.* U.S. EPA Region II Ambient Monitoring Section. Environmental Services Division. New York, New York.

U.S. EPA. 1993a. *Guidance for Assessing Chemical Contaminant Data for Use in Fish Advisories, v.1. Fish Sampling and Analysis.* EPA/823-R-93/002. August 1993.

U.S. EPA. 1993b. *Stream Bioassessment, Bound Brook, New Jersey - [Fish].* U.S. EPA Region II Ambient Monitoring Section. Environmental Services Division. New York, New York.

U.S. EPA. 1993c. *Stream Bioassessment, Bound Brook, New Jersey - [Macroinvertebrates].* U.S. EPA Region II Ambient Monitoring Section. Environmental Services Division. New York, New York.

U.S. EPA. 1995. *Revised Region III BTAG Screening Levels.* U.S. EPA Region III BTAG. Technical Support Section. Philadelphia, PA.

U.S. EPA. 1996. *Screening Level Ecological Risk Assessment for Comell-Dubilier.* U.S. EPA Region II. Surveillance and Monitoring Branch. 7 pp.

U.S. EPA. 1997a. *Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments, Interim Final.* EPA 540/R-97/006. OSWER 9285.7-25, PB97-963211. June 1997.

U.S. EPA. 1997b. *Removal Site Evalimtion for the Comell-Dubilier Electronics Site (AKA: Hamihon Industrial Park), South Plainfield, Middlesex County, New Jersey.* U.S. EPA Region E. 21 pp.

U.S. EPA. 1997c. *Bound Brook Sampling and Edible Fish Tissue Data Report, Comell-Dubilier Electronics Site, South Plainfield, NJ.* U.S. EPA Office of Emergency and Remedial Response. 9 pp.

U.S. EPA. 1997d. *Final Work Plan, Cornell-Dubilier Electronics Site, South Plainfield, NJ.* 36 pp.

Tables

TABLE 1A
Summary of Parameters Evaluated and Number of Replicates by Sample Type and Location for Aquatic Samples
Cornell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

	PHASE II, 16 - 20 June 1997* and 27 June 1997**								PHASE III, 7 August 1997				
	A1	A2	A3	A4	AS	A6	A7	A9	A10	A11	A12	A13	A14
Matrix and Parameter	Site	Veterans Memorial Park	Clinton Ave. Bridge	New Brunswick Ave. Bridge	East New Market Pond	West New Market Pond	Spillway	Upstream Reference	Spring Lake	Spillway	Prospect St. Bridge	South Ave. Bridge	Lincoln Blvd. Bridge
Surface Water													
Water Quality	1	1	1	1	1	1	1	1					
TCL VOCs	1	1	1	1	1	1	1	1					
TCL BNAs	1	1	1	1	1	1	1	1					
TAL Metals (Unfilitered)	1	1	1	1	1	1	1	1					
TAL Metals (Filtered)	1	1	1	1	1	1	1	1					
TCL Pesticides/PCBs	1	1	1	1	1	1	1	1					
Sediments													
TCL VOCs	6	2	2	2	2	2	1	2	2	2	2	1	2
TCL BNAs	6	2	2	2	2	2	1	2	2	2	2	1	2
TAL Metals	6	2	2	2	2	2	1	2	2	2	2	1	2
TCL Pesticides/PCBs	6	2	2	2	2	2	1	2	2	2	2	1	2
Ammonia	1	1	1	1	1	1		1					
Total Petroleum Hydrocarbons	1	1	1	1	1	1		1					
Grain Size	6	2	2	2	2	2	1	2	2	2	2	2	2
Total Organic Carbon	6	2	2	2	2	2	1	2	2	2	2	2	2
Amphipod Toxicity	1	1	1	1	1	1		1					
Crayfish													
TCL BNAs	2	1	3	2	3			4					
Metals	2	6	11	4	3			10					
Pesticides/PCBs	2	6	11	4	3			10					
Forage Fish													
TAL Metals	6	5	6	7	7	6		S					
TCL Pesticides/PCBs	6	5	6	7	7	6		5					
Edible Fish (Fillets)													
TAL Metals													
Carp	3				(1)	3		3	3	3	3	1	
White Sucker	3	3	3		(3)			3	3	3	3	3	3
Pumpkin Seed	3	2	3	3	(3)	3			2	3	3	2	2
Bass					(3)	(3)			3	3	2	2	1
Catfish					(1)					3	1		1
TCL Pesticides/PCBs													
Carp	3				1	3		3	3	3	3	1	
White Sucker	3	3	3		3			3	3	3	3	3	3
Pumpkin Seed	3	2	3	3	3	3			2	3	3	2	2
Bass					3	3			3	3	2	2	1
Catfish										3	1		1

*All samples except for surface water samples.
**Surface water samples only.

TABLE 1B
Summary of Parameters Evaluated and Number of Replicates by Sample Type and Location for Terrestrial Samples
Comell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

Matrix and Parameter	PHASE II, 16 - 20 June 1997			
	T1	T2	T3	T4
	Site	Veteran Memorial Park	New Brunswick Road	Reference Area
Soils				
TCL VOCs	8	6	6	6
TCL BNAs	8	6	6	6
TAL Metals	8	6	6	6
TCL Pesticides/PCBs	8	6	6	6
Grain Size	8	6	6	6
Total Organic Carbon	8	6	6	6
Mammals				
TCL Pesticides/PCBs	10	7	8	8

TABLE 2
Results of Water Quality Data - PHASE II
Comell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

Location	pH (units)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (° C)	Salinity (ppt)
A1	7.7	0.513	16	6.37	26.7	0.02
A2	7.7	0.640	2	6.13	25.7	0.02
A3	7.6	0.616	0	5.92	25.3	0.02
A4	7.4	0.597	0	2.54	24.0	0.02
A5	7.5	0.574	4	3.76	27.0	0.02
A6	8.5	0.406	30	10.15	27.7	0.01
A7	8.1	0.406	25	7.60	28.8	0.01
A9	7.7	0.518	10	6.25	23.6	0.02

mS/cm = millisiemens per centimeter
NTU = Nephelometric Turbidity Units
mg/L = milligrams per liter
° C = degrees Celsius
ppt = parts per thousand

TABLE 3
Results of Volatile Organic Compound Concentrations in Water - PHASE II
Cornell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

(Results reported in mg/L)

Compound	A1 1001	A2 1002	A3 1003	A4 1004	A5 1005	A6 1006	A7 1007	A9 1008
Methyl tert butyl ether	0.002 J	ND	ND	ND	ND	ND	ND	0.001 J
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	0.002 J	0.001 J	ND	ND
cis-1,2-Dichloroethene	ND	ND	ND	ND	0.003 J	0.002 J	ND	ND
trans-1,2-Dichloroethene	ND	ND	ND	ND	0.001 J	0.001 J	ND	ND
Trichloroethene	ND	ND	ND	ND	0.005	0.004 J	ND	ND

All samples collected on 6/27/97
mg/L = milligrams per liter
ND indicates below quantitation limit
J indicates value is estimated

TABLE 4
Results of Base, Neutral, and Acid Extractable Compound Concentrations in Surface Water - PHASE II
Cornell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

(Results reported in mg/L)

Compound	A1 1001	A2 1002	A3 1003	A4 1004	A5 1005	A6 1006	A7 1007	A9 1008
bis(2-ethylhexyl)phthalate	ND	ND	ND	ND	ND	0.001 J	ND	ND
di-n-Butylphthalate	ND	ND	ND	ND	ND	0.001 J	ND	ND
Diethylphthalate	ND	ND	ND	ND	ND	0.001 J	ND	ND

All samples collected on 6/27/97
mg/L = milligrams per liter
ND indicates below quantitation limit
J indicates value is estimated

TABLE 5
Results of Metal Concentrations in Filtered Surface Water - PHASE II
Comell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

(Results reported in mg/L)

Analyte	A1 1001	A2 1002	A3 1003	A4 1004	A5 1005	A6 1006	A7 1007	A9 1008
Aluminum	0.081	ND	ND	ND	ND	ND	ND	ND
Barium	0.12	0.11	0.11	0.11	0.11	0.08	0.08	0.14
Calcium	53	86	79	72	66	48	46	58
Chromium	ND	ND	0.002	ND	ND	ND	ND	ND
Copper	ND	0.004	ND	ND	ND	ND	0.003	0.004
Iron	0.10 J	0.060 J	0.096 J	0.06 J	0.08 J	0.05 J	0.07 J	0.06 J
Potassium	2.5	2.6	2.5	2.6	2.5	2.5	2.4	2.6
Magnesium	10	14	13	12	11	9	8	11
Manganese	0.26	0.18	0.21	0.32	0.28	0.01	0.01 J	0.2
Sodium	26	28	26	25	24	22	21	27
Nickel	0.02 J	0.02 J	0.02 J	0.02 J	0.01 J	0.02 J	0.02 J	0.03 J
Lead	0.003 J	0.002 J	0.002 J	0.002 J	ND	ND	0.002 J	0.004 J
Vanadium	0.002	0.003	0.003	0.002	0.002	0.003	0.003	0.002
Zinc	0.03 J	0.01 J	0.01 J	0.02 J	0.03 J	0.01 J	0.01 J	0.03 J

All samples colllected on 6/27/97
mg/L = milligrams per liter
ND indicates below quantitation limit
J indicates value is estimated

TABLE 6
Results of Metal Concentrations in Unfiltered Surface Water - PHASE II
Cornell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

(Results reported in mg/L)

Analyte	A1 1001	A2 1002	A3 1003	A4 1004	A5 1005	A6 1006	A7 1007	A9 1008
Aluminum	0.36	0.16	ND	0.31	0.19	0.11	0.14	0.43
Barium	0.14	0.11	0.11	0.11	0.11	0.09	0.08	0.15
Calcium	59	79	80	70	64	48	44	61
Chromium	ND	ND	ND	ND	ND	ND	ND	0.00
Copper	0.004	0.004	ND	0.005	ND	0.004	0.004	0.02
Iron	0.93 J	0.33 J	0.23 J	0.78 J	0.36 J	0.31 J	0.34 J	0.7 J
Potassium	3	3	3	3	2	3	2	3
Magnesium	11	12	13	12	11	9	8	12
Manganese	0	0	0	0	0	0	0	0
Sodium	29	26	27	25	23	22	20	28
Nickel	0.004	0.002	ND	0.002	0.001	ND	0.001	0.00
Lead	0.006 J	0.003 J	0.005 J	0.01 J	0.002 J	0.003 J	0.003 J	0.01 J
Vanadium	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.00
Zinc	0.03 J	0.02 J	0.02 J	0.08 J	0.06 J	0.02 J	0.02 J	0.03 J

All samples collected on 6/27/97
mg/L = milligrams per liter
ND indicates below quantitation limit
J indicates value is estimated

TABLE 7
Results of Volatile Organic Compound Concentrations in Sediment - PHASE II
Cornell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

(Results reported in mg/kg, dry weight)

Sample Location	Sample Number	Sample Collected	1,1,1-Trichloroethane	Chloroethane	Chloromethane	Methylene Chloride	2-Hexanone	Acetone
A1-1	10486	06/18/97	ND	ND	ND	0.06 JB	ND	0.73 J
A1-2	10487	06/18/97	ND	ND	ND	ND	ND	2 J
A1-3	10488	06/18/97	ND	ND	ND	ND	ND	3.6 J
A1-4	10489	06/18/97	ND	ND	ND	ND	ND	0.87 J
A1-5	10490	06/18/97	ND	ND	ND	0.01 J	ND	0.35 J
A1-6	10491	06/18/97	ND	ND	ND	0.03 J	ND	0.68 J
A2-1	10492	06/19/97	ND	ND	ND	ND	ND	0.69 J
A2-2	10493	06/19/97	ND	ND	ND	ND	ND	1.1 J
A3-1	10264	06/20/97	ND	ND	0.07 J	0.08 JB	ND	7.7 J
A3-2	10267	06/20/97	ND	ND	ND	0.07 JB	ND	4.6 J
A4-1	10494	06/19/97	0.02 J	0.03 J	0.13	0.02 J	0.05 J	1.9 J
A4-2	10495	06/19/97	ND	ND	ND	0.01 J	ND	0.83 J
A5-1	10496	06/19/97	ND	ND	ND	0.01 J	ND	0.45 J
A5-2	10497	06/19/97	ND	ND	ND	0.01 J	ND	0.86 J
A6-1	10498	06/19/97	ND	ND	ND	0.03 J	ND	2.3 J
A6-2	10262	06/19/97	ND	ND	ND	ND	ND	3 J
A7-1	10263	06/19/97	ND	ND	ND	ND	ND	0.44
A9-1	10265	06/20/97	ND	ND	ND	0.05 JB	ND	3.1 J
A9-2	10266	06/20/97	ND	ND	ND	0.05 JB	ND	1.8 J

mg/kg = milligrams per kilogram
ND indicates below quantitation limit
J indicates value is estimated
B indicates compound was detected in the blank

TABLE 7 (Cont'd.)
Results of Volatile Organic Compound Concentrations in Sediment - PHASE II
Cornell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

(Results reported in mg/kg, dry weight)

Sample Location	Sample Number	Sample Collected	Toluene	Carbon Disulfide	p-Isopropyltoluene	n-Butylbenzene	Naphthalene	1,2,3-Trichlorobenzene
A1-1	10486	06/18/97	ND	ND	ND	ND	ND	ND
A1-2	10487	06/18/97	0.04 J	ND	ND	ND	0.02 J	0.02 J
A1-3	10488	06/18/97	1.9 J	ND	ND	0.03 J	ND	ND
A1-4	10489	06/18/97	ND	ND	ND	ND	ND	ND
A1-5	10490	06/18/97	ND	ND	ND	ND	ND	ND
A1-6	10491	06/18/97	ND	ND	ND	ND	ND	ND
A2-1	10492	06/19/97	ND	ND	ND	ND	ND	ND
A2-2	10493	06/19/97	ND	ND	0.08 J	ND	ND	ND
A3-1	10264	06/20/97	0.02 J	0.03 J	ND	ND	ND	ND
A3-2	10267	06/20/97	0.07 J	ND	ND	ND	ND	ND
A4-1	10494	06/19/97	ND	ND	ND	ND	ND	ND
A4-2	10495	06/19/97	ND	ND	ND	ND	ND	ND
A5-1	10496	06/19/97	ND	ND	ND	ND	ND	ND
A5-2	10497	06/19/97	ND	ND	ND	ND	ND	ND
A6-1	10498	06/19/97	ND	ND	ND	ND	ND	ND
A6-2	10262	06/19/97	ND	ND	ND	ND	ND	ND
A7-1	10263	06/19/97	0.02 J	ND	ND	ND	ND	ND
A9-1	10265	06/20/97	ND	ND	ND	ND	ND	ND
A9-2	10266	06/20/97	0.07	ND	ND	ND	ND	ND

mg/kg = milligrams per kilogram
ND indicates below quantitation limit
J indicates value is estimated

TABLE 8
Results of Base, Neutral and Acid Extractable Compound Concentrations in Sediment - PHASE II
Cornell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

(Results reported in mg/kg, dry weight)

Sample Location Sample Number Sample Collected	A1-1 10486 06/18/97	A1-2 10487 06/18/97	A1-3 10488 06/18/97	A1-4 10489 06/18/97	A1-5 10490 06/18/97	A1-6 10491 06/18/97	A2-1 10492 06/19/97	A2-2 10493 06/19/97	A3-1 10264 06/20/97	A3-2 10267 06/20/97
3 & 4 Methylphenol	ND	ND	37	ND	2.6	0.57 J	ND	ND	ND	13
Benzoic acid	ND	0.48 J	ND	ND	0.35 J	ND	0.57 J	0.5 J	ND	ND
Naphthalene	ND	ND	ND	ND	ND	ND	0.23 J	ND	ND	ND
Acenapthylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	ND	0.47 J	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibenzofuran	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzidine	11	10	14	14	9.2	5.4	20	18	28 J	23 J
Phenanthrene	1.2 J	1.1 J	1.4 J	1.6 J	0.86 J	0.51 J	1.9 J	2.2 J	2.9 J	2.3 J
Anthracene	ND	ND	ND	0.34 J	ND	ND	0.38 J	0.38 J	0.53 J	0.36 J
Fluoranthene	2 J	2.1 J	2.7 J	2.3 J	1.7 J	0.88 J	3.2	3.6	6.2	4.9
Pyrene	2.6	2.2 J	3.4 J	2.8	2 J	1.2 J	4	4.1	5.9	4.2
Butyl benzyl phthalate	11	6.6	2.8 J	14	2.5 J	3.7	1.9 J	3.2	2.7 J	ND
Benzo(a)anthracene	1.5 J	1 J	1.6 J	1.4 J	0.86 J	0.57 J	2.5	2.3 J	3.3 J	2.3 J
Chrysene	1.4 J	1.7 J	2 J	1.5 J	1.4 J	0.69 J	2.9 J	2.5 J	3.6 J	2.7 J
Bis(2-ethylhexyl)phthalate	86 B	43 J	33 B	170 B	17 J	90 B	11 J	18 B	38 B	18 B
Di-n-octyl phthalate	13	9.8	6.2	17	4.1	9.1	4	2.7 J	35	4.1
Benzo(b)fluoranthene	2.7	2.8 J	3.1 J	2.9	2 J	1.1 J	4.2	3.5	6.1	4.6
Benzo(k)fluoranthene	0.71 J	0.77 J	0.71 J	ND	0.54 J	0.29 J	1.2 J	1.1 J	ND	ND
Benzo(a)pyrene	1.5 J	1.6 J	ND	1.4 J	1.2 J	0.63 J	2.5	2.2 J	3.2 J	2.3 J
Indeno(1,2,3-c,d)pyrene	0.93 J	0.97 J	1.1 J	0.62 J	0.71 J	0.43 J	1.4 J	1.5 J	2.1 J	1.6 J
Benzo(ghi)perylene	0.97 J	0.99 J	1.3 J	0.73 J	0.83 J	0.45 J	1.5 J	1.6 J	2.3 J	1.8 J
Total BNAs*	51	43	77	61	31	26	52	49	100	67

mg/kg = milligrams per kilogram
ND indicates below quantitation limit
J indicates value is estimated
B indicates compound was detected in the blank
*Total BNA calculation does not include bis(2-ethylhexyl)phthalate since it was detected in the laboratory blanks and is a common laboratory contaminant.

TABLE 9.1 (Cont'd.)
Results of Metal Concentrations in Sediment (dry weight) - PHASE II
Cornell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

(Results reported in mg/kg, dry weight)

Sample Location	Sample Number	Sample Collected	% Solids	Potassium	Magnesium	Manganese	Sodium	Nickel	Lead	Antimony	Selenium	Thallium	Vanadium	Zinc
A1-1	10486	06/18/97	42	1,200	4,500	770	360	41	250	2.5	3.3	ND	45	450
A1-2	10487	06/18/97	33	1,300	5,600	420	430	52	340	3.2	3.7	ND	58	580
A1-3	10488	06/18/97	27	1,200	5,400	1100	480	49	270	3.5	3.8	ND	56	630
A1-4	10489	06/18/97	40	530	2,700	540	270	26	170	1.7	1.9	ND	27	330
A1-5	10490	06/18/97	39	920	4,700	570	420	43	280	2.3	3.6	ND	49	560
A1-6	10491	06/18/97	46	510	2,100	370	230	20	140	1.8	1.6	ND	23	240
A2-1	10492	06/19/97	47	520	2,300	460	220	22	160	1.1	1.7	ND	25	270
A2-2	10493	06/19/97	32	800	3,900	1000	430	37	250	1.9	3.3	ND	46	460
A3-1	10264	06/20/97	24	1,000	4,200	490	430	42	250	2.9	3.3	ND	52	590
A3-2	10267	06/20/97	29	790	3,600	500	360	34	200	2.6	2.6	ND	40	460
A4-1	10494	06/18/97	42	450	2,500	450	280	22	350	1.8	1.8	ND	31	300
A4-2	10495	06/19/97	69	260	910	66	82	6.8	37	0.38	0.63	ND	8.9	63
A5-1	10496	06/19/97	64	440	1,600	120	81	11	42	0.62	0.71	ND	10	99
A5-2	10497	06/19/97	75	730	2,600	120	120	14	13	0.77	0.98	ND	28	52
A6-1	10498	06/19/97	25	1,100	5,100	500	430	51	290	2.7	3.8	ND	51	670
A6-2	10262	06/19/97	20	980	3,300	390	410	50	200	2.6	3.7	ND	39	510
A7-1	10263	06/19/97	68	660	2,500	430	220	16	120	1.1	1	ND	14	170
A9-1	10265	06/20/97	46	840	2,800	680	230	32	230	1.5	1.8	ND	32	250
A9-2	10266	06/20/97	39	790	2,900	510	240	33	140	1.3	1.7	ND	32	250

mg/kg = milligrams per kilogram
ND indicates below quantitation limit

TABLE 9.2
Results of Metal Concentrations in Sediment (wet weight) - PHASE II
Cornell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

(Results reported in mg/kg, wet weight)

Sample Location	Sample Number	Sample Collected	% Solids	Mercury	Silver	Aluminum	Arsenic	Barium	Beryllium	Calcium	Cadmium	Cobalt	Chromium	Copper	iron
A1-1	10486	06/18/97	42	0.13	1.6	6,900	4.2	120	0.42	2,600	8.4	5.5	18	46	11,000
A1-2	10487	06/18/97	33	0.13	1.9	5,600	3.6	120	0.4	2,100	7.6	5	18	50	11,000
A1-3	10488	06/18/97	27	0.08	1.5	3,800	3.5	110	0.3	1,900	5.7	4.1	13	35	9,700
A1-4	10489	06/18/97	40	0.09	1.1	2,800	2.7	72	0.26	1,900	6	3.2	10	31	6,400
A1-5	10490	06/18/97	39	0.13	1.8	5,100	5.1	140	0.37	2,300	7.8	5.1	18	47	12,000
A1-6	10491	06/18/97	46	0.03	0.83	2,900	2.6	74	0.35	1,400	4.4	3.2	9.7	26	6,000
A2-1	10492	06/19/97	47	0.12	2.4	3,500	2.6	66	0.25	1,500	3.5	3.3	17	37	6,600
A2-2	10493	06/19/97	32	0.11	1.3	3,500	3.8	83	0.27	2,000	3.8	3.8	17	42	8,000
A3-1	10264	06/20/97	24	0.06	2.6	2,900	2.9	55	0.23	1,700	3.8	3.6	15	41	6,000
A3-2	10267	06/20/97	29	0.10	3.2	2,900	2.5	61	0.2	1,400	3.8	3.2	14	38	6,100
A4-1	10494	06/18/97	42	0.16	1.8	3,400	2.8	59	0.23	1,400	2.7	2.7	15	42	6,300
A4-2	10495	06/19/97	69	ND	0.09	1,700	0.83	16	0.14	510	0.46	1.4	4.4	6.9	5,000
A5-1	10496	06/19/97	64	0.12	0.35	2,500	1.1	29	0.19	590	1.4	3.1	9	12	5,400
A5-2	10497	06/19/97	75	0.22	ND	7,100	0.98	38	0.26	980	0.67	3.8	14	4.8	13,000
A6-1	10498	06/19/97	25	0.23	2.8	3,800	3.3	63	0.28	1,700	4.3	4	17	55	7,000
A6-2	10262	06/19/97	20	0.06	0.92	2,200	2.2	40	0.16	940	2.4	4.2	16	28	4,400
A7-1	10263	06/19/97	68	0.06	0.26	2,800	2.8	75	0.19	2,400	1.4	4.6	15	18	9,500
A9-1	10265	06/20/97	46	0.16	2.3	4,100	2.9	100	0.31	1,600	6	4.1	16	35	8,300
A9-2	10266	06/20/97	39	0.10	1.1	3,400	2.1	100	0.27	1,500	3.6	3.5	14	25	6,600

mg/kg = milligrams per kilogram
ND indicates below quantitation limit

TABLE 9.2 (Cont'd.)
Results of Metal Concentrations in Sediment (wet weight) - PHASE II
Comell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

(Results reported in mg/kg, wet weight)

Sample Location	Sample Number	Sample Collected	% Solids	Potassium	Magnesium	Manganese	Sodium	Nickel	Lead	Antimony	Selenium	Thallium	Vanadium	Zinc
A1-1	10486	06/18/97	42	500	1,900	320	150	17	110	1.1	1.4	ND	19	190
A1-2	10487	06/18/97	33	430	1,800	140	140	17	110	1.1	1.2	ND	19	190
A1-3	10488	06/18/97	27	320	1,500	300	130	13	73	0.95	1	ND	15	170
A1-4	10489	06/18/97	40	210	1,100	220	110	10	68	0.68	0.76	ND	11	130
A1-5	10490	06/18/97	39	360	1,800	220	160	17	110	0.9	1.4	ND	19	220
A1-6	10491	06/18/97	46	230	970	170	110	9.2	64	0.83	0.74	ND	11	110
A2-1	10492	06/19/97	47	240	1,100	220	100	10	75	0.52	0.8	ND	12	130
A2-2	10493	06/19/97	32	260	1,200	320	140	12	80	0.61	1.1	ND	15	150
A3-1	10264	06/20/97	24	240	1,000	120	100	10	60	0.7	0.79	ND	12	140
A3-2	10267	06/20/97	29	230	1,000	150	100	9.9	58	0.75	0.75	ND	12	130
A4-1	10494	06/18/97	42	190	1,100	190	120	9.2	150	0.76	0.76	ND	13	130
A4-2	10495	06/19/97	69	180	630	46	57	4.7	26	0.26	0.43	ND	6.1	43
A5-1	10496	06/19/97	64	280	1,000	77	52	7	27	0.4	0.45	ND	6.4	63
A5-2	10497	06/19/97	75	550	2,000	90	90	11	9.8	0.58	0.74	ND	21	39
A6-1	10498	06/19/97	25	280	1,300	130	110	13	73	0.68	0.95	ND	13	170
A6-2	10262	06/19/97	20	200	660	78	82	10	40	0.52	0.74	ND	7.8	100
A7-1	10263	06/19/97	68	450	1,700	290	150	11	82	0.75	0.68	ND	9.5	120
A9-1	10265	06/20/97	46	390	1,300	310	110	15	110	0.69	0.83	ND	15	120
A9-2	10266	06/20/97	39	310	1,100	200	94	13	55	0.51	0.66	ND	12	98

mg/kg = milligrams per kilogram
ND indicates below quantitation limit

TABLE 8 (Cont'd.)
Results of Base, Neutral and Acid Extractable Compound Concentrations in Sediment - PHASE II
Cornell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

(Results reported in mg/kg, dry weight)

Sample Location Sample Number Sample Collected	A4-1 10494 06/19/97	A4-2 10495 06/19/97	A5-1 10496 06/19/97	A5-2 10497 06/19/97	A6-1 10498 06/19/97	A6-2 10262 06/19/97	A7-1 10263 06/19/97	A9-1 10266 06/20/97	A9-2 10265 06/20/97
3 & 4 Methylphenol	ND	ND	ND	ND	ND	0.98 J	0.38 J	ND	ND
Benzoic acid	0.3 J	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	ND	ND	0.16 J	ND	0.42 J	ND	ND	ND	ND
Acenapthylene	ND	ND	0.6 J	ND	ND	ND	ND	ND	ND
2,6-Dinitrotoluene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthene	ND	ND	0.26 J	ND	ND	ND	ND	ND	ND
Dibenzofuran	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorene	ND	ND	1.4 J	ND	ND	ND	ND	ND	ND
Benzidine	13	4.6	81 J	ND	19	17	15 J	9.7 J	10 J
Phenanthrene	1.9 J	0.65 J	14	ND	1.3 J	1.4 J	1.6	1.2 J	0.95 J
Anthracene	0.25 J	ND	3.9	ND	ND	ND	0.32 J	ND	ND
Fluoranthene	3.5	1 J	12	ND	2.7 J	2.5 J	2.7	2.9	2.5
Pyrene	4.5	1.1 J	17	0.14 J	4.2	3.6 J	2.5	2.5 J	2.2
Butyl benzyl phthalate	0.38 J	ND	ND	ND	0.93 J	ND	ND	ND	ND
Benzo(a)anthracene	2.2 J	0.57 J	8.3	ND	1.9 J	1.9 J	1.6	1.4 J	1.3 J
Chrysene	2.6	0.61 J	7.3 J	ND	2.6 J	2.2 J	1.5 J	1.6 J	1.6 J
Bis(2-ethylhexyl)phthalate	3.1 B	ND	2.6 B	ND	26 B	19 B	ND	ND	ND
Di-n-octyl phthalate	ND	ND	0.45 J	0.14 J	13	25	0.2 J	ND	ND
Benzo(b)fluoranthene	3.4	0.77 J	7.1	ND	4.7	2.7 J	2.3	2.8	2.9
Benzo(k)fluoranthene	1.4 J	0.23 J	2.3	ND	2.2	1.3 J	ND	ND	ND
Benzo(a)pyrene	2.5	0.5 J	6.4	ND	2.3 J	1.6 J	1.3 J	1.5 J	1.5 J
Indeno(1,2,3-c,d)pyrene	1.6 J	0.32 J	2.7	ND	1.3 J	ND	0.74 J	1.1 J	1.2 J
Benzo(ghi)perylene	1.7 J	0.4 J	3.1	ND	1.6 J	1.3 J	0.81 J	1.2 J	1.5 J
Total BNAs*	39	11	170	0.28	56	61	31	16	16

mg/kg = milligrams per kilogram
ND indicates below quantitation limit
J indicates value is estimated
B indicates compound was detected in the blank
*Total BNA calculation does not include bis(2-ethylhexyl)phthalate since it was detected in the laboratory blanks and is a common laboratory contaminant.

TABLE 9.1
Results of Metal Concentrations in Sediment (dry weight) - PHASE II
Cornell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

(Results reported in mg/kg, dry weight)

Sample Location	Sample Number	Sample Collected	% Solids	Mercury	Silver	Aluminum	Arsenic	Barium	Beryllium	Calcium	Cadmium	Cobalt	Chromium	Copper	Iron
A1-1	10486	06/18/97	42	0.3	3.6	14,000	10	290	0.99	6,100	20	13	43	110	27,000
A1-2	10487	06/18/97	33	0.39	5.9	17,000	11	370	1.2	6,300	23	15	56	150	34,000
A1-3	10488	06/18/97	27	0.284	5.4	14,000	13	420	1.1	7,200	21	15	49	130	36,000
A1-4	10489	06/18/97	40	0.22	2.7	6,900	6.8	180	0.66	4,700	15	8.1	26	77	16,000
A1-5	10490	06/18/97	39	0.33	4.7	13,000	13	350	0.94	5,900	20	13	45	120	32,000
A1-6	10491	06/18/97	46	0.07	1.8	6,400	5.7	160	0.75	3,000	9.6	7	21	56	13,000
A2-1	10492	06/19/97	47	0.25	5.2	7,400	5.6	140	0.53	3,200	7.4	7.1	37	78	14,000
A2-2	10493	06/19/97	32	0.35	4.2	11,000	12	260	0.84	6,100	12	12	53	130	25,000
A3-1	10264	06/20/97	24	0.24	11	12,000	12	230	0.95	7,200	16	15	61	170	25,000
A3-2	10267	06/20/97	29	0.35	11	9,900	8.7	210	0.7	4,800	13	11	47	130	21,000
A4-1	10494	06/18/97	42	0.38	4.4	8,200	6.7	140	0.55	3,400	6.5	6.4	36	100	15,000
A4-2	10495	06/19/97	69	ND	0.13	2,400	1.2	23	0.2	740	0.67	2	6.4	10	7,300
A5-1	10496	06/19/97	64	0.19	0.54	3,900	1.7	45	0.3	920	2.2	4.8	14	18	8,400
A5-2	10497	06/19/97	75	0.29	ND	9,400	1.3	51	0.35	1,300	0.89	5	19	6.4	17,000
A6-1	10498	06/19/97	25	0.91	11	15,000	13	250	1.1	6,600	17	16	68	220	28,000
A6-2	10262	06/19/97	20	0.29	4.6	11,000	11	200	0.78	4,700	12	21	78	140	22,000
A7-1	10263	06/19/97	68	0.091	0.38	4,100	4.1	110	0.28	3,600	2.1	6.8	22	26	14,000
A9-1	10265	06/20/97	46	0.34	5.1	8,900	6.2	220	0.68	3,500	13	8.9	34	76	18,000
A9-2	10266	06/20/97	39	0.26	2.8	8,700	5.3	260	0.7	3,900	9.3	9.1	35	63	17,000

mg/kg = milligrams per kilogram
ND indicates below quantitation limit

TABLE 10.1
Results of Pesticides/PCB Concentrations in Sediment (dry weight) - PHASE II
Comell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

(Results reported in mg/kg, dry weight)

Sample Location	Sample Number	Sample Collected	Aroclor 1254	Dieldrin	4,4'-DDD
A1-1	10486	06/18/97	4.5 J	ND	ND
A1-2	10487	06/18/97	2.1	ND	ND
A1-3	10488	06/18/97	3.1	ND	ND
A1-4	10489	06/18/97	2.4	ND	ND
A1-5	10490	06/18/97	ND	ND	ND
A1-6	10491	06/18/97	1.3	ND	ND
A2-1	10492	06/19/97	14 JE	ND	ND
A2-2	10493	06/19/97	14 J	ND	ND
A3-1	10264	06/20/97	ND	0.30 J	ND
A3-2	10267	06/20/97	ND	0.19 J	ND
A4-1	10494	06/18/97	ND	ND	ND
A4-2	10495	06/19/97	ND	ND	ND
A5-1	10496	06/19/97	5.1 JE	ND	ND
A5-2	10497	06/19/97	0.55	ND	ND
A6-1	10498	06/19/97	2.1	ND	ND
A6-2	10262	06/19/97	4.7	ND	ND
A7-1	10263	06/19/97	ND	0.02 J	0.03 J
A9-1	10265	06/20/97	ND	ND	ND
A9-2	10266	06/20/97	ND	ND	ND

mg/kg = milligrams per kilogram
ND indicates below quantitation limit
J indicates value is estimated
E indicates that the concentration exceeded the calibration range of the instrument

TABLE 10.2
Results of Pesticides/PCB Concentrations in Sediment (wet weight) - PHASE II
Cornell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

(Results reported in mg/kg, wet weight)

Sample Area	Sample Location	Sample Collected	Sample Number	Percent Solids	Aroclor 1254	Dieldrin	4,4'-DDD
A1	A1-1	06/18/97	10486	42	1.9 J	ND	ND
A1	A1-2	06/18/97	10487	33	0.69	ND	ND
A1	A1-3	06/18/97	10488	27	0.84	ND	ND
A1	A1-4	06/18/97	10489	40	0.96	ND	ND
A1	A1-5	06/18/97	10490	39	ND	ND	ND
A1	A1-6	06/18/97	10491	46	600	ND	ND
A2	A2-1	06/19/97	10492	47	6.6 JE	ND	ND
A2	A2-2	06/19/97	10493	32	4.5 J	ND	ND
A3	A3-1	06/20/97	10264	24	ND	0.07 J	ND
A3	A3-2	06/20/97	10267	29	ND	0.06 J	ND
A4	A4-1	06/18/97	10494	42	ND	ND	ND
A4	A4-2	06/19/97	10495	69	ND	ND	ND
A5	A5-1	06/19/97	10496	64	3.3 JE	ND	ND
A5	A5-2	06/19/97	10497	75	0.41	ND	ND
A6	A6-1	06/19/97	10498	25	0.53	ND	ND
A6	A6-2	06/19/97	10262	20	0.94	ND	ND
A7	A7-1	06/19/97	10263	68	ND	0.01 J	0.02 J
A9	A9-1	06/20/97	10265	46	ND	ND	ND
A9	A9-2	06/20/97	10266	39	ND	ND	ND

mg/kg = milligrams per kilogram
ND indicates below quantitation limit
J indicates value is estimated
E indicates that the concentration exceeded the calibration range of the instrument

TABLE 11
Results of Ammonia Concentrations in Sediment - PHASE II
Cornell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

(Results reported in mg/kg, wet weight)

Sample Area	Sample Location	Sample Number	Sample Collected	Ammonia
A1	A1-1	10486	06/18/97	140
A2	A2-2	10493	06/19/97	400
A3	A3-1	10264	06/20/97	160
A4	A4-1	10494	06/19/97	270
A5	A5-2	10497	06/19/97	180
A6	A6-2	10262	06/19/97	670
A9	A9-1	10265	06/20/97	85

mg/kg = milligrams per kilogram

TABLE 12
Results of Total Petroleum Hydrocarbon Concentrations in Sediment - PHASE II
Cornell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

Sample Location	A1-1	A2-2	A3-1	A4-1	A5-2	A6-2	A9-1	Field Blank
Sample Number	10486	10493	10264	10494	10497	10262	10265	10378
Sample Collected	06/18/97	06/19/97	06/20/97	06/19/97	06/19/97	06/19/97	06/20/97	06/20/97
Total Petroleum Hydrocarbons	110	98	610	820	45	330	210	25.4

TABLE 13
Particle Size Distribution of Sediment - PHASE II
Cornell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

(reported as percent)

Sample Location	Sample Number	Sample Collected	Gravel	Sand	Silt	Clay	Soil Family
A1-1	10486	06/18/97	0	36	36	28	clay loam
A1-2	10487	06/18/97	0	14	47	39	silty clay loam
A1-3	10488	06/18/97	0	9	74	17	silt loam
A1-4	10489	06/18/97	0	41	29	30	clay loam
A1-5	10490	06/18/97	0	15	54	32	silty clay loam
A1-6	10491	06/18/97	0	63	20	17	sandy loam
A2-1	10492	06/19/97	0	55	27	19	sandy clay loam
A2-2	10493	06/19/97	0	34	40	26	loam
A3-1	10264	06/20/97	0	33	50	18	silty loam
A3-2	10267	06/20/97	0	27	52	21	silt loam
A4-1	10494	06/18/97	0	27	44	29	clay loam
A4-2	10495	06/19/97	0.99	93	1.8	3.9	sand
A5-1	10496	06/19/97	0	90	5.9	4.1	sand
A5-2	10497	06/19/97	0	85	9.2	6.3	loamy sand
A6-1	10498	06/19/97	0	7.5	54	39	silty clay loam
A6-2	10262	06/19/97	0	25	63	13	silty loam
A7-1	10263	06/19/97	0	87	5	7.7	loamy sand
A9-1	10265	06/20/97	0	30	34	36	clay loam
A9-2	10266	06/20/97	0	48	27	25	sandy clay loam

TABLE 14
Results of Total Organic Carbon Concentrations in Sediment - PHASE II
Cornell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

(results reported as percent)

Sample Location	Sample Area	Sample Number	Sample Collected	Organic Content %
A1-1	A1	10486	06/18/97	16.8
A1-2	A1	10487	06/18/97	18.0
A1-3	A1	10488	06/18/97	18.2
A1-4	A1	10489	06/18/97	16.0
A1-5	A1	10490	06/18/97	17.4
A1-6	A1	10491	06/18/97	9.4
A2-1	A2	10492	06/19/97	10.3
A2-2	A2	10493	06/19/97	17.6
A3-1	A3	10264	06/20/97	22.3
A3-2	A3	10267	06/20/97	18.2
A4-1	A4	10494	06/19/97	12.7
A4-2	A4	10495	06/19/97	6.0
A5-1	A5	10496	06/18/97	6.6
A5-2	A5	10497	06/19/97	3.1
A6-1	A6	10498	06/19/97	19.2
A6-2	A6	10262	06/19/97	22.4
A7-1	A7	10263	06/19/98	5.9
A9-1	A9	10265	06/20/97	9.0
A9-2	A9	10266	06/20/97	10.8

TABLE 15
Results of Volatile Organic Compound Concentrations in Soil - PHASE II
Cornell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

(Results reported in mg/kg, dry weight)

Sample Location	Sample Number	Acetone	Methylene Chloride	Trichlorofluoromethane	1,1,1-Trichloroethane	Toluene	Trichloroethene
T1-1-4	10381	0.38 J	B	0.05 JD	ND	ND	ND
T1-3-7	10384	ND	B	0.04 JD	ND	ND	ND
T1-4-5	10382	0.19 JD	B	0.02 JD	ND	ND	ND
T1-5-6	10385	R	R	R	R	R	R
T1-7-2	10383	0.26 JD	B	0.01 JD	ND	ND	ND
T1-10-2	10386	0.4 JD	ND	0.01 JD	ND	ND	ND
T1-11-9	10387	0.24 JD	B	0.01 JD	ND	ND	ND
T1-14-3	10388	0.15	B	0.003 J	ND	0.005 J	ND
T2-1-3	10380	ND	B	0.01 JD	ND	ND	ND
T2-2-1	10374	ND	B	ND	ND	ND	ND
T2-5-6	10375	ND	B	0.01 JD	ND	ND	ND
T2-6-7	10373	ND	B	0.02 JD	ND	ND	ND
T2-7-1	10372	0.04 J	B	0.02 JD	0.01 JD	ND	ND
T2-12-5	10371	ND	B	0.02 JD	ND	ND	ND
T3-1-7	10389	0.37 JD	B	0.01 JD	ND	ND	ND
T3-1-13	10390	0.71 JD	B	0.02 JD	ND	ND	ND
T3-2-11	10391	0.56 JD	B	0.02 JD	ND	ND	ND
T3-3-10	10392	B	B	0.01 J	0.003 J	ND	ND
T3-3-16	10393	ND	0.04 JBD	0.02 JD	ND	ND	ND
T3-4-6	10394	0.31 JD	ND	0.02 JD	ND	ND	ND
T4-1-4	10395	0.23 J	0.03 JB	0.01 J	ND	ND	0.01 J
T4-1-10	10396	0.25 J	0.03 JB	0.01 J	ND	ND	0.01 J
T4-2-19	10397	0.17	B	ND	ND	ND	ND
T4-3-3	10398	0.24	0.04 JB	ND	ND	ND	ND
T4-4-1	10399	0.21 J	0.04 J	ND	ND	ND	ND
T4-5-6	10400	ND	0.05 B	ND	ND	ND	ND

All samples collected on 6/18/97
mg/kg = milligrams per kilogram
ND indicates below quantitation limit
J indicates value is estimated
B indicates compound was detected in the blank
D indicates the results for this sample were obtained from a diluted sample
R indicates data is not valid

TABLE 16
Results of Base, Neutral and Acid Extractable Compound Concentrations in Soil - PHASE II
Cornell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

(Results reported in mg/kg, dry weight)

Sample Location Sample Number	T1-1-4 10381	T1-3-7 10384	T1-4-5 10382	T1-5-6 10385	T1-7-2 10383	T1-10-2 10386	T1-11-9 10387	T1-14-3 10388	T2-1-3 10380	T2-2-1 10374	T2-5-6 10375	T2-6-7 10373	T2-7-1 10372	T2-12-5 10371
1,2,4-Trichlorobenzene	0.12 J	ND	0.12 J	ND	3.2	0.32 J	0.18 J	ND	ND	ND	ND	ND	ND	ND
2-Methylnapthalene	1.4	0.65 J	1.1 J	1.2 J	1.7	0.62 J	0.41 J	ND	0.15 J	0.16 J	ND	0.17	ND	ND
3,3-Dichlorobenzidine	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Melhylphenol	ND	ND	ND	ND	ND	0.24 J	0.14 J	ND	ND	ND	ND	ND	ND	ND
4-Nitroaniline	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acenapthene	ND	ND	0.29 J	ND	0.14 J	0.84 J	0.64 J	ND	ND	ND	ND	ND	ND	ND
Acenapthylene	ND	ND	ND	ND	0.16 J	0.32 J	0.61 J	ND	ND	ND	ND	ND	ND	ND
Acetophenone	0.21 J	0.13 J	0.18 J	ND	0.29 J	ND	0.22 J	ND	ND	ND	ND	ND	ND	ND
Anthracene	2.3	1.4	0.41 J	ND	0.4 J	2	1.8	ND	0.14 J	0.2	0.15 J	ND	0.23 J	0.21 J
Benzidine	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Benzo(a)anthracene	0.95 J	0.48 J	1.5	0.63 J	2.1	6.9	9.5	0.25 J	0.92 J	1.4 J	1.1 J	1.1 J	1.4 J	1.5 J
Benzo(a)pyrene	0.61 J	0.34 J	1.4	0.61 J	2	5.9	9.7	0.27 J	1 J	1.5 J	1.2 J	1.2 J	1.5 J	1.7
Benzo(b)fluoranthene	1.2	0.66 J	1.7	1.1 J	2.8	9	15	0.36 J	1.4	1.7	1.8	2.2	2.4	2.3
Benzo(g,h,l)perylene	0.55 J	0.39 J	0.92 J	0.62 J	1.6	4.1	6.4	0.26 J	0.92 J	1.4 J	1.2 J	1.4 J	1.5 J	1.6 J
Benzo(k)fluoranthene	ND	ND	0.65 J	0.29 J	0.94 J	3.5	4.2	ND	0.6 J	0.89 J	0.74 J	0.48 J	0.65 J	0.77 J
Benzoic Acid	0.95 J	0.88 J	0.56 J	0.62 J	0.61 J	ND	ND	0.29 J	0.27 J	ND	0.27 J	0.34 J	0.27 J	0.31 J
Bis(2-chloroisopropyl) ether	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
bis(2-Ethylhexyl)phthalate	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Butylbenzylphthalate	0.19 J	0.18 J	0.36 J	0.58 J	ND	ND	0.51 J	0.15 J	3.5	3.6	1.7	2.6	2.3	1.9
Chrysene	2.1	1.2	2	0.96 J	2.4	7.5	11	0.34 J	1.1 J	1.6	1.4 J	1.4 J	1.8	2
di-n-Butylphthalate	B	B	B	B	B	B	B	B	B	B	B	B	B	B
di-n-Dctylphthalate	ND	ND	ND	ND	ND	ND	ND	ND	0.4 J	1.2 J	0.23 J	0.18 J	0.92 J	0.63 J
Dibenz(a,h)anthracene	ND	ND	ND	ND	ND	1 J	ND	ND	ND	ND	ND	ND	ND	ND
Dibenzofuran	0.43 J	0.26 J	0.33 J	0.29 J	0.53 J	0.66 J	0.42 J	ND	ND	ND	ND	ND	ND	ND
Diethylphthalate	ND	ND	ND	ND	ND	ND	0 E	ND	ND	ND	ND	ND	ND	ND
Dimethylphthalate	ND	ND	ND	ND	0.61 J	ND	3.6	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	0.87 J	0.64 J	2.1	1.2 J	2.9	11	12	0.46 J	1 J	1.8	1.4 J	1.5 J	2.1	2.4
Fluorene	ND	ND	0.26 J	ND	0.26 J	0.89 J	0.89 J	ND	ND	ND	ND	ND	ND	ND
Hexachlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.26 J	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene	0.42 J	0.26 J	0.81 J	0.47 J	1.3	3.8	6	0.2 J	0.83 J	1.1 J	1 J	1.1 J	1.2 J	1.3 J
Isophorone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	0.66 J	0.42 J	0.71 J	0.86 J	1.2 J	0.7 J	0.61 J	ND	0.15 J	0.18 J	0.16 J	0.21 J	ND	ND
Phenanthrene	2.3	1.4	2.6	1.2 J	2.9	9.4	9.4	0.31 J	0.83 J	1.2 J	0.83 J	0.89 J	1.3 J	1.3 J
Pyrene	0.94 J	0.78 J	2.2	1.1 J	3.1	10	16	0.4 J	2	2.7	1.9	2.1	2.5	2.8
Total BNAs	16	10	20	12	31	79	109	3.3	15	21	15	17	20	21

All samples collected on 6/18/97
mg/kg = milligrams per kilogram
ND Indicates below quantitation limit
J indicates value is estimated
B indicates compound was detected in the blank

TABLE 16 (Cont'd.)
Results of Base, Neutral and Acid Extractable Compound Concentrations in Soil - PHASE II
Cornell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

(Results reported in mg/kg, dry weight)

Sample Location Sample Number	T3-1-7 10389	T3-1-13 10390	T3-2-11 10391	T3-3-10 10392	T3-3-16 10393	T3-4-6 10394	T4-1-1 10395	T4-1-10 10396	T4-2-19 10397	T4-3-3 10398	T4-4-1 10399	T4-5-6 10400
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Methylnapthalene	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.27 J	0.18 J	ND
3,3-Dichlorobenzidine	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.17 J	ND
4-Methylphenol	ND	ND	0.23 J	0.82 J	0.3 J	ND	ND	ND	ND	ND	ND	ND
4-Nitroanilline	ND	ND	ND	ND	ND	ND	ND	ND	ND	8.7	ND	ND
Acenapthene	0.25 J	ND	ND	ND	0.7 J	ND	ND	ND	ND	0.34 J	0.2 J	ND
Acenapthylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.43 J	0.21 J	ND
Acetophenone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Anthracene	0.28	ND	0.42 J	ND	1.1 J	ND	0.17 J	0.18 J	ND	0.76 J	0.43 J	0.21 J
Benzidine	R	R	R	R	R	R	R	R	3.6	180	32 E	15
Benzo(a)anthracene	1.4 J	0.66 J	1.8	0.57 J	4.9	0.4 J	1.2 J	1.1 J	0.45 J	6.4	3.5	1.8
Benzo(a)pyrene	1.6	0.76 J	1.8	0.57 J	4.5	0.5 J	1.5 J	1.3 J	0.54 J	6.2	4.5	2.2
Benzo(b)fluoranthene	2.2	0.84 J	2.2	0.92 J	6.6	0.56 J	3.1	2.1	0.82 J	9.9	7.8	3.6
Benzo(g,h,i)perylene	0.99 J	0.61 J	1 J	0.4 J	2.5	0.42 J	1.1 J	0.86 J	0.34 J	3.6	3	1.2 J
Benzo(k)fluoranthene	0.45 J	0.41 J	1 J	0.2 J	1.7	0.29 J	ND	0.51 J	0.43 J	2.2	1.5 J	1.3 J
Benzoic Acid	ND	ND	ND	ND	ND	0.19 J	ND	0.18 J	ND	ND	0.3 J	ND
Bis(2-chloroisopropyl) ether	1 JB	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
bis(2-Ethylhexyl)phthalate	B	B	B	B	B	B	B	B	B	2.5 B	2.5 B	1.6 JB
Butylbenzylphthalate	1.8	ND	ND	ND	ND	ND	0.71 J	0.62 J	0.28 J	0.91 J	0.82 J	0.96 J
Chrysene	1 JB	0.75 J	2.1	0.6 J	4.7	0.62 J	1.8	1.6	0.78 J	8.5	5.5 J	2.7
di-n-Butylphthalate	B	B	B	B	B	B	B	B	B	0.62 JB	B	B
di-n-Octylphthalate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibenz(a,h)anthracene	ND	ND	ND	ND	0.62 J	ND	ND	ND	ND	ND	ND	0.33 J
Dibenzofuran	ND	ND	ND	ND	0.23 J	ND	ND	ND	ND	0.22 J	ND	ND
Diethylphthalate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dimethylphthalate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	2.2	0.9 J	2.6	0.68 J	6	0.65 J	2.2	2.1	0.75 J	11	5.8	3.6
Fluorene	0.17 J	ND	ND	ND	0.42 J	ND	ND	ND	ND	0.41 J	0.26 J	ND
Hexachlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene	0.84 J	0.52 J	0.91 J	0.32 J	2.5	0.34 J	0.95 J	0.84 J	0.37 J	3.6	2.6	1.2 J
Isophorone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	0.16 J	ND	0.14 J	ND	0.2 J	0.21 J	ND	ND	ND	0.37 J	0.26 J	0.16 J
Phenanthrene	1.9	0.64 J	1.9	0.59 J	4.8	0.54 J	1.3 J	1.1 J	0.5 J	5.7	3.6	1.7
Pyrene	3.1	1.1 J	2.9	1 J	7.7	0.78 J	2.5	1.9	0.89	11	8.8	3.8
Total BNAs	19	7.2	19	6.7	49	5.6	17	14	6.2	84	52	26

mg/kg = milligrams per kilogram
ND indicates below quantitation limit
J indicates value is estimated
B indicates compound was detected in the blank

TABLE 17.1
Results of Metal Concentrations in Soil (dry weight) - PHASE II
Cornell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

(Results reported in mg/kg, dry weight)

Sample Location	Sample Number	Mercury	Silver	Aluminum	Arsenic	Barium	Beryllium	Calcium	Cadmium	Cobalt	Chromium	Copper	Iron
T1-1-4	10381	0.37	4.5	2,400	17	230	0.41	600	1.7	2.9	11	51	16,000
T1-3-7	10384	0.38	2.2	2,200	35	420	0.46	1,700	1.5	2.1	9	28	14,000
T1-4-5	10382	0.34	3.7	3,500	13	480	0.34	1,600	2.7	5.4	22	110	36,000
T1-5-6	10385	1.5	8.9	7,900	26	1500	0.35	3,700	5.3	8	43	150	88,000
T1-7-2	10383	1.1	5.7	12,000	13	1400	0.49	8,600	20	17	67	960	38,000
T1-10-2	10386	0.72	8	9,600	8.7	320	0.72	6,400	10	10	28	270	23,000
T1-11-9	10387	0.63	5	6,400	5.7	91	0.25	4,100	6.9	5.6	29	140	16,000
T1-14-3	10388	0.25	3.8	11,000	9.1	100	0.61	1,500	1.4	4.9	14	38	12,000
T2-1-3	10380	0.81	13	14,000	14	260	0.95	3,300	20	12	67	130	20,000
T2-2-1	10374	0.64	7.9	14,000	13	250	0.95	4,800	18	13	47	110	24,000
T2-5-6	10375	0.8	12	19,000	16	340	1.1	6,200	30	17	120	280	28,000
T2-6-7	10373	1.1	16	30,000	21	460	1.5	5,600	38	24	280	520	35,000
T2-7-1	10372	0.61	8.2	17,000	14	270	1	4,900	17	15	57	130	29,000
T2-12-5	10371	0.8	9.1	18,000	16	330	1.1	5,000	24	16	58	150	30,000
T3-1-13	10390	1.9	3.7	8,200	24	1200	0.09	7,200	14	11	70	360	68,000
T3-1-7	10389	1.5	3.4	7,600	14	920	0.3	7,600	8.9	8.9	64	280	36,000
T3-2-11	10391	1.2	2.6	6,600	29	700	0.17	5,500	9	12	90	12000	97,000
T3-3-10	10392	0.94	4.2	6,600	27	800	0.17	8,200	9.4	9.6	61	250	53,000
T3-3-16	10393	3.4	15	4,100	11	440	0.17	9,800	8	5.6	49	430	22,000
T3-4-6	10394	2.5	2.6	4,600	11	370	0.28	8,700	4.1	5.6	32	110	26,000
T4-1-10	10396	0.37	6.3	12,000	12	72	0.51	970	2.8	5.8	32	66	16,000
T4-1-4	10395	0.059	7.7	13,000	13	90	0.53	1,800	3.6	5.7	39	86	17,000
T4-2-19	10397	0.21	2.8	9,900	11	77	0.48	1,400	3.5	4.2	20	46	13,000
T4-3-3	10398	0.67	11	21,000	29	260	1.1	4,200	16	23	140	170	36,000
T4-4-1	10399	0.78	11	20,000	33	310	1.1	3,100	8.8	17	170	190	42,000
T4-5-6	10400	0.61	7.3	20,000	18	200	0.8	2,100	5.5	10	120	160	23,000

All samples collected on 6/18/97
mg/kg = milligrams per kilogram
ND indicates below quantitation limit

TABLE 17.1 (Cont'd.)
Results of Metal Concentrations in Soil (dry weight) - PHASE II
Cornell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

(Results reported in mg/kg, dry weight)

Sample Location	Sample Number	Potassium	Magnesium	Manganese	Sodium	Nickel	Lead	Antimony	Selenium	Thallium	Vanadium	Zinc
T1-1-4	10381	540	250	41	130	12	190	1.8	3.1	ND	62	32
T1-3-7	10384	610	360	43	120	9.2	44	0.76	2.8	ND	23	31
T1-4-5	10382	480	810	370	130	35	290	2.5	3.6	ND	41	99
T1-5-6	10385	560	1,200	770	150	63	880	5.8	7.9	1.2	70	250
T1-7-2	10383	950	2,700	420	430	57	1,000	19	3.1	ND	52	1,000
T1-10-2	10386	1,300	3,200	420	270	57	510	5.7	2.8	ND	45	880
T1-11-9	10387	570	1,900	250	120	39	230	2.0	1.6	ND	40	240
T1-14-3	10388	610	2,000	500	80	15	93	1.3	1.9	ND	27	76
T2-1-3	10380	930	3,300	850	180	38	300	1.3	2.6	ND	40	320
T2-2-1	10374	1,000	4,200	1,300	290	36	280	1.2	2.9	ND	43	410
T2-5-6	10375	1,300	4,600	1,300	290	55	350	1.6	3.4	ND	56	500
T2-6-7	10373	1,700	5,200	1,800	300	72	460	2.6	4.0	0.6	76	570
T2-7-1	10372	1,500	4,700	1,400	310	41	310	1.8	3.3	ND	52	440
T2-12-5	10371	1,500	5,200	1,700	340	47	370	1.8	3.3	ND	56	480
T3-1-13	10390	770	1,900	950	250	51	3,600	13	7.9	ND	38	2,000
T3-1-7	10389	760	2,100	600	180	150	1,700	11	5.6	ND	40	920
T3-2-11	10391	620	1,700	500	99	81	2,200	15	9.2	4.0	35	1,600
T3-3-10	10392	610	1,200	540	200	34	1,400	42	6.7	ND	31	1,300
T3-3-16	10393	490	1,100	300	130	27	1,200	13	4.7	ND	27	750
T3-4-6	10394	560	1,200	260	130	24	900	12	4.4	ND	34	560
T4-1-10	10396	480	2,000	240	83	18	230	2.4	2.6	ND	46	93
T4-1-4	10395	500	2,200	260	96	19	230	2.1	2.7	ND	57	110
T4-2-19	10397	240	1,400	260	63	14	150	1.7	2.0	ND	36	88
T4-3-3	10398	1,500	5,300	1,600	280	55	690	3.3	4.1	ND	90	360
T4-4-1	10399	1,100	5,100	1,000	280	46	720	4.0	5.0	ND	95	280
T4-5-6	10400	700	3,600	570	180	34	410	2.7	2.9	ND	66	220

All samples collected on 6/18/97
mg/kg = milligrams per kilogram
ND indicates below quantitation limit

TABLE 17.2
Results of Metal Concentrations in Soil (wet weight) - PHASE II
Cornell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

(Results reported in mg/kg, wet weight)

Sample Location	Sample Number	% Solids	Mercury	Silver	Aluminum	Arsenic	Barium	Beryllium	Calcium	Cadmium	Cobalt	Chromium	Copper	Iron
T1-1-4	10381	87	0.3219	4	2100	14.79	200.1	0.36	520	1.479	2.523	9.57	44	14000
T1-3-7	10384	82	0.3116	2	1800	28.7	340	0.38	1400	1.23	1.722	7.38	23	11000
T1-4-5	10382	89	0.3026	3	3100	11.57	430	0.30	1400	2.403	4.806	19.58	98	32000
T1-5-6	10385	78	1.17	7	6200	20.28	1200	0.27	2900	4.134	6.24	33.54	120	69000
T1-7-2	10383	81	0.891	5	9700	10.53	1100	0.40	7000	16.2	13.77	54.27	780	31000
T1-10-2	10386	80	0.576	6	7700	6.96	260	0.58	5100	8	8	22.4	220	18000
T1-11-9	10387	78	0.4914	4	5000	4.446	70.98	0.20	3200	5.382	4.368	22.62	110	12000
T1-14-3	10388	70	0.175	3	7700	6.37	70	0.43	1100	0.98	3.43	9.8	27	8400
T2-1-3	10380	77	0.6237	10	11000	10.78	200.2	0.73	2500	15.4	9.24	51.59	100	15000
T2-2-1	10374	63	0.4032	5	8800	8.19	160	0.60	3000	11.34	8.19	29.61	69	15000
T2-5-6	10375	68	0.544	8	13000	10.88	230	0.75	4200	20.4	11.56	81.6	190	19000
T2-6-7	10373	65	0.715	10	20000	13.65	300	0.98	3600	24.7	15.6	180	340	23000
T2-7-1	10372	57	0.3477	5	9700	7.98	150	0.57	2800	9.69	8.55	32.49	74	17000
T2-12-5	10371	58	0.464	5	10000	9.28	190	0.64	2900	13.92	9.28	33.64	87	17000
T3-1-13	10390	72	1.368	3	5900	17.28	860	0.06	5200	10.08	7.92	50.4	260	49000
T3-1-7	10389	70	1.05	2	5300	9.8	640	0.21	5300	6.23	6.23	44.8	200	25000
T3-2-11	10391	79	0.948	2	5200	22.91	550	0.13	4300	7.11	9.48	71.1	9,500	77000
T3-3-10	10392	66	0.6204	3	4400	17.82	530	0.11	5400	6.204	6.336	40.26	170	35000
T3-3-16	10393	62	2.108	9	2500	6.82	270	0.11	6100	4.96	3.472	30.38	270	14000
T3-4-6	10394	58	1.45	2	2700	6.38	220	0.16	5000	2.378	3.248	18.56	64	15000
T4-1-10	10396	69	0.2553	4	8300	8.28	49.68	0.35	670	1.932	4.002	22.08	46	11000
T4-1-4	10395	64	0.03776	5	8300	8.32	57.6	0.34	1200	2.304	3.648	24.96	55	11000
T4-2-19	10397	75	0.1575	2	7400	8.25	57.75	0.36	1100	2.625	3.15	15	35	9800
T4-3-3	10398	64	0.4288	7	13000	18.56	170	0.70	2700	10.24	14.72	89.6	110	23000
T4-4-1	10399	60	0.468	7	12000	19.8	190	0.66	1900	5.28	10.2	100	110	25000
T4-5-6	10400	69	0.4209	5	14000	12.42	140	0.55	1400	3.795	6.9	82.8	110	16000

All samples collected on 6/18/97
mg/kg = milligrams per kilogram
ND indicates below quantitation limit

TABLE 17.2 (Cont'd.)
Results of Metal Concentrations in Soil (wet weight) - PHASE II
Cornell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

(Results reported in mg/kg, wet weight)

Sample Location	Sample Number	% Solids	Potassium	Manganese	Sodium	Nickel	Lead	Antimony	Selenium	Thallium	Vanadium	Zinc
T1-1-4	10381	87	470	36	110	10.44	170	1.566	2.697	ND	53.94	28
T1-3-7	10384	82	500	35	98	7.544	36	0.6232	2.296	ND	18.86	25
T1-4-5	10382	89	430	330	120	31.15	260	2.225	3.204	ND	36.49	88
T1-5-6	10385	78	440	600	120	49.14	690	4.524	6.162	0.936	54.6	200
T1-7-2	10383	81	770	340	350	46.17	810	15.39	2.511	ND	42.12	810
T1-10-2	10386	80	1,000	340	220	45.6	410	4.56	2.24	ND	36	700
T1-11-9	10387	78	450	200	94	30.42	180	1.6	1.248	ND	31.2	190
T1-14-3	10388	70	430	350	56	10.5	65	0.91	1.33	ND	18.9	53
T2-1-3	10380	77	720	660	140	29.26	230	1.001	2.002	ND	30.8	250
T2-2-1	10374	63	630	820	180	22.68	180	0.756	1.827	ND	27.09	260
T2-5-6	10375	68	880	880	200	37.4	240	1.088	2.312	ND	38.08	340
T2-6-7	10373	65	1,100	1,200	200	46.8	300	1.69	2.6	0.39	49.4	370
T2-7-1	10372	57	860	800	180	23.37	180	1.026	1.881	ND	29.64	250
T2-12-5	10371	58	870	990	200	27.26	220	1.044	1.914	ND	32.48	280
T3-1-13	10390	72	550	680	180	36.72	2,600	9.36	5.688	ND	27.36	1,400
T3-1-7	10389	70	530	420	130	110	1,200	7.7	3.92	ND	28	640
T3-2-11	10391	79	490	400	78	63.99	1,700	11.85	7.268	3.2	27.65	1,300
T3-3-10	10392	66	400	360	130	22.44	920	27.72	4.422	ND	20.46	860
T3-3-16	10393	62	300	190	81	16.74	740	8.06	2.914	ND	16.74	470
T3-4-6	10394	58	330	150	75	13.92	520	6.96	2.552	ND	19.72	330
T4-1-10	10396	69	330	170	57	12.42	160	1.656	1.794	ND	31.74	64
T4-1-4	10395	64	320	170	61	12.16	150	1.344	1.728	ND	36.48	70
T4-2-19	10397	75	180	200	47	10.5	110	1.275	1.5	ND	27	66
T4-3-3	10398	64	960	1,000	180	35.2	440	2.112	2.624	ND	57.6	230
T4-4-1	10399	60	660	600	170	27.6	430	2.4	3.0	ND	57	170
T4-5-6	10400	69	480	390	120	23.46	280	1.863	2.001	ND	45.54	150

All samples collected on 6/18/97
mg/kg = milligrams per kilogram
ND indicates below quantitation limit

TABLE 18.1
Results of Pesticides/PCB Concentrations in Soil (dry weight) - PHASE II
Cornell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

(Results reported in mg/kg, dry weight)

Sample Location	Sample Number	Aroclor 1254	Heptachlor	4,4'-DDE
T1-1-4	10381	26 J	ND	ND
T1-3-7	10384	7 JE	ND	ND
T1-4-5	10382	56 J	ND	ND
T1-5-6	10385	62 J	ND	ND
T1-7-2	10383	580 J	ND	ND
T1-10-2	10386	310 JE	ND	ND
T1-11-9	10387	290 JE	ND	ND
T1-14-3	10388	7 J	ND	ND
T2-1-3	10380	64 J	ND	ND
T2-2-1	10374	38 J	ND	ND
T2-5-6	10375	33 J	ND	ND
T2-6-7	10373	51 JE	ND	ND
T2-7-1	10372	25 JE	ND	ND
T2-12-5	10371	23 JE	ND	ND
T3-1-7	10389	ND	ND	ND
T3-1-13	10390	ND	0.02	0.034
T3-2-11	10391	ND	ND	0.031
T3-3-10	10392	ND	ND	ND
T3-3-16	10393	ND	ND	ND
T3-4-6	10394	ND	ND	ND
T4-1-4	10395	4 JE	ND	ND
T4-1-10	10396	4 JE	ND	ND
T4-2-19	10397	1	ND	ND
T4-3-3	10398	11 JE	ND	ND
T4-4-1	10399	11 JE	ND	ND
T4-5-6	10400	14 JE	ND	ND

All samples collected on 6/18/97
mg/kg = milligrams per kilogram
ND indicates below quantitation limit
J indicates value is estimated
E indicates that the concentration exceeded the calibration range of the instrument

TABLE 18.2
Results of Pesticides/PCB Concentrations in Soil (wet weight) - PHASE II
Cornell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

(Results reported in mg/kg, wet weight)

Sample Location	Sample Number	% Solids	Aroclor 1254	Heptachlor	4,4'-DDE
T1-1-4	10381	87	23 J	ND	ND
T1-4-5	10382	89	50 J	ND	ND
T1-7-2	10383	81	470 J	ND	ND
T1-3-7	10384	82	6 JE	ND	ND
T1-5-6	10385	78	48 J	ND	ND
T1-10-2	10386	80	250 JE	ND	ND
T1-11-9	10387	78	230 JE	ND	ND
T1-14-3	10388	70	4.8 J	ND	ND
T2-12-5	10371	58	13 JE	ND	ND
T2-7-1	10372	57	14 JE	ND	ND
T2-6-7	10373	65	33 JE	ND	ND
T2-2-1	10374	63	24 J	ND	ND
T2-5-6	10375	68	22 J	ND	ND
T2-1-3	10380	77	49 J	ND	ND
T3-1-7	10389	70	ND	ND	ND
T3-1-13	10390	72	ND	0.01	0.02
T3-2-11	10391	79	ND	ND	0.02
T3-3-10	10392	66	ND	ND	ND
T3-3-16	10393	62	ND	ND	ND
T3-4-6	10394	58	ND	ND	ND
T4-1-4	10395	64	2.6 JE	ND	ND
T4-1-10	10396	69	2.5 JE	ND	ND
T4-2-19	10397	75	0.8	ND	ND
T4-3-3	10398	64	7.0 JE	ND	ND
T4-4-1	10399	60	6.6 JE	ND	ND
T4-5-6	10400	69	9.7 JE	ND	ND

All samples collected on 6/18/97
mg/kg = milligrams per kilogram
ND indicates below quantitation limit
J indicates value is estimated
E indicates that the concentration exceeded the calibration range of the instrument

TABLE 19
Particle Size Distribution of Soil - PHASE II
Cornell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

(reported as percent)

Sample Location	Sample Number	Gravel	Sand	Silt	Clay	Soil Family
T1-1-4	10381	0	79	16	5	loamy sand
T1-3-7	10384	9.3	73	13	4.5	loamy sand
T1-4-5	10382	13	60	18	8.5	sandy loam
T1-5-6	10385	5.2	67	22	5.8	sandy loam
T1-7-2	10383	12	64	16	7.1	sandy loam
T1-10-2	10386	10	72	12	5.8	loamy sand
T1-11-9	10387	0	66	22	12	sandy loam
T1-14-3	10388	0	48	34	18	loam
T2-1-3	10380	0	14	50	36	silty clay loam
T2-2-1	10374	0	16	50	34	silty clay loam
T2-5-6	10375	0	7.6	51	41	silty clay
T2-6-7	10373	0	9	49	42	silty clay
T2-7-1	10372	0	10	54	36	silty clay loam
T2-12-5	10371	0	4.6	56	40	silty clay
T3-1-7	10389	9.5	62	20	8	sandy loam
T3-1-13	10390	17	54	21	8.3	sandy loam
T3-2-11	10391	0	61	30	8.5	sandy loam
T3-3-10	10392	20	50	22	7.5	sandy loam
T3-3-16	10393	0	64	28	7.8	sandy loam
T3-4-6	10394	0	63	29	8.2	sandy loam
T4-1-4	10395	0	20	58	22	silt loam
T4-1-10	10396	0	24	50	26	silt loam
T4-2-19	10397	0	33	43	24	loam
T4-3-3	10398	0	3.8	57	39	silt clay loam
T4-4-1	10399	3.9	8.1	59	29	silt clay loam
T4-5-6	10400	0	13	49	39	silty clay loam

All samples collected on 6/18/97

TABLE 20
Results of Total Organic Carbon Concentrations in Soil - PHASE II
Cornell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

Sample Area	Sample Location	Sample Number	Organic content %
T1	T1-1-4	10381	7.0
T1	T1-3-7	10384	8.7
T1	T1-4-5	10382	10.6
T1	T1-5-6	10385	14.4
T1	T1-7-2	10383	9.3
T1	T1-10-2	10386	11.6
T1	T1-11-9	10387	13.8
T1	T1-14-3	10388	8.8
T2	T2-1-3	10380	11.5
T2	T2-2-1	10374	14.9
T2	T2-5-6	10375	22.4
T2	T2-6-7	10373	18.5
T2	T2-7-1	10372	15.9
T2	T2-12-5	10371	17.1
T3	T3-1-7	10389	9.1
T3	T3-1-13	10390	15.8
T3	T3-2-11	10391	16.4
T3	T3-3-10	10392	15.5
T3	T3-3-16	10393	20.2
T3	T3-4-6	10394	24.8
T4	T4-1-4	10395	23.7
T4	T4-1-10	10396	15.1
T4	T4-2-19	10397	10.7
T4	T4-3-3	10398	20.2
T4	T4-4-1	10399	45.3
T4	T4-5-6	10400	15

All samples collected on 6/18/97

TABLE 21
Results of Pesticides/PCB Concentrations in Small Mammals - PHASE II
Cornell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

(Results reported in mg/kg, wet weight)

Sample Location	Sample Number	Sample Collected	Aroclor 1254	Heptachlor Epoxide	Dieldrin	4,4'-DDE
T1-3-4	10405	06/17/97	5.1 JW	ND	0.06	ND
T1-5-5	10407	06/17/97	2 JW	ND	0.03	ND
T1-8-3	10403	06/17/97	3.8 JW	ND	ND	ND
T1-9-7	10409	06/17/97	4.7 JW	ND	0.06	0.06
T1-10-6	10404	06/17/97	1.3 JW	ND	0.02 J	ND
T1-13-10	10408	06/18/97	2 JW	ND	0.03	ND
T1-14-2	10401	06/17/97	4 JW	ND	ND	ND
T1-14-6	10410	06/17/97	0.63 JW	ND	0.01 J	ND
T1-14-9	10402	06/17/97	3.8 JW	ND	ND	ND
T1-14-10	10406	06/17/97	5.4 JW	ND	ND	ND
T2-2-1	10417	06/17/97	NA	NA	NA	NA
T2-2-7	10413	06/17/97	0.24 JW	ND	0.01 J	ND
T2-3-6	10414	06/17/97	0.86 JW	ND	ND	ND
T2-4-5	10412	06/18/97	1.8 JW	ND	0.02	ND
T2-12-3	10415	06/17/97	0.72 JW	ND	ND	ND
T2-12-8	10411	06/18/97	0.84 JW	ND	0.01 J	ND
T2-12-10	10416	06/17/97	0.34 JW	ND	ND	ND
T3-1-5	10425	06/17/97	0.3 JW	ND	ND	ND
T3-1-8	10420	06/17/97	ND	ND	ND	ND
T3-1-11	10421	06/17/97	0.44 JW	ND	ND	ND
T3-3-15	10424	06/17/97	0.15 JW	ND	ND	ND
T3-4-1	10423	06/18/97	ND	ND	ND	ND
T3-4-2	10419	06/18/97	ND	ND	ND	ND
T3-4-5	10418	06/17/97	ND	ND	ND	ND
T3-4-20	10422	06/17/97	0.22 JW	ND	ND	ND
T4-1-1	10427	06/18/97	0.54 JW	ND	0.02	ND
T4-1-27	10428	06/18/97	1.3 JW	0.07	0.02	ND
T4-2-2	10431	06/18/97	0.31 JW	ND	ND	ND
T4-2-7	10433	06/17/97	0.59 JW	ND	ND	ND
T4-2-23	10426	06/18/97	0.47 JW	0.02	0.02	ND
T4-2-24	10430	06/18/97	1.4 JW	ND	ND	ND
T4-3-5	10432	06/17/97	0.4 JW	ND	ND	ND
T4-5-3	10429	06/18/97	0.75 JW	ND	ND	ND

mg/kg = milligrams per kilogram
ND indicates below quantitation limit
J indicates value is estimated
W indicates sample was weathered, value is estimated
NA indicates sample was lost during extraction, no values are available

TABLE 22
Results of Base, Neutral and Acid Extractable Compound Concentrations in Crayfish - PHASE II
Cornell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

(Results reported in mg/kg, wet weight)

Sample Location	Sample Number	Sample Collected	Di-n-butylphthalate	bis(2-ethylhexyl)phthalate	Diethylphthalate	Isophorone
A1-1	8631	06/20/97	0.63 J	0.53 J	ND	ND
A1-2	8632	06/20/97	1.5 J	0.45 J	ND	ND
A2-3	10233	06/18/97	1.7 J	0.58 J	ND	ND
A3-12	10222	06/18/97	1.2 JB	0.61 J	ND	ND
A3-13	10223	06/18/97	1.9 JB	0.41 J	ND	ND
A3-14	10224	06/18/97	0.87 JB	0.38 J	ND	ND
A4-1	10268	06/18/97	1.1 J	0.49 J	ND	ND
A4-3	8628	06/18/97	0.71 J	0.80 J	ND	ND
A5-1	8633	06/20/97	ND	0.52 J	0.83 J	ND
A5-2	8634	06/20/97	0.75 J	0.67 J	ND	ND
A5-3	8635	06/20/97	0.58 J	0.42 J	ND	ND
A9-2	10241	06/18/97	0.42 J	0.56 J	ND	ND
A9-3	10242	06/18/97	0.68 J	0.25 J	ND	0.40 J
A9-13	10248	06/20/97	1.5 J	0.33 J	ND	ND
A9-14	10249	06/20/97	1.0 J	0.40 J	ND	ND

mg/kg = milligrams per kilogram
ND indicates below quantitation limit
J indicates value is estimated
B indicates compound was detected in the blank

TABLE 23
Results of Metal Concentrations in Crayfish - PHASE II
Cornell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

(Results reported in mg/kg, wet weight)

Sample Number Sample Location Sample Collected	B 08631 A1-1 06/20/97	B 08632 A1-2 06/20/97	B 10231 A2-10 06/18/97	B 10232 A2-2 06/18/97	B 10233 A2-3 06/18/97	B 10234 A2-4 06/18/97	B 10235 A2-5 06/18/97	B 10236 A2-11 06/18/97	B 10238 A2-12 06/18/97	B 10239 A2-13 06/18/97
Mercury	ND	ND	ND	ND	ND	ND	ND	0.021	ND	ND
Silver	0.37	0.47	0.63	0.63	2.5	1.9	1.0	0.63	0.69	0.40
Aluminum	20	45	45	21	23	19	22	77	25	ND
Arsenic	ND	ND	ND	ND	0.39	ND	ND	ND	ND	ND
Barium	25	52	45	39	39	54	56	34	44	48
Beryllium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Calcium	18,000	24,000	24,000	32,000	34,000	39,000	31,000	40,000	30,000	28,000
Cadmium	0.94	0.74	0.64	0.90	1.7	1.6	0.73	0.55	0.68	ND
Cobalt	0.07	ND	ND	ND	ND	0.16	ND	0.36	ND	ND
Chromium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper	30	42	49	46	70	59	52	50	52	43
Iron	56	180	110	55	61	63	80	130	78	66
Potassium	2,100	2,500	3,100	2,500	2,500	2,500	2,900	2,400	2,800	2,600
Magnesium	310	430	480	360	440	440	480	460	420	440
Manganese	110	150	120	95	130	140	120	260	88	100
Sodium	1,800	1,900	2,000	2,000	2,100	2,100	2,100	2,000	2,100	1,800
Nickel	ND	ND	ND	ND	ND	0.24	0.23	0.25	ND	ND
Lead	0.51J	1.1	0.98	0.88	0.76	0.42	0.86	1.4	0.66	1.0
Antimony	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium	0.68	ND	1.0	0.71	0.85	0.75	0.83	1.2	0.89	ND
Thallium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium	0.14	ND	0.29	0.21	0.19	0.20	0.14	0.43	0.26	ND
Zinc	21	24	24	23	24	25	24	30	25	23

mg/kg = milligrams per kilogram
ND indicates below quantitation limit
J indicates value is estimated

TABLE 23 (Cont'd.)
Results of Metal Concentrations in Crayfish - PHASE II
Comell-Dubilier Electronics Site
South Plainfield, New Jersey
October 1998

(Results reported in mg/kg, wet weight)

Sample Number Sample Location Sample Collected	B 10219 A3-1 06/18/97	B 10220 A3-2 06/18/97	B 10221 A3-3 06/18/97	B 10222 A3-12 06/18/97	B 10223 A3-13 06/18/97	B 10224 A3-14 06/18/97	B 10225 A3-15 06/18/97	B 10226 A3-16 06/18/97	B 10227 A3-17 06/18/97	B 10228 A3-18 06/18/97	B 10229 A3-19 06/18/97
Mercury	ND	ND	ND	ND	ND	0.016	ND	ND	ND	ND	ND
Silver	0.91	0.23	1.2	0.25	1.2	1.6	0.90	2.0	1.3	1.6	1.4
Aluminum	ND	ND	21	ND	52	64	13	38	39	24	43
Arsenic	ND	ND	ND	ND	ND	0.93	ND	ND	ND	ND	ND
Barium	9.7	0.96	49	1.5	48	38	15	48	48	28	42
Beryllium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Calcium	8,800	650	34,000	1,400	41,000	41,000	13,000	26,000	30,000	29,000	42,000
Cadmium	0.30	ND	0.43	ND	0.91	0.99	0.32	0.82	0.45	0.42	0.46
Cobalt	ND	ND	0.22	ND	0.27	0.68	ND	ND	ND	ND	ND
Chromium	ND	ND	ND	ND	ND	0.89	ND	ND	ND	ND	ND
Copper	28	4.5	57	3.9	63	47	31	59	55	56	39
Iron	25	12J	47	16	170	150	28	92	170	45	160
Potassium	1,300	390	2,800	430	2,600	2,400	1,800	2,900	2,900	2,300	2,200
Magnesium	150	27	460	43	550	500	240	480	420	380	420
Manganese	27	3.1	130	2.5	180	200	27	110	92	52	77
Sodium	1,200	310	2,000	300	2,200	2,100	1,400	2,100	2,000	2,100	2,300
Nickel	ND	ND	ND	ND	ND	0.42	ND	ND	ND	ND	ND
Lead	ND	0.44	0.69	0.30	0.61	0.93	0.41	0.83	0.96	0.73	0.90
Antimony	B	ND	B	ND	B	1.5	ND	B	ND	ND	ND
Selenium	0.52	ND	1.0	ND	1.3	0.82	ND	0.93	1.4	0.87	1.0
Thallium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium	ND	ND	0.17	ND	0.35	0.78	ND	0.24	0.32	0.16	0.48
Zinc	11	2.2	27	3.2	35	39	17	26	23	24	22

mg/kg = milligrams per kilogram
ND indicates below quantitation limit
J indicates value is estimated

TABLE 23 (Cont'd.)
Results of Metal Concentrations in Crayfish - PHASE II
Cornell-Dubilier Electronics Site
South Plainfield, New Jersey
October 1998

(Results reported in mg/kg, wet weight)

Sample Number	B 10268	B 10269	B 08628	B 08628	B 08628	B08634	B08635	B 10240	B 10241	B 10242	B 10243	B 10244	B 10245	B 10246	B 10247	B 10248	B 10249
Sample Location	A4-1	A4-2	A4-3	A4-4	A5-1	A5-2	A5-3	A9-1	A9-2	A9-3	A9-4	A9-5	A9-6	A9-7	A9-9	A9-13	A9-14
Sample Collected	06/18/97	06/18/97	06/18/97	06/18/97	06/20/97	06/20/97	06/20/97	06/18/97	06/18/97	06/18/97	06/18/97	06/18/97	06/18/97	06/18/97	06/18/97	06/20/97	06/20/97
Mercury	ND	ND	ND	0.015	ND	ND	ND	ND	0.023	ND	0.032	0.025	0.021	0.03	0.018	ND	0.036
Silver	0.54	0.35	ND	0.51	0.41	ND	0.79	ND	0.49	0.39	ND	0.32	0.42	0.19	ND	ND	0.42
Aluminum	ND	22	ND	ND	41	ND	16	ND	240	39	ND	12	8.2	12	ND	ND	ND
Arsenic	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Barium	29	41	41	29	49	54	30	93	140	86	47	12	15	14	29	74	71
Beryllium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Calcium	30,000	20,000	21,000	26,000	47,000	49,000	29,000	36,000	61,000	38,000	35,000	15,000	12,000	10,000	25,000	44,000	46,000
Cadmium	1.2	0.28	ND	ND	ND	ND	0.34	ND	5.4	1.0	ND	0.25	0.39	0.23	ND	ND	ND
Cobalt	ND	ND	ND	ND	ND	ND	ND	ND	0.67	ND	ND	ND	ND	ND	ND	ND	ND
Chromium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper	37	40	40	29	35	43	37	27	37	39	35	25	26	17	25	43	35
Iron	38	70	62	7.8	110	130	64	140	710	91	24	14	16	26	19	73	33
Potassium	1,600	2,100	2,400	1,700	2,000	2,300	2,200	2,100	1,400	2,100	1,900	1,700	1,900	1,500	1,900	1,900	1,800
Magnesium	280	350	370	280	530	550	330	480	700	580	380	280	270	240	390	490	440
Manganese	91	97	97	86	170	250	85	59	120	170	77	9.8	8.2	11	40	170	85
Sodium	1,700	1,900	2,000	1,800	1,700	2,000	2,100	1,700	2,000	1,800	1,800	1,600	1,400	720	1,700	1,900	2,100
Nickel	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead	1.2	0.54J	ND	ND	1.2	ND	0.63	1.2	6.5	1.2	ND	0.27J	0J	0J	0.89	ND	1.2
Antimony	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium	ND	0.53	ND	ND	ND	ND	0.89	ND	ND	ND	ND	0.44	0.58	0.52	ND	ND	ND
Thallium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium	ND	0.10	ND	ND	ND	ND	ND	ND	1.1	ND	ND	ND	ND	ND	ND	ND	ND
Zinc	25	20	21	16	34	36	22	23	27	27	20	14	15	16	19	27	24

mg/kg = milligrams per kilogram
ND indicates below quantitation limit
J indicates value is estimated

TABLE 24
Results of Pesticide/PCB Concentrations in Crayfish - PHASE II
Cornell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

(Results reported in mg/kg, wet weight)

Sample Location	Sample Number	Sample Collected	Arolcor 1254	
A1-1	8631	06/20/97	0.4	J
A1-2	8632	06/20/97	1.1	J
A2-2	10232	06/18/97	1.6	J
A2-3	10233	06/18/97	2.4	J
A2-4	10234	06/18/97	1.4	J
A2-5	10235	06/18/97	1.1	J
A2-10	10231	06/18/97	1.8	J
A2-11	10236	06/18/97	2.3	J
A2-12	10238	06/18/97	1.9	J
A2-13	10239	06/18/97	1.6	J
A3-1	10219	06/18/97	1.7	J
A3-2	10220	06/18/97	1.7	J
A3-3	10221	06/18/97	0.94	J
A3-12	10222	06/18/97	1	J
A3-13	10223	06/18/97	0.98	J
A3-14	10224	06/18/97	0.88	J
A3-15	10225	06/18/97	1.1	J
A3-16	10226	06/18/97	1.1	J
A3-17	10227	06/18/97	1.1	J
A3-18	10228	06/18/97	1.8	J
A3-19	10229	06/18/97	1.8	J
A4-1	10268	06/18/97	0.99	J
A4-2	10269	06/18/97	0.81	J
A4-3	8628	06/18/97	1.4	J
A4-4	8629	06/18/97	1.4	J
A5-1	8633	06/20/97	0.66	J
A5-2	8634	06/20/97	1.1	J
A5-3	8635	06/20/97	0.55	J
A9-1	10240	06/18/97	ND	
A9-2	10241	06/18/97	ND	
A9-3	10242	06/18/97	ND	
A9-4	10243	06/18/97	2.2	J
A9-5	10244	06/18/97	ND	
A9-6	10245	06/18/97	ND	
A9-7	10246	06/18/97	ND	
A9-9	10247	06/18/97	ND	
A9-13	10248	06/20/97	ND	
A9-14	10249	06/20/97	ND	

ND indicates below quantitation limit
J indicates value is estimated
mg/kg = milligrams per kilogram

TABLE 25
Results of Metal Concentrations in Forage Fish Tissue - PHASE II
Comell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

(Results reported in mg/kg, wet weight)

Sample Location Sample Number Sample Collected	A1-PS-1 10456 06/18/97	A1-PS-2 10457 06/18/97	A1-PS-3 10458 06/18/97	A1-PS-4 10459 06/18/97	A1-PS-5 10460 06/18/97	A1-PS-6 10461 06/18/97
Parameter	Conc mg/kg	Conc mg/kg	Conc mg/kg	Conc mg/kg	Conc mg/kg	Conc mg/kg
Mercury	0.03 *	0.03 *	0.06 *	ND	0.027	0.19
Silver	0.2 * J	0.1 * J	0.2 * J	0.19 J	0.23 J	ND
Aluminum	11 * J	14 * J	12 * J	13 J	13 J	16 J
Arsenic	0.17 *	0.13 *	0.14 *	ND	ND	ND
Barium	1.0 * J	1.8 *	2.1 *	2.1	1.9	1.9
Calcium	8,800 *	14,000 *	15,000 *	12,000	13,000	15,000
Cadmium	0.2 *	0.26 *	0.2 *	ND	ND	ND
Chromium	0.3 *	0.3 *	ND	ND	ND	ND
Copper	0.9 *	2.5 *	0.7 *	0.70	0.70	0.90
Iron	23 * J	24 * J	19 * J	22 J	19 J	24 J
Potassium	2,800 *	2,800 *	2,700*	2,800	2,900	3,000
Magnesium	340 *	410 *	440 *	380	400	430
Manganese	4.8 *	13 *	7.9 *	22	5.4	17
Sodium	1,000 *	1,100 *	4,800 *	1,100	1,000	1,000
Nickel	ND	ND	ND	ND	ND	ND
Lead	0.50 * J	0.42 * J	0.37 * J	0.54 J	0.48 J	0.50 J
Antimony	0.3 * J	0.4 * J	ND	0.48 J	0.58 J	ND
Selenium	1.6 *	1.1 *	1.1 *	1.3	1.2	1.4
Vanadium	0.2 * J	0.3 * J	0.3 * J	0.27 J	0.26 J	0.22 J
Zinc	20 *	22 * J	23 *	37	21	21

* Whole body concentrations were calculated using fillet and carcass concentrations data.
ND indicates below quantitation limit
J indicates value is estimated
mg/kg = milligrams per kilogram

TABLE 25 (Cont'd.)
Results of Metal Concentrations in Forage Fish Tissue - PHASE II
Cornell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

(Results reported in mg/kg, wet weight)

Sample Location Sample Number Sample Collected	A2-PS-1 10470 06/17/97	A2-PS-2 10471 06/17/97	A2-PS-3 10472 06/17/97	A2-PS-4 10473 06/17/97	A2-PS-5 10474 06/17/97
Parameter	Conc mg/kg	Conc mg/kg	Conc mg/kg	Conc mg/kg	Conc mg/kg
Mercury	0.04 *	0.04 *	0.042	0.041	0.048
Silver	0.1 * J	ND	ND	0.16 J	0.19
Aluminum	10 * J	18 * J	13 J	15 J	18
Arsenic	0.13 *	0.14 *	ND	ND	ND
Barium	2.5 *	1.7 *	2.4	2.4	2.1
Calcium	14,000 *	10,000 *	17,000	14,000	8,700
Cadmium	0.11 *	0.29 *	ND	ND	ND
Chromium	0.2 *	0.3 *	ND	ND	ND
Copper	0.7 *	1.0 *	0.77	0.78	0.80
Iron	17 * J	27 * J	16 J	16 J	20
Potassium	2,500 *	2,700 *	2,200	2,500	2,300
Magnesium	390 *	350 *	450	400	330
Manganese	9.6 *	8.1 *	12	8.1	7.4
Sodium	1,000 *	1,100 *	880	1,100	790
Nickel	ND	ND	ND	ND	ND
Lead	0.45 * J	0.46 * J	0.57 J	0.63 J	0.65 J
Antimony	0.4 * J	ND	ND	0.80 J	0.47
Selenium	1.2 *	1.1 *	1.5	1.1	1.1
Vanadium	0.2 * J	0.2 * J	0.25 J	0.21 J	0.19
Zinc	21 *	36 *	21	23	19

* Whole body concentrations were calculated using fillet and carcass concentrations data.
ND indicates below quantitation limit
J indicates value is estimated
mg/kg = milligrams per kilogram

TABLE 25 (Cont'd.)
Results of Metal Concentrations in Forage Fish Tissue - PHASE II
Cornell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

(Results reported in mg/kg, wet weight)

Sample Location Sample Number Sample Collected	A3-PS-1 10462 06/18/97	A3-PS-2 10463 06/18/97	A3-PS-3 10464 06/18/97	A3-PS-4 10465 06/18/97	A3-PS-5 10466 06/18/97	A3-PS-6 10467 06/18/97	A3-PS-7 10468 06/18/97	A3-PS-8 10469 06/18/97
Parameter	Conc mg/kg	Conc mg/kg	Conc mg/kg	Conc mg/kg	Conc mg/kg	Conc mg/kg	Conc mg/kg	Conc mg/kg
Mercury	0.08 *	0.05 *	0.03 *	0.023	0.035	0.046	0.034	0.038
Silver	0.2 *	0.2 * J	0.15 * J	0.16 J	ND	0.16 J	0.19 J	0.15 J
Aluminum	54 * J	12 * J	11.2 * J	21 J	26 J	15 J	48 J	13 J
Arsenic	0.16 *	0.15 *	0.13 *	ND	ND	ND	ND	ND
Barium	2.5 *	2.1 *	2.5 *	2.2	2.6	2.8	2.4	2.4
Calcium	13,000 *	12,000 *	8,600 *	15,000	14,000	17,000	15,000	15,000
Cadmium	0.37 *	0.12 *	0.20 *	ND	ND	ND	ND	ND
Chromium	ND	0.2 *	0.23 *	ND	ND	ND	ND	ND
Copper	1.7 *	0.6 *	1.4 *	0.64	1.2	0.86	0.94	1.0
Iron	88 * J	17 * J	23 * J	24 J	36 J	22 J	65 J	18 J
Potassium	2,500 *	2,800 *	2,600 *	2,700	2,900	2,700	2,600	2,700
Magnesium	380 *	420 *	320 *	450	420	460	430	470
Manganese	14 *	3.6 *	7.8 *	8.5	13	12	23	8.0
Sodium	1,300 *	1,100 *	2,100 *	1,000	960	1,100	910	1,100
Nickel	ND	ND	ND	ND	ND	ND	ND	ND
Lead	0.96 * J	0.38 * J	0.33 * J	0.56 J	0.75 J	0.59 J	0.77 J	0.55 J
Antimony	0.4 *	0.4 * J	0.31 * J	ND	0.52 J	0.56 J	0.53 J	ND
Selenium	1.2 *	1.3 *	0.76 *	1.0	1.3	1.2	0.97	1.5
Vanadium	0.4 * J	0.2 * J	0.22 * J	0.25 J	0.27 J	0.20 J	0.21 J	0.26 J
Zinc	22 *	21 *	20 *	22	20	25	23	24

* Whole body concentrations were calculated using fillet and carcass concentrations data.
ND indicates below quantitation limit
J indicates value is estimated
mg/kg = milligrams per kilogram

TABLE 25 (Cont'd.)
Results of Metal Concentrations in Forage Fish Tissue
Cornell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

(Results reported in mg/kg, wet weight)

Sample Location	A4-PS-1	A4-PS-2	A4-PS-3	A4-PS-4	A4-PS-5	A4-PS-6	A4-PS-7	A5-PS-4	A5-PS-5	A5-PS-6	A5-PS-7	A5-PS-8	A5-PS-9	A5-PS-10
Sample Number	10434	10435	10436	10437	10438	10439	10440	10449	10450	10451	10452	10453	10454	10455
Sample Collected	06/18/97	06/18/97	06/18/97	06/18/97	06/18/97	06/18/97	06/18/97	06/17/97	06/17/97	06/17/97	06/17/97	06/17/97	06/17/97	06/17/97
Parameter	Conc mg/kg	Conc mg/kg	Conc mg/kg	Conc mg/kg	Conc mg/kg	Conc mg/kg	Conc mg/kg	Conc mg/kg	Conc mg/kg	Conc mg/kg	Conc mg/kg	Conc mg/kg	Conc mg/kg	Conc mg/kg
Mercury	0.01 *	0.10 *	0.04 *	0.06	0.03	0.049	0.03	0.063	0.066	0.026	0.048	0.036	0.044	0.035
Silver	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.22 J
Aluminum	7.5 *	4.6 *	6.9 *	5.9	ND	6.7	ND	ND	ND	ND	ND	ND	19 J	12 J
Arsenic	0.08 *	0.12 *	0.18 *	0.25	ND	ND	ND	0.31	ND	0.15	ND	ND	ND	ND
Barium	1.7 *	1.9 *	3.2 *	1.9	1.8	1.8	3.0	3.4	2.8	1.7	2.4	1.8	2.3	3.2
Calcium	10,000 *	13,000 *	19,000 *	11,000	13,000	10,000	12,000	20,000	17,000	13,000	19,000	12,000	15,000	22,000
Cadmium	0.07 *	0.10 *	0.14 *	0.14	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium	.08 *	.09 *	0.4 *	2.1	0.33	0.33	0.63	0.41	0.30	0.29	0.42	0.33	ND	ND
Copper	2.8 *	1.1 *	1.4 *	1.3	0.82	0.95	1.3	0.75	0.58	0.64	0.75	0.80	0.87	0.76
Iron	21 *	31 *	21 *	27	14 J	19	15 J	11 J	11 J	11 J	11 J	22	23 J	18 J
Potassium	2,300 *	2,500 *	2,400 *	2,300	2,600	2,400	2,200	2,000	2,200	2,000	2,300	2,200	2,500	2,500
Magnesium	320 *	400 *	500 *	360	400	340	360	550	500	390	470	340	430	550
Manganese	4.4 *	8.2 *	9.8 *	9.8	5.3	11	7.9	3.9	3.1	3.0	8.1	11	6.0	6.5
Sodium	1,000 *	1,100 *	1,200 *	1,000	1,100	930	940	980	1,000	850	1,100	970	1,100	1,100
Nickel	0.4 *	0.2 *	ND	0.31	ND	0.17	0.86	ND	0.20	ND	ND	ND	ND	ND
Lead	0.30 *	0.55 *	0.47 *	0.26	0.15	0.25	0.57	0.52	0.22	0.18	0.52	0.43	0.46 J	0.51 J
Antimony	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND J	0.81 J
Selenium	0.6 *	0.71 *	1.0 *	1.1	1.1	0.95	0.89	0.77	1.0	0.83	0.97	0.80	1.6	1.0
Vanadium	0.1 *	0.1 *	0.3 *	0.11	0.12	0.72	0.13	0.18	0.11	0.10	ND	0.12	0.16 J	0.39 J
Zinc	21 *	24 *	23 *	17	19	15	19	23	21	17	23	17	20	22

* Whole Body concentrations were calculated by using fillet and carcass concentrations data.
ND indicates below quantitation limit
J indicates value is estimated
mg/kg = milligram per kilogram

TABLE 25 (Cont'd.)
Results of Metal Concentrations in Forage Fish Tissue
Cornell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

(Results reported in mg/kg, wet weight)

Sample Location	A6-PS-4	A6-PS-5	A6-PS-6	A6-PS-7	A6-PS-8	A6-PS-9	A6-PS-10	A6-PS-11	A9-PS-1	A9-PS-2	A9-PS-3	A9-PS-4	AS-PS-5
Sample Number	10441	10442	10443	10444	10445	10446	10447	10448	10475	10476	10477	10478	10479
Sample Collected	06/17/97	06/17/97	06/17/97	06/17/97	06/17/97	06/17/97	06/17/97	06/17/97	06/18/97	06/18/97	06/18/97	06/18/97	06/18/97
Parameter	Conc mg/kg	Conc mg/kg	Conc mg/kg	Conc mg/kg	Conc mg/kg	Conc mg/kg	Conc mg/kg	Conc mg/kg	Conc mg/kg	Conc mg/kg	Conc mg/kg	Conc mg/kg	Conc mg/kg
Mercury	0.04	0.06	ND	0.039	0.04	0.05	0.032	0.028	0.032	0.032	0.030	0.029	0.019
Silver	ND	ND	ND	ND	ND	ND	ND	ND	0.18	ND	0.24	0.22	ND
Aluminum	ND	15	ND	11	ND	ND	ND	ND	13	16	14	17	18
Arsenic	ND	ND	ND	0.35	ND	ND	0.42	ND	ND	ND	ND	ND	ND
Barium	2.0	2.7	2.1	1.8	1.8	2.1	1.8	1.4	2.6	2.3	2.4	3.0	2.1
Calcium	15,000	24,000	18,000	19,000	21,000	16,000	19,000	20,000	15,000	13,000	9,700	16,000	12,000
Cadmium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium	0.61	1.1	0.44	0.32	0.40	0.52	1.4	0.52	ND	ND	ND	ND	ND
Copper	0.77	2.4	0.69	0.78	0.63	0.94	0.83	0.72	0.91	0.84	0.67	0.96	1.1
Iron	16 J	33	12 J	14 J	17 J	13 J	16 J	15 J	13	19	18	43	20
Potassium	2,200	2,200	2,200	2,300	2,200	2,100	2,200	2,300	2,800	2,500	2,600	2,600	2,600
Magnesium	410	550	440	480	530	440	480	520	450	400	350	460	400
Manganese	6.2	16	9.6	12	11	5.6	8.7	8.5	5.6	6.3	8.3	8.4	6.5
Sodium	910	1,100	2,400	1,100	1,100	970	1,100	1,400	930	830	810	970	740
Nickel	ND	1.1	ND	ND	ND	0.13	0.18	ND	ND	ND	ND	ND	ND
Lead	0.22	2.9	0.23	0.35	0.35	0.60	0.48	0.33	0.38 J	0.47 J	0.61 J	0.50 J	0.66 J
Antimony	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.54	0.80	0.52	ND
Selenium	0.88	0.64	0.75	0.67	0.75	0.80	0.65	0.83	1.3	1.1	1.5	1.1	1.6
Vanadium	0.12	0.38	ND	0.14	0.16	0.097	0.13	0.078	0.36	0.20	0.25	0.29	ND
Zinc	21	28	18	27	26	21	23	23	20	19	17	21	21

* Whole Body concentrations were calculated by using fillet and carcass concentrations data.
ND indicates below quantitation limit
J indicates value is estimated
mg/kg = milligram per kilogram

TABLE 26
Results of Pesticide/PCB Concentrations in Forage Fish Tissue - PHASE II
Cornell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

(Results reported in mg/kg, wet weight)

Sample Location	Sample Number	Sample Collected	Aroclor 1254	MDL
A1-PS-1	10456	06/18/97	2.1 *	500
A1-PS-2	10457	06/18/97	15 *	5000
A1-PS-3	10458	06/18/97	1.5 *	1000
A1-PS-4	10459	06/18/97	1.1	1000
A1-PS-5	10460	06/18/97	1.3	500
A1-PS-6	10461	06/18/97	2.5	500
A2-PS-1	10470	06/17/97	20 *	500
A2-PS-2	10471	06/17/97	16 *	980
A2-PS-3	10472	06/17/97	8.4	1000
A2-PS-4	10473	06/17/97	9.4	1000
A2-PS-5	10474	06/17/97	7.1	1700
A3-PS-1	10462	06/18/97	14 *	500
A3-PS-2	10463	06/18/97	10 *	500
A3-PS-3	10464	06/18/97	15 *	980
A3-PS-4	10465	06/18/97	4.0	500
A3-PS-5	10466	06/18/97	6.1	1000
A3-PS-6	10467	06/18/97	3.6	1000
A3-PS-7	10468	06/18/97	3.3	1000
A3-PS-8	10469	06/18/97	5.4	1000
A4-PS-1	10434	06/18/97	1.3 *	500
A4-PS-2	10435	06/18/97	4.5 *	990
A4-PS-3	10436	06/18/97	16 *	2000
A4-PS-4	10437	06/18/97	5.1	990
A4-PS-5	10438	06/18/97	5.5	930
A4-PS-6	10439	06/18/97	6.0	910
A4-PS-7	10440	06/18/97	5.4	970
A5-PS-4	10449	06/17/97	2.7	500
A5-PS-5	10450	06/17/97	11	480
A5-PS-6	10451	06/17/97	11	490
A5-PS-7	10452	06/17/97	2.1	500
A5-PS-8	10453	06/17/97	3.5	500
A5-PS-9	10454	06/17/97	3.8	500
A5-PS-10	10455	06/17/97	4.5	500
A6-PS-4	10441	06/17/97	7.6	1000
A6-PS-S	10442	06/17/97	1.5	190
A6-PS-6	10443	06/17/97	4.1	500
A6-PS-7	10444	06/17/97	1.9	490
A6-PS-8	10445	06/17/97	0.9	200
A6-PS-9	10446	06/17/97	6.3	1000
A6-PS-10	10447	06/17/97	2.8	500
A6-PS-11	10448	06/17/97	2.9	490
A9-PS-1	10475	06/18/97	0.23	170
A9-PS-2	10476	06/18/97	0.47	200
A9-PS-3	10477	06/18/97	0.21	190
A9-PS-4	10478	06/18/97	0.64	220
A9-PS-5	10479	06/18/97	0.33	100

* Whole body concentrations were calculated using fillet and carcass concentrations data.
mg/kg = milligrams per kilogram

TABLE 27
Results of Metal Concentrations in Edible Fish Tissue - PHASE II
Comell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

(Results reported in mg/kg, wet weight)

Sample Number Sample Location Sample Collection	A1-CC-1 Area 1 06/17/97	A1-CC-2 Area 1 06/17/97	A1-CC-3 Area 1 06/17/97	A1-WS-1 Area 1 06/17/97	A1-WS-2 Area 1 06/17/97	A1-WS-3 Area 1 06/17/97	A1-PS-1 Area 1 06/17/97	A1-PS-2 Area 1 06/17/97	A1-PS-3 Area 1 06/17/97
% Solids	26	27	30	20	18	20	21	22	21
Aluminum	6.5	3.5	3.6	ND	3.8	62	4.6	7	12
Arsenic	ND	ND	ND	ND	ND	ND	0.13	ND	ND
Barium	ND	ND	ND	0.32	0.22	0.4	0.23	0.17	ND
Calcium	164	170	240	1200	470	480	1400	950	1100
Chromium	0.34	0.38	ND	0.32	0.45	0.32	0.46	0.37	ND
Copper	1.2	0.81	0.42	2.6	1.4	0.48	0.76	3.3	0.5
Iron	17	15	10	6	14	10	12	6.6	8.4
Lead	ND	ND	ND	ND	ND	ND	ND	ND	ND
Magnesium	190	200	180	240	230	240	250	260	270
Manganese	0.15	0.18	0.15	1	1	1.8	0.65	0.86	0.88
Mercury	0.03	0.05	0.05	0.05	ND	0.05	0.05	0.05	0.09
Nickel	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium	2900	3000	2700	3400	3100	3200	3200	3300	3200
Selenium	0.86	0.76	0.66	0.46	0.38	0.4	1.1	0.57	0.61
Sodium	310	300	330	420	430	440	570	500	610
Zinc	14	9.5	14	12	12	15	16	12	12

ND indicates below quantitation limit

TABLE 27 (Cont'd.)
Results of Metal Concentrations in Edible Fish Tissue - PHASE II
Cornell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

(Results reported in mg/kg, wet weight)

Sample Number Sample Location Sample Collection	A2-WS-1 Area 2 06/17/97	A2-WS-2 Area 2 06/17/97	A2-WS-3 Area 2 06/17/97	A2-PS-1 Area 2 06/17/97	A2-PS-2 Area 2 06/17/97
% Solids	20	19	21	21	25
Aluminum	ND	2.7	ND	4.6	ND
Arsenic	ND	ND	ND	ND	ND
Barium	ND	0.21	0.16	0.16	0.28
Calcium	420	190	460	630	1500
Chromium	ND	0.3	0.27	0.27	ND
Copper	0.46	0.67	0.53	0.61	0.7
Iron	6	4.6	5.9	7.8	6.8
Lead	ND	ND	ND	ND	ND
Magnesium	240	230	250	230	280
Manganese	0.22	0.18	0.29	0.48	1.2
Mercury	0.2	0.15	0.11	0.06	0.05
Nickel	ND	ND	ND	ND	ND
Potassium	3400	3600	3600	2900	3300
Selenium	0.36	0.3	0.4	0.53	0.55
Sodium	440	340	360	590	650
Zinc	10	13	10	8.6	12

ND Indicates below quantitation limit

TABLE 27 (Cont'd.)
Results of Metal Concentrations in Edible Fish Tissue - PHASE II
Comell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

(Results reported in mg/kg, wet weight)

Sample Number	A3-WS-1	A3-WS-2	A3-WS-3	A3-PS-1	A3-PS-2	A3-PS-3
Sample Location	Area 3	Area 3	Area 3	Area 3	Area 3	Area 3
Sample Collection	06/18/97	06/18/97	06/18/97	06/18/97	06/18/97	06/18/97
% Solids	22	21	20	18	21	20
Aluminum	3.1	3.6	3.2	3.1	ND	ND
Arsenic	ND	ND	ND	ND	ND	ND
Barium	0.18	0.2	0.2	0.22	0.21	0.24
Calcium	310	180	380	1400	1400	1300
Chromium	ND	0.29	0.21	ND	0.29	0.3
Copper	0.4	4	0.7	0.59	0.38	1.4
Iron	5.3	11	5.8	3.4	3.6	4
Lead	ND	ND	ND	ND	ND	ND
Magnesium	260	230	220	230	290	260
Manganese	0.26	0.42	0.36	0.85	0.38	0.64
Mercury	0.11	0.12	0.11	0.11	0.08	0.04
Nickel	ND	0.86	ND	ND	ND	ND
Potassium	4000	3800	3600	2700	3600	3200
Selenium	0.46	0.38	0.26	0.5	0.57	0.36
Sodium	290	380	300	520	570	520
Zinc	9.7	11	11	16	12	8.6

ND indicates below quantitation limit

TABLE 27 (Cont'd.)
Results of Metal Concentrations in Edible Fish Tissue - PHASE II
Cornell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

(Results reported in mg/kg, wet weight)

Sample Number Sample Location Sample Collection	A4-PS-1 Area 4 06/18/97	A4-PS-2 Area 4 06/18/97	A4-PS-3 Area 4 06/18/97
% Solids	23	20	19
Aluminum	ND	4.4	4.8
Arsenic	ND	ND	ND
Barium	ND	0.3	0.21
Calcium	780	2600	1100
Chromium	0.53	ND	ND
Copper	1.8	0.74	1.2
Iron	4.6	3.8	3.2
Lead	ND	ND	ND
Magnesium	250	260	250
Manganese	0.32	0.7	0.42
Mercury	ND	0.13	ND
Nickel	ND	ND	ND
Potassium	3200	3000	2900
Selenium	ND	0.34	0.53
Sodium	440	560	400
Zinc	12	17	12

ND indicates below quantitation limit

TABLE 27 (Cont'd.)
Results of Metal Concentrations in Edible Fish Tissue - PHASE II
Comell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

(Results reported in mg/kg, wet weight)

Sample Number Sample Location Sample Collection	A5-PS-1 Area 5 06/17/97	A5-PS-2 Area 5 06/17/97	A5-PS-3 Area 5 06/17/97	A5-LB-1 Area 5 06/17/97	A5-LB-2 Area 5 06/17/97	A5-LB-3 Area 5 06/17/97	A5-WS-1 Area 5 06/17/97	A5-WS-2 Area 5 06/17/97	A5-WS-3 Area 5 06/17/97	A5-CC-1 Area 5 06/17/97	A5-BH-1 * Area5 06/17/97
% Solids	20	20	21	18	19	20	16	22	20	21	20
Aluminum	4.8	3.4	ND	4.5	21	3	3.8	2.6	3.2	ND	ND
Arsenic	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Barium	ND	0.3	ND	ND	ND	0.11	0.21	0.24	0.32	ND	ND
Calcium	860	2800	252	320	320	580	340	330	460	190	220
Chromium	ND	0.36	0.44	0.77	0.25	ND	0.34	ND	1.2	0.32	0.9
Copper	1.9	0.38	0.53	0.68	0.57	0.22	0.53	0.37	0.44	1.4	2.4
Iron	6.2	9.2	6.5	16	5.1	3.2	6.1	6.4	11	19	6.8
Lead	0.13	ND	0.12	ND	ND	ND	0.22	ND	ND	ND	ND
Magnesium	240	280	210	220	250	240	210	240	220	170	260
Manganese	0.28	1.04	0.25	0.21	0.15	0.22	0.21	0.26	0.34	0.34	0.3
Mercury	0.13	0.06	0.21	0.23	0.07	0.1	0.08	0.08	0.09	0.04	ND
Nickel	ND	ND	ND	ND	ND	ND	ND	ND	0.64	ND	0.9
Potassium	3000	3200	3150	3200	3000	3200	3000	3700	3400	2520	3800
Selenium	0.5	0.4	0.32	0.29	0.27	0.42	0.46	0.46	0.44	0.46	ND
Sodium	420	560	340	360	340	480	240	330	300	340	400
Zinc	12	18	10	16	11	12	14	14	22	12	5.8

ND indicates below quantitation limit
* Sample was analyzed during phase III but was collected during phase II

TABLE 27 (Cont'd.)
Results of Metal Concentrations in Edible Fish Tissue - PHASE II
Cornell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

(Results reported in mg/kg, wet weight)

Sample Number Sample Location Sample Collection	A6-LB-1 Area 6 06/17/97	A6-LB-2 Area 6 06/17/97	A6-LB-3 Area 6 06/17/97	A6-PS-1 Area 6 06/17/97	A6-PS-2 Area 6 06/17/97	A6-PS-3 Area 6 06/17/97	A6-CC-1 Area 6 06/17/97	A6-CC-2 Area 6 06/17/97	A6-CC-3 Area 6 06/17/97
% Solids	18	19	20	18	18	18	19	26	24
Aluminum	9.2	170	3.4	6.4	6.1	7.7	21	6.8	5.5
Arsenic	ND	ND	ND	ND	ND	0.14	ND	ND	ND
Barium	ND	ND	ND	ND	ND	ND	0.17	ND	ND
Calcium	410	230	240	1200	540	900	440	94	260
Chromium	0.21	ND	ND	0.25	0.59	0.81	0.63	0.34	0.23
Copper	0.29	0.53	ND	0.38	0.52	0.67	0.99	0.55	0.46
Iron	6.5	9.3	6	11	10	11	12	14	11
Lead	ND	ND	ND	ND	ND	ND	0.17	ND	ND
Magnesium	220	210	240	220	220	230	190	130	180
Manganese	0.16	0.14	0.22	0.34	0.32	0.59	0.3	ND	0.26
Mercury	0.11	0.25	0.08	0.07	0.06	0.04	ND	ND	ND
Nickel	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium	2900	3200	3200	2900	2700	2900	2700	2000	2400
Selenium	0.25	0.23	0.34	0.41	0.61	0.95	0.59	0.55	0.46
Sodium	450	400	420	520	430	490	360	440	290
Zinc	10	9.1	11	15	13	11	14	16	15

ND indicates below quantitation limit

TABLE 27 (Cont'd.)
Results of Metal Concentrations in Edible Fish Tissue - PHASE II
Cornell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

(Results reported in mg/kg, wet weight)

Sample Number Sample Location Sample Collection	A9-WS-1 Area 9 (ref) 06/18/97	A9-WS-2 Area 9 (ref) 06/18/97	A9-WS-3 Area 9 (ref) 06/18/97	A9-CC-1 Area 9 (ref) 06/18/97	A9-CC-2 Area 9 (ref) 06/18/97	A9-CC-3 Area 9 (ref) 06/18/97
% Solids	22	21	21	19	21	23
Aluminum	3.7	2.7	4.4	4.9	9	6.1
Arsenic	ND	ND	ND	ND	ND	ND
Barium	0.35	0.17	ND	0.36	0.42	2.2
Calcium	920	230	155	460	360	4800
Chromium	0.37	0.27	ND	ND	ND	0.55
Copper	3.1	0.5	0.23	1.4	1.6	0.74
Iron	6.8	6.7	3.4	11	25	11
Lead	ND	ND	ND	ND	ND	ND
Magnesium	240	230	250	250	230	300
Manganese	4.1	0.23	0.17	0.48	0.86	2.5
Mercury	0.04	0.1	0.04	ND	ND	ND
Nickel	ND	ND	ND	ND	ND	ND
Potassium	3500	3400	3800	2900	2900	2800
Selenium	0.33	0.38	0.34	0.32	0.27	ND
Sodium	350	270	270	440	360	550
Zinc	17	13	7.6	7	15	25

ND indicates below quantitation limit

Table 28
Results of Pesticide/PCB Concentrations in Edible Fish Tissue - PHASE II
Cornell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

(Results reported in mg/kg, wet weight)

Area	Species	Sample Location	Sample Collected	%Solid	%Lipid	Arochlor 1248	Arochlor 1254	Heptachlor Epoxide	a-Chlordane	a-Chlordane	4,4'-DDE	4,4'-DDD	Endrin Aldehyde	Methoxychlor
A1	Carp	A1-CC-1	06/17/97	26%	26%	1.3 W	6.2 JW	0.03 J	0.1 EJ	0.3 J	0.1 EJ	0.1 J	ND	ND
A1	Carp	A1-CC-2	06/17/97	27%	32%	1.2 W	7.3 JW	0.05 J	0.2 EJ	ND	0.2 EJ	0.1 EJ	ND	ND
A1	Carp	A1-CC-3	06/17/97	30%	40%	1.7 W	8.1 JW	0.03 J	0.2 EJ	ND	0.1 EJ	0.2 J	ND	ND
A1	Pumpkin Seed	A1-PS-1	06/17/97	21%	5%	0.2 W	0.5 JW	0.01 J	ND	ND	0.008 J	0.004 J	ND	ND
A1	Pumpkin Seed	A1-PS-2	06/17/97	22%	7%	1.7 W	4.8 JW	0.04 J	ND	ND	0.1 J	ND	ND	ND
A1	Pumpkin Seed	A1-PS-3	06/17/97	21%	5%	0.1 W	0.5 JW	0.004 J	ND	ND	0.01 J	ND	ND	ND
A1	White Sucker	A1-WS-1	06/17/97	20%	12%	1.6 W	3.6 JW	ND	ND	ND	0.1 J	ND	ND	ND
A1	White Sucker	A1-WS-2	06/17/97	18%	11%	0.1 W	1.0 JW	0.005 J	0.02 J	0.03 J	0.02 J	ND	ND	ND
A1	White Sucker	A1-WS-3	06/17/97	20%	8%	0.8 W	5.8 JW	ND	ND	ND	0.1 J	ND	ND	ND
A2	Pumpkin Seed	A2-PS-1	06/17/97	21%	9%	1.3 W	2.7 JW	0.02 J	ND	ND	0.03 J	ND	ND	ND
A2	Pumpkin Seed	A2-PS-2	06/17/97	25%	9%	2.0 W	5.0 JW	0.03 J	ND	ND	0.1 J	ND	ND	ND
A2	White Sucker	A2-WS-1	06/17/97	20%	8%	2.4 W	5.6 JW	0.03 J	ND	ND	0.1 J	ND	ND	ND
A2	White Sucker	A2-WS-2	06/17/97	19%	7%	1.3 W	3.2 JW	0.02 J	ND	ND	0.04 J	ND	ND	ND
A2	White Sucker	A2-WS-3	06/17/97	21%	12%	3.8 W	8.4 JW	0.1 J	ND	ND	0.1 EJ	ND	ND	ND
A3	Pumpkin Seed	A3-PS-1	06/18/97	18%	4%	6.7 W	1.6 JW	0.01 J	ND	ND	0.02 J	ND	ND	ND
A3	Pumpkin Seed	A3-PS-2	06/18/97	21%	4%	0.7 W	1.4 JW	0.01 J	ND	ND	0.01 J	ND	ND	ND
A3	Pumpkin Seed	A3-PS-3	06/18/97	20%	5%	1.2 W	2.2 JW	0.02 J	ND	ND	0.03 J	ND	ND	ND
A3	White Sucker	A3-WS-1	06/18/97	22%	11%	3.3 W	7.7 JW	0.1 J	ND	ND	0.1 EJ	ND	ND	ND
A3	White Sucker	A3-WS-2	06/18/97	20%	6%	2.2 W	6.0 JW	0.02 J	ND	ND	0.1 J	ND	ND	ND
A3	White Sucker	A3-WS-3	06/18/97	20%	12%	2.6 W	5.8 JW	0.04 J	ND	ND	0.1 EJ	ND	ND	ND
A4	Pumpkin Seed	A4-PS-1	06/18/97	23%	5%	0.2 W	0.2 JW	0.003 J	ND	ND	0.01 J	0.01 J	ND	ND
A4	Pumpkin Seed	A4-PS-2	06/18/97	20%	3%	0.5 W	2.0 W	0.02 J	ND	ND	0.02 J	ND	ND	ND
A4	Pumpkin Seed	A4-PS-3	06/18/97	19%	8%	1.5 W	2.1 JW	0.02 J	ND	ND	0.03 J	ND	ND	ND
A5	Carp	A5-CC-1	06/17/97	21%	6%	6.1 W	16.0 JW	ND	ND	ND	ND	ND	0.1 EJ	ND
A5	Largemouth Bass	A5-LB-1	06/17/97	18%	2%	0.3 W	0.7 JW	0.01 J	ND	ND	ND	ND	0.006 J	ND
A5	Largemouth Bass	A5-LB-2	06/17/97	19%	1%	0.3 W	0.8 JW	ND	ND	ND	ND	ND	0.006 J	ND
A5	Largemouth Bass	A5-LB-3	06/17/97	20%	2%	0.4 W	1.1 JW	ND	ND	ND	ND	ND	0.007 J	ND
A5	Pumpkin Seed	A5-PS-1	06/17/97	20%	3%	0.9 W	1.7 JW	0.02 J	ND	ND	ND	ND	ND	0.004 BJ
A5	Pumpkin Seed	A5-PS-2	06/17/97	20%	2%	0.6 W	1.5 JW	0.01 J	ND	ND	ND	ND	0.008 J	ND
A5	Pumpkin Seed	A5-PS-3	06/17/97	21%	5%	1.2 W	2.3 JW	0.03 J	ND	ND	ND	ND	0.01 J	ND
A5	White Sucker	A5-WS-1	06/17/97	16%	16%	3.5 W	12.0 JW	ND	ND	ND	ND	ND	ND	ND
A5	White Sucker	A5-WS-2	06/17/97	22%	14%	3.5 W	9.5 JW	0.1 J	ND	ND	ND	ND	0.1 J	ND
A5	White Sucker	A5-WS-3	06/17/97	20%	5%	1.5 W	5.6 JW	0.03 J	ND	ND	ND	ND	ND	ND
A5	Catfish *	A5-BH-1	06/17/97	20%	7%	0.3 W	1.7 W	ND	ND	ND	0.04 MI	ND	ND	ND
A6	Carp	A6-CC-1	06/17/97	19%	13%	2.7 W	8.2 JW	0.02 J	ND	ND	0.1 EJ	ND	ND	ND
A6	Carp	A6-CC-2	06/17/97	26%	37%	10.0 W	26.0 JW	0.1 EJ	ND	ND	0.3 EJ	ND	ND	ND
A6	Carp	A6-CC-3	06/17/97	24%	33%	8.9 W	17.0 JW	0.1 EJ	ND	ND	ND	ND	ND	ND
A6	Largemouth Bass	A6-LB-1	06/17/97	18%	2%	0.3 W	0.6 JW	ND	ND	ND	ND	ND	0.005 J	ND
A6	Largemouth Bass	A6-LB-2	06/17/97	19%	2%	0.3 W	1.1 JW	0.005 J	ND	ND	0.01 J	ND	ND	ND
A6	Largemouth Bass	A6-LB-3	06/17/97	20%	1%	0.6 W	1.7 JW	0.007 J	ND	ND	0.02 J	ND	ND	ND
A6	Pumpkin Seed	A6-PS-1	06/17/97	18%	3%	0.5 W	1.4 JW	0.009 J	ND	ND	0.01 J	ND	ND	ND
A6	Pumpkin Seed	A6-PS-2	06/17/97	18%	2%	0.5 W	1.2 JW	0.006 J	ND	ND	0.009 J	ND	ND	ND
A6	Pumpkin Seed	A6-PS-3	06/17/97	18%	6%	0.6 W	1.4 JW	0.01 J	ND	ND	0.01 J	ND	ND	ND
A9 (ref)	Carp	A9-CC-1	06/19/97	18%	9%	0.05 W	0.2 JW	0.001 J	0.008 J	0.02 J	ND	0.003 J	ND	ND
A9 (ref)	Carp	A9-CC-2	06/18/97	21%	14%	0.1 W	0.3 JW	0.004 J	0.03 J	0.1 J	0.02 J	0.008 J	ND	ND
A9 (ref)	Carp	A9-CC-3	06/18/97	23%	12%	0.1 W	0.4 JW	0.003 J	0.02 J	0.03 J	0.009 J	0.006 J	ND	ND
A9 (ref)	White Sucker	A9-WS-1	06/18/97	22%	13%	0.5 W	3.1 JW	0.01 J	ND	ND	0.04 J	ND	ND	ND
A9 (ref)	White Sucker	A9-WS-2	06/18/97	21%	11%	1.5 W	6.3 JW	0.02 J	ND	ND	0.05 J	ND	ND	ND
A9 (ref)	White Sucker	A9-WS-3	06/18/97	21%	8%	0.05 W	0.3 JW	0.002 J	0.005 J	0.01 J	0.005 J	0.002 J	ND	ND

J indicates value is estimated
W indicates sample was weathered, value is estimated
ND indicates below quantitation limit
MI indicates matrix interference
E indicates that the concentration exceeded the calibration range of the instrument
mg/kg = milligrams per kilogram
* Sample was analyzed during phase III but was collected during phase II

\274\delfr\9907\tables1a.wb2

TABLE 29
Survival and Growth Results from 14-day Solid Phase Amphipod Toxicity Test - PHASE II
Cornell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

Sample Location	Sample Number	Survival (%)	Mean Length (mm)
Control	NA	83.3	2.7
A9-1	10265	91.7	2.4
A1-1	10486	90.8	2.8
A2-2	10493	94.2	2.8
A3-1	10264	76.7*	2.7
A4-1	10494	90.8	2.4
A5-2	10479	82.5	2.5
A6-2	10262	88.3	2.7

*Statistically significant, compared to the reference area (A9-1)

TABLE 30
Results of Analysis for Volatile Organic Compounds Concentrations in Sediment - PHASE III
Cornell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

(Results reported in mg/kg, dry weight)

Sample Number Sample Location Sample Collected	2274-1009 A10-1 08/08/97	2274-1010 A10-2 08/08/97	2274-1007 A11-1 08/07/97	2274-1008 A11-2 08/07/97	2274-1001 A12-1 08/07/97	2274-1002 A12-2 08/07/97	2274-1003 A13-1 08/07/97	2274-1004 A13-2 08/07/97	2274-1005 A14-1 08/07/97	2274-1006 A14-2 08/07/97
Acetone	0.01	0.02	0.01	0.03	ND	ND	0.03	ND	ND	ND
Methyl-tertiary-butylether	ND	0.01 J	0.002	ND	ND	ND	ND	ND	ND	ND
2-Butanone	0.004 J	ND	ND	0.01	ND	ND	0.01	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	0.002	ND	ND
Toluene	0.002	0.09	ND	ND	ND	ND	ND	ND	ND	ND
p-Isopropyltouene	ND	0.01	0.001 J	ND	ND	ND	ND	ND	ND	ND

mg/kg = milligrams per kilogram
ND indicates below quantitation limit
J indicates value is estimated

TABLE 31
Results of Base, Neutral and Acid Concentrations in Sediment - PHASE III
Cornell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

(Based on mg/kg, dry weight)

Sample Location Sample Number Sample Collection	A10-1 2274-1009 08/08/97	A10-2 2274-1010 08/08/97	A11-1 2274-1007 08/07/97	A11-2 2274-1008 08/07/97	A12-1 2274-1001 08/07/97	A12-2 2274-1002 08/07/97	A13-1 2274-1003 08/07/97	A13-2 2274-1004 08/07/97	A14-1 2274-1005 08/07/97	A14-2 2274-1006 08/07/97
Naphthalene	ND	ND	ND	0.97	ND	ND	ND	ND	ND	ND
Acenaphthylene	ND	ND	ND	3.1	ND	ND	ND	ND	ND	ND
Phenanthrene	1.1	4.1	2.6	5.9	ND	1.6 (J)	3.5	1.5 (J)	ND	ND
Anthracene	ND	ND	ND	2.1	ND	ND	ND	ND	ND	ND
Fluoranthene	2.3	9.3	5.4	16	ND	3.7	6.8	3.9	ND	0.2
Pyrene	2.1	8.2	5.0	15	ND	3.3	6.2	3.1	ND	0.18
Benzo(a)anthracene	1.0	3.9	2.2	8.3	ND	1.7 (J)	2.5 (J)	1.5 (J)	ND	ND
Chrysene	1.4	4.9	2.8	9.4	ND	1.9 (J)	3.6	1.6 (J)	ND	ND
Bis(2-Ethylhexyl)phthalate	0.87	1.6	1.2	ND	ND	1.4 (J)	ND	0.95 (J)	ND	ND
Benzo(b)fluoranthene	1.5	5.4	2.4	11	ND	1.7 (J)	3.2	1.2 (J)	ND	ND
Benzo(k)fluoranthene	1.4	5.2	2.5	9.1	ND	1.7 (J)	3.3	1.2 (J)	ND	ND
Benzo(a)pyrene	1.4	5.8	3.0	13	ND	2.1 (J)	3.5	1.4 (J)	ND	0.14
Indeno(1,2,3-cd)pyrene	0.97	3.2	1.4	7.5	ND	1.1 (J)	2.1 (J)	ND	ND	ND
Dibenzo(a,h)anthracene	ND	1.3	ND	2.4	ND	ND	ND	ND	ND	ND
Benzo(g,h,i)perylene	1.0	3.5	1.7	9.0	ND	1.2 (J)	2.3 (J)	ND	ND	ND
Total BNAs	15	56	30	113	0	21	37	16	0	0.5

mg/kg = milligrams per kilogram
ND indicates below quantitation limit
J indicates value is estimated

TABLE 32
Results of Metal Concentrations in Sediment - PHASE III
Cornell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

(Based on mg/kg, dry weight)

Location	A10-1	A10-2	A11-1	A11-2	A12-1	A12-2	A13-1	A13-2	A14-1	A14-2
Client ID	C2274-1009	C2274-1010	C2274-1007	C2274-1008	C2274-1001	C2274-1002	C2274-1003	C2274-1004	C2274-1005	C2274-1006
Sample Collection	08/08/97	08/08/97	08/07/97	08/07/97	08/07/97	08/07/97	08/07/97	08/07/97	08/07/97	08/07/97
% Solids	61	41	68	69	79	78	50	73	68	78
Aluminum	5300	9800	8400	17000	6700	4600	18000	3400	17000	3600
Arsenic	2.4	3.3	1.5	3.0	0.82	1.3	23	1.5	2.4	0.96
Barium	87	110	110	220	62	43	320	62	230	26
Beryllium	ND	ND	0.58	1.3	0.47	ND	1.4	ND	0.92	ND
Cadmium	0.67	2.5	1.6	0.75	ND	0.76	3.4	1.4	ND	ND
Calcium	4000	5300	2800	5000	1100	2400	3500	930	2500	670
Chromium	16	41	38	24	12	12	24	12	35	8.9
Cobalt	3.6	8.0	11	21	5.7	5.1	30	6	11	4.0
Copper	20	81	57	74	13	23	120	38	12	7.9
Iron	9200	19000	24000	25000	14000	12000	24000	8500	18000	10000
Lead	53	290	170	260	68	54	190	47	9.2	17
Magnesium	2700	3600	4300	6900	2700	2400	3200	1300	3200	1600
Manganese	130	220	400	370	240	210	650	180	260	110
Mercury	0.08	0.43	0.04	0.54	0.04	ND	0.36	0.05	0.04	ND
Nickel	8.5	25	26	38	13	13	46	15	18	8.4
Potassium	370	870	1100	1500	920	530	1100	440	510	280
Selenium	ND	ND	ND	ND	ND	ND	0.67	ND	ND	ND
Silver	ND	1.1	0.47	ND	ND	ND	1.7	0.6	ND	ND
Sodium	74	200	160	480	62	180	160	74	93	50
Vanadium	20	39	26	41	18	17	35	9.5	47	12
Zinc	73	300	200	430	130	99	600	100	58	51

mg/kg = milligrams per kilogram
ND indicates below quantitation limit

TABLE 33
Results of Pesticides/PCB Concentrations in Sediment - PHASE III
Cornell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

(Results reported in mg/kg, dry weight)

Sample Location	Sample Number	Sample Collection	Aroclor 1254
A10-1	2274-1009	08/08/97	ND
A10-2	2274-1010	08/08/97	ND
A11-1	2274-1007	08/07/97	1.2 W
A11-2	2274-1008	08/07/97	ND
A12-1	2274-1001	08/07/97	0.03 JW
A12-2	2274-1002	08/07/97	0.3 W
A13-1	2274-1003	08/07/97	11 W
A13-2	2274-1004	08/07/97	0.7 W
A14-1	2274-1005	08/07/97	ND
A14-2	2274-1006	08/07/97	ND

mg/kg = milligrams per kilogram
ND indicates below quantitation limit
J indicates value is estimated
W indicates sample was weathered, value is estimated

TABLE 34
Particle Size Distribution of Sediment - PHASE III
Cornell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

(Reported as percent)

Sample Location	Sample Number	Sample Collection	Gravel	Sand	Silt	Clay	Soil Family
A10-1	2274-1009	08/08/97	11	64	2.4	2.5	loamy sand
A10-2	2274-1010	08/08/97	0	60	27	13	sandy loam
A11-1	2274-1007	08/07/97	7	92	0.3	0.7	sand
A11-2	2274-1008	08/07/97	2	87	3.9	7.1	loamy sand
A12-1	2274-1001	08/07/97	2	43	24	31	clay loam
A12-2	2274-1002	08/07/97	0	95	2.4	2.7	sand
A13-1	2274-1003	08/07/97	0	65	14	21	sandy clay loam
A13-2	2274-1004	08/07/97	0	92	3.5	4.1	sand
A14-1	2274-1005	08/07/97	0	25	29	46	clay
A14-2	2274-1006	08/07/97	0	99.7	0.11	0.17	sand

TABLE 35
Results of Total Organic Carbon Concentrations in Sediment - PHASE III
Cornell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

Sample Number	Sample Location	Sample Collection	TOC
2274-1009	A10-1	08/08/97	4.8
2274-1010	A10-2	08/08/97	15
2274-1007	A11-1	08/07/97	4.5
2274-1008	A11-2	08/07/97	5.7
2274-1001	A12-1	08/07/97	1.2
2274-1002	A12-2	08/07/97	1.7
2274-1003	A13-1	08/07/97	8.8
2274-1004	A13-2	08/07/97	1.6
2274-1005	A14-1	08/07/97	3.6
2274-1006	A14-2	08/07/97	0.32

TABLE 36
Results of Metal Concentrations in Edible Fish Tissue - PHASE III
Cornell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999

(Results reported mg/kg, wet weight)

Sample Number	Species	Sample Location	Sample Collection	Percent Solids	Aluminum	Arsenic	Barium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium	Silver	Sodium	Vanadium	Zinc
BS-A10-1	Bass	A10	08/06/97	21	4.9	ND	ND	ND	180	ND	ND	ND	2.8	ND	230	ND	0.2	ND	3200	0.4	ND	400	ND	6.8
BS-A10-2	Bass	A10	08/06/97	20	5.4	ND	ND	ND	820	0.7	ND	0.5	3.0	ND	260	ND	0.2	ND	3400	0.3	ND	360	ND	6.6
BS-A10-3	Bass	A10	08/06/97	23	11.0	ND	ND	ND	1600	0.7	ND	0.4	4.0	0.2	280	0.3	0.1	ND	3300	0.3	ND	520	ND	9.8
CC-A10-1	Carp	A10	08/06/97	29.82	6.6	ND	ND	ND	170	0.4	ND	3.6	7.5	ND	230	0.3	0.1	1.8	2800	0.2	ND	360	ND	20
CC-A10-2	Carp	A10	06/06/97	22.87	6.9	ND	ND	ND	230	0.3	ND	0.3	7.3	ND	250	0.3	0.1	ND	3200	0.3	ND	340	ND	17
CC-A10-3	Carp	A10	08/06/97	21	5.5	ND	0.3	ND	510	0.5	ND	0.4	12	ND	250	0.3	0.1	ND	3400	0.4	ND	380	ND	14
PS-A10-1	Pumpkin Seed	A10	08/06/97	20	5.9	ND	0.3	ND	3700	0.6	ND	0.6	5.3	ND	310	1.0	0.1	ND	3100	0.3	ND	470	ND	13
PS-A10-2	Pumpkin Seed	A10	08/06/97	19	4.1	ND	0.3	ND	2700	0.9	ND	1.9	6.0	0.2	290	1.0	0.1	ND	3100	0.3	ND	480	ND	14
WS-A10-1	White Sucker	A10	08/06/97	20	8.3	ND	ND	ND	170	0.6	0.4	0.5	4.0	ND	260	ND	0.1	ND	3800	0.4	ND	300	0.4	8.5
WS-A10-2	White Sucker	A10	06/06/97	19	4.5	ND	ND	ND	350	ND	ND	0.5	5.0	0.2	280	0.3	0.1	ND	3900	0.3	ND	410	ND	11
WS-A10-3	White Sucker	A10	06/06/97	20	5.9	0.2	ND	ND	310	0.6	0.3	0.6	5.5	ND	230	0.1	0.2	ND	3300	0.3	ND	370	0.4	10
BS-A11-1	Bass	A11	08/06/97	18.82	ND	ND	ND	ND	1400	0.5	ND	0.3	6.8	ND	250	0.6	0.2	ND	3000	0.2	ND	410	ND	12
BS-A11-2	Bass	A11	06/06/97	21.06	3.6	ND	ND	ND	970	ND	ND	0.5	3.8	ND	250	0.3	0.2	ND	3200	0.3	ND	440	ND	12
BS-A11-3	Bass	A11	06/06/97	20.60	4.9	ND	ND	ND	970	ND	ND	0.8	3.3	ND	270	0.3	0.2	ND	3500	0.3	ND	430	ND	11
BH-A11-1	Catfish	A11	08/06/97	17.49	8.6	ND	ND	ND	530	1.1	ND	1.0	8.6	ND	250	0.5	0.1	0.6	3900	ND	ND	370	ND	4.4
BH-A11-2	Catfish	A11	08/06/97	18.20	24.0	ND	0.3	ND	1000	ND	ND	9.1	7.6	ND	270	0.6	0.1	ND	3600	0.2	ND	310	ND	22
BH-A11-3	Catfish	A11	06/06/97	18.74	15.0	ND	ND	ND	540	0.6	ND	1.9	5.2	ND	280	0.7	0.0	ND	3300	0.2	0.3	360	ND	5.1
CC-A11-1	Carp	A11	08/06/97	22.11	9.1	ND	0.2	ND	860	0.5	ND	1.1	19	ND	220	0.3	0.0	ND	2900	0.6	ND	400	ND	12
CC-A11-2	Carp	A11	08/06/97	21.97	3.7	ND	ND	ND	370	ND	ND	0.4	9.2	ND	220	0.3	ND	ND	3500	0.5	ND	440	ND	7.7
CC-A11-3	Carp	A11	08/06/97	22.87	20	ND	ND	ND	410	0.3	ND	0.6	13	ND	200	0.3	0.0	ND	3000	0.6	ND	390	ND	15
PS-A11-1	Pumpkin Seed	A11	08/06/97	20.39	10	ND	0.2	ND	1600	0.5	ND	0.5	3.7	0.2	290	2.2	0.0	ND	3300	0.3	0.3	450	ND	17
PS-A11-2	Pumpkin Seed	A11	06/06/97	20.31	7.1	ND	0.2	ND	2000	ND	ND	0.3	3.5	ND	280	0.9	0.1	ND	3100	0.4	ND	450	ND	15
PS-A11-3	Pumpkin Seed	A11	06/06/97	19.47	5.6	ND	0.3	ND	2900	0.4	ND	0.6	3.7	ND	310	2.3	0.1	ND	2900	0.4	ND	470	ND	21
WS-A11-1	White Sucker	A11	06/06/97	19.11	5.5	ND	0.3	ND	550	0.4	ND	0.5	5.2	ND	250	1.1	0.0	ND	3600	0.3	ND	340	ND	11
WS-A11-2	White Sucker	A11	06/06/97	15.76	5.5	ND	0.3	ND	570	0.4	ND	0.6	6.1	ND	220	0.6	0.0	ND	3200	0.3	ND	320	ND	19
WS-A11-3	White Sucker	A11	08/06/97	18.30	3.3	ND	0.3	ND	660	0.4	ND	0.5	4.6	ND	260	1.6	0.1	ND	3500	0.3	ND	350	ND	15
BS-A12-1	Bass	A12	08/06/97	17.99	5.6	ND	ND	ND	500	9.6	0.4	0.3	4.0	ND	270	0.3	0.2	ND	3400	0.4	0.3	430	ND	12
BS-A12-2	Bass	A12	08/06/97	19.55	15	ND	ND	0.2	290	0.5	ND	0.5	4.3	ND	250	0.3	0.1	ND	3100	0.4	ND	410	ND	10
BH-A12-1	Catfish	A12	08/06/97	17	5	ND	ND	ND	89	0.8	0.4	1.7	4.9	ND	260	0.2	0.1	ND	3700	0.2	0.4	300	0.5	4
CC-A12-1	Carp	A12	08/06/97	35.34	9.2	0.1	ND	ND	230	0.4	ND	0.9	7.8	ND	210	0.2	0.1	ND	2700	0.3	ND	290	ND	12
CC-A12-2	Carp	A12	08/06/97	25.57	3.3	ND	ND	ND	380	0.5	ND	0.6	9.7	ND	220	0.2	0.1	ND	3100	0.6	ND	360	ND	11
CC-A12-3	Carp	A12	06/06/97	22.88	18	ND	ND	ND	280	0.5	ND	0.7	8.7	ND	220	0.3	0.1	ND	3200	0.6	ND	390	ND	14
PS-A12-1	Pumpkin Seed	A12	06/06/97	19.45	6	ND	0.2	ND	1700	0.4	ND	2.3	5.1	ND	290	0.9	0.1	ND	3300	0.4	ND	550	ND	15
PS-A12-2	Pumpkin Seed	A12	08/06/97	19.13	9.4	ND	0.2	ND	1500	ND	ND	0.4	4.2	ND	290	0.9	0.0	ND	3200	0.3	ND	610	ND	14
PS-A12-3	Pumpkin Seed	A12	08/06/97	19.36	8.3	ND	0.2	ND	1500	ND	ND	0.6	4.3	ND	270	0.6	0.2	ND	3300	0.4	ND	640	ND	19
WS-A12-1	White Sucker	A12	06/06/97	20.02	4.2	ND	0.2	ND	300	0.4	ND	0.6	4.4	ND	240	0.5	0.1	ND	3400	0.4	ND	360	ND	11
WS-A12-2	White Sucker	A12	08/06/97	18.35	3.9	ND	0.5	ND	680	ND	ND	0.5	4.6	ND	260	1.1	0.0	ND	3300	0.2	ND	400	ND	13
WS-A12-3	White Sucker	A12	08/06/97	20.14	6.4	ND	0.3	ND	670	ND	ND	0.4	4.6	ND	280	1.3	0.0	ND	3700	0.3	ND	380	ND	14
BS-A13-1	Bass	A13	08/06/97	19	6.0	ND	ND	ND	550	2.7	ND	0.6	13	ND	270	0.4	0.2	1.4	3300	0.4	ND	410	ND	12
BS-A13-2	Bass	A13	08/06/97	21	10.5	ND	ND	ND	250	0.5	ND	0.5	4.1	ND	270	0.2	0.4	ND	3500	0.3	ND	370	ND	10
CC-A13-1	Carp	A13	08/06/97	29	6.1	0.2	ND	ND	350	0.4	ND	0.8	16	ND	210	0.2	0.1	ND	2800	0.5	ND	320	ND	12
PS-A13-1	Pumpkin Seed	A13	08/06/97	19	4.9	ND	0.4	ND	3200	1.4	ND	0.4	12	ND	280	1.7	0.1	ND	2800	0.5	ND	470	ND	12
PS-A13-2	Pumpkin Seed	A13	08/06/97	21	4.6	ND	0.6	ND	6500	1.5	0.4	0.8	10	ND	260	2.9	0.1	0.9	3100	0.4	ND	500	0.4	16
WS-A13-1	White Sucker	A13	08/06/97	20	12.4	ND	0.3	ND	460	0.5	0.3	0.4	3.8	ND	260	0.5	0.1	ND	3800	0.3	ND	320	ND	13
WS-A13-2	White Sucker	A13	08/06/97	19	250	ND	ND	ND	160	0.4	ND	0.6	5.1	ND	230	0.3	0.1	ND	3300	0.5	ND	350	0.3	12
WS-A13-3	White Sucker	A13	08/06/97	21	5	ND	0.4	ND	1300	0.6	ND	0.7	5.8	ND	250	1.0	0.0	ND	2900	0.4	ND	380	ND	13
BS-A14-1	Bass	A14	08/08/97	20	4.6	ND	ND	ND	320	1.3	ND	1.7	E.2	ND	260	0.3	0.2	0.8	3600	6.3	ND	440	ND	9
BH-A14-1	Catfish	A14	08/06/97	17	5.7	ND	ND	ND	90	0.7	ND	0.3	8.1	ND	250	0.3	0.1	ND	3500	0.1	ND	380	ND	4
PS-A14-1	Pumpkin Seed	A14	08/06/97	19	3.0	ND	0.3	ND	3000	1.6	ND	0.6	8.4	ND	260	1.3	0.1	0.8	2800	0.4	ND	480	0.3	16
PS-A14-2	Pumpkin Seed	A14	08/06/97	19	3.1	ND	0.7	ND	6800	0.7	ND	0.5	3.9	ND	310	3.3	0.1	ND	2700	0.3	ND	550	ND	14
WS-A14-1	White Sucker	A14	08/06/97	23	ND	ND	ND	ND	400	0.6	ND	0.9	5.3	ND	260	0.6	0.1	ND	3500	0.2	ND	280	ND	16
WS-A14-2	White Sucker	A14	08/06/97	21	7.5	ND	0.2	ND	150	0.4	ND	3.4	5.4	ND	220	0.2	0.1	ND	3000	0.3	ND	340	ND	15
WS-A14-3	White Sucker	A14	08/06/97	21	4.5	ND	0.2	ND	540	0.4	ND	0.5	5.0	0.3	250	0.5	0.1	ND	3300	0.3	ND	310	ND	13

mg/kg = milligrams per kilogram
ND indicates below quantitation limit

TABLE 37
Results of Pesticide/PCB Concentrations in Edible Fish Tissue - PHASE III
Cornell-Dubilier Electronics Site
South Plainfield, New Jersey
July 1999
(Results reported in mg/kg, wet weight)

Sample Number	Species	Sample Location	Sample Collection	Percent Solid	Percent Lipid	Aroclor 1248		Aroclor 1254		Heptachlor Epoxide		g-chlordane		a-chlordane		4,4'-DDE		Dieldrin		Endrin		4,4'-DDD	
BS-A10-1	Bass	A-10	08/06/97	21	4	0.08	W	1.3	W	0.01	MI	ND	MI	ND	MI	0.020	MI	ND	MI	ND	MI	ND	MI
BS-A10-2	Bass	A-10	08/06/97	20	3	0.02	W	0.19	W	ND	MI	ND	MI	ND	MI	0.0040	MI	ND	MI	ND	MI	ND	MI
BS-A10-3	Bass	A-10	08/06/97	20	3	0.02	W	0.09	W	ND	MI	ND	MI	ND	MI	0.0070	MI	ND	MI	ND	MI	ND	MI
CC-A10-1	Carp	A-10	08/06/97	30	45	0.6	W	2	W	0.05	MI	0.16	MI	0.25	MI	0.11	MI	0.06	MI	ND	MI	0.1	MI
CC-A10-2	Carp	A-10	06/06/97	23	14	0.13	W	0.76	W	0.01	MI	0.05	MI	0.09	MI	0.050	MI	ND	MI	ND	MI	0.04	MI
CC-A10-3	Carp	A-10	08/06/87	21	12	0.06	W	0.38	W	0.01	MI	0.04	MI	0.07	MI	0.040	MI	0.01	MI	ND	MI	0.04	MI
PS-A10-1	Pumpkin Seed	A-10	08/06/97	20	5	0.05	W	0.22	W	0.01	MI	ND	MI	ND	MI	0.010	MI	0.01	MI	ND	MI	0.01	MI
PS-A10-2	Pumpkin Seed	A-10	08/06/97	19	3	0.02	W	0.07	W	ND	MI	ND	MI	ND	MI	0.010	MI	ND	MI	ND	MI	ND	MI
WS-A10-1	White Sucker	A-10	08/06/97	20	13	0.15	W	1.3	W	ND	MI	0.04	MI	0.06	MI	0.030	MI	ND	MI	ND	MI	ND	MI
WS-A10-2	White Sucker	A-10	08/06/97	19	11	0.11	W	0.63	W	ND	MI	0.03	MI	0.07	MI	0.030	MI	0.01	MI	ND	MI	ND	MI
WS-A10-3	White Sucker	A-10	08/06/97	20	15	0.2	W	0.92	W	ND	MI	0.04	MI	0.07	MI	0.030	MI	ND	MI	ND	MI	ND	MI
BS-A11-1	Bass	A-11	08/06/97	19	2	0.09	W	0.3	W	ND	MI	ND	MI	NB	MI	0.02	MI	ND	MI	ND	MI	ND	MI
BS-A11-2	Bass	A-11	08/06/97	21	8	0.4	W	2.9	W	ND	MI	ND	MI	ND	MI	0.06	MI	ND	MI	ND	MI	0.03	MI
BS-A11-3	Bass	A-11	08/06/97	21	5	0.19	W	1.9	W	ND	MI	ND	MI	ND	MI	0.04	MI	ND	MI	ND	MI	ND	MI
CC-A11-1	Carp	A-11	08/06/97	22	17	1.9	W	16	W	ND	MI	ND	MI	0.07	MI	0.15	MI	ND	MI	ND	MI	ND	MI
CC-A11-2	Carp	A-11	00/06/97	22	11	0.31	W	1.3	W	ND	MI	ND	MI	0.03	MI	0.03	MI	ND	MI	ND	MI	ND	MI
CC-A11-3	Carp	A-11	08/06/97	23	21	1.7	W	16	W	ND	MI	ND	MI	0.09	MI	0.15	MI	ND	MI	ND	MI	ND	MI
BH-A11-1	Catfish	A-11	08/06/97	17	2	0.06	W	0.19	W	ND	MI	ND	MI	ND	MI	0.01	MI	ND	MI	ND	MI	ND	MI
BH-A11-2	Catfish	A-11	08/06/97	18	9	0.16	W	1.1	W	ND	MI	ND	MI	ND	MI	0.03	MI	ND	MI	ND	MI	ND	MI
BH-A11-3	Catfish	A-11	08/06/97	19	10	0.3	W	1.8	W	ND	MI	ND	MI	0.05	MI	0.04	MI	ND	MI	ND	MI	ND	MI
PS-A11-1	Pumpkin Seed	A-11	08/06/97	20	4	0.09	W	0.84	W	ND	MI	ND	MI	ND	MI	ND	MI	ND	MI	ND	MI	ND	MI
PS-A11-2	Pumpkin Seed	A-11	08/06/97	20	3	0.06	W	0.44	W	ND	MI	ND	MI	ND	MI	ND	MI	ND	MI	ND	MI	ND	MI
PS-A11-3	Pumpkin Seed	A-11	05/06/97	19	4	0.05	W	0.27	W	ND	MI	ND	MI	ND	MI	0.01	MI	ND	MI	ND	MI	ND	MI
WS-A11-1	White Sucker	A-11	00/06/97	19	6	0.25	W	1.7	W	ND	MI	ND	MI	0.02	MI	0.03	MI	ND	MI	ND	MI	ND	MI
WS-A11-2	White Sucker	A-11	08/06/97	16	3	0.06	W	1.3	W	ND	MI	ND	MI	ND	MI	0.01	MI	ND	MI	ND	MI	ND	MI
WS-A11-3	White Sucker	A-11	08/06/97	18	6	0.16	W	1	W	ND	MI	ND	MI	ND	MI	0.01	MI	ND	MI	ND	MI	ND	MI
BS-A12-1	Bass	A-12	08/08/97	18	5	0.14	W	1.3	W	NB	MI	NB	MI	ND	MI	0.02	MI	ND	MI	ND	MI	ND	MI
BS-A12-2	Bass	A-12	06/06/97	20	2	0.07	W	0.72	W	ND	MI	ND	MI	ND	MI	0.01	MI	ND	MI	ND	MI	ND	MI
CC-A12-1	Carp	A-12	08/06/97	35	58	7.7	W	42	W	ND	MI	ND	MI	ND	MI	ND	MI	ND	MI	ND	MI	ND	MI
CC-A12-2	Carp	A-12	08/06/97	25	33	2.5	W	17	W	ND	MI	ND	MI	0.12	MI	ND	MI	ND	MI	ND	MI	ND	MI
CC-A12-3	Carp	A-12	08/06/97	23	18	1.2	W	12	W	ND	MI	ND	MI	0.06	MI	ND	MI	ND	MI	0.04	MI	ND	MI
BH-A12-1	Catfish	A-12	08/06/97	17	6	0.12	W	0.58	W	ND	MI	ND	MI	0.02	MI	0.01	MI	ND	MI	ND	MI	ND	MI
PS-A12-1	Pumpkin Seed	A-12	08/06/97	19	4	0.05	W	0.8	W	ND	MI	ND	MI	ND	MI	0.01	MI	ND	MI	ND	MI	ND	MI
PS-A12-2	Pumpkin Seed	A-12	08/06/97	19	4	0.06	W	0.8	W	ND	MI	ND	MI	ND	MI	ND	MI	ND	MI	ND	MI	ND	MI
PS-A12-3	Pumpkin Seed	A-12	08/06/97	19	3	0.06	W	0.82	W	0.01	MI	ND	MI	ND	MI	0.01	MI	ND	MI	ND	MI	ND	MI
WS-A12-1	White Sucker	A-12	08/06/97	20	10	0.28	W	1.6	W	ND	MI	ND	MI	0.03	MI	0.03	MI	ND	MI	ND	MI	ND	MI
WS-A12-2	White Sucker	A-12	08/06/97	18	9	0.32	W	2.3	W	ND	MI	ND	MI	ND	MI	0.04	MI	ND	MI	ND	MI	ND	MI
WS-A12-3	White Sucker	A-12	08/06/97	20	9	0.3	W	1.2	W	ND	MI	ND	MI	0.02	MI	0.02	MI	ND	MI	ND	MI	ND	MI
BS-A13-1	Bass	A-13	08/05/97	19	2	0.06	W	0.49	W	ND	MI	ND	MI	ND	MI	0.01	MI	ND	MI	ND	MI	ND	MI
BS-A13-2	Bass	A-13	08/06/97	21	4	0.06	W	0.57	W	ND	MI	ND	MI	ND	MI	0.01	MI	ND	MI	ND	MI	ND	MI
CC-A13-1	Carp	A-13	08/06/97	29	39	3.2	W	28	W	ND	MI	ND	MI	ND	MI	ND	MI	ND	MI	ND	MI	ND	MI
PS-A13-1	Pumpkin Seed	A-13	08/06/97	19	5	0.1	W	0.72	W	ND	MI	ND	MI	ND	MI	0.01	MI	ND	MI	ND	MI	ND	MI
PS-A13-2	Pumpkin Seed	A-13	08/06/97	21	7	0.1	W	0.78	W	ND	MI	ND	MI	ND	MI	0.02	MI	ND	MI	ND	MI	ND	MI
WS-A13-1	White Sucker	A-13	08/06/97	20	8	2.4	W	1.6	W	ND	MI	0.02	MI	ND	MI	0.03	MI	ND	MI	ND	MI	ND	MI
WS-A13-2	White Sucker	A-13	08/06/97	19	16	0.07	W	0.12	W	ND	MI	0.01	MI	ND	MI	0.01	MI	ND	MI	ND	MI	0.004	MI
WS-A13-3	White Sucker	A-13	08/06/97	21	10	0.61	W	1.4	W	ND	MI	ND	MI	0.02	MI	0.02	MI	ND	MI	ND	MI	ND	MI
BS-A14-1	Bass	A-14	08/06/97	20	3	0.02	W	0.096	W	ND	MI	ND	MI	ND	MI	0.01	MI	ND	MI	ND	MI	ND	MI
BH-A14-1	Catfish	A-14	08/06/97	17	3	0.02	W	0.12	W	ND	MI	ND	MI	ND	MI	0.01	MI	ND	MI	ND	MI	ND	MI
PS-A14-1	Pumpkin Seed	A-14	08/06/97	19	4	0.03	W	0.17	W	ND	MI	ND	MI	ND	MI	0.01	MI	ND	MI	ND	MI	ND	MI
PS-A14-2	Pumpkin Seed	A-14	08/06/97	19	4	0.03	W	0.1	W	ND	MI	ND	MI	ND	MI	0.004	MI	ND	MI	ND	MI	ND	MI
WS-A14-1	White Sucker	A-14	08/06/97	23	20	0.08	W	0.35	W	ND	MI	0.01	MI	ND	MI	0.04	MI	ND	MI	ND	MI	0.01	MI
WS-A14-2	White Sucker	A-14	08/06/97	21	21	0.05	W	0.32	W	ND	MI	ND	MI	ND	MI	0.03	MI	ND	MI	ND	MI	0.01	MI
WS-A14-3	White Sucker	A-14	08/06/97	21	10	0.06	W	0.32	W	ND	MI	0.01	MI	ND	MI	0.01	MI	ND	MI	ND	MI	0.01	MI

mg/kg = milligrams per kiligram
ND indicates below quantitation limit
MI indicates matrix interference
W indicates sample was weathered, value is estimated

TABLE 38
Screening Level Risk Assessment Hazard Quotient Calculations
Cornell-Dubilier Electronics Site
South Plainfield, NJ
July 1999

Contaminant	Maximum Concentrations of Contaminants in Sediment				Maximum Concentrations of Contaminants in Water				Maximum Concentrations of Contaminants in Soil			
	Maximum Sediment Concentration	Benchmark	Reference Source	Hazard Quotient	Maximum Water Concentration	Benchmark	Reference Source	Hazard Quotient	Soil Maximum Concentration	Benchmark	Reference Source	Hazard Quotient
Low Molecular Weight PAHs	mg/kg				mg/L				mg/kg			
2-methylnaphthalene	U	0.07	x - fauna	0	U	NB	NB	NB	1.7	NB	NB	NB
Acenaphthene	0.26	0.02	x - fauna	13	U	0.52	x - fauna	0	0.84	0.1	x - fauna	8
Acenaphthylene	0.6	0.04	x - fauna	15	U	NB	NB	NB	0.51	0.1	x - fauna	5
Anthracene	3.9	0.09	x - fauna	46	U	0.0001	x - fauna	0	2.3	0.1	x - fauna	23
Fluorene	1.4	0.02	x - fauna	74	U	0.43	x - fauna	0	0.89	0.1	x - fauna	9
Naphthalene	0.42	0.16	x - fauna	3	U	0.1	x - fauna	0	1.2	0.1	x - fauna	12
Phenanthrene	14	0.24	x - fauna	58	U	0.0063	x - fauna	0	9.4	0.1	x - fauna	94
Total Low Molecular Weight PAHs	NA	0.55	a	HQ>>1	NA	NB	NB	NB	NA	NB	NB	NB
High Molecular Weight PAHs	mg/kg				mg/L				mg/kg			
Benzo(a)anthracene	8.3	0.26	x - fauna	32	U	0.006	x - fauna	0	9.5	0.1	x - fauna	95
Benzo(a)pyrene	6.4	0.43	x - fauna	19	U	1.4E-05	a	0	9.7	0.1	x - fauna	97
Benzo(b)fluoranthene	7.1	3.2	x - fauna	2	U	NB	NB	NB	15	0.1	x - fauna	150
Benzo(g,h,i)perylene	3.1	0.67	x - fauna	5	U	NB	NB	NB	6.4	0.1	x - fauna	64
Benzo(k)fluoranthene	2.3	NB		NB	U	NB	NB	NB	4.2	0.1	x - fauna	42
Chrysene	7.3	0.38	x - fauna	19	U	NB	NB	NB	11	0.1	x - fauna	110
Dibenz(a,h)anthracene	U	0.06	x - fauna	0	U	NB	NB	NB	1	0.1	x - fauna	10
Fluoranthene	12	0.6	x - fauna	20	U	3.98	x - fauna	0	12	0.1	x - fauna	120
Indeno(1,2,3-c,d)pyrene	2.7	0.6	x - fauna	5	U	NB	NB	NB	6	0.1	x - fauna	60
Pyrene	17	0.67	x - fauna	25	U	NB	NB	NB	16	0.1	x - fauna	150
Total High Molecular Weight PAHs	NA	1.7	a	HQ>>1	NA	NB	NB	NB	NA	NB	NB	NB
Total PAHs	NA	4	a	HQ>>1	NA	NB	NB	NB	NA	NB	NB	NB
Other Semi-Volatile Compounds	mg/kg				mg/L				mg/kg			
Acetophenone	U	NB	NB	NB	U	NB	NB	NB	0.29	NB	NB	NB
Benzidine	81	NB	NB	NB	U	NB	NB	NB	190	NB	NB	NB
Benzoic acid	0.57	NB	NB	NB	U	NB	NB	NB	0.95	NB	NB	NB
1,2,4-Trichlorobenzene	U	NB	NB	NB	U	NB	NB	NB	3.2	NB	NB	NB
bis(2-chloroisopropyl)ether	U	NB	NB	NB	U	NB	NB	NB	1	NB	NB	NB
2,6-Dinitrotoluene	0.47	NB	NB	NB	U	NB	NB	NB	U	NB	NB	NB
3,3'-Dichlorobenzidine	U	NB	NB	NB	U	NB	NB	NB	0.17	NB	NB	NB
4-Methylbenzene (3-methylphenol)	37	0.67	x - fauna	55	U	NB	NB	NB	0.82	0.1	x - fauna	8
4-Nitroaniline	U	NB	NB	NB	U	NB	NB	NB	8.7	NB	NB	NB
bis(2-Ethylhexyl)phthalate	170	1.3	x - fauna	131	0.001	0.03	x - fauna	0	2.5	NB	NB	NB
Butylbenzylphthalate	14	0.06	x - fauna	222	U	0.003	x - fauna	0	3.6	NB	NB	NB
Dibenzofuran	0.24	0.54	x - fauna	0	U	0.02	e	0	0.66	NB	NB	NB
Diethylphthalate	U	0.2	x - fauna	0	0.001	0.003	e	0	78	NB	NB	NB
Dimethylphthalate	U	NB	NB	NB	U	NB	NB	NB	3.6	NB	NB	NB
Di-n-butylphthalate	U	1.4	x - fauna	0	0.001	0.0003	x - fauna	3	1.4	NB	NB	NB
Di-n-octylphthalate	35	NB	NB	NB	U	NB	NB	NB	1.2	NB	NB	NB
Volatile Organic Compounds	mg/kg				mg/L				mg/kg			
cis-1,2-dichloroethene	U	NB	NB	NB	0.003	NB	NB	NB	U	NB	NB	NB
trans-1,2-dichloroethene	U	NB	NB	NB	0.001	NB	NB	NB	U	NB	NB	NB
1,1,2,2-tetrachloroethane	U	NB	NB	NB	0.002	NB	NB	NB	U	NB	NB	NB
1,2,3-Trichlorobenzene	0.019	NB	NB	NB	U	NB	NB	NB	U	NB	NB	NB
1,1,1-Trichloroethane	0.017	0.03	x - fauna	0.5	U	0.06	e	0	0.011	NB	NB	NB
Trichloroethene	U	NB	NB	NB	U	NB	NB	NB	0.011	NB	NB	NB
Trichlorofluoromethane	U	NB	NB	NB	U	NB	NB	NB	0.049	NB	NB	NB
2-Hexanone	0.054	NB	NB	NB	U	426	x - fauna	0	U	NB	NB	NB
Acetone	7.7	NB	NB	NB	B	11	e	0	0.71	NB	NB	NB
n-Butylbenzene	0.03	NB	NB	NB	U	NB	NB	NB	U	NB	NB	NB
Carbon Disulfide	0.03	NB	NB	NB	U	0.002	x - fauna	0	U	NB	NB	NB
Chlorobenzene	0.03	NB	NB	NB	U	NB	NB	NB	U	NB	NB	NB
Chloroethane	0.13	NB	NB	NB	U	NB	NB	NB	U	NB	NB	NB
Hexachlorobenzene	U	NB	NB	NB	U	NB	NB	NB	0.26	NB	NB	NB
p-Isopropyltoluene	0.083	NB	NB	NB	U	NB	NB	NB	U	NB	NB	NB
Methylene Chloride	0.082	NB	NB	NB	B	11	x - fauna	0	0.048	0.3	x - fauna	0.2
Methyl tert-butyl ether	U	NB	NB	NB	0.003	NB	NB	NB	U	NB	NB	NB
Toluene	1.9	NB	NB	NB	B	17	x - fauna	0	0.005	0.1	x - fauna	0
Trichloroethene	U	NB	NB	NB	0.005	NB	NB	NB	U	NB	NB	NB

NB = No benchmark
NA = Not Applicable

U = undetected
mg/kg = milligrams per kilogram
mg/L = milligrams per liter
HQ = Hazard Quotient

a = Long et al. 1995 (ER-L)
b = Long and Morgan 1990 (ER-L)
c = Persuad et al. 1992 (LEL)
d = USEPA AWQC 1992 (Chronic Criteria)
e = Suter and Mabrey 1994 (SCV)
e* = Suter and Mabrey 1994 (LCV)
x - fauna = Region III BTAG Screening Level for fauna (lowest of flora and fauna chosen)
x - flora = Region III BTAG Screening Level for flora (lowest of flora and fauna chosen)

TABLE 38 (Cont'd.)
Screening Level Risk Assessment Hazard Quotient Calculations
Cornell-Dubilier Electronics Site
South Plainfield, NJ
July 1999

Contaminant	Maximum Concentrations of Contaminants in Sediment				Maximum Concentrations of Contaminants in Water				Maximum Concentrations of Contaminants in Soil			
	Maximum Sediment Concentration	Benchmark	Reference Source	Hazard Quotient	Maximum Water Concentration	Benchmark	Reference Source	Hazard Quotient	Soil Maximum Concentration	Benchmark	Reference Source	Hazard Quotient
Pesticides/PCB	mg/kg				mg/L				mg/kg			
4,4'-DDD	0.025	0.016	x - fauna	2	U	0.0006	x - fauna	0	U	0.1	x - fauna	0
4,4'-DDE	U	0.0022	x - fauna	0	U	1.05	x - fauna	0	0.034	0.1	x - fauna	0
Dieldrin	0.3	2E-05	b	15000	U	1.9E-06	x - fauna	0	U	0.1	x - fauna	0
Heptachlor	U	NB	NB	NB	U	3.8E-06	x - fauna	0	0.02	NB	NB	NB
PCB-1254	14	0.0227	x - fauna	617	U	1.4E-05	x - fauna	0	580	0.1	x - flora	5800
Metals	mg/kg				mg/L				mg/kg			
Aluminum	17000	NB	NB	NB	0.081	0.03	x - fauna	3	30000	1	x - flora	30000
Antimony	3.5	150	x - fauna	0	U	0.03	x - fauna	0	42	0.48	x - flora	88
Arsenic (total)	13	8.2	x - fauna	2	U	0.87	x - fauna	0	35	328	x - flora	0
Barium	420	NB	NB	NB	0.14	10	x - fauna	0	1500	440	x - fauna	3
Beryllium	1.2	NB	NB	NB	U	0.01	x - fauna	0	1.5	0.02	x - flora	75
Cadmium	23	1.2	x - fauna	19	U	0.001	x - fauna	0	38	2.5	x - flora	15
Calcium	7200	NB	NB	NB	86	116	e*	0.7	9800	NB	NB	NB
Chromium (total)	78	5.0	x - flora	16	0.002	0.12	x - fauna	0	280	0.0075	x - fauna	37333
Cobalt	21	NB	NB	NB	U	35	x - fauna	0	24	100	x - flora	0
Copper	220	34	x - fauna	6	0.004	0.007	x - fauna	0.6	12000	15	x - flora	800
Iron	36000	NB	NB	NB	0.1	0.32	x - fauna	0	97000	12	x - fauna	8083
Lead	350	46.7	x - fauna	7	B	0.003	x - fauna	0	3600	0.01	x - fauna	360000
Magnesium	5600	NB	NB	NB	14	82	e*	0	5300	4400	x - fauna	1.2
Manganese	1100	460	c	2	0.32	14.5	x - fauna	0	1800	330	x - fauna	5
Mercury	0.91	0.15	x - fauna	6	U	1.2E-05	x - fauna	0	3.4	0.058	x - fauna	59
Nickel	52	20.9	x - fauna	2	B	0.16	x - fauna	0	150	2	x - flora	75
Potassium	1300	NB	NB	NB	2.6	53	e*	0	1700	NB	NB	NB
Selenium	3.8	NB	NB	NB	U	0.005	x - fauna	0	9.2	1.8	x - fauna	5
Silver	11	1.0	x - fauna	11	U	1E-07	x - fauna	0	16	0.0000098	x - flora	1632653
Sodium	480	NB	NB	NB	28	680	e*	0	430	NB	NB	NB
Thallium	U	NB	NB	NB	U	0.04	x - fauna	0	4	0.001	x - flora	4000
Vanadium	58	NB	NB	NB	0.003	10	x - fauna	0	95	0.5	x - flora	190
ZMc	670	150	x - fauna	4	B	0.11	x- fauna	0	2000	10	x - flora	200

NB = No benchmark
NA = Not Applicable

U = undetected
mg/L = milligrams per liter
mg/kg = milligrams per kilogram
HQ = Hazard Quotient

a = Long et al. 1995 (ER-L)
b = Long and Morgan 1990 (ER-L)
c = Persuad et al. 1992 (LEL)
d = USEPA AWQC 1992 (Chronic Criteria)
e = Suter and Mabrey 1994 (SCV)
e* = Suter and Mabrey 1994 (LCV)
x - fauna = Region III BTAG Screening Level for fauna (lowest of flora and fauna chosen)
x - flora = Region III BTAG Screening Level for flora (lowest of flora and fauna chosen)

TABLE 39
Summary Contaminant Concentrations for Use in the Ecological Risk Assessment - WATER
Cornell-Dubilier Electronics Site
South Plainfield, NJ
July 1999

Contaminant	A1 max	A1 mean	A1 n	A2 max	A2 mean	A2 n	A3 max	A3 mean	A3 n	A4 max	A4 mean	A4 n	A5 max	A5 mean	A5 n	A6 max	A6 mean	A6 n	A7 max	A7 mean	A7 n	A9 max	A9 mean	A9 n
PESTICIDES (mg/L)																								
Total DDTr	0.00002	0.00002	1	0.00002	0.00002	1	0.00002	0.00002	1	0.00002	0.00002	1	0.00002	0.00002	1	0.00002	0.00002	1	0.00002	0.00002	1	0.00002	0.00002	1
Total Heptachlor	0.00001	0.00001	1	0.00001	0.00001	1	0.00001	0.00001	1	0.00001	0.00001	1	0.00001	0.00001	1	0.00001	0.00001	1	0.00001	0.00001	1	0.00001	0.00001	1
Total Chlordane	0.00005	0.00005	1	0.00005	0.00005	1	0.00005	0.00005	1	0.00005	0.00005	1	0.00005	0.00005	1	0.00005	0.00005	1	0.00005	0.00005	1	0.00005	0.00005	1
Total Endrin	0.00003	0.00003	1	0.00003	0.00003	1	0.00003	0.00003	1	0.00003	0.00003	1	0.00003	0.00003	1	0.00003	0.00003	1	0.00003	0.00003	1	0.00003	0.00003	1
Methoxychlor	0.00005	0.00005	1	0.00005	0.00005	1	0.00005	0.00005	1	0.00005	0.00005	1	0.00005	0.00005	1	0.00005	0.00005	1	0.00005	0.00005	1	0.00005	0.00005	1
Dieldrin	0.00001	0.00001	1	0.00001	0.00001	1	0.00001	0.00001	1	0.00001	0.00001	1	0.00001	0.00001	1	0.00001	0.00001	1	0.00001	0.00001	1	0.00001	0.00001	1
PCBs (mg/L)																								
Total Aroclor	0.0002	0.0002	1	0.0002	0.0002	1	0.0002	0.0002	1	0.0002	0.0002	1	0.0002	0.0002	1	0.0002	0.0002	1	0.0002	0.0002	1	0.0002	0.0002	1
METALS (mg/L)																								
Mercury	0.05	0.05	1	0.05	0.05	1	0.05	0.05	1	0.05	0.05	1	0.05	0.05	1	0.05	0.05	1	0.05	0.05	1	0.05	0.05	1
Arsenic	0.95	0.95	1	0.95	0.95	1	0.95	0.95	1	0.95	0.95	1	0.95	0.95	1	0.95	0.95	1	0.95	0.95	1	0.95	0.95	1
Cadmium	0.65	0.65	1	0.65	0.65	1	0.65	0.65	1	0.65	0.65	1	0.65	0.65	1	0.65	0.65	1	0.65	0.65	1	0.65	0.65	1
Lead	5.5	5.5	1	3.2	3.2	1	4.9	4.9	1	10	10	1	2.1	2.1	1	3.3	3.3	1	3.4	3.4	1	8.5	8.5	1
Selenium	1.3	1.3	1	1.3	1.3	1	1.3	1.3	1	1.3	1.3	1	1.3	1.3	1	1.3	1.3	1	1.3	1.3	1	1.3	1.3	1

NOTES: The concentrations listed in this table do not necessarily reflect the concentrations of contaminants listed in previous tables or in the text. This is due to the fact that the summary concentrations used for the risk assessment were calculated based on the conservative assumption that if a COPC was not detected, it was actually present at one-tenth of the detection limit (for organics) or one-half of the detection limit (for inorganics).

TABLE 40
Summary Contaminant Concentrations for Use in the Ecological Risk Assessment - SEDIMENT
Cornell-Dubilier Electronics Site
South Plainfield, NJ
July 1999

(Results reported in wet weight)

Contaminant	A1 max	A1 mean	A1 n	A2 max	A2 mean	A2 n	A3 max	A3 mean	A3 n	A4 max	A4 mean	A4 n	A5 max	A5 mean	A5 n	AS max	AS mean	AS n	A7 max	A7 mean	A7 n	A9 max	A9 mean	A9 n
PESTICIDES (mg/kg)																								
Total DDTr	0.003	0.003	6	0.003	0.003	2	0.003	0.003	2	0.003	0.003	2	0.003	0.003	2	0.003	0.003	2	0.02	0.02	1	0.003	0.003	2
Total Heptachlor	0.001	0.001	6	0.001	0.001	2	0.001	0.001	2	0.001	0.001	2	0.001	0.001	2	0.001	0.001	2	0.001	0.001	1	0.001	0.001	2
Total Chlordane	0.01	0.01	6	0.01	0.01	2	0.01	0.01	2	0.01	0.01	2	0.01	0.01	2	0.01	0.01	2	0.01	0.01	1	0.01	0.01	2
Total Endrin	0.003	0.003	6	0.003	0.003	2	0.003	0.003	2	0.003	0.003	2	0.003	0.003	2	0.003	0.003	2	0.003	0.003	1	0.003	0.003	2
Methoxychlor	0.01	0.01	6	0.01	0.01	2	0.01	0.01	2	0.01	0.01	2	0.01	0.01	2	0.01	0.01	2	0.01	0.01	1	0.01	0.01	2
Dieldrin	0.001	0.001	6	0.001	0.001	2	0.07	0.06	2	0.001	0.001	2	0.001	0.001	2	0.001	0.001	2	0.01	0.01	1	0.001	0.001	2
PCBs (mg/kg)																								
Total Aroclor	1.9	0.84	8	6.6	5.6	2	0.02	0.02	2	0.02	0.02	2	3.3	1.9	2	0.95	0.75	2	0.02	0.02	1	0.02	0.02	2
METALS (mg/kg)																								
Mercury	0.13	0.1	6	0.12	0.11	2	0.1	0.08	2	0.16	0.08	2	0.22	0.17	2	0.23	0.14	2	0.06	0.06	1	0.16	0.13	2
Arsenic	5.1	3.6	6	3.8	3.2	2	2.9	2.7	2	2.8	1.8	2	1.1	1	2	3.3	2.7	2	2.8	2.8	1	2.9	2.5	2
Cadmium	8.4	6.7	6	3.8	3.7	2	3.8	3.8	2	2.7	1.6	2	1.4	1	2	4.3	3.3	2	1.4	1.4	1	6	4.8	2
Lead	112	89	6	80	78	2	60	59	2	147	86	2	27	18	2	73	56	2	82	82	1	106	80	2
Selenium	1.4	1.1	6	1.1	0.93	2	0.79	0.77	2	0.81	0.61	2	0.74	0.59	2	0.95	0.85	2	0.68	0.68	1	0.83	0.75	2

NOTES: The concentrations listed in this table do not necessarily reflect the concentrations of contaminants listed in previous tables or in the text This is due to the fact that the summary concentrations used for the risk assessment were calculated based on the conservative assumption that if a COPC was not detected, it was actually present at one-tenth of the detection limit (for organics) or one-half of the detection limit (for inorganics).

TABLE 41
Summary Contaminant Concentrations for Use in the Ecological Risk Assessment - SOIL
Cornell-Dubilier Electronics Site
South Plainfield, NJ
July 1999

(Results reported in wet weight)

Contaminant	T1 max	T1 mean	T1 n	T2 max	T2 mean	T2 n	T3 max	T3 mean	T3 n	T4 max	T4 mean	T4 n
PESTICIDES (mg/kg)												
Total DDTr	0.03	0.02	8	0.003	0.003	6	0.03	0.01	6	0.003	0.003	6
Total Heptachlor	0.001	0.001	8	0.001	0.001	6	0.02	0.003	6	0.001	0.001	6
Total Chlordane	0.01	0.01	8	0.01	0.01	6	0.01	0.01	6	0.01	0.01	6
Total Endrin	0.03	0.02	8	0.003	0.003	6	0.003	0.003	6	0.003	0.003	6
Methoxychlor	0.01	0.01	8	0.01	0.01	6	0.01	0.01	6	0.01	0.01	6
Dieldrin	0.01	0.01	8	0.001	0.001	6	0.001	0.001	6	0.001	0.001	6
PCBs (mg/kg)												
Total Aroclor	470	140	8	49	26	6	0.02	0.02	6	9.7	4.9	6
METALS (mg/kg)												
Mercury	1.2	0.53	8	0.72	0.5	6	2.1	1.3	6	0.47	0.29	6
Arsenic	29	13	8	14	10	6	23	14	6	20	13	6
Cadmium	16	5	8	25	16	6	10	6.2	6	10	4.4	6
Lead	690	330	8	300	220	6	2600	1300	6	440	260	6
Selenium	6.2	2.7	8	2.6	2.1	6	7.3	4.5	6	2.6	2.1	6

NOTES: The concentrations listed in this table do not necessarily reflect the concentrations of contaminants listed in previous tables or in the text. This is due to the fact that the summary concentrations used for the risk assessment were calculated based on the conservative assumption that if a COPC was not detected, it was actually present at one-tenth of the detection limit (for organics) or one-half of the detection limit (for inorganics).

TABLE 42
Summary Contaminant Concentrations for Use in the Ecological Risk Assessment - SMALL MAMMALS
Cornell-Dubilier Electronics Site
South Plainfield, NJ
July 1999

(Results reported in wet weight)

Contaminant	T1 max	T1 mean	T1 n	T2 max	T2 mean	T2 n	T3 max	T3 mean	T3 n	T4 max	T4 mean	T4 n
PESTICIDES (mg/kg)												
Total DDTr	0.06	0.01	10	0.01	0.003	6	0.01	0.004	8	0.003	0.01	8
Total Heptachlor	0.002	0.0	10	0.002	0.001	6	0.002	0.001	8	0.07	0.012	8
Total Chlordane	0.01	0.0	10	0.01	0.01	6	0.01	0.0	8	0.01	0.01	8
Total Endrin	0.01	0.0	10	0.0033	0.0033	6	0.01	0.0	8	0.003	0.003	8
Methoxychlor	0.01	0.0	10	0.01	0.01	6	0.01	0.0	8	0.01	0.01	8
Dieldrin	0.06	0.02	10	0.02	0.01	6	0.002	0.0	8	0.02	0.01	8
PCBs (mg/kg)												
Total Aroclor	5.4	3.3	10	1.8	0.81	6	0.47	0.16	8	1.4	0.73	8
METALS (mg/kg)												
Mercury	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not analyzed (small mammals were not analyzed for metals).

NOTES: The concentrations listed in this table do not necessarily reflect the concentrations of contaminants listed in previous tables or in the text. This is due to the fact that the summary concentrations used for the risk assessment were calculated based on the conservative assumption that if a COPC was not detected, it was actually present at one-tenth of the detection limit (for organics) or one-half of the detection limit (for inorganics).

TABLE 43
Summary Contaminant Concentrations for Use in the Ecological Risk Assessment - CRAYFISH
Cornell-Dubilier Electronics Site
South Plainfield, NJ
July 1999

(Results reported in wet weight)

	A1			A2			A3			A4			A5			A9		
Contaminant	max	mean	n	max	mean	n	max	mean	n	max	mean	n	max	mean	n	max	mean	n
PESTICIDES (mg/kg)																		
Total DDTr	0.01	0.01	2	0.01	0.01	9	0.02	0.01	12	0.02	0.01	5	0.01	0.01	3	0.02	0.01	11
Total Heptachlor	0.002	0.002	2	0.003	0.003	9	0.01	0.003	12	0.01	0.003	5	0.003	0.003	3	0.01	0.003	11
Total Chlordane	0.01	0.01	2	0.02	0.02	9	0.03	0.01	12	0.03	0.01	5	0.02	0.01	3	0.03	0.02	11
Total Endrin	0.01	0.01	2	0.01	0.01	9	0.02	0.01	12	0.02	0.01	5	0.01	0.01	3	0.02	0.01	11
Methoxychlor	0.01	0.01	2	0.02	0.02	9	0.03	0.01	12	0.03	0.01	5	0.02	0.01	3	0.03	0.02	11
Dieldrin	0.002	0.002	2	0.003	0.003	9	0.01	0.003	12	0.01	0.002	5	0.003	0.002	3	0.01	0.003	11
PCBs (mg/kg)																		
Total Aroclor	1.1	0.77	2	2.4	1.8	9	1.9	1.3	12	2	1.3	5	1.1	0.79	3	2.2	0.26	11
METALS (mg/kg)																		
Mercury	0.01	0.01	2	0.02	0.01	9	0.02	0.01	12	0.02	0.01	5	0.01	0.01	3	0.04	0.02	11
Arsenic	0.48	0.29	2	0.48	0.24	9	0.93	0.25	12	0.46	0.32	5	1.9	0.86	3	0.48	0.34	11
Cadmium	0.94	0.84	2	1.7	0.88	9	0.99	0.47	12	1.2	0.48	5	1.3	0.66	3	5.4	0.83	11
Lead	1.1	0.81	2	1.4	0.86	9	0.96	0.63	12	1.2	0.54	5	1.3	1.00	3	6.5	1.2	11
Selenium	0.68	0.67	2	1.2	0.87	9	1.4	0.80	12	0.65	0.61	5	2.5	1.40	3	0.65	0.59	11

NOTES: The concentrations listed in this table do not necessarily reflect the concentrations of contaminants listed in previous tables or in the text. This is due to the fact that the summary concentrations used for the risk assessment were calculated based on the conservative assumption that if a COPC was not detected, it was actually present at one-tenth of the detection limit (for organics) or one-half of the detection limit (for inorganics).

TABLE 44
Mean Contaminant Concentrations for Use in the Ecological Risk Assessment - FORAGE FISH TISSUE
Cornell-Dubilier Electronics Site
South Plainfield, NJ
July 1999

(Resuits reported in wet weight)

Contaminant	A1 mean	A1 n	A2 mean	A2 n	A3 mean	A3 n	A4 mean	A4 n	A5 mean	A5 n	A6 mean	A6 n	A9 mean	A9 n
PESTICIDES (mg/kg)														
Total DDTr	0.04	6	0.03	5	0.02	8	0.03	7	0.02	7	0.02	8	0.01	5
Total Heptachlor	0.01	6	0.01	5	0.01	8	0.01	7	0.01	7	0.01	8	0.002	5
Total Chlordane	0.05	6	0.05	5	0.04	8	0.04	7	0.03	7	0.03	8	0.01	5
Total Endrin	0.03	6	0.03	5	0.02	8	0.03	7	0.02	7	0.02	8	0.01	5
Methoxychlor	0.05	6	0.05	5	0.04	8	0.04	7	0.03	7	0.03	8	0.01	5
Dieldrin	0.01	6	0.01	5	0.01	8	0.01	7	0.01	7	0.01	8	0.002	5
PCBs (mg/kg)														
Total Aroclor	4.1	6	12	5	7.9	8	6.5	7	5.6	7	3.6	8	0.4	5
METALS (mg/kg)														
Mercury	0.06	6	0.04	5	0.04	8	0.05	7	0.05	7	0.04	8	0.03	5
Arsenic	0.17	6	0.17	5	0.17	8	0.13	7	0.18	7	0.18	8	0.18	5
Cadmium	0.18	6	0.16	5	0.17	8	0.09	7	0.1	7	0.09	8	0.12	5
Lead	0.47	6	0.55	5	0.61	8	0.36	7	0.41	7	0.68	8	0.52	5
Selenium	1.3	6	1.2	5	1.2	8	0.91	7	1	7	0.75	8	1.3	5

NOTES: The concentrations listed in this table do not necessarily reflect the concentrations of contaminants listed in previous tables or in the text. This is due to the fact that the summary concentrations used for the risk assessment were calculated based on the conservative assumption that if a COPC was not detected, it was actually present at one-tenth of the detection limit (for organics) or one-half of the detection limit (for inorganics).

TABLE 45

Maximum Contaminant Concentrations for Use in the Ecological Risk Assessment - ALL FISH SAMPLES (INCLUDING CARCASSES, WHOLE BODIES, AND FILLETS)

Cornell-Dubilier Electronics Site

South Plainfield, NJ

July 1999

(Results reported in wet weight)

	A1		A2		A3		A4		A5		A6		A9	
Contaminant	max	n	max	n	max	n	max	n	max	n	max	n	max	n
PESTICIDES (mg/kg)														
Total DDTr	0.37	15	0.09	10	0.08	14	0.06	10	0.02	17	0.31	17	0.05	11
Total Heptachlor	0.05	15	0.05	10	0.05	14	0.02	10	0.06	17	0.11	17	0.02	11
Total Chlordane	0.44	15	0.09	10	0.05	14	0.1	10	0.03	17	0.05	17	0.11	11
Total Endrin	0.15	15	0.05	10	0.03	14	0.06	10	0.11	17	0.03	17	0.01	11
Methoxychlor	0.25	15	0.09	10	0.05	14	0.1	10	0.03	17	0.05	17	0.01	11
Dieldrin	0.05	15	0.02	10	0.01	14	0.02	10	0.01	17	0.01	17	0.002	11
PCBs (mg/kg)														
Total Aroclor	23	15	28	10	23	14	24	10	22	17	36	17	7.8	11
METALS (mg/kg)														
Mercury	0.19	15	0.2	10	0.12	14	0.13	10	0.22	17	0.25	17	0.1	11
Arsenic	0.19	15	0.19	10	0.19	14	0.25	10	0.31	17	0.42	17	0.19	11
Cadmium	0.38	15	0.42	10	0.45	14	0.17	10	0.14	17	0.13	17	0.13	11
Lead	0.76	15	0.74	10	1.2	14	0.8	10	0.52	17	2.9	17	0.66	11
Selenium	1.9	15	1.6	10	1.5	14	1.3	10	1.6	17	0.95	17	1.6	11

NOTES: The concentrations listed in this table do not necessarily reflect the concentrations of contaminants listed in previous tables or in the text. This is due to the fact that the summary concentrations used for the risk assessment were calculated based on the conservative assumption that if a COPC was not detected, it was actually present at one-tenth of the detection limit (for organics) or one-half of the detection limit (for inorganics).

TABLE 46
Hazard Quotient Calculations for Whole Body Forage Fish Tissue Concentrations
Cornell-Dubilier Electronics Site
South Plainfield, NJ
July 1999

Location	COPC	Toxic Threshold Tissue Residue	Mean Measured Tissue Residue	Max. Measured Tissue Residue	Hazard Quotient (Based on Mean)	Hazard Quotient (Based on Max.)
A1	Pesticides/PCBs	(mg/kg, ww)				
	Chlordane (total)	9	0.049	0.15	0.0	0.0
	PCBs (total)	7.7	4.1	16	0.5	2.1
	Metals	(mg/kg, ww)				
	Mercury	5	0.06	0.19	0.0	0.0
	Selenium	0.84	1.3	1.6	1.5	1.9
A2	Pesticides/PCBs	(mg/kg, ww)				
	Chlordane (total)	9	0.046	0.085	0.0	0.0
	PCBs (total)	7.7	12	20	1.6	2.6
	Metals	(mg/kg, ww)				
	Mercury	5	0.04	0.05	0.0	0.0
	Selenium	0.84	1.2	1.5	1.4	1.8
A3	Pesticides/PCBs	(mg/kg, ww)				
	Chlordane (total)	9	0.037	0.05	0.0	0.0
	PCBs (total)	7.7	7.9	15	1.0	1.9
	Metals	(mg/kg, ww)				
	Mercury	5	0.04	0.08	0.0	0.0
	Selenium	0.84	1.2	1.5	1.4	1.8
A4	Pesticides/PCBs	(mg/kg, ww)				
	Chlordane (total)	9	0.044	0.063	0.0	0.0
	PCBs (total)	7.7	6.5	17	0.8	2.2
	Metals	(mg/kg, ww)				
	Mercury	5	0.05	0.10	0.0	0.0
	Selenium	0.84	0.91	1.1	1.1	1.3
A5	Pesticides/PCBs	(mg/kg, ww)				
	Chlordane (total)	9	0.025	0.025	0.0	0.0
	PCBs (total)	7.7	5.6	11	0.7	1.4
	Metals	(mg/kg, ww)				
	Mercury	5	0.05	0.06	0.0	0.0
	Selenium	0.84	1.0	1.6	1.2	1.9
A6	Pesticides/PCBs	(mg/kg, ww)				
	Chlordane (total)	5	0.027	0.05	0.0	0.0
	PCBs (total)	7.7	3.6	7.7	0.5	1.0
	Metals	(mg/kg, ww)				
	Mercury	5	0.04	0.06	0.0	0.0
	Selenium	0.84	0.75	0.88	0.9	1.0

TABLE 47
Hazard Quotient Calculations for Whole Body Crayfish Tissue Concentrations
Cornell-Dubilier Electronics Site
South Plainfield, NJ
July 1999

Location	COPC	Toxic Threshold Tissue Residue mg/kg, ww	Mean Measured Tissue Residue mg/kg, ww	Max. Measured Tissue Residue mg/kg, ww	Hazard Quotient (Based on Mean)	Hazard Quotient (Based on Max.)
A1	Chlordane (total)	2.5	0.01	0.01	0.0	0.0
	PCBs (total)	25	0.77	1.1	0.0	0.0
A2	Chlordane (total)	2.5	0.02	0.02	0.0	0.0
	PCBs (total)	25	1.8	2.4	0.0	0.0
A3	Chlordane (total)	2.5	0.01	0.03	0.0	0.0
	PCBs (total)	25	1.3	1.9	0.0	0.0
A4	Chlordane (total)	2.5	0.01	0.03	0.0	0.0
	PCBs (total)	25	1.3	2	0.0	0.0
A5	Chlordane (total)	2.5	0.01	0.02	0.0	0.0
	PCBs (total)	25	0.79	1.1	0.0	0.0

TABLE 48
Sediment Toxicity Test Mortality NOAELs and LOAELs
Comell-Dubilier Electronics Site
South Plainfield, NJ
July 1999

	Toxicity Test NOAEL for Mortality	Toxicity Test LOAEL for Mortality
VOAs: (mg/kg, dw)		
Methylene chloride	0.056	0.082
Acetone	3.1	7.7
Toluene	--- *	0.021
Carbon disulfide	--- *	0.03
BNAs: (mg/kg, dw)		
Benzidine	18	28
Phenanthrene	2.2	2.9
Anthracene	0.38	0.53
Fluoranthene	3.6	6.2
Pyrene	4.5	5.9
Benzo(a)anthracene	2.3	3.3
Chrysene	2.6	3.6
Di-n-octyl phthalate	25	35
Benzo(b)fluoranthene	3.5	6.1
Benzo(a)pyrene	2.5	3.2
Indeno(1,2,3-c,d)pyrene	1.6	2.1
Benzo(ghi)perylene	1.7	2.3
Metals: (mg/kg, dw)		
Silver	5.1	11
Calcium	6100	7200
Copper	140	170
Vanadium	46	52
Zinc	510	590
Pesticides: (mg/kg, dw)		
Dieldrin	--- *	0.3

* denotes that the contaminant was not detected in any sample other than the one sample exhibiting toxicity. Therefore, a NOAEL for the mortality endpoint could not be calculated.

NOTE: NOAELs and LOAELs were derived only for the mortality endpoint because it was the only endpoint for which a significant effect was observed. There was no significant reduction in growth of the test organisms in any of the samples tested.

TABLE 49
Chronic Hazard Quotient Calculations for Insectivorous Birds (Red-winged Blackbird) - LOCATION A I
Cornell-Dubilier Electronics Site
South Plainfield, NJ
July 1999

COPC	Max. Water Conc.	Max. Sed. Conc.	Max. Sed. Conc.	Max. Conc. in Crayfish	Crayfish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	NOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0052	0.018	0.0093	0.0084	0.00	0.007	1.0	24.1	0.002	0.019	0.1
Methoxychlor	0.00005	0.0052	0.018	0.0093	0.0084	0.00	0.007	1.0	24.1	0.002	1.05	0.0
Dieldrin	0.00001	0.001	0.0035	0.0019	0.0084	0.00	0.007	1.0	24.1	0.0004	0.1	0.0
Endrin (total)	0.00003	0.003	0.0035	0.0057	0.0084	0.00	0.007	1.0	24.1	0.001	0.003	0.4
Heptachlor (total)	0.00001	0.001	0.0036	0.0019	0.0084	0.00	0.007	1.0	24.1	0.0004	0.03	0.0
DDT (total)	0.00002	0.003	0.011	0.0057	0.0084	0.00	0.007	1.0	24.1	0.001	0.125	0.0
PCBs (total)	0.0002	1.9	4.5	1.1	0.0084	0.00	0.007	1.0	24.1	0.223	0.037	2.6
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00100	5.1	13	0.48	0.0084	0.00	0.007	1.0	24.1	0.10	10	0.0
Cadmium	0.00065	8.4	23	0.94	0.0084	0.00	0.007	1.0	24.1	0.19	0.97	0.2
Lead	0.0055	112	340	1.1	0.0084	0.00	0.007	1.0	24.1	0.22	0.133	1.7
Mercury	0.00005	0.13	0.39	0.01	0.0084	0.00	0.007	1.0	24.1	0.00	0.07	0.0
Selenium	0.0013	1.4	3.8	0.68	0.0084	0.00	0.007	1.0	24.1	0.14	1.2	0.1

COPC	Max. Water Conc.	Max. Sed. Conc.	Max. Sed. Conc.	Max. Conc. in Crayfish	Crayfish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	LOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/dw	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0052	0.01S	0.0093	0.0084	0.00	0.007	1.0	24.1	0.002	0.19	0.0
Methoxychlor	0.00005	0.0052	0.018	0.0093	0.0084	0.00	0.007	1.0	24.1	0.002	10.5	0.0
Dieldrin	0.00001	0.001	0.003S	0.0019	0.0084	0.00	0.007	1.0	24.1	0.0004	0.3	0.0
Endrin (total)	0.00003	0.003	0.0035	0.0057	0.0084	0.00	0.007	1.0	24.1	0.001	0.03	0.0
Heptachlor (total)	0.00001	0.001	0.0036	0.0019	0.0084	0.00	0.007	1.0	24.1	0.0004	0.34	0.0
DDT (total)	0.00002	0.003	0.011	0.0057	0.0084	0.00	0.007	1.0	24.1	0.001	1.25	0.0
PCBs (total)	0.0002	1.9	4.5	1.1	0.0084	0.00	0.007	1.0	24.1	0.223	0.87	0.3
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	5.1	13	0.48	0.0084	0.00	0.007	1.0	24.1	0.10	100	0.0
Cadmium	0.00065	8.4	23	0.94	0.0084	0.00	0.007	1.0	24.1	0.19	9.7	0.0
Lead	0.0055	112	340	1.1	0.0084	0.00	0.007	1.0	24.1	0.22	1.33	0.2
Mercury	0.00005	0.13	0.39	0.01	0.0084	0.00	0.007	1.0	24.1	0.002	0.7	0.0
Selenium	0.0013	1.4	3.8	0.68	0.0084	0.00	0.007	1.0	24.1	0.14	2.4	0.1

COPC	Mean Water Conc.	Mean Sed. Conc.	Mean Sed. Conc.	Mean Conc. in Crayfish	Crayfish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	NOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.005	0.014	0.0082	0.0084	0.00	0.007	1.0	24.1	0.002	0.019	0.1
MethoxycMor	0.00005	0.005	0.014	0.0082	0.0084	0.00	0.007	1.0	24.1	0.002	1.05	0.0
Dieldrin	0.00001	0.00097	0.0026	0.0017	0.0084	0.00	0.007	1.0	24.1	0.0003	0.1	0.0
Endrin (total)	0.00003	0.0029	0.007	0.0051	0.0084	0.00	0.007	1.0	24.1	0.001	0.003	0.3
Heptachlor (total)	0.00001	0.00099	0.0027	0.0016	0.0084	0.00	0.007	1.0	24.1	0.0003	0.03	0.0
DDT (total)	0.00002	0.0029	0.0079	0.0051	0.0084	0.00	0.007	1.0	24.1	0.001	0.125	0.0
PCBs (total)	0.0002	0.84	2.3	0.77	0.0084	0.00	0.007	1.0	24.1	0.156	0.087	1.8
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	3.6	9.9	0.29	0.0084	0.00	0.007	1.0	24.1	0.06	10	0.0
Cadmium	0.00065	6.7	18	0.84	0.0084	0.00	0.007	1.0	24.1	0.17	0.97	0.2
Lead	0.0055	89	240	0.81	0.0084	0.00	0.007	1.0	24.1	0.16	0.133	1.2
Mercury	0.0000S	0.1	0.27	0.01	0.0084	0.00	0.007	1.0	24.1	0.002	0.07	0.0
Selenium	0.0013	1.1	3.0	0.67	0.0084	0.00	0.007	1.0	24.1	0.14	1.2	0.1

COPC	Mean Water Conc.	Mean Sed. Conc.	Mean Sed. Conc.	Mean Conc. in Crayfish	Crayfish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	NOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.005	0.014	0.0082	0.0084	0.00	0.007	1.0	24.1	0.002	0.19	0.0
Methoxychlor	0.00005	0.005	0.014	0.0082	0.0084	0.00	0.007	1.0	24.1	0.002	10.5	0.0
Dieldrin	0.00001	0.00097	0.0026	0.0017	0.0084	0.00	0.007	1.0	24.1	0.0003	0.3	0.0
Endrin (total)	0.00003	0.0029	0.007	0.0051	0.0084	0.00	0.007	1.0	24.1	0.001	0.03	0.0
Heptachlor (total)	0.00001	0.00099	0.0027	0.0016	0.0084	0.00	0.007	1.0	24.1	0.0003	0.34	0.0
DDT (total)	0.00002	0.0029	0.0079	0.0051	0.0084	0.00	0.007	1.0	24.1	0.001	1.25	0.0
PCBs (total)	0.0002	0.84	2.3	0.77	0.0084	0.00	0.007	1.0	24.1	0.156	0.87	0.2
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	3.6	9.9	0.29	0.0084	0.00	0.007	1.0	24.1	0.06	100	0.0
Cadmium	0.00065	6.7	18	0.84	0.0084	0.00	0.007	1.0	24.1	0.17	9.7	0.0
Lead	0.0055	89	240	0.81	0.0084	0.00	0.007	1.0	24.1	0.16	1.33	0.1
Mercury	0.00005	0.1	0.27	0.01	0.0084	0.00	0.007	1.0	24.1	0.002	0.7	0.0
Selenium	0.0013	1.1	3.0	0.67	0.0084	0.00	0.007	1.0	24.1	0.14	2.4	0.1

Notes:
1) Surface water concentrations are for unfiltered samples only.
2) A value of 1/2 the MDL was used to calculate the metal concentration for those compounds which were not detected in a given sample.
3) A value of 1/10 the MDL was used to calculate the organic concentration for those compounds which were not detected in a given sample.

TABLE 50
Chronic Hazard Quotient Calculations for Insectivorous Birds (Red-winged Blackbird) - LOCATION A2
Comet-Dubilier Electronics Site
South Plainfield, NJ
July 1999

COPC	Max. Water Conc.	Max Sed. Conc.	Max. Sed. Conc.	Max. Conc. in Crayfish	Crayfish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	NOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0048	0.015	0.017	0.0084	0.00	0.007	1.0	24.1	0.003	0.019	0.2
Methoxychlor	0.00005	0.0048	0.015	0.017	0.0084	0.00	0.007	1.0	24.1	0.003	1.05	0.0
Dieldrin	0.00001	0.00096	0.003	0.0034	0.0084	0.00	0.007	1.0	24.1	0.0007	0.1	0.0
Endrin (total)	0.00003	0.0029	0.0091	0.010	0.0084	0.00	0.007	1.0	24.1	0.002	0.003	0.7
Heptachlor (total)	0.00001	0.00048	0.003	0.0034	0.0084	0.00	0.007	1.0	24.1	0.0007	0.03	0.0
DDT (total)	0.00002	0.0029	0.0091	0.010	0.0084	0.00	0.007	1.0	24.1	0.002	0.125	0.0
PCBs (total)	0.0002	6.6	14	2.4	0.0084	0.00	0.007	1.0	24.1	0.486	0.087	5.6
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00098	3.8	12	0.48	0.0084	0.00	0.007	1.0	24.1	0.10	10	0.0
Cadmium	0.00065	3.8	12	1.7	0.0084	0.00	0.007	1.0	24.1	0.34	0.97	0.4
Lead	0.0032	80	250	1.4	0.0084	0.00	0.007	1.0	24.1	0.28	0.133	2.1
Mercury	0.00005	0.12	0.35	0.02	0.0084	0.00	0.007	1.0	24.1	0.00	0.07	0.1
Selenium	0.0013	1.1	3.3	1.2	0.0084	0.00	0.007	1.0	24.1	0.24	1.2	0.2

T.BPC	Max. Water Conc.	Max. Sed. Conc.	Max. Sed. Conc.	Max. Conc. in Crayfish	Crayfish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	UOF	Body Weight	Dose	LOAEL	HQ
Pesticidas/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0048	0.015	0.017	0.0084	0.00	0.007	1.0	24.1	0.003	0.19	0.0
Methoxychlor	0.00005	0.0048	0.015	0.017	0.0084	0.00	0.007	1.0	24.1	0.003	10.6	0.0
Dieldrin	0.00001	0.00096	0.003	0.0034	0.0084	0.00	0.007	1.0	24.1	0.0007	0.3	0.0
Endrin (total)	0.00003	0.0029	0.0091	0.010	0.0084	0.00	0.007	1.0	24.1	0.002	0.03	0.1
Heptachlor (total)	0.00001	0.00048	0.003	0.0034	0.0084	0.00	0.007	1.0	24.1	0.0007	0.34	0.0
DDT (total)	0.00002	0.0029	0.0091	0.010	0.0084	0.00	0.007	1.0	24.1	0.002	1.25	0.0
PCBs (total)	0.0002	6.6	14	2.4	0.0084	0.00	0.007	1.0	24.1	0.486	0.87	0.6
Betals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00088	3.8	12	0.48	0.0008	0.00	0.007	1.B	24.1	0.10	100	0.0
Cadmium	0.00065	3.8	12	1.7	0.0084	0.00	0.007	1.0	24.1	0.34	9.7	0.0
Lead	0.0032	80	250	1.4	0.0084	0.00	0.007	1.0	24.1	0.28	1.33	0.2
Mercury	0.00005	0.12	0.35	0.02	0.0084	0.00	0.007	1.0	24.1	0.004	0.7	0.0
Selenium	0.0013	1.1	3.3	1.2	0.0084	0.00	0.007	1.0	24.1	0.24	2.4	0.1

COPC	Mean Water Conc.	Mean Sed. Conc.	Mean Sed. Conc.	Mean Conc. in Crayfish	Crayfish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	NOAEL	HQ
Pesticides/W.Bs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/dsy	mg/kg BW/day	
Chlordane (total)	0.00005	0.0048	0.013	0.015	0.0080	0.00	0.007	1.0	24.0	0.003	0.019	0.2
Methoxychlor	0.00005	0.0048	0.013	0.017	0.0084	0.00	0.007	1.0	24.1	0.003	1.05	0.0
Dieldrin	0.00001	0.0009S	0.0025	0.003	0.0084	0.00	0.007	1.0	24.1	0.0006	0.1	0.0
Endrin (total)	0.00003	0.0029	0.007S	0.0091	0.0084	0.00	0.007	1.0	24.1	0.002	0.003	0.6
Heptachlor (total)	0.00001	0.00048	0.002S	0.003	0.0084	0.00	0.007	1.0	24.1	0.0006	0.03	0.0
DDT (total)	0.00002	0.0029	0.0075	0.0091	0.0084	0.00	0.007	1.0	24.1	0.002	0.125	0.0
PCBs (total)	0.0002	5.6	14	1.8	0.0084	0.00	0.007	1.0	24.1	0.364	0.087	4.2
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	3.2	8.8	0.24	0.0084	0.00	0.007	1.0	24.1	0.05	10	0.0
Cadmium	0.00065	3.7	9.7	0.66	0.0084	0.00	0.007	1.0	24.1	0.18	0.97	0.2
Lead	0.0032	78	200	0.86	0.0084	0.00	0.007	1.0	24.1	0.17	0.133	1.3
Mercury	0.00005	0.11	0.30	0.01	0.0084	0.00	0.007	1.0	24.1	0.002	0.07	0.0
Selenium	0.0013	0.93	2.5	0.87	0.0084	0.00	0.007	1.0	24.1	0.18	1.2	0.1

COPC	Mean Water Conc.	Mean Sed. Conc.	Mean Sed. Conc.	Wean Conc. in Crayfish	Crayfish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	LOAEL	HQ
Pesticidss/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0048	0.013	0.015	0.0084	0.00	0.007	1.0	24.1	0.003	0.19	0.0
Mettioxychlor	0.00005	0.0048	0.013	0.017	0.0084	0.00	0.007	1.0	24.1	0.003	10.5	0.0
Dieldrin	0.00001	0.00095	0.0025	0.003	0.0084	0.00	0.007	1.0	24.1	0.0006	0.3	0.0
Endrin (total)	0.00003	0.0029	0.0075	0.0091	0.0084	0.00	0.007	1.0	24.1	0.002	0.03	0.1
Heptachlor (total)	0.00001	0.00048	0.0025	0.003	0.0084	0.00	0.007	1.0	24.1	0.0006	0.34	0.0
DDT (total)	0.00002	0.0029	0.0075	0.0091	0.0084	0.00	0.007	1.0	24.1	0.002	1.25	0.0
PCBs (total)	0.0002	5.6	14	1.8	0.0084	0.00	0.007	1.0	24.1	0.364	0.87	0.4
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1.Eg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	3.2	8.8	0.24	0.0084	0.00	0.007	1.0	24.1	0.05	100	0.0
Cadmium	0.00065	3.7	9.7	0.88	0.0084	0.00	0.007	1.0	24.1	0.18	9.7	0.0
Lead	0.0032	78	200	0.86	0.0084	0.00	0.007	1.0	24.1	0.17	1.33	0.1
Mercury	0.00005	0.11	0.30	0.01	0.0084	0.00	0.007	1.0	24.1	0.002	0.7	0.0
Selenium	0.0013	0.93	2.5	0.87	0.0084	0.00	0.007	1.0	24.1	0.18	2.4	0.1

Notes:
1) Surface water concentrations are for unfiltered samples only.
2) A value of 1/2 the MDL was used to calculate the metal concentration for those compounds which were not detected in a given sample.
3) A value of 1/10 the MDL was used to calculate the organic concentration for those compounds which were not detected in a given sample.

TABLE 51
Chronic Hazard Quotient Calculation for Insectivorous Birds (Red-winged Blackbird) - LOCATION A3
Cornell-Dubilier Electronics Site
South Plainfield, NJ
July 1999

COPC	Max. Water Conc.	Max. Sed. Conc.	Max. Sed. Conc.	Max. Conc. in Crayfish	Crayfish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	NOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.50005	0.005	0.021	0.000	0.0084	0.00	0.007	1.0	24.4	0.007	0.019	0.4
Methoxychlor	0.00005	0.005	0.021	0.033	0.0084	0.00	0.007	1.0	24.1	0.007	1.05	0.0
Dieldrin	0.00001	0.072	0.300	0.0067	0.0084	0.00	0.007	1.0	24.1	0.0014	0.1	0.0
Endrin (total)	0.00003	0.003	0.013	0.020	0.0084	0.00	0.007	1.0	24.1	0.004	0.003	1.4
Heptachlor (total)	0.00001	0.001	0.0042	0.0066	0.0084	0.00	0.007	1.0	24.1	0.0013	0.03	0.0
DDT (total)	0.00002	0.003	0.013	0.020	0.0084	0.00	0.007	1.0	24.1	0.004	0.125	0.0
PCBs (total)	0.0002	0.020	0.083	1.9	0.0084	0.00	0.007	1.0	24.1	0.385	0.087	4.4
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	2.9	12	0.93	0.0084	0.00	0.007	1.0	24.1	0.19	10	0.0
Cadmium	0.00065	3.8	16	0.99	0.0084	0.00	0.007	1.0	24.1	0.20	0.97	0.2
Lead	0.0049	60	250	0.96	0.0084	0.00	0.007	1.0	24.1	0.20	0.133	1.5
Mercury	0.00005	0.1	0.35	0.02	0.0084	0.00	0.007	1.0	24.1	0.00	0.07	0.1
Selenium	0.0013	0.79	3.3	1.4	0.0084	0.00	0.007	1.0	24.1	0.28	1.2	0.2

COPC	Max. Water Conc.	Max. Sed. Conc.	Max Sed. Conc.	Max. Conc. in Crayfish	Crayfish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	LOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.005	0.021	0.033	0.0084	0.00	0.007	1.0	24.1	0.007	0.19	0.0
Methoxychlor	0.00005	0.005	0.021	0.033	0.0084	0.00	0.007	1.0	24.1	0.007	10.5	0.0
Dieldrin	0.00001	0.072	0.300	0.0067	0.0084	0.00	0.007	1.0	24.1	0.0014	0.3	0.0
Endrin (total)	0.00003	0.003	0.013	0.020	0.0084	0.00	0.007	1.0	24.1	0.004	0.03	0.1
Heptachlor (total)	0.00001	0.001	0.0042	0.0066	0.0084	0.00	0.007	1.0	24.1	0.0013	0.34	0.0
DDT (total)	0.00002	0.003	0.013	0.020	0.0084	0.00	0.007	1.0	24.1	0.004	1.25	0.0
PCBs (total)	0.0002	0.020	0.083	1.9	0.0084	0.00	0.007	1.0	24.1	0.385	0.87	0.4
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	2.9	12	0.93	0.0084	0.00	0.007	1.0	24.1	0.19	100	0.0
Cadmium	0.00065	3.8	16	0.99	0.0084	0.00	0.007	1.0	24.1	0.20	9.7	0.0
Lead	0.0049	60	250	0.96	0.0084	0.00	0.007	1.0	24.1	0.20	1.33	0.1
Mercury	0.00005	0.1	0.35	0.02	0.0084	0.00	0.007	1.0	24.1	0.004	0.7	0.0
Selenium	0.0013	0.79	3.3	1.4	0.0084	0.00	0.007	1.0	24.1	0.28	2.4	0.1

EDPC	Mean Water Conc.	Mean Sed. Conc.	Mean Sed. Conc.	Mean Conc. in Crayfish	Crayfish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	NOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.005	0.019	0.014	0.0084	0.00	0.007	1.0	24.1	0.003	0.019	0.1
Methoxychlor	0.00005	0.005	0.019	0.014	0.0084	0.00	0.007	1.0	24.1	0.003	1.05	0.0
Dieldrin	0.00001	0.064	0.24	0.0027	0.0084	0.00	0.007	1.0	24.1	0.0005	0.1	0.0
Endrin (total)	0.00003	0.003	0.011	0.0081	0.0084	0.00	0.007	1.0	24.1	0.002	0.003	0.5
Heptachlor (total)	0.00001	0.00099	0.0037	0.0027	0.0084	0.00	0.007	1.0	24.1	0.0005	0.03	0.0
DDT (total)	0.00002	0.003	0.011	0.0081	0.0084	0.00	0.007	1.0	24.1	0.002	0.125	0.0
PCBs (total)	0.0002	0.020	0.076	1.3	0.0084	0.00	0.007	1.0	24.1	0.263	0.087	3.0
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	2.7	10	0.25	0.0084	0.00	0.007	1.0	24.1	0.05	10	0.0
Cadmium	0.00065	3.8	15	0.47	0.0084	0.00	0.007	1.0	24.1	0.10	0.97	0.1
Lead	0.0049	59	230	0.63	0.0084	0.00	0.007	1.0	24.1	0.13	0.133	0.97
Mercury	0.00005	0.08	0.30	0.01	0.0084	0.00	0.007	1.0	24.1	0.002	0.07	0.0
Selenium	0.0013	0.77	3.0	0.8	0.0084	0.00	0.007	1.0	24.1	0.16	1.2	0.1

COPC	Mean Water Conc.	Mean Sed. Conc.	Mean Sed. Conc.	Mean Conc. in Crayfish	Crayfish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	LOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.005	0.019	0.014	0.0084	0.00	0.007	1.0	24.1	0.003	0.19	0.0
Methoxychlor	0.00005	0.005	0.019	0.014	0.0084	0.00	0.007	1.0	24.1	0.003	10.5	0.0
Dieldrin	0.00001	0.064	0.24	0.0027	0.0084	0.00	0.007	1.0	24.1	0.0005	0.3	0.0
Endrin (total)	0.00003	0.003	0.011	0.0081	0.0084	0.00	0.007	1.0	24.1	0.002	0.03	0.1
Heptachlor (total)	0.00001	0.00099	0.0037	0.0027	0.0084	0.00	0.007	1.0	24.1	0.0005	0.34	0.0
DDT (total)	0.00002	0.003	0.011	0.0081	0.0084	0.00	0.007	1.0	24.1	0.002	1.25	0.0
PCBs (total)	0.0002	0.020	0.076	1.3	0.0084	0.00	0.007	1.0	24.1	0.263	0.87	0.3
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	2.7	10	0.25	0.0084	0.00	0.007	1.0	24.1	0.05	100	0.0
Cadmium	0.00065	3.8	15	0.47	0.0084	0.00	0.007	1.0	24.1	0.10	9.7	0.0
Lead	0.0049	59	230	0.63	0.0084	0.00	0.007	1.0	24.1	0.13	1.33	0.1
Mercury	0.00005	0.08	0.30	0.01	0.0084	0.00	0.007	1.0	24.1	0.002	0.7	0.0
Selenium	0.0013	0.77	3.0	0.8	0.0084	0.00	0.007	1.0	24.1	0.16	2.4	0.1

Notes:
1) Surface water concentrations are for unfiltered samples only.
2) A value of 1/2 the MDL was used to calculate the metal concentration for those compounds which were not detected in a given sample.
3) A value of 1/10 the MDL was used to calculate the organic concentration for those compounds which were not detected in a given sample.

TABLE 52
Chronic Hazard Quotient Calculations for Insectivorous Birds (Red-winged Blackbird) - LOCATION A4
Cornell-Dubilier Electronics Site
South Plainfield, NJ
July 1999

COPC	Max. Water Conc.	Max. Sed. Conc.	Max. Sed. Conc.	Max. Conc. in Crayfish	Crayfish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	NOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0048	0.011	0.028	0.0084	0.00	0.007	1.0	24.1	0.006	0.019	0.3
Methoxychlor	0.00005	0.0048	0.011	0.028	0.0084	0.00	0.007	1.0	24.1	0.006	1.05	0.0
Dieldrin	0.00001	0.00097	0.0023	0.0056	0.0084	0.00	0.007	1.0	24.1	0.0011	0.1	0.0
Endrin (total)	0.00003	0.0029	0.0069	0.017	0.0084	0.00	0.007	1.0	24.1	0.003	0.003	1.1
Heptachlor (total)	0.00001	0.00096	0.0022	0.0056	0.0084	0.00	0.007	1.0	24.1	0.0011	0.03	0.0
DDT (total)	0.00002	0.0029	0.0069	0.017	0.0084	0.00	0.007	1.0	24.1	0.003	0.125	0.0
PCBs (total)	0.0002	0.019	0.045	2.0	0.0084	0.00	0.007	1.0	24.1	0.405	0.087	4.7
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00099	2.8	1.7	0.46	0.0084	0.00	0.007	1.0	24.1	0.09	10	0.0
Cadmium	0.00065	2.7	6.5	1.2	0.0084	0.00	0.007	1.0	24.1	0.24	0.97	0.3
Lead	0.01	147	350	1.2	0.0084	0.00	0.007	1.0	24.1	0.24	0.133	1.8
Mercury	0.00005	0.16	0.38	0.02	0.0084	0.00	0.007	1.0	24.1	0.00	0.07	0.1
Selenium	0.0013	0.81	1.8	0.65	0.0084	0.00	0.007	1.0	24.1	0.13	1.2	0.1

COPC	Max. Water Conc.	Max. Sed. Conc.	Max. Sed. Conc.	Max. Conc. in Crayfish	Crayfish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	LOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0048	0.011	0.028	0.0084	0.00	0.007	1.0	24.1	0.006	0.19	0.0
Methoxychlor	0.00005	0.0048	0.011	0.028	0.0084	0.00	0.007	1.0	24.1	0.006	10.5	0.0
Dieldrin	0.00001	0.00097	0.0023	0.0056	0.0084	0.00	0.007	1.0	24.1	0.0011	0.3	0.0
Endrin (total)	0.00003	0.0029	0.0069	0.017	0.0084	0.00	0.007	1.0	24.1	0.003	0.03	0.1
Heptachlor (total)	0.00001	0.00096	0.0022	0.0056	0.0084	0.00	0.007	1.0	24.1	0.0011	0.34	0.0
DDT (total)	0.00002	0.0029	0.0069	0.017	0.0084	0.00	0.007	1.0	24.1	0.003	1.25	0.0
PCBs (total)	0.0002	0.019	0.045	2.0	0.0084	0.00	0.007	1.0	24.1	0.405	0.87	0.5
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00099	2.8	6.7	0.46	0.0084	0.00	0.007	1.0	24.1	0.09	100	0.0
Cadmium	0.00065	2.7	6.5	1.2	0.0084	0.00	0.007	1.0	24.1	0.24	9.7	0.0
Lead	0.01	147	350	1.2	0.0084	0.00	0.007	1.0	24.1	0.24	1.33	0.2
Mercury	0.00005	0.16	0.38	0.02	0.0084	0.00	0.007	1.0	24.1	0.004	0.7	0.0
Selenium	0.0013	0.81	1.8	0.65	0.0084	0.00	0.007	1.0	24.1	0.13	2.4	0.1

COPC	Mean Water Conc.	Mean Sed. Conc.	Mean Sed. Conc.	Mean Conc. in Crayfish	Crayfish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	NOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0047	0.009	0.013	0.0084	0.00	0.007	1.0	24.1	0.003	0.019	0.1
Methoxychlor	0.00005	0.0047	0.009	0.013	0.0084	0.00	0.007	1.0	24.1	0.003	1.05	0.0
Dieldrin	0.00001	0.00097	0.0019	0.0024	0.0084	0.00	0.007	1.0	24.1	0.0005	0.1	0.0
Endrin (total)	0.00003	0.0029	0.0056	0.0077	0.0084	0.00	0.007	1.0	24.1	0.002	0.003	0.5
Heptachlor (total)	0.00001	0.00094	0.0018	0.0026	0.0084	0.00	0.007	1.0	24.1	0.0005	0.03	0.0
DDT (total)	0.00002	0.0029	0.0056	0.0077	0.0084	0.00	0.007	1.0	24.1	0.002	0.125	0.0
PCBs (total)	0.0002	0.019	0.036	1.3	0.0084	0.00	0.007	1.0	24.1	0.263	0.087	3.0
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	1.8	4.0	0.32	0.0084	0.00	0.007	1.0	24.1	0.06	10	0.0
Cadmium	0.00065	1.6	3.6	0.48	0.0084	0.00	0.007	1.0	24.1	0.10	0.97	0.1
Lead	0.01	86	190	0.54	0.0084	0.00	0.007	1.0	24.1	0.11	0.133	0.8
Mercury	0.00005	0.08	0.20	0.01	0.0084	0.00	0.007	1.0	24.1	0.002	0.07	0.0
Selenium	0.0013	0.61	1.2	0.61	0.0084	0.00	0.007	1.0	24.1	0.12	1.2	0.1

COPC	Mean Water Conc.	Mean Sed. Conc.	Mean Sed. Conc.	Mean Conc. in Crayfish	Crayfish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	LOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0047	0.009	0.013	0.0084	0.00	0.007	1.0	24.1	0.005	0.19	0.0
Methoxychlor	0.00005	0.0047	0.009	0.013	0.0084	0.00	0.007	1.0	24.1	0.003	10.5	0.0
Dieldrin	0.00001	0.00097	0.0019	0.0024	0.0084	0.00	0.007	1.0	24.1	0.0005	0.3	0.0
Endrin (total)	0.00003	0.0029	0.0056	0.0077	0.0084	0.00	0.007	1.0	24.1	0.002	0.03	0.1
Heptachlor (total)	0.00001	0.00094	0.0018	0.0026	0.0084	0.00	0.007	1.0	24.1	0.0005	0.34	0.0
DDT (total)	0.00002	0.0029	0.0056	0.0077	0.0084	0.00	0.007	1.0	24.1	0.002	1.25	0.0
PCBs (total)	0.0002	0.019	0.036	1.3	0.0084	0.00	0.007	1.0	24.1	0.263	0.87	0.3
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	1.8	4.0	0.32	0.0084	0.00	0.007	1.0	24.1	0.05	100	0.0
Cadmium	0.00065	1.6	3.6	0.48	0.0084	0.00	0.007	1.0	24.1	0.10	9.7	0.0
Lead	0.01	86	190	0.54	0.0084	0.00	0.007	1.0	24.1	0.11	1.33	0.1
Mercury	0.00005	0.08	0.20	0.01	0.0084	0.00	0.007	1.0	24.1	0.002	0.7	0.0
Selenium	0.0013	0.61	1.2	0.61	0.0084	0.00	0.007	1.0	24.1	0.12	2.4	0.1

Notes:
1) Surface water concentrations are for unfiltered samples only.
2) A value of 1/2 the MDL was used to calculate the metal concentration for those compounds which were not detected in a given sample.
3) A value of 1/10 the MDL was used to calculate the organic concentration for those compounds which were not detected in a given sample.

TABLE 53
Chronic Hazard Quotient Calculations for Insectivorous Bints (Red-winged Blackbird) - LOCATION AS
Cornell-Dubilier Electronics Site
South Plainfield, NJ
July 1999

COPC	Max. Water Conc.	Max. Sed. Conc.	Max. Sed. Conc.	Max. Conc. in Crayfish	Crayfish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	NOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0051	0.008	0.016	0.0084	0.00	0.007	1.0	24.1	0.003	0.019	0.2
Methoxychlor	0.00005	0.0051	0.008	0.016	0.0084	0.00	0.007	1.0	24.1	0.003	1.05	0.0
Dieldrin	0.00001	0.001	0.0016	0.0031	0.0084	0.00	0.007	1.0	24.1	0.0006	0.1	0.0
Endrin (total)	0.00003	0.003	0.0047	0.0093	0.0084	0.00	0.007	1.0	24.1	0.002	0.003	0.6
Heptachlor (total)	0.00001	0.001	0.0016	0.0032	0.0084	0.00	0.007	1.0	24.1	0.0006	0.03	0.0
DDT (total)	0.00002	0.003	0.0047	0.0093	0.0084	0.00	0.007	1.0	24.1	0.002	0.125	0.0
PCBs (total)	0.0002	3.3	5.2	1.1	0.0084	0.00	0.007	1.0	24.1	0.223	0.087	2.6
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	1.1	1.7	1.9	0.0084	0.00	0.007	1.0	24.1	0.38	10	0.0
Cadmium	0.0007	1.4	2.2	1.3	0.0084	0.00	0.007	1.0	24.1	0.26	0.97	0.3
Lead	0.0021	27	42	1.3	0.0084	0.00	0.007	1.0	24.1	0.26	0.133	2.0
Mercury	0.00005	0.22	0.29	0.01	0.0084	0.00	0.007	1.0	24.1	0.00	0.07	0.0
Selenium	0.0013	0.74	0.98	2.5	0.0084	0.00	0.007	1.0	24.1	0.51	1.2	0.4

COPC	Max. Water Conc.	Max. Sed. Conc.	Max. Sed. Conc.	Max. Conc. in Crayfish	Crayfish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	LOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0051	0.008	0.016	0.0084	0.00	0.007	1.0	24.1	0.003	0.19	0.0
Methoxychlor	0.00005	0.0051	0.008	0.016	0.0084	0.00	0.007	1.0	24.1	0.003	10.5	0.0
Dieldrin	0.00001	0.001	0.0016	0.0031	0.0084	0.00	0.007	1.0	24.1	0.0006	0.3	0.0
Endrin (total)	0.00003	0.003	0.0047	0.0093	0.0084	0.00	0.007	1.0	24.1	0.002	0.03	0.1
Heptachlor (total)	0.00001	0.001	0.0016	0.0032	0.0084	0.00	0.007	1.0	24.1	0.0006	0.34	0.0
DDT (total)	0.00002	0.003	0.0047	0.0093	0.0084	0.00	0.007	1.0	24.1	0.002	1.25	0.0
PCBs (total)	0.0002	3.3	5.2	1.1	0.0084	0.00	0.007	1.0	24.1	0.223	0.87	0.3
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	1.1	1.7	1.9	0.0084	0.00	0.007	1.0	24.1	0.38	100	0.0
Cadmium	0.0007	1.4	2.2	1.3	0.0084	0.00	0.007	1.0	24.1	0.26	9.7	0.0
Lead	0.0021	27	42	1.3	0.0084	0.00	0.007	1.0	24.1	0.26	1.33	0.2
Mercury	0.00005	0.22	0.29	0.01	0.0084	0.00	0.007	1.0	24.1	0.002	0.7	0.0
Selenium	0.0013	0.74	0.98	2.5	0.0084	0.00	0.007	1.0	24.1	0.51	2.4	0.2

COPC	Mean Water Conc.	Mean Sed. Conc.	Mean Sed. Conc.	Mean Conc. in Crayfish	Crayfish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	NOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0049	0.0071	0.012	0.0084	0.00	0.007	1.0	24.1	0.002	0.019	0.1
Methoxychlor	0.00005	0.0049	0.0071	0.012	0.0084	0.00	0.007	1.0	24.1	0.002	1.05	0.0
Dieldrin	0.00001	0.00099	0.0014	0.0024	0.0084	0.00	0.007	1.0	24.1	0.0005	0.1	0.0
Endrin (total)	0.00003	0.003	0.0043	0.0072	0.0084	0.00	0.007	1.0	24.1	0.001	0.003	0.5
Heptachlor (total)	0.00001	0.00097	0.0014	0.0025	0.0084	0.00	0.007	1.0	24.1	0.0005	0.03	0.0
DDT (total)	0.00002	0.003	0.0043	0.0072	0.0084	0.00	0.007	1.0	24.1	0.001	0.125	0.0
PCBs (total)	0.0002	1.9	2.9	0.79	0.0084	0.00	0.007	1.0	24.1	0.160	0.087	1.8
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	1.0	1.5	0.86	0.0084	0.00	0.007	1.0	24.1	0.17	10	0.0
Cadmium	0.00065	1.0	1.5	0.66	0.0084	0.00	0.007	1.0	24.1	0.13	0.97	0.1
Lead	0.0021	18	28	1.0	0.0084	0.00	0.007	1.0	24.1	0.20	0.133	1.5
Mercury	0.00005	0.17	0.24	0.01	0.0084	0.000	0.007	1.0	24.1	0.002	0.07	0.0
Selenium	0.0013	0.59	0.85	1.4	0.0084	0.00	0.007	1.0	24.1	0.28	1.2	0.2

COPC	Mean Water Conc.	Mean Sed. Conc.	Mean Sed. Conc.	Mean Conc. in Crayfish	Crayfish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	LOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	1.00005	0.0049	0.0071	0.012	0.0084	0.00	0.007	1.0	24.1	0.002	0.19	0.0
Methoxychlor	0.00005	0.0049	0.0071	0.012	0.0084	0.00	0.007	1.0	24.1	0.002	10.5	0.0
Dieldrin	0.00001	0.00099	0.0014	0.0024	0.0084	0.00	0.007	1.0	24.1	0.0005	0.3	0.0
Endrin (total)	0.00003	0.003	0.0043	0.0072	0.0084	0.00	0.007	1.0	24.1	0.001	0.03	0.0
Heptachlor (total)	0.00001	0.00097	0.0014	0.0025	0.0084	0.00	0.007	1.0	24.1	0.0005	0.34	0.0
DDT (total)	0.00002	0.003	0.0043	0.0072	0.0084	0.00	0.007	1.0	24.1	0.001	1.25	0.0
PCBs (total)	0.0002	1.9	2.9	0.79	0.0084	0.00	0.007	1.0	24.1	0.160	0.87	0.2
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	1.0	1.5	0.86	0.0084	0.00	0.007	1.0	24.1	0.17	100	0.0
Cadmium	0.00065	1.0	1.5	0.66	0.0084	0.00	0.007	1.0	24.1	0.13	9.7	0.0
Lead	0.0021	18	28	1.0	0.0084	0.00	0.007	1.0	24.1	0.20	1.33	0.2
Mercury	0.00005	0.17	0.24	0.01	0.0084	0.00	0.007	1.0	24.1	0.002	0.7	0.0
Selenium	0.0013	0.59	0.85	1.4	0.0084	0.00	0.007	1.0	24.1	0.28	2.4	0.1

Notes:
1) Surface water concentrations are for unfiltered samples only.
2) A value of 1/2 the MDL was used to calculate the metal concentration for those compounds which were not detected in a given sample.
3) A value of 1/10 the MDL was used to calculate the organic concentration for those compounds which were not detected in a given sample.

TABLE 54
Chronic Hazard Quotient Calculations for Omnivorous Birds (Mallard Duck) - LOCATION A I
Cornell-Dubilier Electronics Site
South Plainfield, NJ
July 1999

COPC	Max. Water Conc.	Max. Sed. Conc.	Max. Sed. Conc.	Max. Conc. in Crayfish	Crayfish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	NOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.05005	0.0052	0.010	0.0092	0.2500	0.008	0.055	1.0	0.96	5.002	0.019	0.1
Methoxychlor	0.00005	0.0052	0.018	0.0093	0.2500	0.008	0.060	1.0	0.96	0.002	4.8	0.0
Dieldrin	0.00001	0.001	0.0035	0.0019	0.2500	0.008	0.060	1.0	0.96	0.0005	0.1	0.0
Endrin (total)	0.00003	0.003	0.0035	0.0057	0.2500	0.008	0.060	1.0	0.96	0.001	0.014	0.1
Heptachlor (total)	0.00001	0.001	0.0036	0.0019	0.2500	0.008	0.060	1.0	0.96	0.0005	0.04	0.0
DDT (total)	0.00002	0.003	0.011	0.0057	0.2500	0.008	0.060	1.0	0.96	0.001	0.017	0.1
PCBs (total)	0.0002	1.9	4.5	1.1	0.2500	0.008	0.060	1.0	0.96	0.279	2.0	0.1
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00092	5.1	13	0.40	0.2500	0.008	0.060	1.0	0.96	0.15	10	0.0
Cadmium	0.00065	8.4	23	0.94	0.2500	0.008	0.060	1.0	0.96	0.29	15.2	0.0
Lead	0.0055	112	340	1.1	0.2500	0.008	0.060	1.0	0.96	1.12	0.133	8.5
Mercury	0.00005	0.13	0.39	0.01	0.2500	0.008	0.060	1.0	0.96	0.00	0.07	0.0
Selenium	0.0013	1.4	3.8	0.68	0.2500	0.008	0.060	1.0	0.96	0.17	1.2	0.1

COPC	Max. Water Conc.	Max. Sed. Conc.	Max. Sed. Conc.	Max. Conc. in Crayfish	Crayfish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	LOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0052	0.018	0.0093	0.2209	0.008	0.060	1.0	0.96	0.002	0.12	0.0
Methoxychlor	0.00005	0.0052	0.018	0.0093	0.2500	0.008	0.060	1.0	0.96	0.002	48	0.0
Dieldrin	0.00001	0.001	0.0035	0.0019	0.2500	0.008	0.060	1.0	0.96	0.0005	0.3	0.0
Endrin (total)	0.00003	0.003	0.0035	0.0057	0.2500	0.008	0.060	1.0	0.96	0.001	0.14	0.0
Heptachlor (total)	0.00001	0.001	0.0036	0.0019	0.2500	0.008	0.060	1.0	0.96	0.0005	0.4	0.0
DDT (total)	0.00002	0.003	0.011	0.0057	0.2500	0.008	0.060	1.0	0.96	0.001	0.17	0.0
PCBs (total)	0.0002	1.9	4.5	1.1	0.2500	0.008	0.060	1.0	0.96	0.279	20	0.0
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	5.1	18	0.40	0.2500	0.008	0.060	1.0	0.96	0.15	100	0.0
Cadmium	0.00065	8.4	23	0.94	0.2500	0.008	0.060	1.0	0.96	0.29	48.3	0.0
Lead	0.0055	112	340	1.1	0.2500	0.008	0.060	1.0	0.96	1.12	1.33	0.8
Mercury	0.00005	0.13	0.39	0.01	0.2500	0.008	0.060	1.0	0.96	0.003	0.7	0.0
Selenium	0.0013	1.4	3.8	0.68	0.2500	0.008	0.060	1.0	0.96	0.17	2.4	0.1

COPC	Mean Water Conc.	Mean Sed. Conc.	Mean Sed. Conc.	Mean Conc. in Crayfish	Crayfish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	NOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.005	0.014	0.0082	0.2500	0.008	0.060	1.0	0.96	0.002	0.019	0.1
Methoxychlor	0.00005	0.005	0.014	0.0082	0.2500	0.008	0.060	1.0	0.96	0.002	4.8	0.0
Dieldrin	0.00001	0.00097	0.0026	0.0017	0.2500	0.008	0.060	1.0	0.96	0.0004	0.1	0.0
Endrin (total)	0.00003	0.0029	0.007	0.0051	0.2500	0.008	0.060	1.0	0.96	0.001	0.014	0.1
Heptachlor (total)	0.00001	0.00099	0.0027	0.0016	0.2500	0.008	0.060	1.0	0.96	0.0004	0.04	0.0
DDT (total)	0.00002	0.0029	0.0079	0.0051	0.2500	0.008	0.060	1.0	0.96	0.001	0.017	0.1
PCBs (total)	0.0002	0.84	2.3	0.77	0.2500	0.008	0.060	1.0	0.96	0.191	2.0	0.1
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	3.6	9.9	0.29	0.2500	0.008	0.060	1.0	0.96	0.10	10	0.0
Cadmium	0.00065	6.7	18	0.84	0.2500	0.008	0.060	1.0	0.96	0.25	15.2	0.0
Lead	0.0055	89	240	0.81	0.2500	0.008	0.060	1.0	0.96	0.88	0.133	6.6
Mercury	0.00005	0.1	0.27	0.01	0.2500	0.008	0.060	1.0	0.96	0.003	0.07	0.0
Selenium	0.0013	1.1	3.0	0.67	0.2500	0.008	0.060	1.0	0.96	0.17	1.2	0.1

COPC	Mean Water Conc.	Mean Sed. Conc.	Mean Sed. Conc.	Mean Conc. in Crayfish	Crayfish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	LOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.005	0.014	0.0082	0.2500	0.008	0.060	1.0	0.96	0.002	0.19	0.0
Methoxychlor	0.00005	0.005	0.014	0.0082	0.2500	0.006	0.060	1.0	0.96	0.002	48	0.0
Dieldrin	0.00001	0.00097	0.0026	0.0017	0.2500	0.008	0.060	1.0	0.96	0.0004	0.3	0.0
Endrin (total)	0.00003	0.0029	0.007	0.0051	0.2500	0.008	0.060	1.0	0.96	0.001	0.14	0.0
Heptachlor (total)	0.00001	0.00099	0.0027	0.0016	0.2500	0.008	0.060	1.0	0.96	0.0004	0.4	0.0
DDT (total)	0.00002	0.0029	0.0079	0.0051	0.2500	0.008	0.060	1.0	0.96	0.001	0.17	0.0
PCBs (total)	0.0002	0.84	2.3	0.77	0.2500	0.008	0.060	1.0	0.96	0.191	20	0.0
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	3.6	9.9	0.29	0.2500	0.008	0.060	1.5	0.96	0.10	108	0.0
Cadmium	0.00065	6.7	18	0.84	0.2500	0.008	0.060	1.0	0.96	0.25	48.3	0.0
Lead	0.0055	89	240	0.81	0.2500	0.008	0.060	1.0	0.96	0.88	1.33	0.7
Mercury	0.00005	0.1	0.27	0.01	0.2500	0.008	0.060	1.0	0.96	0.003	0.7	0.0
Selenium	0.0013	1.1	3.0	0.67	0.2500	0.008	0.060	1.0	0.96	0.17	2.4	0.1

Notes:
1) Surface water concentrations are for unfiltered samples only.
2) A value of 1/2 the MDL was used to calculate the metal concentration for those compounds which were not detected in a given sample.
3) A value of 1/10 the MDL was used to calculate the organic concentration for those compounds which were not detected in a given sample.

TABLE 55
Chronic Hazard Quotient Calculations for Omnivorous Birds (Mallard Duck) - LOCATION A2
Cornell-Dubilier Electronics Site
South Plainfield, NJ
July 1999

COPC	Max. Water Conc.	Max. Sed. Conc.	Max. Sed. Conc.	Max. Conc. in Crayfish	Crayfish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	NOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0048	0.015	0.017	0.2500	0.008	0.060	1.0	0.96	0.004	0.069	0.2
Methoxychlor	0.00005	0.0048	0.015	0.017	0.2500	0.008	0.060	1.0	0.96	0.004	4.8	0.0
Dieldrin	0.00001	0.00096	0.003	0.0034	0.2500	0.008	0.060	1.0	0.96	0.0008	0.1	0.0
Endrin (total)	0.00003	0.0029	0.0091	0.010	0.2500	0.008	0.060	1.0	0.96	0.002	0.014	0.2
Heptachlor (total)	0.00001	0.00048	0.003	0.0034	0.2500	0.008	0.060	1.0	0.96	0.0008	0.04	0.0
DDT (total)	0.00002	0.0029	0.0091	0.010	0.2500	0.008	0.060	1.0	0.96	0.002	0.017	0.1
PCBs (total)	0.0002	6.6	14	2.4	0.2500	0.008	0.060	1.0	0.96	0.627	2.0	0.3
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	3.8	12	0.48	0.2500	0.008	0.060	1.0	0.96	0.14	10	0.5
Cadmium	0.00065	3.8	12	1.7	0.2500	0.008	0.060	1.0	0.96	0.44	15.2	0.0
Lead	0.0032	80	250	1.4	0.2500	0.008	0.060	1.0	0.96	0.95	0.133	7.1
Mercury	0.00005	0.12	0.35	0.02	0.2500	0.008	0.060	1.0	0.96	0.01	0.07	0.1
Selenium	0.0013	1.1	3.3	1.2	0.2500	0.008	0.060	1.0	0.96	0.30	1.2	0.2

COPC	Max. Water Conc.	Max. Sed. Conc.	Max. Sed. Conc.	Max. Conc. in Crayfish	Crayfish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	LOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0048	0.015	0.017	0.2500	0.008	0.060	1.0	0.96	0.069	0.19	0.0
Methoxychlor	0.00005	0.0048	0.015	0.017	0.2500	0.008	0.060	1.0	0.96	0.004	48	0.0
Dieldrin	0.00001	0.00096	0.003	0.0034	0.2500	0.008	0.060	1.0	0.96	0.0008	0.3	0.0
Endrin (total)	0.00003	0.0029	0.0091	0.010	0.2500	0.008	0.060	1.0	0.96	0.002	0.14	0.0
Heptachlor (total)	0.00001	0.00048	0.003	0.0034	0.2500	0.008	0.060	1.0	0.96	0.0008	0.4	0.0
DDT (total)	0.00002	0.0029	0.0091	0.010	0.2500	0.008	0.060	1.0	0.96	0.002	0.17	0.0
PCBs (total)	0.0002	6.6	14	2.4	0.2500	0.008	0.060	1.0	0.96	0.627	20	0.0
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	3.8	12	0.48	0.2500	0.008	0.060	1.0	0.96	0.14	100	0.0
Cadmium	0.00065	3.8	12	1.7	0.2500	0.008	0.060	1.0	0.96	0.44	48.3	0.0
Lead	0.0032	80	250	1.4	0.2500	0.008	0.060	1.0	0.96	0.95	1.33	0.7
Mercury	0.00005	0.12	0.35	0.02	0.2500	0.008	0.060	1.0	0.96	0.006	0.7	0.0
Selenium	0.0013	1.1	3.3	1.2	0.2500	0.008	0.060	1.0	0.96	0.30	2.4	0.1

COPC	Mean Water Conc.	Mean Sed. Conc.	Mean Sed. Conc.	Mean Conc. in Crayfish	Crayfish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	NOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0048	0.013	0.015	0.2500	0.008	0.060	1.0	1.56	0.004	0.019	0.2
Methoxychlor	0.00005	0.0048	0.013	0.017	0.2500	0.008	0.060	1.0	0.96	0.004	4.8	0.0
Dieldrin	0.00001	0.00095	0.0025	0.003	0.2500	0.008	0.060	1.0	0.96	0.0007	0.1	0.0
Endrin (total)	0.00003	0.0029	0.0075	0.0091	0.2500	0.008	0.060	1.0	0.96	0.002	0.014	0.2
Heptachlor (total)	0.00001	0.00048	0.0025	0.003	0.2500	0.008	0.060	1.0	0.96	0.0007	0.04	0.0
DDT (total)	0.00002	0.0029	0.0075	0.0091	0.2500	0.008	0.060	1.0	0.96	0.002	0.017	0.1
PCBs (total)	0.0002	5.6	14	1.8	0.2500	0.008	0.060	1.0	0.96	0.475	2.0	0.2
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	3.2	8.8	0.24	0.2500	0.008	0.060	1.0	0.96	0.08	10	0.0
Cadmium	0.00065	3.7	9.7	0.88	0.2500	0.008	0.060	1.0	0.96	0.24	15.2	0.0
Lead	0.0032	78	200	0.86	0.2500	0.008	0.060	1.0	0.96	0.81	0.133	6.1
Mercury	0.00005	0.11	0.30	0.01	0.2500	0.008	0.060	1.0	0.96	0.003	0.07	0.0
Selenium	0.0013	0.93	2.5	0.87	0.2500	0.008	0.060	1.0	0.96	0.22	1.2	0.2

COPC	Mean Water Conc.	Mean Sed. Conc.	Mean Sed. Conc.	Mean Conc. in Crayfish	Crayfish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	LOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0048	0.013	0.015	0.2500	0.008	0.060	1.0	0.96	0.004	0.19	0.0
Methoxychlor	0.00005	0.0048	0.013	0.017	0.2500	0.008	0.060	1.0	0.96	0.004	48	0.0
Dieldrin	0.00001	0.00095	0.0025	0.003	0.2500	0.008	0.060	1.0	0.96	0.0007	0.3	0.0
Endrin (total)	0.00003	0.0029	0.0075	0.0091	0.2500	0.008	0.060	1.0	0.96	0.002	0.14	0.0
Heptachlor (total)	0.00001	0.00048	0.0025	0.003	0.2500	0.008	0.060	1.0	0.96	0.0007	0.4	0.0
DDT (total)	0.00002	0.0029	0.0075	0.0091	0.2500	0.008	0.060	1.0	0.96	0.002	0.17	0.0
PCBs (total)	0.0002	5.6	14	1.8	0.2500	0.008	0.060	1.0	0.96	0.475	20	0.0
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	3.2	8.8	0.24	0.2500	0.008	0.060	1.0	0.96	0.08	100	0.0
Cadmium	0.00065	3.7	9.7	0.88	0.2500	0.008	0.060	1.0	0.96	0.24	48.3	0.0
Lead	0.0032	78	200	0.86	0.2500	0.008	0.060	1.0	0.96	0.81	1.33	0.6
Mercury	0.00005	0.11	0.30	0.01	0.2500	0.008	0.060	1.0	0.96	0.003	0.7	0.0
Selenium	0.0013	0.93	2.5	0.87	0.2500	0.008	0.060	1.0	0.96	0.22	2.4	0.1

Notes:
1) Surface water concentrationis are for unfiltered samples only.
2) A value of 1/2 the MDL was used to calculate the metal concentration for those compounds which were not detected in a given sample.
3) A value of 1/10 the MDL was used to calculate the organic concentration for those compounds which were not detected in a given sample.

TABLE 56
Chronic Hazard Quotient Calculations for Omnivorous Birds (Mallard Duck) - LOCATION A3
Comet-Dubiler Electronics Site
South Plainfield, NJ
July 1999

COPC	Max Water Conc.	Max Sed. Conc.	Max Sed. Conc.	Max Conc. in Crayfish	Crayfish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	NOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.005	0.021	0.033	0.2000	0.008	0.060	1.0	1.96	0.008	6.019	0.4
Methoxychlor	0.00005	0.005	0.021	0.033	0.2500	0.008	0.060	1.0	0.96	0.008	4.8	0.0
Dieldrin	0.00001	0.072	0.300	0.0067	0.2500	0.008	0.060	1.0	0.96	0.0022	0.1	0.0
Endrin (total)	0.00003	0.003	0.013	0.020	0.2500	0.008	0.060	1.0	0.96	0.005	0.014	0.3
Heptachlor (total)	0.00001	0.001	0.0042	0.0066	0.2500	0.008	0.060	1.0	0.96	0.0016	0.04	0.0
DDT (total)	0.00002	0.003	0.013	0.020	0.2500	0.008	0.060	1.0	0.96	0.005	0.017	0.3
PCBs (total)	0.0002	0.020	0.083	1.9	0.2500	0.008	0.060	1.0	0.96	0.456	2.0	0.2
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	2.9	12	0.93	0.2500	0.008	0.060	1.0	0.96	0.25	10	0.0
Cadmium	0.00065	3.8	16	0.99	0.2500	0.008	0.060	1.0	0.96	0.27	15.2	0.0
Lead	0.0049	60	250	0.96	0.2500	0.008	0.060	1.0	0.96	0.69	0.133	5.2
Mercury	0.00005	0.1	0.35	0.02	0.2500	0.008	0.060	1.0	0.96	0.01	0.07	0.1
Selenium	0.0013	0.79	3.3	1.4	0.2500	0.008	0.060	1.0	0.96	0.34	1.2	0.3

COPC	Max Water Conc.	Max Sed. Conc.	Max Sed. Conc.	Max. Conc. in Crayfish	Crayfish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	LOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.005	0.021	0.033	0.2500	0.008	0.060	1.0	0.96	0.008	0.19	0.0
Methoxychlor	0.00005	0.005	0.021	0.033	0.2500	0.008	0.060	1.0	0.96	0.006	48	0.0
Dieldrin	0.00001	0.072	0.300	0.0067	0.2500	0.008	0.060	1.0	0.96	0.0022	0.3	0.0
Endrin (total)	0.00003	0.003	0.013	0.020	0.2500	0.008	0.060	1.0	0.96	0.005	0.14	0.0
Heptachlor (total)	0.00001	0.001	0.0042	0.0066	0.2500	0.008	0.060	1.0	0.96	0.0016	0.4	0.0
DDT (total)	0.00002	0.003	0.013	0.020	0.2500	0.008	0.060	1.0	0.96	0.005	0.17	0.0
PCBs (total)	0.0002	0.020	0.083	1.9	0.2500	0.008	0.060	1.0	0.96	0.456	20	0.0
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	2.9	12	0.93	0.2500	0.008	0.060	1.0	0.96	0.25	100	0.0
Cadmium	0.00065	3.8	16	0.99	0.2500	0.006	0.060	1.0	0.96	0.27	48.3	0.0
Lead	0.0049	60	250	0.96	0.2500	0.008	0.060	1.0	0.96	0.69	1.33	0.5
Mercury	0.00005	0.1	0.35	0.02	0.2500	0.008	0.060	1.0	0.96	0.006	0.7	0.0
Selenium	0.0013	0.79	3.3	1.4	0.2500	0.008	0.060	1.0	0.96	0.34	2.4	0.1

COPC	Mean Water Conc.	Mean Sed. Conc.	Mean Sed. Conc.	Mean Conc. in Crayfish	Crayfish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	NOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.005	0.069	0.014	0.2500	0.008	0.060	1.0	0.96	0.003	0.019	1.0
Methoxychlor	0.00005	0.005	0.019	0.014	0.2500	0.008	0.060	1.0	0.96	0.003	4.8	0.0
Dieldrin	0.00001	0.064	0.24	0.0027	0.2500	0.008	0.060	1.0	0.96	0.0011	0.1	0.0
Endrin (total)	0.00003	0.003	0.011	0.0081	0.2500	0.008	0.060	1.0	0.96	0.002	0.014	0.1
Heptachlor (total)	0.00001	0.00099	0.0037	0.0027	0.2500	0.008	0.060	1.0	0.96	0.0007	0.04	0.0
DDT (total)	0.00002	0.003	0.011	0.0081	0.2500	0.008	0.060	1.0	0.96	0.002	0.017	0.1
PCBs (total)	0.0002	0.020	0.076	1.3	0.2500	0.008	0.060	1.0	0.96	0.312	2.0	0.2
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	2.7	10	0.25	0.2550	0.008	0.060	1.0	0.96	0.08	10	1.0
Cadmium	0.00065	3.8	15	0.47	0.2500	0.008	0.060	1.0	0.96	0.14	15.2	0.0
Lead	0.0049	59	230	0.63	0.2500	0.008	0.060	1.0	0.96	0.60	0.133	4.5
Mercury	0.00005	0.08	0.30	0.01	0.2500	0.008	0.060	1.0	0.96	0.003	0.07	0.0
Selenium	0.0013	0.77	3.0	0.8	0.2500	0.008	0.060	1.0	0.96	0.20	1.2	0.2

COPC	Mean Water Conc.	Mean Sed. Conc.	Mean Sed. Conc.	Mean Conc. in Crayfish	Crayfish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	LOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.005	0.019	0.014	0.2500	0.004	0.000	1.0	0.96	0.003	0.19	0.0
Methoxychlor	0.00005	0.005	0.019	0.014	0.2500	0.008	0.060	1.0	0.96	0.003	48	0.0
Dieldrin	0.00001	0.064	0.24	0.0027	0.2500	0.008	0.060	1.0	0.96	0.0011	0.3	0.0
Endrin (total)	0.00003	0.003	0.011	0.0081	0.2500	0.008	0.060	1.0	0.96	0.002	0.14	0.0
Heptachlor (total)	0.00001	0.00099	0.0037	0.0027	0.2500	0.008	0.060	1.0	0.96	0.0007	0.4	0.0
DDT (total)	0.00002	0.003	0.011	0.0081	0.2500	0.008	0.060	1.0	0.96	0.002	0.17	0.0
PCBs (total)	0.0002	0.020	0.076	1.3	0.2500	0.008	0.060	1.0	0.96	0.312	20	0.0
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	2.7	10	6.25	0.2500	0.008	0.666	1.0	1.00	6.60	100	0.0
Cadmium	0.00065	3.8	15	0.47	0.2500	0.008	0.060	1.0	0.96	0.14	48.3	0.0
Lead	0.0049	59	230	0.63	0.2500	0.008	0.060	1.0	0.96	0.60	1.33	0.5
Mercury	0.00005	0.08	0.30	0.01	0.2500	0.008	0.060	1.0	0.96	0.003	0.7	0.0
Selenium	0.0013	0.77	3.0	0.8	0.2500	0.008	0.060	1.0	0.96	0.20	2.4	0.1

Notes:
1) Surface water concentrations are for unfiltered samples only.
2) A value of 1/2 the MDL was used to calculate the metal concentration for those compounds which were not detected in a given sample.
3) A value of 1/10 the MDL was used to calculate the organic concentration for those compounds which were not detected in a given sample.

TABLE 57
Chronic Hazard Quotient Calculations for Omnivorous Birds (Mallard Duck) - LOCATION A4
Cornell-Dubilier Electronics Site
South Plainfield, NJ
July 1999

COPC	Max. Water Conc.	Max. Sed. Conc.	Max. Sed. Conc.	Max. Conc. in Crayfish	Crayfish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	NOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0048	0.011	0.028	0.2500	0.008	0.060	1.0	0.96	0.007	0.019	0.4
Methoxychlor	0.00005	0.0048	0.011	0.028	0.2500	0.008	0.060	1.0	0.96	0.007	4.8	0.0
Dieldrin	0.00001	0.00097	0.0023	0.0056	0.2500	0.008	0.060	1.0	0.96	0.0014	0.1	0.0
Endrin (total)	0.00003	0.0029	0.0069	0.017	0.2500	0.008	0.060	1.0	0.96	0.004	0.014	0.3
Heptachlor (total)	0.00001	0.00096	0.0022	0.0056	0.2500	0.008	0.060	1.0	0.96	0.0014	0.04	0.0
DDT (total)	0.00002	0.0029	0.0069	0.017	0.2500	0.008	0.060	1.0	0.96	0.004	0.017	0.2
PCBs (total)	0.0002	0.019	0.045	2.0	0.2500	0.008	0.060	1.0	0.96	0.480	2.0	0.2
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	2.8	6.7	0.46	0.2500	0.008	0.060	1.0	0.96	0.13	10	0.0
Cadmium	0.00065	2.7	6.5	1.2	0.2500	0.008	0.060	1.0	0.96	0.31	15.2	0.0
Lead	0.01	147	350	1.2	0.2500	0.008	0.060	1.0	0.96	1.42	0.133	10.7
Mercury	0.00005	0.16	0.38	0.02	0.2500	0.008	0.060	1.0	0.96	0.01	0.07	0.1
Selenium	0.0013	0.81	1.8	0.65	0.2500	0.008	0.060	1.0	0.96	0.16	1.2	0.1

COPC	Max. Water Conc.	Max. Sed. Conc.	Max. Sed. Conc.	Max. Conc. in Crayfish	Crayfish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	LOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0048	0.011	0.028	0.2500	0.008	0.060	1.0	0.96	0.007	0.19	0.0
Methoxychlor	0.00005	0.0048	0.011	0.028	0.2500	0.008	0.060	1.0	0.96	0.007	48	0.0
Dieldrin	0.00001	0.00097	0.0023	0.0056	0.2500	0.008	0.060	1.0	0.96	0.0014	0.3	0.0
Endrin (total)	0.00003	0.0029	0.0069	0.017	0.2500	0.008	0.060	1.0	0.96	0.004	0.14	0.0
Heptachlor (total)	0.00001	0.00096	0.0022	0.0056	0.2500	0.008	0.060	1.0	0.96	0.0014	0.4	0.0
DDT (total)	0.00002	0.0029	0.0069	0.017	0.2500	0.008	0.060	1.0	0.96	0.004	0.17	0.0
PCBs (total)	0.0002	0.019	0.045	2.0	0.2500	0.008	0.060	1.0	0.96	0.480	20	0.0
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	2.8	6.7	0.46	0.2500	0.008	0.060	1.0	0.96	0.13	100	0.0
Cadmium	0.00065	2.7	6.5	1.2	0.2500	0.008	0.060	1.0	0.96	0.31	48.3	0.0
Lead	0.01	147	350	1.2	0.2500	0.008	0.060	1.0	0.96	1.42	1.33	1.1
Mercury	0.00005	0.16	0.38	0.02	0.2500	0.008	0.060	1.0	0.96	0.006	0.7	0.0
Selenium	0.0013	0.81	1.8	0.65	0.2500	0.008	0.060	1.0	0.96	0.16	2.4	0.1

COPC	Mean Water Conc.	Mean Sed. Conc.	Mean Sed. Conc.	Mean Conc. in Crayfish	Crayfish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	NOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.5047	0.009	0.015	0.2500	0.008	0.060	1.0	0.96	0.003	0.019	0.2
Methoxychlor	0.00005	0.0047	0.009	0.013	0.2500	0.008	0.060	1.0	0.96	0.003	4.8	0.0
Dieldrin	0.00001	0.00097	0.0019	0.0024	0.2500	0.008	0.060	1.0	0.96	0.0006	0.1	0.0
Endrin (total)	0.00003	0.0029	0.0056	0.0077	0.2500	0.008	0.060	1.0	0.96	0.002	0.014	0.1
Heptachlor (total)	0.00001	0.00094	0.0018	0.0026	0.2500	0.008	0.060	1.0	0.96	0.0006	0.04	0.0
DDT (total)	0.00002	0.0029	0.0056	0.0077	0.2500	0.008	0.060	1.0	0.96	0.002	0.017	0.1
PCBs (total)	0.0002	0.019	0.036	1.3	0.2500	0.008	0.060	1.0	0.96	0.312	2.0	0.2
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	1.8	4.0	0.82	0.2500	0.008	0.060	1.0	0.96	0.09	10	0.0
Cadmium	0.00065	1.6	3.6	0.48	0.2500	0.008	0.060	1.0	0.96	0.13	15.2	0.0
Lead	0.01	86	190	0.54	0.2500	0.008	0.060	1.0	0.96	0.79	0.133	5.9
Mercury	0.00005	0.08	0.20	0.01	0.2500	0.008	0.060	1.0	0.96	0.003	0.07	0.0
Selenium	0.0013	0.61	1.2	0.61	0.2500	0.008	0.060	1.0	0.96	0.15	1.2	0.1

COPC	Mean Water Conc.	Mean Sed. Conc.	Mean Sed. Conc.	Mean Conc. in Crayfish	Crayfish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	LOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0049	0.009	0.013	0.2500	0.008	0.060	1/8	4.96	0.003	0.19	0.0
Methoxychlor	0.00005	0.0047	0.009	0.013	0.2500	0.008	0.060	1.0	0.96	0.003	48	0.0
Dieldrin	0.00001	0.00097	0.0019	0.0024	0.2500	0.008	0.060	1.0	0.96	0.0006	0.3	0.0
Endrin (total)	0.00003	0.0029	0.0056	0.0077	0.2500	0.008	0.060	1.0	0.96	0.002	0.14	0.0
Heptachlor (total)	0.00001	0.00094	0.0018	0.0026	0.2500	0.008	0.060	1.0	0.96	0.0006	0.4	0.0
DDT (total)	0.00002	0.0029	0.0056	0.0077	0.2500	0.008	0.060	1.0	0.96	0.002	0.17	0.0
PCBs (total)	0.0002	0.019	0.036	1.3	0.2500	0.008	0.060	1.0	0.96	0.312	20	0.0
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00090	1.8	4.0	0.32	0.2560	0.008	0.060	1.0	0.96	0.69	100	0.9
Cadmium	0.00065	1.6	3.6	0.48	0.2500	0.008	0.060	1.0	0.96	0.13	48.3	0.0
Lead	0.01	86	190	0.54	0.2500	0.008	0.060	1.0	0.96	0.79	1.33	0.6
Mercury	0.00005	0.08	0.20	0.01	0.2500	0.008	0.060	1.0	0.96	0.003	0.7	0.0
Selenium	0.0013	0.61	1.2	0.61	0.2500	0.008	0.060	1.0	0.96	0.15	2.4	0.1

Notes:
1) Surface water concentrations are for unfiltered samples only.
2) A value of 1/2 the MDL was used to calculate the metal concentration for those compounds which were not detected in a given sample.
3) A value of 1/10 the MDL was used to calculate the organic concentration for those compounds which were not detected in a given sample.

TABLE 58
Chronic Hazard Quotient Calculations for Omnivorous Birds (Mallard Duck) - LOCATION AS
Cornell-Dubilier Electronics Site
South Plainfield, NJ
July 1999

COPC	Max. Water Conc.	Max. Sed. Conc.	Max. Sed. Conc.	Max. Conc. in Crayfish	Crayfish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	NOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0051	0.008	0.016	0.2500	0.008	0.060	1/g	0.96	0.004	0.019	0.2
Methoxychlor	0.00005	0.0051	0.008	0.016	0.2500	0.008	0.060	1.0	0.96	0.004	4.8	0.0
Dieldrin	0.00001	0.001	0.0016	0.0031	0.2500	0.008	0.060	1.0	0.96	0.0008	0.1	0.0
Endrin (total)	0.00003	0.003	0.0047	0.0093	0.2500	0.008	0.060	1.0	0.96	0.002	0.014	0.2
Heptachlor (total)	0.00001	0.001	0.0016	0.0032	0.2500	0.008	0.060	1.0	0.96	0.0008	0.04	0.0
DDT (total)	0.00002	0.003	0.0047	0.0093	0.2500	0.008	0.060	1.0	0.96	0.002	0.017	0.1
PCBs (total)	0.0002	3.3	5.2	1.1	0.2500	0.008	0.060	1.0	0.96	0.289	2.0	0.1
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	1.1	1.7	1.9	0.2500	0.008	0.060	1.0	0.96	0.45	10	0.0
Cadmium	0.0007	1.4	2.2	1.3	0.2500	0.008	0.060	1.0	0.96	0.32	15.2	0.0
Lead	0.0021	27	42	1.3	0.2500	0.008	0.060	1.0	0.96	0.52	0.133	3.9
Mercury	0.00005	0.22	0.29	0.01	0.2500	0.008	0.060	1.0	0.96	0.00	0.07	0.1
Selenium	0.0013	0.74	0.98	2.5	0.2500	0.008	0.060	1.0	0.96	0.61	1.2	0.5

COPC	Max. Water Conc.	Max. Sed. Conc.	Max. Sed. Conc.	Max. Conc. in Crayfish	Crayfish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	LOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0051	0.008	0.016	0.2500	0.008	0.060	1.0	0.96	0.004	0.19	0.0
Methoxychlor	0.00005	0.0051	0.008	0.016	0.2500	0.008	0.060	1.0	0.96	0.004	48	0.0
Dieldrin	0.00001	0.001	0.0016	0.0031	0.2500	0.008	0.060	1.0	0.96	0.0008	0.3	0.0
Endrin (total)	0.00003	0.003	0.0047	0.0093	0.2500	0.008	0.060	1.0	0.96	0.002	0.14	0.0
Heptachlor (total)	0.00001	0.001	0.0016	0.0032	0.2500	0.008	0.060	1.0	0.96	0.0008	0.4	0.0
DDT (total)	0.00002	0.003	0.0047	0.0093	0.2500	0.008	0.060	1.0	0.96	0.002	0.17	0.0
PCBs (total)	0.0002	3.3	5.2	1.1	0.2500	0.008	0.060	1.0	0.96	0.289	20	0.0
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	1.1	1.7	1.9	0.2500	0.008	0.060	1.0	0.96	0.45	100	0.0
Cadmium	0.0007	1.4	2.2	1.3	0.2500	0.008	0.060	1.0	0.96	0.32	48.3	0.0
Lead	0.0021	27	42	1.3	0.2500	0.008	0.060	1.0	0.96	0.52	1.33	0.4
Mercury	0.00005	0.22	0.29	0.01	0.2500	0.008	0.060	1.0	0.96	0.004	0.7	0.0
Selenium	0.0013	0.74	0.98	2.5	0.2500	0.008	0.060	1.0	0.96	0.61	2.4	0.3

COPC	Mean Water Conc.	Mean Sed. Conc.	Mean Sed. Conc.	Mean Conc. in Crayfish	Crayfish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	NOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0049	0.0071	0.012	0.2500	0.008	0.060	1.0	0.96	0.003	0.019	0.2
Methoxychlor	0.00005	0.0049	0.0071	0.012	0.2500	0.008	0.060	1.0	0.96	0.003	4.8	0.0
Dieldrin	0.00001	0.00099	0.0014	0.0024	0.2500	0.008	0.060	1.0	0.96	0.0006	0.1	0.0
Endrin (total)	0.00003	0.003	0.0043	0.0072	0.2500	0.008	0.060	1.0	0.96	0.002	0.014	0.1
Heptachlor (total)	0.00001	0.00097	0.0014	0.0025	0.2500	0.008	0.060	1.0	0.96	0.0006	0.04	0.0
DDT (total)	0.00002	0.003	0.0043	0.0072	0.2500	0.008	0.060	1.0	0.96	0.002	0.017	0.1
PCBs (total)	0.0002	1.9	2.9	0.79	0.2500	0.008	0.060	1.0	0.96	0.204	2.0	0.1
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	1.0	1.5	0.86	0.2500	0.008	0.060	1.0	0.96	0.21	10	0.0
Cadmium	0.00065	1.0	1.5	0.66	0.2500	0.008	0.060	1.0	0.96	0.17	15.2	0.0
Lead	0.0021	18	28	1.0	0.2500	0.008	0.060	1.0	0.96	0.38	0.133	2.8
Mercury	0.00005	0.17	0.24	0.01	0.2500	0.008	0.060	1.0	0.96	0.004	0.07	0.1
Selenium	0.0013	0.59	0.85	1.4	0.2500	0.008	0.060	1.0	0.96	0.34	1.2	0.3

COPC	Mean Water Conc.	Mean Sed. Conc.	Mean Sed. Conc.	Mean Conc. in Crayfish	Crayfish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	LOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0049	0.0071	0.012	0.2500	0.008	0.060	1.0	0.96	0.003	0.19	0.0
Methoxychlor	0.00005	0.0049	0.0071	0.012	0.2500	0.008	0.060	1.0	0.96	0.003	48	0.0
Dieldrin	0.00001	0.00099	0.0014	0.0024	0.2500	0.008	0.060	1.0	0.96	0.0006	0.3	0.0
Endrin (total)	0.00003	0.003	0.0043	0.0072	0.2500	0.008	0.060	1.0	0.96	0.002	0.14	0.0
Heptachlor (total)	0.00001	0.00097	0.0014	0.0025	0.2500	0.008	0.060	1.0	0.96	0.0006	0.4	0.0
DDT (total)	0.00002	0.003	0.0043	0.0072	0.2500	0.008	0.060	1.0	0.96	0.002	0.17	0.0
PCBs (total)	0.0002	1.9	2.9	0.79	0.2500	0.008	0.060	1.0	0.96	0.204	20	0.0
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	1.0	1.5	0.86	0.2500	0.008	0.060	1.0	0.96	0.21	100	0.0
Cadmium	0.00065	1.0	1.5	0.66	0.2500	0.008	0.060	1.0	0.96	0.17	48.3	0.0
Lead	0.0021	18	28	1.0	0.2500	0.008	0.060	1.0	0.96	0.38	1.33	0.3
Mercury	0.00005	0.17	0.24	0.01	0.2500	0.008	0.060	1.0	0.96	0.004	0.7	0.0
Selenium	0.0013	0.59	0.85	1.4	0.2500	0.008	0.060	1.0	0.96	0.34	2.4	0.1

Notes:
1) Surface water concentrations are for unfiltered samples only.
2) A value of 1/2 the MDL was used to calculate the metal concentration for those compounds which were not detected in a given sample.
3) A value of 1/10 the MDL was used to calculate the organic concentration for those compounds which were not detected in a given sample.

TABLE 59
Acute Hazard Quotient Calculations for Omnivorous Birds - LEAD
Cornell-Dubilier Electronics Site
South Plainfield, NJ
July 1999

LEAD:

Location	Max. Water Conc.	Max. Sed. Conc.	Max. Sed. Conc.	Max. Conc. in Crayfish	Crayfish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	Acute Toxicity Value	Acute HQ
	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
A4	0.01	147	350	1.2	0.2500	0.008	0.060	1.0	0.96	1.42	75	0.02
Location	Mean Water Conc.	Mean Sed. Conc.	Mean Sed. Conc.	Max. Conc. in Crayfish	Crayfish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	Acute Toxicity Value	Acute HQ
	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
A4	0.01	86	190	0.54	0.2500	0.008	0.060	1.0	0.96	0.79	75	0.01

Notes:
1) Surface water concentrations are for unfiltered samples only.
2) A value of 1/2 the MDL was used to calculate the metal concentration for those compounds which were not detected in a given sample.
3) A value of 1/10 the MDL was used to calculate the organic concenbation for tiose compounds which were not detected in a given sample.

TABLE 60
Chronic Hazard Quotient Calculations for Piscivorous Birds (Green Heron) - LOCATION A I
Comel-Dubiller Electronics Site
South Plainfield, NJ
July 1999

COPC	Max. Water Conc.	Max. Sed. Conc.	Max. Sed. Conc.	Max. Conc. in Fish	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	NOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0052	0.018	0.44	0.047	0.000058	0.023	1.0	4.0	0.083	0.019	4.4
Methoxychlor	0.00005	0.0052	0.018	0.25	0.047	0.000058	0.023	1.0	4.0	0.047	1.05	0.0
Dieldrin	0.00001	0.001	0.0035	0.05	0.047	0.000058	0.023	1.0	4.0	0.0094	0.1	0.1
Endrin (total)	0.00003	0.003	0.0035	0.15	0.047	0.000058	0.023	1.0	4.0	0.028	0.003	9.4
Heptachlor (total)	0.00001	0.001	0.0036	0.05	0.047	0.000058	0.023	1.0	4.0	0.0094	0.03	0.3
DDT (total)	0.00002	0.003	0.011	0.37	0.047	0.000058	0.023	1.0	4.0	0.070	0.055	1.3
PCBs (total)	0.0002	1.9	4.5	23	0.047	0.000058	0.023	1.0	4.0	4.324	0.087	49.7
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	5.1	13	0.19	0.047	0.000058	0.023	1.0	4.0	0.04	10	0.0
Cadmium	0.00065	8.4	23	0.38	0.047	0.000058	0.023	1.0	4.0	0.07	0.97	0.1
Lead	0.0055	112	340	0.76	0.047	0.000058	0.023	1.0	4.0	0.17	0.133	1.3
Mercury	0.00005	0.13	0.39	0.19	0.047	0.000058	0.023	1.0	4.0	0.04	0.07	0.5
Selenium	0.0013	1.4	3.8	1.9	0.047	0.000058	0.023	1.0	4.0	0.36	1.2	0.3

COPC	Max. Water Conc.	Max. Sed. Conc.	Max. Sed. Conc.	Max. Conc. in Fish	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	LOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0052	0.018	0.44	0.047	0.000058	0.023	1.0	4.0	0.083	0.19	0.4
Methoxychlor	0.00005	0.0052	0.018	0.25	0.047	0.000058	0.023	1.0	4.0	0.047	10.5	0.0
Dieldrin	0.00001	0.001	0.0035	0.05	0.047	0.000058	0.023	1.0	4.0	0.0094	0.3	0.0
Endrin (total)	0.00003	0.003	0.0035	0.15	0.047	0.000058	0.023	1.0	4.0	0.028	0.03	0.9
Heptachlor (total)	0.00001	0.001	0.0036	0.05	0.047	0.000058	0.023	1.0	4.0	0.0094	0.34	0.0
DDT (total)	0.00002	0.003	0.011	0.37	0.047	0.000058	0.023	1.0	4.0	0.070	0.55	0.1
PCBs (total)	0.0002	1.9	4.5	23	0.047	0.000058	0.023	1.0	4.0	4.324	0.87	5.0
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	5.1	13	0.19	0.047	0.000058	0.023	1.0	4.0	0.04	100	0.0
Cadmium	0.00065	8.4	23	0.38	0.047	0.000058	0.023	1.0	4.0	0.07	9.7	0.0
Lead	0.0055	112	340	0.76	0.047	0.000058	0.023	1.0	4.0	0.17	1.33	0.1
Mercury	0.00005	0.13	0.39	0.19	0.047	0.000058	0.023	1.0	4.0	0.036	0.7	0.1
Selenium	0.0013	1.4	3.8	1.9	0.047	0.000058	0.023	1.0	4.0	0.36	2.4	0.1

COPC	Mean Water Conc.	Mean Sed. Conc.	Mean Sed. Conc.	Mean Conc. in Fish	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	NOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.005	0.014	0.049	0.047	0.000058	0.023	1.0	4.0	0.009	0.019	0.5
Methoxychlor	0.00005	0.005	0.014	0.049	0.047	0.000058	0.023	1.0	4.0	0.009	1.05	0.0
Dieldrin	0.00001	0.00097	0.0026	0.0099	0.047	0.000058	0.023	1.0	4.0	0.0019	0.1	0.0
Endrin (total)	0.00003	0.0029	0.007	0.030	0.047	0.000058	0.023	1.0	4.0	0.006	0.003	1.5
Heptachlor (total)	0.00001	0.00099	0.0027	0.013	0.047	0.000058	0.023	1.0	4.0	0.0024	0.03	0.1
DDT (total)	0.00002	0.0029	0.0079	0.035	0.047	0.000058	0.023	1.0	4.0	0.007	0.055	0.1
PCBs (total)	0.0002	0.84	2.3	4.1	0.047	0.000058	0.023	1.0	4.0	0.771	0.087	8.9
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	3.6	9.9	0.17	0.047	0.000058	0.023	1.0	4.0	0.03	10	0.0
Cadmium	0.00065	6.7	18	0.18	0.047	0.000058	0.023	1.0	4.0	0.04	0.97	0.0
Lead	0.0055	89	240	0.47	0.047	0.000058	0.023	1.0	4.0	0.11	0.133	0.8
Mercury	0.00005	0.1	0.27	0.06	0.047	0.000058	0.023	1.0	4.0	0.011	0.07	0.2
Selenium	0.0013	1.1	3.0	1.3	0.047	0.000058	0.023	1.0	4.0	0.24	1.2	0.2

COPC	Mean Water Conc.	Mean Sed. Conc.	Mean Sed. Conc.	Mean Conc. in Fish	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	LOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.005	0.014	0.045	0.047	0.000058	0.023	1.0	4.0	0.009	0.19	0.0
Methoxychlor	0.00005	0.005	0.014	0.049	0.047	0.000058	0.023	1.0	4.0	0.009	10.5	0.0
Dieldrin	0.00001	0.00097	0.0026	0.0099	0.047	0.000058	0.023	1.0	4.0	0.0019	0.3	0.0
Endrin (total)	0.00003	0.0029	0.007	0.030	0.047	0.000058	0.023	1.0	4.0	0.006	0.03	0.2
Heptachlor (total)	0.00001	0.00099	0.0027	0.013	0.047	0.000058	0.023	1.0	4.0	0.0024	0.34	0.0
DDT (total)	0.00002	0.0029	0.0079	0.035	0.047	0.000058	0.023	1.0	4.0	0.007	0.55	0.0
PCBs (total)	0.0002	0.84	2.3	4.1	0.047	0.000058	0.023	1.0	4.0	0.771	0.87	0.9
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	3.6	9.9	0.17	0.047	0.000058	0.023	1.0	4.0	0.03	100	0.0
Cadmium	0.00065	6.7	18	0.18	0.047	0.000058	0.023	1.0	4.0	0.04	9.7	0.0
Lead	0.0055	89	240	0.47	0.047	0.000058	0.023	1.0	4.0	0.11	1.33	0.1
Mercury	0.00005	0.1	0.27	0.06	0.047	0.000058	0.023	1.0	4.0	0.011	0.7	0.0
Selenium	0.0013	1.1	3.0	1.3	0.047	0.000058	0.023	1.0	4.0	0.24	2.4	0.1

Notes:
1) Surface water concentrations are for unfiltered samples only.
2) A value of 1/2 the MDL was used to calculate the metal concentration for those compounds which were not detected in a given sample.
3) A value of 1/10 the MDL was used to calculate the organic concentration for those compounds which were not detected in a given sample.
4) Maximum fish concentrations were calculated using all fish samples collected and analyzed (including fillets, whole body, and carcasses).
5) Mean fish concentrations were calculated using whole body concentrations for forage fish only.

\274\deN\19907\tables.wb2

TABLE 61
Chronic Hazard Quotient Calculations for Piscivorous Birds (Green Heron) - LOCATION A2
Comell-Dubilier Electronics Site
South PlainfieM, NJ
July 1999

COPC	Max. Water Conc.	Max. Sed. Conc.	Max. Sed. Conc.	Max. Conc. in Fish	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	NOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0048	0.015	0.085	0.047	0.000058	0.023	1.0	4.0	0.016	0.019	0.8
Methoxychlor	0.00005	0.0048	0.015	0.085	0.047	0.000058	0.023	1.0	4.0	0.016	1.05	0.0
Dieldrin	0.00001	0.00096	0.003	0.017	0.047	0.000058	0.023	1.0	4.0	0.0032	0.1	0.0
Endrin (total)	0.00003	0.0029	0.0091	0.051	0.047	0.000058	0.023	1.0	4.0	0.010	0.003	3.2
Heptachlor (total)	0.00001	0.00048	0.003	0.053	0.047	0.000058	0.023	1.0	4.0	0.0100	0.03	0.3
DDT (total)	0.00002	0.0029	0.0091	0.088	0.047	0.000058	0.023	1.0	4.0	0.017	0.055	0.3
PCBs (total)	0.0002	6.6	14	28	0.047	0.000058	0.023	1.0	4.0	5.266	0.087	60.5
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	3.8	12	0.19	0.047	0.000058	0.023	1.0	4.0	0.04	10	0.0
Cadmium	0.00065	3.6	12	0.42	0.047	0.000058	0.023	1.0	4.0	0.08	0.97	0.1
Lead	0.0032	80	250	0.74	0.047	0.000058	0.023	1.0	4.0	0.16	0.133	1.2
Mercury	0.00005	0.12	0.35	0.20	0.047	0.000058	0.023	1.0	4.0	0.04	0.07	0.5
Selenium	0.0013	1.1	3.3	1.6	0.047	0.000058	0.023	1.0	4.0	0.30	1.2	0.3

COPC	Max. Water Conc.	Max. Sed. Conc.	Max. Sed. Conc.	Max. Conc. in Fish	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	LOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0048	0.015	0.085	0.047	0.000058	0.023	1.0	4.0	0.016	0.19	0.1
Methoxychlor	0.00005	0.0048	0.015	0.085	0.047	0.000058	0.023	1.0	4.0	0.016	10.5	0.0
Dieldrin	0.00001	0.00096	0.003	0.017	0.047	0.000058	0.023	1.0	4.0	0.0032	0.3	0.0
Endrin (total)	0.00003	0.0029	0.0091	0.051	0.047	0.000058	0.023	1.0	4.0	0.010	0.03	0.3
Heptachlor (total)	0.00001	0.00048	0.003	0.053	0.047	0.000058	0.023	1.0	4.0	0.0100	0.34	0.0
DDT (total)	0.00002	0.0029	0.0091	0.088	0.047	0.000058	0.023	1.0	4.0	0.017	0.55	0.0
PCBs (total)	0.0002	6.6	14	28	0.047	0.000058	0.023	1.0	4.0	5.266	0.87	6.1
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	3.8	12	0.19	0.047	0.000058	0.023	1.0	4.0	0.04	100	0.0
Cadmium	0.00065	3.8	12	0.42	0.047	0.000058	0.023	1.0	4.0	0.08	9.7	0.0
Lead	0.0032	80	250	0.74	0.047	0.000058	0.023	1.0	4.0	0.16	1.33	0.1
Mercury	0.00005	0.12	0.35	0.20	0.047	0.000058	0.023	1.0	4.0	0.038	0.7	0.1
Selenium	0.0013	1.1	3.3	1.6	0.047	0.000058	0.023	1.0	4.0	0.30	2.4	0.1

COPC	Mean Water Conc.	Mean Sed. Conc.	Mean Sed. Conc.	Mean Conc. in Fish	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	NOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0048	0.013	0.046	0.047	0.000058	0.023	1.0	4.0	0.009	0.019	0.5
Methoxychlor	0.00005	0.0048	0.013	0.046	0.047	0.000058	0.023	1.0	4.0	0.009	1.05	0.0
Dieldrin	0.00001	0.00095	0.0025	0.0093	0.047	0.000058	0.023	1.0	4.0	0.0017	0.1	0.0
Endrin (total)	0.00003	0.0029	0.0075	0.028	0.047	0.000058	0.023	1.0	4.0	0.005	0.003	1.8
Heptachlor (total)	0.00001	0.00048	0.0025	0.013	0.047	0.000058	0.023	1.0	4.0	0.0024	0.03	0.1
DDT (total)	0.00002	0.0029	0.0075	0.034	0.047	0.000058	0.023	1.0	4.0	0.006	0.055	0.1
PCBs (total)	0.0002	5.6	14	12	0.047	0.000058	0.023	1.0	4.0	2.257	0.087	25.9
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	3.2	8.8	0.17	0.047	0.000058	0.023	1.0	4.0	0.03	10	0.0
Cadmium	0.00065	3.7	9.7	0.16	0.047	0.000058	0.023	1.0	4.0	0.03	0.97	0.0
Lead	0.0032	78	200	0.55	0.047	0.000058	0.023	1.0	4.0	0.12	0.133	0.9
Mercury	0.00005	0.11	0.30	0.04	0.047	0.000058	0.023	1.0	4.0	0.008	0.07	0.1
Selenium	0.0013	0.93	2.5	1.2	0.047	0.000058	0.023	1.0	4.0	0.23	1.2	0.2

COPC	Mean Water Conc.	Mean Sed. Conc.	Mean Sed. Conc.	Mean Conc. in Fish	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	LOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0048	0.013	0.046	0.047	0.000058	0.023	1.0	4.0	0.009	0.19	0.0
Methoxychlor	0.00005	0.0048	0.013	0.046	0.047	0.000058	0.023	1.0	4.0	0.009	10.5	0.0
Dieldrin	0.00001	0.00095	0.0025	0.0093	0.047	0.000058	0.023	1.0	4.0	0.0017	0.3	0.0
Endrin (total)	0.00003	0.0029	0.0075	0.028	0.047	0.000058	0.023	1.0	4.0	0.005	0.03	0.2
Heptachlor (total)	0.00001	0.00048	0.0025	0.013	0.047	0.000058	0.023	1.0	4.0	0.0024	0.34	0.0
DDT (total)	0.00002	0.0029	0.0075	0.034	0.047	0.000058	0.023	1.0	4.0	0.006	0.55	0.0
PCBs (total)	0.0002	5.6	14	12	0.047	0.000058	0.023	1.0	4.0	2.257	0.87	2.6
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	3.2	8.8	0.17	0.047	0.000058	0.023	1.0	4.0	0.03	100	0.0
Cadmium	0.00065	3.7	9.7	0.16	0.047	0.000058	0.023	1.0	4.0	0.03	9.7	0.0
Lead	0.0032	78	200	0.55	0.047	0.000058	0.023	1.0	4.0	0.12	1.33	0.1
Mercury	0.00005	0.11	0.30	0.04	0.047	0.000058	0.023	1.0	4.0	0.008	0.7	0.0
Selenium	0.0013	0.93	2.5	1.2	0.047	0.000058	0.023	1.0	4.0	0.23	2.4	0.1

Notes:
1) Surface water concentrations are for unfiltered samples only.
2) A value of 1/2 the MDL was used to calculate the metal concentration for those compounds wNch were not detected in a given sample.
3) A value of 1/10 the MDL was used to calculate the organic concentration for those compounds which were not detected in a given sample.
4) Maximum fish concentrations were calculated using all fish samples collected and analyzed (including fillets, whole body, and carcasses).
5) Mean fish concentrations were calculated using whole body concentrations for forage fish only.

TABLE 62
Chronic Hazard Quotient Calculations for Piscivorous Birds (Green Heron) - LOCATION A3
Cornel-Dubilier Electronics Site
South Plainfield, NJ
July 1999

COPC	Max. Water Conc.	Max. Sed. Conc.	Max. Sed. Conc.	Max. Conc. in Fish	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	NOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	ug/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.005	0.021	0.050	0.047	0.000058	0.023	1.0	4.0	0.009	0.019	0.5
Methoxychlor	0.00005	0.005	0.021	0.050	0.047	0.000058	0.023	1.0	4.0	0.009	1.05	0.0
Dieldrin	0.00001	0.072	0.300	0.010	0.047	0.000058	0.023	1.0	4.0	0.0019	0.1	0.0
Endrin (total)	0.00003	0.003	0.013	0.030	0.047	0.000058	0.023	1.0	4.0	0.006	0.003	1.9
Heptachlor (total)	0.00001	0.001	0.0042	0.053	0.047	0.000058	0.023	1.0	4.0	0.0100	0.03	0.3
DDT (total)	0.00002	0.003	0.013	0.083	0.047	0.000058	0.023	1.0	4.0	0.016	0.055	0.3
PCBs (total)	0.0002	0.020	0.083	23	0.047	0.000058	0.023	1.0	4.0	4.324	0.087	49.7
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	2.9	12	0.19	0.047	0.000058	0.023	1.0	4.0	0.04	10	0.0
Cadmium	0.00065	3.8	16	0.45	0.047	0.000058	0.023	1.0	4.0	0.09	0.97	0.1
Lead	0.0049	60	250	1.2	0.047	0.000058	0.023	1.0	4.0	0.24	0.133	1.8
Mercury	0.00005	0.1	0.35	0.12	0.047	0.000058	0.023	1.0	4.0	0.02	0.07	0.3
Selenium	0.0013	0.79	3.3	1.5	0.047	0.000058	0.023	1.0	4.0	0.28	1.2	0.2

COPC	Max. Water Conc.	Max. Sed. Conc.	Max. Sed. Conc.	Max. Conc. in Fish	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	LOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	ug/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.005	0.021	0.050	0.047	0.000058	0.023	1.0	4.0	0.009	0.19	0.0
Methoxychlor	0.00005	0.005	0.021	0.050	0.047	0.000058	0.023	1.0	4.0	0.009	10.5	0.0
Dieldrin	0.00001	0.072	0.300	0.010	0.047	0.000058	0.023	1.0	4.0	0.0019	0.3	0.0
Endrin (total)	0.00003	0.003	0.013	0.030	0.047	0.000058	0.023	1.0	4.0	0.006	0.03	0.2
Heptachlor (total)	0.00001	0.001	0.0042	0.053	0.047	0.000058	0.023	1.0	4.0	0.0100	0.34	0.0
DDT (total)	0.00002	0.003	0.013	0.083	0.047	0.000058	0.023	1.0	4.0	0.016	0.55	0.0
PCBs (total)	0.0002	0.020	0.083	23	0.047	0.000058	0.023	1.0	4.0	4.324	0.87	5.0
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	2.9	12	0.19	0.047	0.000058	0.023	1.0	4.0	0.04	100	0.0
Cadmium	0.00065	3.8	16	0.45	0.047	0.000058	0.023	1.0	4.0	0.09	9.7	0.0
Lead	0.0049	60	250	1.2	0.047	0.000058	0.023	1.0	4.0	0.24	1.33	0.2
Mercury	0.00005	0.1	0.35	0.12	0.047	0.000058	0.023	1.0	4.0	0.023	0.7	0.0
Selenium	0.0013	0.79	3.3	1.5	0.047	0.000058	0.023	1.0	4.0	0.28	2.4	0.1

COPC	Mean Water Conc.	Mean Sed. Conc.	Mean Sed. Conc.	Mean Conc. in Fish	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	NOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	ug/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.005	0.019	0.037	0.047	0.000058	0.023	1.0	4.0	0.007	0.010	0.4
Methoxychlor	0.00005	0.005	0.019	0.037	0.047	0.000058	0.023	1.0	4.0	0.007	1.05	0.0
Dieldrin	0.00001	0.064	0.24	0.0074	0.047	0.000058	0.023	1.0	4.0	0.0014	0.1	0.0
Endrin (total)	0.00003	0.003	0.011	0.022	0.047	0.000058	0.023	1.0	4.0	0.004	0.003	1.4
Heptachlor (total)	0.00001	0.00099	0.0037	0.0089	0.047	0.000058	0.023	1.0	4.0	0.0017	0.03	0.1
DDT (total)	0.00002	0.003	0.011	0.024	0.047	0.000058	0.023	1.0	4.0	0.005	0.055	0.1
PCBs (total)	0.0002	0.020	0.076	7.9	0.047	0.000058	0.023	1.0	4.0	1.485	0.087	17.1
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	2.7	10	0.17	0.047	0.000058	0.023	1.0	4.0	0.03	10	0.0
Cadmium	0.00065	3.8	15	0.17	0.047	0.000058	0.023	1.0	4.0	0.03	0.97	0.0
Lead	0.0049	59	230	0.61	0.047	0.000058	0.023	1.0	4.0	0.13	0.133	0.97
Mercury	0.00005	0.08	0.30	0.04	0.047	0.000058	0.023	1.0	4.0	0.008	0.07	0.1
Selenium	0.0013	0.77	3.0	1.2	0.047	0.000058	0.023	1.0	4.0	0.23	1.2	0.2

COPC	Mean Water Conc.	Mean Sed. Conc.	Mean Sed. Conc.	Mean Conc. in Fish	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	LOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	ug/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.005	0.019	0.037	0.047	0.000058	0.023	1.0	4.0	0.007	0.15	0.0
Methoxychlor	0.00005	0.005	0.019	0.037	0.047	0.000058	0.023	1.0	4.0	0.007	10.6	0.0
Dieldrin	0.00001	0.064	0.24	0.0074	0.047	0.000058	0.023	1.0	4.0	0.0014	0.3	0.0
Endrin (total)	0.00003	0.003	0.011	0.022	0.047	0.000058	0.023	1.0	4.0	0.004	0.03	0.1
Heptachlor (total)	0.00001	0.00099	0.0037	0.0089	0.047	0.000058	0.023	1.0	4.0	0.0017	0.34	0.0
DDT (total)	0.00002	0.003	0.011	0.024	0.047	0.000058	0.023	1.0	4.0	0.005	0.66	0.0
PCBs (total)	0.0002	0.020	0.076	7.9	0.047	0.000058	0.023	1.0	4.0	1.485	0.87	1.7
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	2.7	10	0.17	0.047	0.000058	0.023	1.0	4.0	0.03	100	0.0
Cadmium	0.00065	3.8	16	0.17	0.047	0.000058	0.023	1.0	4.0	0.03	9.7	0.0
Lead	0.0049	59	230	0.61	0.047	0.000058	0.023	1.0	4.0	0.13	1.33	0.1
Mercury	0.00005	0.08	0.30	0.04	0.047	0.000058	0.023	1.0	4.0	0.008	0.7	0.0
Selenium	0.0013	0.77	3.0	1.2	0.047	0.000058	0.023	1.0	4.0	0.23	2.4	0.1

Notes:
1) Surface water concentrations are for unfiltered samples only.
2) A value of 1/2 the MDL was used to calculate the metal concentration for those compounds which were not detected in a given sample.
3) A value of 1/10 the MDL was used to calculate the organic concentration for those compounds which were not detected in a given sample.
4) Maximum fish concentrations were calculated using all fish samples collected and analyzed (including fillets, whole body, and carcasses).
5) Mean fish concentrations were calculated using whole body concentrations for forage fish only.

\274\delfn\99907\tables.wb2

TABLE 63
Chronic Hazard Quotient Calculations for Piscivorous Birds (Green Heron) - LOCATION A4
Comet-Dubiler Electronics Site
South Plainfield, NJ
July 1999

TOPC	Max. Water Conc.	Max. Sed. Conc.	Max. Sed. Conc.	Max. Conc. in Fish	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	NOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0048	0.011	0.098	0.047	0.000058	0.023	1.0	4.0	0.018	0.019	0.97
Methoxychlor	0.00005	0.0048	0.011	0.098	0.047	0.000058	0.023	1.0	4.0	0.018	1.05	0.0
Dieldrin	0.00001	0.00097	0.0023	0.020	0.047	0.000058	0.023	1.0	4.0	0.0038	0.1	0.0
Endrin (total)	0.00003	0.0029	0.0069	0.060	0.047	0.000058	0.023	1.0	4.0	0.011	0.003	3.8
Heptachlor (total)	0.00001	0.00096	0.0022	0.023	0.047	0.000068	0.023	1.0	4.0	0.0043	0.03	0.1
DDT (total)	0.00002	0.0029	0.0069	0.060	0.047	0.000058	0.023	1.0	4.0	0.011	0.055	0.2
PCBs (total)	0.0002	0.019	0.045	24	0.047	0.000058	0.023	1.0	4.0	4.512	0.087	51.9
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	2.8	6.7	0.25	0.047	0.000058	0.023	1.0	4.0	0.05	10	0.0
Cadmium	0.00065	2.7	6.5	0.17	0.047	0.000058	0.023	1.0	4.0	0.03	0.97	0.0
Lead	0.01	147	350	0.80	0.047	0.000058	0.023	1.0	4.0	0.19	0.133	1.4
Mercury	0.00005	0.16	0.38	0.13	0.047	0.000058	0.023	1.0	4.0	0.02	0.07	0.3
Selenium	0.0013	0.81	1.8	1.3	0.047	0.000058	0.023	1.0	4.0	0.24	1.2	0.2

COPC	Max. Water Conc.	Max Sed. Conc.	Max. Sed. Conc.	Max Conc. in Fish	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	LOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0048	0.011	0.098	0.047	0.000058	0.023	1.0	4.0	0.013	0.19	0.1
Methoxychlor	0.00005	0.0048	0.011	0.098	0.047	0.000058	0.023	1.0	4.0	0.018	10.5	0.0
Dieldrin	0.00001	0.00097	0.0023	0.020	0.047	0.000058	0.023	1.0	4.0	0.0038	0.3	0.0
Endrin (total)	0.00003	0.0029	0.0069	0.060	0.047	0.000058	0.023	1.0	4.0	0.011	0.03	0.4
Heptachlor (total)	0.00001	0.00096	0.0022	0.023	0.047	0.000058	0.023	1.0	4.0	0.0043	0.34	0.0
DDT (total)	0.00002	0.0029	0.0069	0.060	0.047	0.000058	0.023	1.0	4.0	0.011	0.66	0.0
PCBs (total)	0.0002	0.019	0.045	24	0.047	0.000058	0.023	1.0	4.0	4.512	0.87	5.2
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	2.8	6.7	0.25	0.047	0.000058	0.023	1.0	4.0	0.05	100	0.0
Cadmium	0.00065	2.7	6.6	0.17	0.047	0.000058	0.023	1.0	4.0	0.03	9.7	0.0
Lead	0.01	147	350	0.80	0.047	0.000058	0.023	1.0	4.0	0.19	1.33	0.1
Mercury	0.00005	0.16	0.38	0.13	0.047	0.000058	0.023	1.0	4.0	0.024	0.7	0.0
Selenium	0.0013	0.81	1.8	1.3	0.047	0.000058	0.023	1.0	4.0	0.24	2.4	0.1

COPC	Mean Water Conc.	Mean Sed. Conc.	Mean Sed. Conc.	Mean Conc. in Fish	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	NOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0047	0.009	0.044	0.047	0.000058	0.023	1.0	4.0	0.008	0.019	0.4
Methoxychlor	0.00005	0.0047	0.009	0.043	0.047	0.000058	0.023	1.0	4.0	0.008	1.05	0.0
Dieldrin	0.00001	0.00097	0.0019	0.0088	0.047	0.000058	0.023	1.0	4.0	0.0017	0.1	0.0
Endrin (total)	0.00003	0.0029	0.0056	0.026	0.047	0.000058	0.023	1.0	4.0	0.005	0.003	1.6
Heptachlor (total)	0.00001	0.00094	0.0018	0.011	0.047	0.000058	0.023	1.0	4.0	0.0021	0.03	0.1
DDT (total)	0.00002	0.0029	0.0056	0.030	0.047	0.000058	0.023	1.0	4.0	0.006	0.055	0.1
PCBs (total)	0.0002	0.019	0.036	6.5	0.047	0.000058	0.023	1.0	4.0	1.222	0.087	14.0
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	1.8	4.0	0.13	0.047	0.000058	0.023	1.0	4.0	0.62	10	0.0
Cadmium	0.00065	1.6	3.6	0.09	0.047	0.000058	0.023	1.0	4.0	0.02	0.97	0.0
Lead	0.01	86	190	0.36	0.047	0.000058	0.023	1.0	4.0	0.09	0.133	0.7
Mercury	0.00005	0.08	0.20	0.05	0.047	0.000058	0.023	1.0	4.0	0.009	0.07	0.1
Selenium	0.0013	0.61	1.2	0.91	0.047	0.000058	0.023	1.0	4.0	0.17	1.2	0.1

COPC	Mean Water Conc.	Mean Sed. Conc.	Mean Sed. Conc.	Mean Conc. in Fish	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	LOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0047	0.009	0.044	0.047	0.000058	0.023	1.0	1.0	0.008	0.19	0.0
Methoxychlor	0.00005	0.0047	0.009	0.043	0.047	0.000058	0.023	1.0	4.0	0.008	10.5	0.0
Dieldrin	0.00001	0.00097	0.0019	0.0085	0.047	0.000058	0.023	1.0	4.0	0.0017	0.3	0.0
Endrin (total)	0.00003	0.0029	0.0056	0.026	0.047	0.000068	0.023	1.0	4.0	0.005	0.03	0.2
Heptachlor (total)	0.00001	0.00094	0.0018	0.011	0.047	0.000058	0.023	1.0	4.0	0.0021	0.34	0.0
DDT (total)	0.00002	0.0029	0.0056	0.030	0.047	0.000058	0.023	1.0	4.0	0.006	0.55	0.0
PCBs (total)	0.0002	0.019	0.036	6.5	0.047	0.000058	0.023	1.0	4.0	1.222	0.87	1.4
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	1.8	4.0	0.13	0.047	0.000050	0.023	1.0	1.0	0.80	100	0.0
Cadmium	0.00065	1.6	3.6	0.09	0.047	0.000058	0.023	1.0	4.0	0.02	9.7	0.0
Lead	0.01	86	190	0.36	0.047	0.000058	0.023	1.0	4.0	0.09	1.33	0.1
Mercury	0.00005	0.08	0.20	0.05	0.047	0.000058	0.023	1.0	4.0	0.009	0.7	0.0
Selenium	0.0013	0.61	1.2	0.91	0.047	0.000058	0.023	1.0	4.0	0.17	2.4	0.1

Notes:
1) Surface water concentrations are for unfiltered samples only.
2) A value of 1/2 the MDL was used to calculate the metal concentration for those compounds which were not detected in a given sample.
3) A value of 1/10 the MDL was used to calculate the organic concentration for those compounds which were not detected in a given sample.
4) Maximum fish concentrations were calculated using all fish samples collected and analyzed (including filets, whole body, and carcasses).
5) Mean fish concentrations were calculated using whole body concentrations for forage fish only.

\274\Wellvr\9907\tables.wb2

TABLE 64
Chronic Hazard Quotient Calculations for Piscivorous Birds (Green Heron) - LOCATION A5
Cornell-Dubilier Electronics Site
South Plainfield, NJ
July 1999

COPC	Max. Water Conc.	Max. Sed. Conc.	Max. Sed. Conc.	Max. Conc. in Fish	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	NOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0059	0.008	0.025	0.047	0.000058	0.023	1.0	4.0	0.005	0.019	0.2
Methoxychlor	0.00005	0.0051	0.008	0.025	0.047	0.000058	0.023	1.0	4.0	0.005	1.05	0.0
Dieldrin	0.00001	0.001	0.0016	0.005	0.047	0.000058	0.023	1.0	4.0	0.0009	0.1	0.0
Endrin (total)	0.00003	0.003	0.0047	0.11	0.047	0.000058	0.023	1.0	4.0	0.021	0.003	6.9
Heptachlor (total)	0.00001	0.001	0.0016	0.055	0.047	0.000058	0.023	1.0	4.0	0.0103	0.03	0.3
DDT (total)	0.00002	0.003	0.0047	0.015	0.047	0.000058	0.023	1.0	4.0	0.003	0.055	0.1
PCBs (total)	0.0002	3.3	5.2	22	0.047	0.000058	0.023	1.0	4.0	4.137	0.087	47.5
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	1.1	1.7	0.31	0.047	0.000058	0.023	1.0	4.0	0.06	18	0.0
Cadmium	0.0007	1.4	2.2	0.14	0.047	0.000058	0.023	1.0	4.0	0.03	0.97	0.0
Lead	0.0021	27	42	0.52	0.047	0.000058	0.023	1.0	4.0	0.10	0.133	0.8
Mercury	0.00005	0.22	0.29	0.22	0.047	0.000058	0.023	1.0	4.0	0.04	0.07	0.6
Selenium	0.0013	0.74	0.98	1.6	0.047	0.000058	0.023	1.0	4.0	0.30	1.2	0.3

COPC	Max. Water Conc.	Max. Sed. Conc.	Max. Sed. Conc.	Max. Conc. in Fish	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	LOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, uw	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0051	0.008	0.025	0.047	0.000058	0.023	1.0	4.0	0.005	0.19	0.0
Methoxychlor	0.00005	0.0051	0.008	0.025	0.047	0.000058	0.023	1.0	4.0	0.006	10.5	0.0
Dieldrin	0.00001	0.001	0.0016	0.005	0.047	0.000068	0.023	1.0	4.0	0.0009	0.3	0.0
Endrin (total)	0.00003	0.003	0.0047	0.11	0.047	0.000058	0.023	1.0	4.0	0.021	0.03	0.7
Heptachlor (total)	0.00001	0.001	0.0016	0.055	0.047	0.000058	0.023	1.0	4.0	0.0103	0.34	0.0
DDT (total)	0.00002	0.003	0.0047	0.015	0.047	0.000068	0.023	1.0	4.0	0.003	0.66	0.0
PCBs (total)	0.0002	3.3	5.2	22	0.047	0.000068	0.023	1.0	4.0	4.137	0.87	4.8
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	1.1	1.7	0.31	0.047	0.000058	0.023	1.0	4.0	0.06	108	0.0
Cadmium	0.0007	1.4	2.2	0.14	0.047	0.000058	0.023	1.0	4.0	0.03	9.7	0.0
Lead	0.0021	27	42	0.52	0.047	0.000058	0.023	1.0	4.0	0.10	1.33	0.1
Mercury	0.00005	0.22	0.29	0.22	0.047	0.000058	0.023	1.0	4.0	0.041	0.7	0.1
Selenium	0.0013	0.74	0.98	1.6	0.047	0.000068	0.023	1.0	4.0	0.30	2.4	0.1

COPC	Mean Water Conc.	Mean Sed. Conc.	Mean Sed. Conc.	Mean Conc. in Fish	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	NOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0049	0.0071	0.025	0.047	0.000000	0.023	1.0	4.0	0.005	0.019	0.2
Methoxychlor	0.00005	0.0049	0.0071	0.025	0.047	0.000058	0.023	1.0	4.0	0.005	1.06	0.0
Dieldrin	0.00001	0.00099	0.0014	0.005	0.047	0.000058	0.023	1.0	4.0	0.0009	0.1	0.0
Endrin (total)	0.00003	0.003	0.0043	0.015	0.047	0.000058	0.023	1.0	4.0	0.003	0.003	0.9
Heptachlor (total)	0.00001	0.00097	0.0014	0.005	0.047	0.000058	0.023	1.0	4.0	0.0009	0.03	0.0
DDT (total)	0.00002	0.003	0.0043	0.016	0.047	0.000058	0.023	1.0	4.0	0.003	0.055	0.1
PCBs (total)	0.0002	1.9	2.9	6.6	0.047	0.000058	0.023	1.0	4.0	1.053	0.087	12.1
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	1.0	1.5	0.18	0.047	0.000050	0.023	1.0	4.0	0.03	10	0.0
Cadmium	0.00065	1.0	1.5	0.10	0.047	0.000058	0.023	1.0	4.0	0.02	0.97	0.0
Lead	0.0021	18	28	0.41	0.047	0.000068	0.023	1.0	4.0	0.08	0.133	0.6
Mercury	0.00005	0.17	0.24	0.06	0.047	0.000058	0.023	1.0	4.0	0.009	0.07	0.1
Selenium	0.0013	0.59	0.85	1.0	0.047	0.000058	0.023	1.0	4.0	0.19	1.2	0.2

COPC	Mean Water Conc.	Mean Sed. Conc.	Mean Sed. Conc.	Mean Conc. in Fish	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	LOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0049	0.0071	0.025	0.047	0.000058	0.023	1.0	4.0	0.005	0.19	8.0
Methoxychlor	0.00005	0.0049	0.0071	0.023	0.047	0.000058	0.023	1.0	4.0	0.005	10.5	0.0
Dieldrin	0.00001	0.00099	0.0014	0.005	0.047	0.000058	0.023	1.0	4.0	0.0009	0.3	0.0
Endrin (total)	0.00003	0.003	0.0043	0.015	0.047	0.000058	0.023	1.0	4.0	0.003	0.03	0.1
Heptachlor (total)	0.00001	0.00097	0.0014	0.005	0.047	0.000058	0.023	1.0	4.0	0.0009	0.34	0.0
DDT (total)	0.00002	0.003	0.0043	0.015	0.047	0.000058	0.023	1.0	4.0	0.003	0.55	0.0
PCBs (total)	0.0002	1.9	2.9	5.6	0.047	0.00005a	0.023	1.0	4.0	1.053	0.87	1.2
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	1.0	1.5	0.18	0.047	0.000058	0.023	1.8	4.0	0.09	100	0.0
Cadmium	0.00066	1.0	1.5	0.10	0.047	0.000058	0.023	1.0	4.0	0.02	9.7	0.0
Lead	0.0021	18	28	0.41	0.047	0.000058	0.023	1.0	4.0	0.08	1.33	0.1
Mercury	0.00005	0.17	0.24	0.05	0.047	0.000058	0.023	1.0	4.0	0.009	0.7	0.0
Selenium	0.0013	0.59	0.85	1.0	0.047	0.000058	0.023	1.0	4.0	0.19	2.4	0.1

Notes:
1) Surface water concentrations are for unfiltered samples only.
2) A value of 1/2 the MDL was used to calculate the metal concentration for those compounds which were not detected in a given sample.
3) A value of 1/10 the MDL was used to calculate the organic concentration for those compounds which were not detected in a given sample.
4) Maximum fish concentrations were calculated using all fish samples collected and analyzed (including fillets, whole body, and carcasses).
5) Mean fish concentrations were calculated using whole body concentrations for forage fish only.

\274\dehfr\9907\tables.wb2

TABLE 65
Chronic Hazard Quotient Calculations for Piscivorous Birds (Green Heron) - LOCATION A6
Comet-Dubilier Electronics Site
South Plainfield, NJ
July 1999

1.BPC	Max. Water Conc.	Max Sed. Conc.	1.lax. Sed. Conc.	Wax.Conc. in Fish	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	NOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.005	0.024	0.050	0.047	0.000058	0.023	1.0	4.0	0.009	0.019	0.6
Methoxychlor	0.00005	0.005	0.024	0.050	0.047	0.000058	0.023	1.0	4.0	0.009	1.05	0.0
Dieldrin	0.00001	0.001	0.0048	0.010	0.047	0.000058	0.023	1 0	4 0	0.0019	0 1	0.0
Endrin (total)	0.00003	0.003	0.016	0.030	0.047	0.000058	0.023	1 0	4.0	0.006	0.003	1.9
Heptachlor (total)	0.00001	0.001	0.0048	0 11	0.047	0.000068	0.023	1 0	4.0	0.0207	0.03	0 7
DDT (total)	0.00002	0.003	0.016	0.31	0.047	0.000068	0.023	1.0	4.0	0.058	0.066	1.1
PCBs (total)	0.0002	0.95	4.8	36	0.047	0 000058	0.023	1.0	4.0	6.768	0 087	77.8
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/ssy		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	3.3	10	0.42	0.047	0.000058	0.023	1.0	4.0	0.08	10	0.0
Cadmium	0.00065	4.3	17	0 13	0.047	0.000058	0.023	1 0	4 0	0.03	0.97	0.0
Lead	0.0033	73	290	2.9	0.047	0.000068	0.023	1.0	4.0	0 56	0.133	4.2
Mercury	0.00005	0.23	0 91	0.25	0 047	0.000058	0.023	1.0	4 0	0.06	0.07	0.7
Selenium	0.0013	0.95	3.8	0.96	0 047	0.000068	0.023	1.0	4 0	0 18	1.2	0.1

COPC	Max. Water Conc.	Max Sed. Conc.	Max. Sed. Conc.	Max. Conc. in Fish	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	LOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/dsy	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.005	0.024	0.050	0.047	0.000058	0.023	1.0	4.0	0.009	0.19	0.6
Methoxychlor	0.00005	0.00S	0.024	0.050	0.047	0.000058	0.023	1 0	4.0	0.009	10 5	0.0
Dieldrin	0 00001	0.001	0.0048	0.010	0.047	0.000058	0.023	1.0	4.0	0.0019	0.3	0.0
Endrin (total)	0.00003	0.003	0.015	0.030	0.047	0.000058	0.023	1.0	4.0	0.006	0.03	0 2
Heptachlor (total)	0.00001	0.001	0.0048	0 11	0.047	0.000058	0.023	1 0	4.0	0.0207	0.34	0.1
DDT (total)	0.00002	0.003	0.015	0.31	0.047	0.000058	0.023	1.0	4.0	0.068	0.55	0 1
PCBs (total)	0.0002	0.95	4.8	36	0.047	0.000058	0.023	1.0	4.0	6.768	0.87	7.8
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	3.3	13	0 42	0.047	0.000050	0.023	1.B	4.0	0.08	100	B.0
Cadmium	0.00065	4.3	17	0 13	0.047	0 0000S8	0.023	1.0	4.0	0.03	9.7	0.0
Lead	0.0033	73	290	2.9	0.047	0.000058	0.023	1.0	4.0	0.56	1.33	0.4
Mercury	0.00005	0.23	0.91	0 25	0.047	0.000058	0.023	1.0	4.0	0.047	0.7	0 1
Selenium	0.0013	0 95	3.8	0 95	0 047	0.000058	0.023	1.0	4.0	0.18	2.4	0 1

COPC	Mean Water Conc.	Mean Sed. Conc.	Mean Sed. Conc.	Mean Conc. in Fish	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	NOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1.kg	mg/kg BW/dsy	mglkg BW/day	
Chlordane (total)	0.00005	0.0049	0.022	0.027	0.047	0.000050	B.023	1.B	1.0	0.005	0.019	0.3
Methoxychlor	0 00006	0 0049	0.022	0.027	0.047	0.000058	0.023	1 0	4.0	0.006	1.06	0.0
Dieldrin	0.00001	0.00098	0.0044	0.00SS	0.047	0 000058	0.023	1 0	4.0	0 0010	0.1	0.0
Endrin (total)	0.00003	0.003	0.013	0.017	0.047	0.000058	0.023	1 0	4.0	0.003	0.003	1.1
Heptachlor (thtal)	0.00001	0.00098	0.0044	0.0054	0.047	0.000058	0.023	1 0	4.0	0 0010	0.03	0 0
DDT (total)	0.00002	0.003	0.013	0.017	0.047	0.000058	0.023	1 0	4.0	0.003	0.056	0 1
PCBs (total)	0 0002	0 75	3.5	3.6	0.047	0.000058	0.023	1.0	4.0	0.677	0.067	7.8
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	2.7	12	0.10	0.047	0.00005d	0.023	1.0	4.0	0.03	10	0.0
Cattinium	0.00065	3 3	15	0.09	0.047	0.000058	0.023	1.0	4.0	0.02	0.97	0 0
Lead	0.0033	56	250	0.68	0.047	0 000058	0.023	1 0	4.0	0.14	0.133	1.1
Mercury	0.00005	0.14	0.60	0.04	0.047	0.000058	0.023	1 0	4.0	0.008	0.07	0 1
Selenium	0.0013	0.85	3.8	0.75	0.047	0.000058	0.023	1.0	4.0	0 14	1.2	0 1

COPC	Mean Water Conc.	Mean Sed. Conc.	Mean Sed. Conc.	Mean Conc. in Fish	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	LOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0049	0.022	0.027	0.047	0.000058	0.023	1.0	4.0	0.005	0.19	0.0
Methoxychlor	0.00005	0.0049	0.022	0.027	0.047	0.000058	0.023	1.0	4.0	0.005	10.5	0.0
Dieldrin	0.00001	0.00098	0.0044	0.0055	0.047	0.000058	0.023	1.0	4.0	0.0010	0.3	0.0
Endrin (total)	0.00003	0.003	0.013	0.017	0.047	0.000058	0.023	1.0	4.0	0.003	0.03	0.1
Heptachlor (total)	0.00001	0.00098	0.0044	0.0054	0.047	0.000058	0.023	1.0	4.0	0.0010	0.34	0.0
DDT (total)	0.00002	0.003	0.013	0.017	0.047	0.000058	0.023	1.0	4.0	0.003	0.55	0.0
PCBs (total)	0.0002	0.75	3.5	3.6	0.047	0.000058	0.023	1.0	4.0	0.677	0.87	0.8
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	2.7	12	0.18	0.047	0.000058	0.023	1.0	4.0	0.03	100	0.0
Cadmium	0.00065	3.3	15	0.09	0.047	0.000058	0.023	1.0	4.0	0.02	9.7	0.0
Lead	0.0033	56	250	0.68	0.047	0.000058	0.023	1.0	4.0	0.14	1.33	0.1
Mercury	0.00005	0.14	0.60	0.04	0.047	0.000058	0.023	1.0	4.0	0.008	0.7	0.0
Selenium	0.0013	0.85	3.8	0.75	0.047	0.000058	0.023	1.0	4.0	0.14	2.4	0.1

Notes:
1) Surface water concentrations are for unfiltered samples only.
2) A value of 1/2 the MDL was used to calculate the metal concentration for those compounds which were not detected in a given sample.
3) A value of 1/10 the MDL was used to calculate the organic concentration for those compounds which were not detected in a given sample.
4) Maximum fish concentrations were calculated using all fish samples collected and analyzed (including fillets, whole body, and carcasses).
5) Mean fish concentrations were calculated using whole body concentrations for forage fish only.

TABLE 66
Acute Hazard Quotient Calculations for Piscivorous Birds - TOTAL PCBs
Cornell-Dubilier Electronics Site
South Plainfield, NJ
July 1999

TOTAL PCBs:

Location	Max. Water Conc.	Max. Sed. Conc.	Max. Sed. Conc.	Max. Conc. in Fish	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	Acute Toxicity Value	Acute HQ
	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
A1	0.0002	1.9	4.5	23	0.047	0.000058	0.023	1.0	4.0	4.324	67.8	0.1
A2	0.0002	6.6	14	28	0.047	0.000058	0.023	1.0	4.0	5.266	67.8	0.1
A3	0.0002	0.020	0.083	23	0.047	0.000058	0.023	1.0	4.0	4.324	67.8	0.1
A4	0.0002	0.019	0.045	24	0.047	0.000058	0.023	1.0	4.0	4.512	67.8	0.1
A5	0.0002	3.3	5.2	22	0.047	0.000058	0.023	1.0	4.0	4.137	67.8	0.1
AS	0.0002	0.95	4.8	36	0.047	0.000058	0.023	1.0	4.0	6.768	67.8	0.1
Location	Mean Water Conc.	Mean Sed. Conc.	Mean Sed. Conc.	Mean Conc. in Fish	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	Acute Toxicity Value	Acute HQ
	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
A1	0.0002	0.84	2.3	4.1	0.047	0.000058	0.023	1.0	4.0	0.771	67.8	0.01
A2	0.0002	5.6	14	12	0.047	0.000058	0.023	1.0	4.0	2.257	67.8	0.03
A3	0.0002	0.020	0.076	7.9	0.047	0.000058	0.023	1.0	4.0	1.485	67.8	0.02
A4	0.0002	0.019	0.036	6.5	0.047	0.000058	0.023	1.0	4.0	1.222	67.8	0.02
A5	0.0002	1.9	2.9	5.6	0.047	0.000058	0.023	1.0	4.0	1.053	67.8	0.02
A6	0.0002	0.75	3.5	3.6	0.047	0.000058	0.023	1.0	4.0	0.677	67.8	0.01

Notes:
1) Surface water concentrations are for unfiltered samples only.
2) A value of 1/2 the MDL was used to calculate the metal concentration for those compounds which were not detected in a given sample.
3) A value of 1/10 the MDL was used to calculate the organic concentration for those compounds which were not detected in a given sample.
4) Maximum fish concentrations were calculated using all fish samples collected and analyzed (including fillets, whole body, and carcasses).
5) Mean fish concentrations were calculated using whole body concentrations for forage fish only.

TABLE 67
Chronic Hazard Quotient Calculations for Omnivorous Mammals (Raccoon) - LOCATION A I
Cornell-Dubilier Electronics Site
South Plainfield, NJ
July 1999

COPC	Max. Water Conc.	Max. Sed. Conc.	Max. Sed. Conc.	Max. Conc. in Crayfish	Max. Conc. in Fish	Crayfish Ingestion Rate	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	NOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	mg/kg, ww	kg/day	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0052	0.018	0.0093	0.44	0.25	0.25	0.047	0.0249	1.0	0.33	0.037	1.8	0.0
Methoxychlor	0.00005	0.0052	0.018	0.0093	0.25	0.25	0.25	0.047	0.0249	1.0	0.33	0.021	0.015	1.4
Dieldrin	0.00001	0.001	0.0035	0.0019	0.05	0.25	0.25	0.047	0.0249	1.0	0.33	0.004	1.5	0.0
Endrin (total)	0.00003	0.003	0.0035	0.0057	0.15	0.25	0.25	0.047	0.0249	1.0	0.33	0.013	0.3	0.0
Heptachlor (total)	0.00001	0.001	0.0036	0.0019	0.05	0.25	0.25	0.047	0.0249	1.0	0.33	0.004	1.8	0.0
DDT (total)	0.00002	0.003	0.011	0.0057	0.37	0.25	0.25	0.047	0.0249	1.0	0.33	0.031	1.21	0.0
PCBs (total)	0.0002	1.9	4.5	1.1	23	0.25	0.25	0.047	0.0249	1.0	0.33	2.018	0.13	15.5
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	mg/kg, ww	kg/day	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	5.1	13	0.48	0.19	0.25	0.25	0.047	0.0249	1.0	0.33	0.13	0.126	1.1
Cadmium	0.00065	8.4	23	0.94	0.38	0.25	0.25	0.047	0.0249	1.0	0.33	0.24	1.0	0.2
Lead	0.0055	112	340	1.1	0.76	0.25	0.25	0.047	0.0249	1.0	0.33	1.89	8.0	0.2
Mercury	0.00005	0.13	0.39	0.01	0.19	0.25	0.25	0.047	0.0249	1.0	0.33	0.02	0.01	1.9
Selenium	0.0013	1.4	3.8	0.68	1.9	0.25	0.25	0.047	0.0249	1.0	0.33	0.23	0.0048	48.9

COPC	Max. Water Conc.	Max. Sed. Conc.	Max. Sed. Conc.	Max. Conc. in Crayfish	Max. Conc. in Fish	Crayfish Ingestion Rate	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	LOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	mg/kg, ww	kg/day	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0052	0.018	0.0093	0.44	0.25	0.25	0.047	0.0249	1.0	0.33	0.037	3.6	0.0
Methoxychlor	0.00005	0.0052	0.018	0.0093	0.25	0.25	0.25	0.047	0.0249	1.0	0.33	0.021	0.15	0.1
Dieldrin	0.00001	0.001	0.0035	0.0019	0.05	0.25	0.25	0.047	0.0249	1.0	0.33	0.004	15	0.0
Endrin (total)	0.00003	0.003	0.0035	0.0057	0.15	0.25	0.25	0.047	0.0249	1.0	0.33	0.013	1.5	0.0
Heptachlor (total)	0.00001	0.001	0.0036	0.0019	0.05	0.25	0.25	0.047	0.0249	1.0	0.33	0.004	18	0.0
DDT (total)	0.00002	0.003	0.011	0.0057	0.37	0.25	0.25	0.047	0.0249	1.0	0.33	0.031	12.1	0.0
PCBs (total)	0.0002	1.9	4.5	1.1	23	0.25	0.25	0.047	0.0249	1.0	0.33	2.018	1.3	1.6
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	mg/kg, ww	kg/day	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	5.1	13	0.48	0.19	0.25	0.25	0.047	0.0249	1.0	0.33	0.13	1.26	0.1
Cadmium	0.00065	8.4	23	0.94	0.38	0.25	0.25	0.047	0.0249	1.0	0.33	0.24	10	0.0
Lead	0.0055	112	340	1.1	0.76	0.25	0.25	0.047	0.0249	1.0	0.33	1.89	80	0.0
Mercury	0.00005	0.13	0.39	0.01	0.19	0.25	0.25	0.047	0.0249	1.0	0.33	0.02	0.1	0.2
Selenium	0.0013	1.4	3.8	0.68	1.9	0.25	0.25	0.047	0.0249	1.0	0.33	0.23	0.048	4.9

COPC	Mean Water Conc.	Mean Sed. Conc.	Mean Sed. Conc.	Mean Conc. in Crayfish	Mean Conc. in Fish	Crayfish Ingestion Rate	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	NOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	mg/kg, ww	kg/day	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.006	0.014	0.0083	0.049	0.25	0.25	0.047	0.0243	1.0	0.33	0.005	1.8	0.0
Methoxychlor	0.00005	0.005	0.014	0.0082	0.049	0.25	0.25	0.047	0.0249	1.0	0.33	0.005	0.016	0.3
Dieldrin	0.00001	0.00097	0.0026	0.0017	0.010	0.26	0.25	0.047	0.0249	1.0	0.33	0.001	1.5	0.0
Endrin (total)	0.00003	0.0029	0.007	0.0051	0.030	0.25	0.25	0.047	0.0249	1.0	0.33	0.003	0.3	0.0
Heptachlor (total)	0.00001	0.00099	0.0027	0.0016	0.013	0.25	0.25	0.047	0.0249	1.0	0.33	0.001	1.8	0.0
DDT (total)	0.00002	0.0029	0.0079	0.0051	0.035	0.25	0.25	0.047	0.0249	1.0	0.33	0.003	1.21	0.0
PCBs (total)	0.0002	0.84	2.3	0.77	4.1	0.25	0.25	0.047	0.0249	1.0	0.33	0.416	0.13	3.2
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	mg/kg, ww	kg/day	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00098	3.6	9.9	0.29	0.17	0.25	0.25	0.047	0.0249	1.0	0.33	0.09	0.120	0.7
Cadmium	0.00065	6.7	18	0.84	0.18	0.26	0.25	0.047	0.0249	1.0	0.33	0.19	1.0	0.2
Lead	0.0055	89	240	0.81	0.47	0.25	0.25	0.047	0.0249	1.0	0.33	1.49	8.0	0.2
Mercury	0.00005	0.1	0.27	0.01	0.06	0.25	0.25	0.047	0.0249	1.0	0.33	0.01	0.01	0.7
Selenium	0.0013	1.1	3.0	0.67	1.3	0.26	0.25	0.047	0.0249	1.0	0.33	0.18	0.0048	37.4

COPC	Mean Water Conc.	Mean Sed. Conc.	Mean Sed. Conc.	Mean Conc. in Crayfish	Mean Conc. in Fish	Crayfish Ingestion Rate	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	LOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	mg/kg, ww	kg/day	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.005	0.014	0.0082	0.049	0.25	0.25	0.047	0.0249	1.0	0.33	0.005	3.6	0.0
Methoxychlor	0.00005	0.005	0.014	0.0082	0.049	0.25	0.26	0.047	0.0249	1.0	0.33	0.006	0.15	0.0
Dieldrin	0.00001	0.00097	0.0026	0.0017	0.010	0.25	0.25	0.047	0.0249	1.0	0.33	0.001	15	0.0
Endrin (total)	0.00003	0.0029	0.007	0.0051	0.030	0.25	0.25	0.047	0.0249	1.0	0.33	0.003	1.6	0.0
Heptachlor (total)	0.00001	0.00099	0.0027	0.0016	0.013	0.25	0.25	0.047	0.0249	1.0	0.33	0.001	18	0.0
DDT (total)	0.00002	0.0029	0.0079	0.0051	0.035	0.26	0.25	0.047	0.0249	1.0	0.33	0.003	12.1	0.0
PCBs (total)	0.0002	0.84	2.3	0.77	4.1	0.25	0.25	0.047	0.0249	1.0	0.33	0.415	1.3	0.3
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	mg/kg, ww	kg/day	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	3.6	9.9	0.29	0.17	0.25	0.25	0.047	0.0249	1.0	0.33	0.09	1.26	0.1
Cadmium	0.00065	6.7	18	0.84	0.18	0.25	0.25	0.047	0.0249	1.0	0.33	0.19	10	0.0
Lead	0.0055	89	240	0.81	0.47	0.26	0.25	0.047	0.0249	1.0	0.33	1.49	80	0.0
Mercury	0.00005	0.1	0.27	0.01	0.06	0.25	0.25	0.047	0.0249	1.0	0.33	0.01	0.1	0.1
Selenium	0.0013	1.1	3.0	0.67	1.3	0.25	0.25	0.047	0.0249	1.0	0.33	0.18	0.048	3.7

Notes:
1) Surface water concentrations are for unfiltered samples only.
2) A value of 1/2 the MDL was used to calculate the metal concentration for those compounds which were not detected in a given sample.
3) A value of 1/10 the MDL was used to calculate the organic concentration for those compounds which were not detected in a given sample.
4) Maximum fish concentrations were calculated using all fish samples collected and analyzed (including fillets, whole body, and carcasses).
5) Mean fish concentrations were calculated using whole body concentrations for forage fish only.

\274\diehl\9907\tables.wb2

TABLE 68
Chronic Hazard Quotient Calculations for Omnivorous Mammals (Raccoon) - LOCATION A2
Cornell-Dubilier Electronics Site
South Plainfield, NJ
July 1999

COPC	Max. Water Conc.	Max. Sed. Conc.	Max. Sed. Conc.	Max. Conc. in Crayfish	Max. Conc. in Fish	Crayfish Ingestion Rate	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	NOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	mg/kg, ww	kg/day	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0048	0.015	0.028	0.085	0.25	0.25	0.047	0.0249	1.0	0.33	0.008	1.8	0.0
Methoxychlor	0.00005	0.0048	0.015	0.017	0.085	0.25	0.25	0.047	0.0249	1.0	0.33	0.008	0.015	0.6
Dieldrin	0.00001	0.00096	0.003	0.0034	0.017	0.25	0.25	0.047	0.0249	1.0	0.33	0.002	1.6	0.0
Endrin (total)	0.00003	0.0029	0.0091	0.010	0.051	0.25	0.25	0.047	0.0249	1.0	0.33	0.005	0.3	0.0
Heptachlor (total)	0.00001	0.00048	0.003	0.0034	0.053	0.25	0.25	0.047	0.0249	1.0	0.33	0.005	1.8	0.0
DDT (total)	0.00002	0.0029	0.0091	0.010	0.088	0.25	0.25	0.047	0.0249	1.0	0.33	0.008	1.21	0.0
PCBs (total)	0.0002	6.6	14	2.4	28	0.25	0.25	0.047	0.0249	1.0	0.33	2.610	0.13	20.1
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	mg/kg, ww	kg/day	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	3.8	12	0.48	0.19	0.25	0.25	0.047	0.0249	1.0	0.33	0.11	0.126	0.9
Cadmium	0.00065	3.8	12	1.7	0.42	0.25	0.25	0.047	0.0249	1.0	0.33	0.23	1.0	0.2
Lead	0.0032	80	250	1.4	0.74	0.25	0.25	0.047	0.0249	1.0	0.33	1.42	8.0	0.2
Mercury	0.00005	0.12	0.35	0.02	0.20	0.25	0.25	0.047	0.0249	1.0	0.33	0.02	0.01	2.0
Selenium	0.0013	1.1	3.3	1.2	1.6	0.25	0.25	0.047	0.0249	1.0	0.33	0.25	0.0048	51.7

COPC	Max. Water Conc.	Max. Sed. Conc.	Max. Sed. Conc.	Max. Conc. in Crayfish	Max. Conc. in Fish	Crayfish Ingestion Rate	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	LOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	mg/kg, ww	kg/day	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0048	0.015	0.017	0.085	0.25	0.25	0.047	0.0249	1.0	0.33	0.008	3.6	0.8
MethoxycNor	0.00005	0.0048	0.015	0.017	0.085	0.25	0.25	0.047	0.0249	1.0	0.33	0.008	0.16	0.1
Dieldrin	0.00001	0.00096	0.003	0.0034	0.017	0.25	0.25	0.047	0.0249	1.0	0.33	0.002	15	0.0
Endrin (total)	0.00003	0.0029	0.0091	0.010	0.051	0.25	0.25	0.047	0.0249	1.0	0.33	0.005	1.5	0.0
Heptachlor (total)	0.00001	0.00048	0.003	0.0034	0.053	0.25	0.25	0.047	0.0249	1.0	0.33	0.005	18	0.0
DDT (total)	0.00002	0.0029	0.0091	0.010	0.088	0.25	0.25	0.047	0.0249	1.0	0.33	0.008	12.1	0.0
PCBs (total)	0.0002	6.6	14	2.4	28	0.25	0.25	0.047	0.0249	1.0	0.33	2.610	1.3	2.0
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	mg/kg, ww	kg/day	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	3.5	12	0.48	0.19	0.25	0.25	0.047	0.0249	1.0	0.33	0.11	1.26	0.1
Cadmium	0.00065	3.8	12	1.7	0.42	0.25	0.25	0.047	0.0249	1.0	0.33	0.23	10	0.0
Lead	0.0032	80	250	1.4	0.74	0.25	0.25	0.047	0.0249	1.0	0.33	1.42	80	0.0
Mercury	0.00005	0.12	0.35	0.02	0.20	0.25	0.26	0.047	0.0249	1.0	0.33	0.02	0.1	0.2
Selenium	0.0013	1.1	3.3	1.2	1.6	0.25	0.26	0.047	0.0249	1.0	0.33	0.25	0.048	5.2

COPC	Mean Water Conc.	Mean Sed. Conc.	Mean Sed. Conc.	Mean Conc. in Crayfish	Mean Conc. in Fish	Crayfish Ingestion Rate	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	NOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	mg/kg, ww	kg/day	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0048	0.018	0.015	0.046	0.25	0.25	0.047	0.0249	1.0	0.33	0.005	1.8	0.8
Methoxychlor	0.00005	0.0048	0.013	0.017	0.046	0.25	0.25	0.047	0.0249	1.0	0.33	0.005	0.016	0.4
Dieldrin	0.00001	0.00095	0.0025	0.003	0.0093	0.25	0.25	0.047	0.0249	1.0	0.33	0.001	1.6	0.0
Endrin (total)	0.00003	0.0029	0.0075	0.0091	0.028	0.25	0.25	0.047	0.0249	1.0	0.33	0.003	0.3	0.0
Heptachlor (total)	0.00001	0.00048	0.0025	0.003	0.013	0.25	0.25	0.047	0.0249	1.0	0.33	0.001	1.8	0.0
DDT (total)	0.00002	0.0029	0.0075	0.0091	0.034	0.25	0.25	0.047	0.0249	1.0	0.33	0.004	1.21	0.0
PCBs (total)	0.0002	5.6	14	1.8	12	0.25	0.25	0.047	0.0249	1.0	0.33	1.225	0.13	9.4
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	mg/kg, ww	kg/day	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	3.2	8.8	0.24	0.17	0.25	0.25	0.047	0.0249	1.0	0.33	0.08	0.126	0.7
Cadmium	0.00065	3.7	9.7	0.88	0.16	0.25	0.25	0.047	0.0249	1.0	0.33	0.14	1.0	0.1
Lead	0.0032	78	200	0.86	0.55	0.25	0.25	0.047	0.0249	1.0	0.33	1.33	8.0	0.2
Mercury	0.00005	0.11	0.30	0.01	0.04	0.25	0.26	0.047	0.0249	1.0	0.33	0.01	0.01	0.6
Selenium	0.0013	0.93	2.5	0.87	1.2	0.25	0.26	0.047	0.0249	1.0	0.33	0.19	0.0048	36.6

COPC	Mean Water Conc.	Mean Sed. Conc.	Mean Sed. Conc.	Mean Conc. in Crayfish	Mean Conc. in Fish	Crayfish Ingestion Rate	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	LOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	mg/kg, ww	kg/day	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0048	0.013	0.015	0.046	0.25	0.25	0.047	0.0249	1.0	0.33	0.007	3.6	0.0
Methoxychlor	0.00005	0.0048	0.013	0.017	0.046	0.25	0.25	0.047	0.0249	1.0	0.33	0.005	0.15	0.0
Dieldrin	0.00001	0.00095	0.0025	0.003	0.0093	0.25	0.25	0.047	0.0249	1.0	0.33	0.001	15	0.0
Endrin (total)	0.00003	0.0029	0.0075	0.0091	0.028	0.25	0.25	0.047	0.0249	1.0	0.33	0.003	1.5	0.0
Heptachlor (total)	0.00001	0.00048	0.0026	0.003	0.013	0.25	0.25	0.047	0.0249	1.0	0.33	0.001	18	0.0
DDT (total)	0.00002	0.0029	0.0075	0.0091	0.034	0.25	0.25	0.047	0.0249	1.0	0.33	0.004	12.1	0.0
PCBs (total)	0.0002	5.6	14	1.8	12	0.25	0.25	0.047	0.0249	1.0	0.33	1.225	1.3	0.9
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	mg/kg, ww	kg/day	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	3.2	8.8	0.24	0.17	0.25	0.25	0.047	0.0249	1.0	0.33	0.08	1.26	0.1
Cadmium	0.00065	3.7	9.7	0.88	0.16	0.26	0.25	0.047	0.0249	1.0	0.33	0.14	10	0.0
Lead	0.0032	78	200	0.86	0.55	0.25	0.26	0.047	0.0249	1.0	0.33	1.33	80	0.0
Mercury	0.00005	0.11	0.30	0.01	0.04	0.26	0.25	0.047	0.0249	1.0	0.33	0.01	0.1	0.1
Selenium	0.0013	0.93	2.5	0.87	1.2	0.25	0.25	0.047	0.0249	1.0	0.33	0.19	0.048	3.9

Notes:
1) Surface water concentrations are for unfiltered samples only.
2) A value of 1/2 the MDL was used to calculate the metal concentration for those compounds which were not detected in a given sample.
3) A value of 1/10 the MDL was used to calculate the organic concentration for those compounds which were not detected in a given sample.
4) Maximum fish concentrations were calculated using all fish samples collected and analyzed (including fillets, whole body, and carcasses).
5) Mean fish concentrations were calculated using whole body concentrations for forage fish only.

\274\delfr\9907\tables.wb2

TABLE 69
Chronic Hazard Quotient Calculations for Omnivorous Mammals (Raccoon) - LOCATION A3
Cornell-Dubilier Electronics Site
South Plainfield, NJ
July 1999

COPC	Max. Water Conc.	Max. Sed. Conc.	Max. Sed. Conc.	Max. Conc. in Crayfish	Max. Conc. in Fish	Crayfish Ingestion Rate	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	NOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	ug/kg, ww	kg/day	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.005	0.021	0.033	0.050	0.25	0.25	0.047	0.0249	1.0	0.33	0.007	1.8	0.0
Methoxychlor	0.00005	0.005	0.021	0.033	0.050	0.25	0.25	0.047	0.0249	1.0	0.33	0.007	0.015	0.5
Dieldrin	0.00001	0.072	0.300	0.0067	0.010	0.25	0.25	0.047	0.0249	1.0	0.33	0.002	1.5	0.0
Endrin (total)	0.00003	0.003	0.013	0.020	0.030	0.25	0.25	0.047	0.0249	1.0	0.33	0.004	0.3	0.0
Heptachlor (total)	0.00001	0.001	0.0042	0.0066	0.053	0.25	0.25	0.047	0.0249	1.0	0.33	0.005	1.8	0.0
DDT (total)	0.00002	0.003	0.013	0.020	0.083	0.25	0.25	0.047	0.0249	1.0	0.33	0.009	1.21	0.0
PCBs (total)	0.0002	0.020	0.083	1.9	23	0.25	0.25	0.047	0.0249	1.0	0.33	2.055	0.13	15.8
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	mg/kg, ww	kg/day	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	2.9	12	0.93	0.19	0.25	0.25	0.047	0.0249	1.0	0.33	0.14	0.126	1.1
Cadmium	0.00065	3.8	16	0.99	0.45	0.25	0.25	0.047	0.0249	1.0	0.33	0.18	1.0	0.2
Lead	0.0049	60	250	0.96	1.2	0.25	0.25	0.047	0.0249	1.0	0.33	1.11	8.0	0.1
Mercury	0.00005	0.1	0.35	0.02	0.12	0.25	0.25	0.047	0.0249	1.0	0.33	0.01	0.01	1.3
Selenium	0.0013	0.79	3.3	1.4	1.5	0.25	0.25	0.047	0.0249	1.0	0.33	0.25	0.0048	52.4

COPC	Max. Water Conc.	Max. Sed. Conc.	Max. Sed. Conc.	Max. Conc. in Crayfish	Max. Conc. in Fish	Crayfish Ingestion Rate	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	LOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	ug/kg, ww	kg/day	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.005	0.021	0.033	0.050	0.25	0.25	0.047	0.0249	1.0	0.33	0.007	3.6	0.0
Methoxychlor	0.00005	0.005	0.021	0.033	0.050	0.25	0.25	0.047	0.0249	1.0	0.33	0.007	0.15	0.0
Dieldrin	0.00001	0.072	0.300	0.0067	0.010	0.25	0.25	0.047	0.0249	1.0	0.33	0.002	15	0.0
Endrin (total)	0.00003	0.003	0.013	0.020	0.030	0.25	0.25	0.047	0.0249	1.0	0.33	0.004	1.5	0.0
Heptachlor (total)	0.00001	0.001	0.0042	0.0066	0.053	0.25	0.25	0.047	0.0249	1.0	0.33	0.005	18	0.0
DDT (total)	0.00002	0.003	0.013	0.020	0.083	0.25	0.25	0.047	0.0249	1.0	0.33	0.009	12.1	0.0
PCBs (total)	0.0002	0.020	0.083	1.9	23	0.25	0.25	0.047	0.0249	1.0	0.33	2.055	1.3	1.6
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	mg/kg, ww	kg/day	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	2.9	12	0.93	0.19	0.25	0.25	0.047	0.0249	1.0	0.33	0.14	1.26	0.1
Cadmium	0.00065	3.8	16	0.99	0.45	0.25	0.25	0.047	0.0249	1.0	0.33	0.18	10	0.0
Lead	0.0049	60	250	0.96	1.2	0.25	0.25	0.047	0.0249	1.0	0.33	1.11	80	0.0
Mercury	0.00005	0.1	0.35	0.02	0.12	0.25	0.25	0.047	0.0249	1.0	0.33	0.01	0.1	0.1
Selenium	0.0013	0.79	3.3	1.4	1.5	0.25	0.25	0.047	0.0249	1.0	0.33	0.25	0.048	5.2

COPC	Mean Water Conc.	Mean Sed. Conc.	Mean Sed. Conc.	Mean Conc. in Crayfish	Mean Conc. in Fish	Crayfish Ingestion Rate	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	NOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	ug/kg, ww	kg/day	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.005	0.019	0.014	0.037	0.25	0.25	0.047	0.0249	1.0	0.33	0.004	1.8	0.0
Methoxychlor	0.00005	0.005	0.019	0.014	0.037	0.25	0.25	0.047	0.0249	1.0	0.33	0.004	0.015	0.3
Dieldrin	0.00001	0.064	0.24	0.0027	0.0074	0.25	0.25	0.047	0.0249	1.0	0.33	0.002	1.5	0.0
Endrin (total)	0.00003	0.003	0.011	0.0081	0.022	0.25	0.25	0.047	0.0249	1.0	0.33	0.003	0.3	0.0
Heptachlor (total)	0.00001	0.00099	0.0037	0.0027	0.0089	0.25	0.25	0.047	0.0249	1.0	0.33	0.001	1.8	0.0
DDT (total)	0.00002	0.003	0.011	0.0081	0.024	0.26	0.25	0.047	0.0249	1.0	0.33	0.003	1.21	0.0
PCBs (total)	0.0002	0.020	0.076	1.3	7.9	0.25	0.25	0.047	0.0249	1.0	0.33	0.759	0.13	5.8
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	mg/kg, ww	kg/day	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	2.7	10	0.25	0.17	0.25	0.25	0.047	0.0249	1.0	0.33	0.08	0.126	0.6
Cadmium	0.00065	3.8	15	0.47	0.17	0.26	0.25	0.047	0.0249	1.0	0.33	0.11	1.0	0.1
Lead	0.0049	59	230	0.63	0.61	0.25	0.25	0.047	0.0249	1.0	0.33	1.02	8.0	0.1
Mercury	0.00005	0.08	0.30	0.01	0.04	0.26	0.25	0.047	0.0249	1.0	0.33	0.01	0.01	0.5
Selenium	0.0013	0.77	3.0	0.8	1.2	0.25	0.25	0.047	0.0249	1.0	0.33	0.18	0.0048	36.9

COPC	Mean Water Conc.	Mean Sed. Conc.	Mean Sed. Conc.	Mean Conc. in Crayfish	Mean Conc. in Fish	Crayfish Ingestion Rate	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	LOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	ug/kg, ww	kg/day	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.005	0.019	0.014	0.037	0.25	0.25	0.047	0.0249	1.0	0.33	0.004	3.6	0.0
Methoxychlor	0.00005	0.005	0.019	0.014	0.037	0.25	0.25	0.047	0.0249	1.0	0.33	0.004	0.15	0.0
Dieldrin	0.00001	0.064	0.24	0.0027	0.0074	0.25	0.25	0.047	0.0249	1.0	0.33	0.002	15	0.0
Endrin (total)	0.00003	0.003	0.011	0.0081	0.022	0.25	0.25	0.047	0.0249	1.0	0.33	0.003	1.6	0.0
Heptachlor (total)	0.00001	0.00099	0.0037	0.0027	0.0089	0.25	0.25	0.047	0.0249	1.0	0.33	0.001	18	0.0
DDT (total)	0.00002	0.003	0.011	0.0081	0.024	0.25	0.25	0.047	0.0249	1.0	0.33	0.003	12.1	0.0
PCBs (total)	0.0002	0.020	0.076	1.3	7.9	0.25	0.25	0.047	0.0249	1.0	0.33	0.769	1.3	0.6
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	mg/kg, ww	kg/day	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	2.7	10	0.25	0.17	0.25	0.25	0.047	0.0249	1.0	0.33	0.08	1.26	0.1
Cadmium	0.00065	3.8	15	0.47	0.17	0.25	0.25	0.047	0.0249	1.0	0.33	0.11	10	0.0
Lead	0.0049	59	230	0.63	0.61	0.25	0.26	0.047	0.0249	1.0	0.33	1.02	80	0.0
Mercury	0.00005	0.08	0.30	0.01	0.04	0.25	0.25	0.047	0.0249	1.0	0.33	0.01	0.1	0.1
Selenium	0.0013	0.77	3.0	0.8	1.2	0.25	0.25	0.047	0.0249	1.0	0.33	0.18	0.048	3.7

Notes:
1) Surface water concentrations are for unfiltered samples only.
2) A value of 1/2 the MDL was used to calculate the metal concentration for those compounds which were not detected in a given sample.
3) A value of 1/10 the MDL was used to calculate the organic concentration for those compounds which were not detected in a given sample.
4) Maximum fish concentrations were calculated using all fish samples collected and analyzed (including fillets, whole body, and carcasses).
6) Mean fish concentrations were calculated using whole body concentrations for forage fish only.

\274\dieltr\9907\tables.wb2

TABLE 70
Chronic Hazard Quotient Calculations for Omnivorous Mammals (Raccoon) - LOCATION A4
Cornell-Dubilier Electronics Site
South Plainfield, NJ
July 1999

COPC	Max. Water Conc.	Max. Sed. Conc.	Max. Sed. Conc.	Max. Conc. in Crayfish	Max. Conc. in Fish	Crayfish Ingestion Rate	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	NOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	mg/kg, ww	kg/day	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0048	0.011	0.028	0.098	0.25	0.25	0.047	0.0249	1.0	0.33	0.010	1.8	0.0
Methoxychlor	0.00005	0.0048	0.011	0.028	0.098	0.25	0.25	0.047	0.0249	1.0	0.33	0.010	0.015	0.7
Dieldrin	0.00001	0.00097	0.0023	0.0056	0.020	0.25	0.25	0.047	0.0249	1.0	0.33	0.002	1.6	0.0
Endrin (total)	0.00003	0.0029	0.0069	0.017	0.060	0.25	0.25	0.047	0.0249	1.0	0.33	0.006	0.3	0.0
Heptachlor (total)	0.00001	0.00096	0.0022	0.0056	0.023	0.25	0.26	0.047	0.0249	1.0	0.33	0.002	1.8	0.0
DDT (total)	0.00002	0.0029	0.0069	0.017	0.060	0.25	0.25	0.047	0.0249	1.0	0.33	0.006	1.21	0.0
PCBs (total)	0.0002	0.019	0.045	2.0	24	0.25	0.25	0.047	0.0249	1.0	0.33	2.145	0.13	16.5
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	mg/kg, ww	kg/day	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	2.8	6.7	0.46	0.25	0.25	0.25	0.047	0.0249	1.0	0.33	0.10	0.126	0.0
Cadmium	0.00065	2.7	6.5	1.2	0.17	0.25	0.25	0.047	0.0249	1.0	0.33	0.15	1.0	0.2
Lead	0.01	147	350	1.2	0.80	0.25	0.26	0.047	0.0249	1.0	0.33	2.45	8.0	0.3
Mercury	0.00005	0.16	0.38	0.02	0.13	0.26	0.26	0.047	0.0249	1.0	0.33	0.01	0.01	1.6
Selenium	0.0013	0.81	1.8	0.65	1.3	0.25	0.25	0.047	0.0249	1.0	0.33	0.17	0.0048	36.1

COPC	Max. Water Conc.	Max. Sed. Conc.	Max. Sed. Conc.	Max. Conc. in Crayfish	Max. Conc. in Fish	Crayfish Ingestion Rate	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	LOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	mg/kg, ww	kg/day	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0048	0.011	0.028	0.098	0.25	0.25	0.047	0.0249	1.0	0.33	0.010	3.6	0.0
Methoxychlor	0.00005	0.0048	0.011	0.028	0.098	0.25	0.25	0.047	0.0249	1.0	0.33	0.010	0.16	0.1
Dieldrin	0.00001	0.00097	0.0023	0.0056	0.020	0.25	0.25	0.047	0.0249	1.0	0.33	0.002	15	0.0
Endrin (total)	0.00003	0.0029	0.0069	0.017	0.060	0.25	0.26	0.047	0.0249	1.0	0.33	0.006	1.5	0.0
Heptachlor (total)	0.00001	0.00096	0.0022	0.0056	0.023	0.25	0.26	0.047	0.0249	1.0	0.33	0.002	18	0.0
DDT (total)	0.00002	0.0029	0.0069	0.017	0.060	0.25	0.25	0.047	0.0249	1.0	0.33	0.006	12.1	0.0
PCBs (total)	0.0002	0.019	0.045	2.0	24	0.25	0.25	0.047	0.0249	1.0	0.33	2.145	1.3	1.7
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	mg/kg, ww	kg/day	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	2.8	6.7	0.46	0.25	0.25	0.25	0.047	0.0249	1.0	0.33	0.10	1.26	0.1
Cadmium	0.00065	2.7	6.6	1.2	0.17	0.25	0.26	0.047	0.0249	1.0	0.33	0.15	10	0.0
Lead	0.01	147	350	1.2	0.80	0.26	0.25	0.047	0.0249	1.0	0.33	2.45	80	0.0
Mercury	0.00005	0.16	0.38	0.02	0.13	0.25	0.25	0.047	0.0249	1.0	0.33	0.01	0.1	0.1
Selenium	0.0013	0.59	0.85	1.4	1.0	0.25	0.25	0.047	0.0249	1.0	0.33	0.21	0.048	4.3

COPC	Mean Water Conc.	Mean Sed. Conc.	Mean Sed. Conc.	Mean Conc. in Crayfish	Mean Conc. in Fish	Crayfish Ingestion Rate	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	NOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	mg/kg, ww	kg/day	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0047	0.009	0.013	0.044	0.25	0.25	0.047	0.0249	1.0	0.33	0.005	1.8	0.0
Methoxychlor	0.00005	0.0047	0.009	0.013	0.043	0.26	0.26	0.047	0.0249	1.0	0.33	0.005	0.016	0.3
Dieldrin	0.00001	0.00097	0.0019	0.0024	0.0088	0.25	0.25	0.047	0.0249	1.0	0.33	0.001	1.5	0.0
Endrin (total)	0.00003	0.0029	0.0056	0.0077	0.026	0.26	0.26	0.047	0.0249	1.0	0.33	0.003	0.3	0.0
Heptachlor (total)	0.00001	0.00094	0.0018	0.0026	0.011	0.25	0.26	0.047	0.0249	1.0	0.33	0.001	1.8	0.0
DDT (total)	0.00002	0.0029	0.0056	0.0077	0.030	0.26	0.25	0.047	0.0249	1.0	0.33	0.003	1.21	0.0
PCBs (total)	0.0002	0.019	0.036	1.3	6.5	0.26	0.25	0.047	0.0249	1.0	0.33	0.644	0.13	5.0
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	mg/kg, ww	kg/day	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	1.8	4.0	0.32	0.13	0.25	0.25	0.047	0.0249	1.0	0.33	0.07	0.126	0.5
Cadmium	0.00066	1.6	3.6	0.48	0.09	0.25	0.26	0.047	0.0249	1.0	0.33	0.07	1.0	0.1
Lead	0.01	86	190	0.54	0.36	0.26	0.26	0.047	0.0249	1.0	0.33	1.41	8.0	0.2
Mercury	0.00005	0.08	0.20	0.01	0.06	0.26	0.25	0.047	0.0249	1.0	0.33	0.01	0.01	0.6
Selenium	0.0013	0.61	1.2	0.61	0.91	0.25	0.26	0.047	0.0249	1.0	0.33	0.13	0.0048	28.1

COPC	Mean Water Conc.	Mean Sed. Conc.	Mean Sed. Conc.	Mean Conc. in Crayfish	Mean Conc. in Fish	Crayfish Ingestion Rate	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	LOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	mg/kg, ww	kg/day	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0047	0.009	0.013	0.044	0.25	0.25	0.047	0.0249	1.0	0.33	0.005	3.6	0.0
Methoxychlor	0.00005	0.0047	0.009	0.013	0.043	0.25	0.25	0.047	0.0249	1.0	0.33	0.005	0.15	0.0
Dieldrin	0.00001	0.00097	0.0019	0.0024	0.0088	0.25	0.25	0.047	0.0249	1.0	0.33	0.001	15	0.0
Endrin (total)	0.00003	0.0029	0.0056	0.0077	0.026	0.25	0.25	0.047	0.0249	1.0	0.33	0.003	1.5	0.0
Heptachlor (total)	0.00001	0.00094	0.0018	0.0026	0.011	0.25	0.25	0.047	0.0249	1.0	0.33	0.001	18	0.0
DDT (total)	0.00002	0.0029	0.0056	0.0077	0.030	0.25	0.25	0.047	0.0249	1.0	0.33	0.003	12.1	0.0
PCBs (total)	0.0002	0.019	0.036	1.3	6.5	0.25	0.25	0.047	0.0249	1.0	0.33	0.644	1.3	0.5
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	mg/kg, ww	kg/day	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	1.8	4.0	0.32	0.13	0.25	0.25	0.047	0.0249	1.0	0.33	0.07	1.26	0.1
Cadmium	0.00065	1.6	3.6	0.48	0.09	0.25	0.25	0.047	0.0249	1.0	0.33	0.07	10	0.0
Lead	0.01	86	190	0.54	0.36	0.25	0.25	0.047	0.0249	1.0	0.33	1.41	80	0.0
Mercury	0.00005	0.08	0.20	0.01	0.05	0.25	0.25	0.047	0.0249	1.0	0.33	0.01	0.1	0.1
Selenium	0.0013	0.61	1.2	0.61	0.91	0.25	0.25	0.047	0.0249	1.0	0.33	0.13	0.048	2.8

Notes:
1) Surface water concentrations are for unfiltered samples only.
2) A value of 1/2 the MDL was used to calculate the metal concentration for those compounds which were not detected in a given sample.
3) A value of 1/10 the MDL was used to calculate the organic concentration for those compounds which were not detected in a given sample.
4) Maximum fish concentrations were calculated using all fish samples collected and analyzed (including fillets, whole body, and carcasses).
5) Mean fish concentrations were calculated using whole body concentrations for forage fish only.

\274\delfr\9907\tables.wb2

TABLE 71
Chronic Hazard Quotient Calculations for Omnivorous Mammals (Raccoon) - LOCATION A5
Comell-Dubilier Electronics Site
South Plainfield, NJ
July 1999

COPC	Max. Water Conc.	Max. Sed. Conc.	Max. Sed. Conc.	Max. Conc. in Crayfish	Max. Conc. in Fish	Crayfish Ingestion Rate	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	NOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	mg/kg, ww	kg/day	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0051	0.008	0.016	0.025	0.25	0.25	0.047	0.0249	1.0	0.33	0.003	1.8	0.0
Methoxychlor	0.00005	0.0051	0.008	0.015	0.025	0.25	0.25	0.047	0.0249	1.0	0.33	0.003	0.015	0.2
Dieldrin	0.00001	0.001	0.0015	0.0031	0.005	0.25	0.25	0.047	0.0249	1.0	0.33	0.001	1.5	0.0
Endrin (total)	0.00003	0.003	0.0047	0.0093	0.11	0.25	0.25	0.047	0.0249	1.0	0.33	0.010	0.3	0.0
Heptachlor (total)	0.00001	0.001	0.0015	0.0032	0.055	0.25	0.25	0.047	0.0249	1.0	0.33	0.005	1.8	0.0
DDT (total)	0.00002	0.003	0.0047	0.0093	0.015	0.25	0.25	0.047	0.0249	1.0	0.33	0.002	1.21	0.0
PCBs (total)	0.0002	3.3	5.2	1.1	22	0.25	0.25	0.047	0.0249	1.0	0.33	1.957	0.13	15.1
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	mg/kg, ww	kg/day	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	1.1	1.7	1.9	0.31	0.25	0.25	0.047	0.0249	1.0	0.33	0.20	0.126	1.6
Cadmium	0.0007	1.4	2.2	1.3	0.14	0.25	0.25	0.047	0.0249	1.0	0.33	0.14	1.0	0.1
Lead	0.0021	27	42	1.3	0.52	0.25	0.25	0.047	0.0249	1.0	0.33	0.57	8.0	0.1
Mercury	0.00005	0.22	0.29	0.01	0.22	0.25	0.25	0.047	0.0249	1.0	0.33	0.02	0.01	2.2
Selenium	0.0013	0.74	0.98	2.5	1.5	0.25	0.25	0.047	0.0249	1.0	0.33	0.35	0.0048	72.9

COPC	Max. Water Conc.	Max. Sed. Conc.	Max. Sed. Conc.	Max. Conc. in Crayfish	Max. Conc. in Fish	Crayfish Ingestion Rate	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	LOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	mg/kg, ww	kg/day	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0051	0.008	0.016	0.025	0.25	0.25	0.047	0.0249	1.0	0.33	0.003	3.6	0.0
Methoxychlor	0.00005	0.0051	0.008	0.016	0.025	0.25	0.25	0.047	0.0249	1.0	0.33	0.003	0.15	0.0
Dieldrin	0.00001	0.001	0.0016	0.0031	0.005	0.25	0.25	0.047	0.0249	1.0	0.33	0.001	15	0.0
Endrin (total)	0.00003	0.003	0.0047	0.0093	0.11	0.25	0.25	0.047	0.0249	1.0	0.33	0.010	1.5	0.0
Heptachlor (total)	0.00001	0.001	0.0016	0.0032	0.055	0.25	0.25	0.047	0.0249	1.0	0.33	0.005	18	0.0
DDT (total)	0.00002	0.003	0.0047	0.0093	0.015	0.25	0.25	0.047	0.0249	1.0	0.33	0.002	12.1	0.0
PCBs (total)	0.0002	3.3	5.2	1.1	22	0.25	0.25	0.047	0.0249	1.0	0.33	1.957	1.3	1.5
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	mg/kg, ww	kg/day	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	1.1	1.7	1.9	0.31	0.25	0.25	0.047	0.0249	1.0	0.33	0.20	1.26	0.2
Cadmium	0.0007	1.4	2.2	1.3	0.14	0.25	0.25	0.047	0.0249	1.0	0.33	0.14	10	0.0
Lead	0.0021	27	42	1.3	0.52	0.25	0.25	0.047	0.0249	1.0	0.33	0.57	80	0.0
Mercury	0.00005	0.22	0.29	0.01	0.22	0.25	0.25	0.047	0.0249	1.0	0.33	0.02	0.1	0.2
Selenium	0.0013	0.74	0.98	2.5	1.6	0.25	0.25	0.047	0.0249	1.0	0.33	0.35	0.048	7.3

COPC	Mean Water Conc.	Mean Sed. Conc.	Mean Sed. Conc.	Mean Conc. in Crayfish	Mean Conc. in Fish	Crayfish Ingestion Rate	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	NOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	mg/kg, ww	kg/day	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0049	0.0071	0.012	0.025	0.25	0.33	0.047	0.0249	kB	0.33	0.003	1.8	0.8
Methoxychlor	0.00005	0.0049	0.0071	0.012	0.025	0.25	0.25	0.047	0.0249	1.0	0.33	0.003	0.015	0.2
Dieldrin	0.00001	0.00099	0.0014	0.0024	0.005	0.25	0.25	0.047	0.0249	1.0	0.33	0.001	1.5	0.0
Endrin (total)	0.00003	0.003	0.0043	0.0072	0.015	0.25	0.25	0.047	0.0249	1.0	0.33	0.002	0.3	0.0
Heptachlor (total)	0.00001	0.00097	0.0014	0.0025	0.005	0.25	0.25	0.047	0.0249	1.0	0.33	0.001	1.8	0.0
DDT (total)	0.00002	0.003	0.0043	0.0072	0.015	0.25	0.25	0.047	0.0249	1.0	0.33	0.002	1.21	0.0
PCBs (total)	0.0002	1.9	2.9	0.79	5.5	0.25	0.25	0.047	0.0249	1.0	0.33	0.557	0.13	4.3
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	mg/kg, ww	kg/day	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	1.0	1.5	0.88	0.18	0.25	0.25	0.047	0.0249	1.0	0.33	0.10	0.120	0.8
Cadmium	0.00065	1.0	1.5	0.55	0.10	0.25	0.25	0.047	0.0249	1.0	0.33	0.08	1.0	0.1
Lead	0.0021	18	28	1.0	0.41	0.25	0.25	0.047	0.0249	1.0	0.33	0.40	8.0	0.0
Mercury	0.00005	0.17	0.24	0.01	0.05	0.25	0.25	0.047	0.0249	1.0	0.33	0.01	0.01	0.8
Selenium	0.0013	0.59	0.85	1.4	1.0	0.25	0.25	0.047	0.0249	1.0	0.33	0.21	0.0048	43.2

COPC	Mean Water Conc.	Mean Sed. Conc.	Mean Sed. Conc.	Mean Conc. in Crayfish	Mean Conc. in Fish	Crayfish Ingestion Rate	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	LOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	mg/kg, ww	kg/day	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0049	0.0071	0.012	0.025	0.25	0.25	0.047	0.0249	1.0	0.33	0.003	3.6	0.0
Methoxychlor	0.00005	0.0049	0.0071	0.012	0.025	0.25	0.25	0.047	0.0249	1.0	0.33	0.003	0.15	0.0
Dieldrin	0.00001	0.00099	0.0014	0.0024	0.005	0.25	0.25	0.047	0.0249	1.0	0.33	0.001	15	0.0
Endrin (total)	0.00003	0.003	0.0043	0.0072	0.015	0.25	0.25	0.047	0.0249	1.0	0.33	0.002	1.5	0.0
Heptachlor (total)	0.00001	0.00097	0.0014	0.0025	0.005	0.25	0.25	0.047	0.0249	1.0	0.33	0.001	18	0.0
DDT (total)	0.00002	0.003	0.0043	0.0072	0.015	0.25	0.25	0.047	0.0249	1.0	0.33	0.002	12.1	0.0
PCBs (total)	0.0002	1.9	2.9	0.79	5.6	0.25	0.25	0.047	0.0249	1.0	0.33	0.557	1.3	0.4
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	mg/kg, ww	kg/day	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	1.0	1.5	0.86	0.18	0.25	0.25	0.047	0.0249	1.0	0.33	0.10	1.26	0.1
Cadmium	0.00065	1.0	1.5	0.66	0.10	0.25	0.25	0.047	0.0249	1.0	0.33	0.08	10	0.0
Lead	0.0021	18	28	1.0	0.41	0.25	0.25	0.047	0.0249	1.0	0.33	0.40	80	0.0
Mercury	0.00005	0.17	0.24	0.01	0.05	0.25	0.25	0.047	0.0249	1.0	0.33	0.01	0.1	0.1
Selenium	0.0013	0.59	0.85	1.4	1.0	0.25	0.25	0.047	0.0249	1.0	0.33	0.21	0.048	4.3

Notes:
1) Surface water concentrations are for unfiltered samples only.
2) A value of 1/2 the MDL was used to calculate the metal concentration for those compounds which were not detected in a given sample.
3) A value of 1/10 the MDL was used to calculate the organic concentration for those compounds which were not detected in a given sample.
4) Maximum fish concentrations were calculated using all fish samples collected and analyzed (including filets, whole body, and carcasses).
5) Mean fish concentrations were calculated using whole body concentrations for forage fish only.

TABLE 72
Chronic Hazard Quotient Calculations for Omnivorous Mammals (Raccoon) - LOCATION A5
Cornel-Dubilier Electronics Site
South Plainfield, NJ
July 1999

COPC	Max. Water Conc.	Max. Sed. Conc.	Max. Sed. Conc.	Max. Conc. in Fish	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	NOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.005	0.024	0.050	0.50	0.047	0.0249	1.0	0.33	0.008	1.8	0.0
MethoxycMor	0.00005	0.005	0.024	0.050	0.50	0.047	0.0249	1.0	0.33	0.008	0.015	0.5
Dieldrin	0.00001	0.001	0.0048	0.010	0.50	0.047	0.0249	1.0	0.33	0.002	1.5	0.0
Endrin (total)	0.00003	0.003	0.015	0.030	0.50	0.047	0.0249	1.0	0.33	0.005	0.3	0.0
Heptachlor (total)	0.00001	0.001	0.0048	0.011	0.50	0.047	0.0249	1.0	0.33	0.018	1.8	0.0
DDT (total)	0.00002	0.003	0.015	0.31	0.50	0.047	0.0249	1.0	0.33	0.051	1.21	0.0
PCBs (total)	0.0002	0.95	4.8	35	0.50	0.047	0.0249	1.0	0.33	5.955	0.13	45.8
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	3.3	13	0.42	0.50	0.047	0.0249	1.0	0.33	0.120	0.120	0.96
Cadmium	0.00055	4.3	17	0.13	0.50	0.047	0.0249	1.0	0.33	0.088	1.0	0.1
Lead	0.0033	73	290	2.9	0.50	0.047	0.0249	1.0	0.33	1.511	8.0	0.2
Mercury	0.00005	0.23	0.91	0.25	0.50	0.047	0.0249	1.0	0.33	0.045	0.01	4.5
Selenium	0.0013	0.95	3.8	0.95	0.50	0.047	0.0249	1.0	0.33	0.171	0.0048	35.7

COPC	Max. Water Conc.	Max. Sed. Conc.	Max. Sed. Conc.	Max. Conc. in Fish	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	LOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.005	0.024	0.050	0.50	0.047	0.0249	1.0	0.33	0.008	3.8	0.0
Methoxychlor	0.00005	0.005	0.024	0.050	0.50	0.047	0.0249	1.0	0.33	0.008	0.15	0.1
Dieldrin	0.00001	0.001	0.0048	0.010	0.50	0.047	0.0249	1.0	0.33	0.002	15	0.0
Endrin (total)	0.00003	0.003	0.015	0.030	0.50	0.047	0.0249	1.0	0.33	0.005	1.5	0.0
Heptachlor (total)	0.00001	0.001	0.0048	0.011	0.50	0.047	0.0249	1.0	0.33	0.018	18	0.0
DDT (total)	0.00002	0.003	0.015	0.31	0.50	0.047	0.0249	1.0	0.33	0.051	12.1	0.0
PCBs (total)	0.0002	0.95	4.8	35	0.50	0.047	0.0249	1.0	0.33	5.955	1.3	4.5
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	3.3	13	0.42	0.50	0.047	0.0249	1.0	0.33	0.120	1.26	0.1
Cadmium	0.00055	4.3	17	0.13	0.50	0.047	0.0249	1.0	0.33	0.083	10	0.0
Lead	0.0033	73	290	2.9	0.50	0.047	0.0249	1.0	0.33	1.511	80	0.0
Mercury	0.00005	0.23	0.91	0.25	0.50	0.047	0.0249	1.0	0.33	0.045	0.1	0.4
Selenium	0.0013	0.95	3.8	0.95	0.50	0.047	0.0249	1.0	0.33	0.171	0.048	3.6

COPC	Mean Water Conc.	Mean Sed. Conc.	Mean Sed. Conc.	Mean Conc. in Fish	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	NOAEL	HQ
Pesticidae/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00000	0.0049	0.022	0.027	0.50	0.047	0.0249	1.0	0.33	0.005	1.0	0.0
Methoxychlor	0.00005	0.0049	0.022	0.027	0.50	0.047	0.0249	1.0	0.33	0.005	0.015	0.3
Dieldrin	0.00001	0.00098	0.0044	0.0055	0.50	0.047	0.0249	1.0	0.33	0.001	1.5	0.0
Endrin (total)	0.00003	0.003	0.013	0.017	0.50	0.047	0.0249	1.0	0.33	0.003	0.3	0.0
Heptachlor (total)	0.00001	0.00098	0.0044	0.0054	0.50	0.047	0.0249	1.0	0.33	0.001	1.8	0.0
DDT (total)	0.00002	0.003	0.013	0.017	0.50	0.047	0.0249	1.0	0.33	0.003	1.21	0.0
PCBs (total)	0.0002	0.75	3.5	3.5	0.50	0.047	0.0249	1.0	0.33	0.505	0.13	4.7
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	2.7	12	0.18	0.50	0.047	0.0249	1.0	0.33	0.072	0.120	0.6
Cadmium	0.00055	3.3	15	0.09	0.50	0.047	0.0249	1.0	0.33	0.055	1.0	0.1
Lead	0.0033	55	250	0.58	0.50	0.047	0.0249	1.0	0.33	0.981	8.0	0.1
Mercury	0.00005	0.14	0.50	0.04	0.50	0.047	0.0249	1.0	0.33	0.009	0.01	0.9
Selenium	0.0013	0.85	3.8	0.75	0.50	0.047	0.0249	1.0	0.33	0.137	0.0048	28.5

COPC	Mean Water Conc.	Mean Sed. Conc.	Mean Sed. Conc.	Mean Conc. in Fish	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	LOAEL	HQ
Pesticidae/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0049	0.022	0.027	0.50	0.047	0.0249	1.0	0.33	0.005	3.6	0.0
Methoxychlor	0.00005	0.0049	0.022	0.027	0.50	0.047	0.0249	1.0	0.33	0.005	0.15	0.0
Dieldrin	0.00001	0.00098	0.0044	0.0055	0.50	0.047	0.0249	1.0	0.33	0.001	15	0.0
Endrin (total)	0.00003	0.003	0.013	0.017	0.50	0.047	0.0249	1.0	0.33	0.003	1.5	0.0
Heptachlor (total)	0.00001	0.00098	0.0044	0.0054	0.50	0.047	0.0249	1.0	0.33	0.001	18	0.0
DDT (total)	0.00002	0.003	0.013	0.017	0.50	0.047	0.0249	1.0	0.33	0.003	12.1	0.0
PCBs (total)	0.0002	0.75	3.5	3.5	0.50	0.047	0.0249	1.0	0.33	0.505	1.3	0.5
Metals	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Arsenic	0.00095	2.7	12	0.18	0.50	0.047	0.0249	1.0	0.33	0.073	1.20	0.1
Cadmium	0.00055	3.3	15	0.09	0.50	0.047	0.0249	1.0	0.33	0.055	10	0.0
Lead	0.0033	55	250	0.58	0.50	0.047	0.0249	1.0	0.33	0.981	80	0.0
Mercury	0.00005	0.14	0.50	0.04	0.50	0.047	0.0249	1.0	0.33	0.009	0.1	0.1
Selenium	0.0013	0.85	3.8	0.75	0.50	0.047	0.0249	1.0	0.33	0.137	0.048	2.9

Notes:
1) Surface water concentrations are for unfiltered samples only.
2) A value of 1/2 the MDL was used to calculate the metal concentration for those compounds which were not detected in a given sample.
3) A value of 1/10 the MDL was used to calculate the organic concentration for those compounds which were not detected in a given sample.
4) Maximum fish concentrations were calculated using all fish samples collected and analyzed (including filets, whole body, and carcasses).
5) Mean fish concentrations were calculated using whole body concentrations for forage fish only.

TABLE 73
Acute Hazard Quotient Calculations for Omnivorous Mammals - SELENIUM and TOTAL PCBs
Comell-Oubliler Electronics Site
South Plainfield, NJ
July 1999

SELENIUM:

Location	Max. Water Conc.	Max. Sed. Conc.	Max. Sed. Conc.	Max. Conc. in Crayfish	Max. Conc. in Fish	Crayfish Ingestion Rate	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	Acute Toxicity Value	Acute HQ
	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	mg/kg, ww	kg/day	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
A1	0.0013	1.4	3.8	0.6d	1.9	0.25	0.25	0.047	0.0249	1.0	0.33	0.235	3.3	0.07
A2	0.0013	1.1	3.3	1.2	1.6	0.25	0.25	0.047	0.0249	1.0	0.33	0.248	3.3	0.08
A3	0.0013	0.79	3.3	1.4	1.5	0.25	0.25	0.047	0.0249	1.0	0.33	0.252	3.3	0.08
A4	0.0013	0.81	1.8	0.65	1.3	0.25	0.25	0.047	0.0249	1.0	0.33	0.173	3.3	0.05
A5	0.0013	0.74	0.98	2.5	1.6	0.25	0.25	0.047	0.0249	1.0	0.33	0.350	3.3	0.11
A6	0.0013	0.95	3.8	—	0.95	—	0.5	0.047	0.0249	1.0	0.33	0.171	3.3	0.05
Location	Mean Water Conc.	Mean Sed. Conc.	Mean Sed. Conc.	Mean Conc. in Crayfish	Mean Conc. in Fish	Crayfish Ingestion Rate	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	Acute Toxicity Value	Acute HQ
	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	mg/kg, ww	kg/day	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
A1	0.0013	1.1	3.0	0.67	1.3	0.25	0.25	0.047	0.0249	1.0	0.33	0.180	3.3	0.05
A2	0.0013	0.93	2.5	0.87	1.2	0.25	0.25	0.047	0.0249	1.0	0.33	0.185	3.3	0.06
A3	0.0013	0.77	3.0	0.8	1.2	0.25	0.25	0.047	0.0249	1.0	0.33	0.177	3.3	0.05
A4	0.0013	0.61	1.2	0.61	0.91	0.25	0.25	0.047	0.0249	1.0	0.33	0.135	3.3	0.04
A5	0.0013	0.59	0.85	1.4	1.0	0.25	0.25	0.047	0.0249	1.0	0.33	0.207	3.3	0.06
A6	0.0013	0.85	3.8	—	0.75	—	0.5	0.047	0.0249	1.0	0.33	0.137	3.3	0.04

TOTAL PCBs:

Location	Max. Water Conc.	Max. Sed. Conc.	Max. Sed. Conc.	Max. Conc. in Crayfish	Max. Conc. in Fish	Crayfish Ingestion Rate	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Wei	Dose	Acute Toxicity Value	Acute HQ
	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	mg/kg, ww	kg/day	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
A1	0.0002	1.9	4.5	1.1	23	0.25	0.25	0.047	0.0249	1.0	0.33	2.018	500.00	0.004
A2	0.0002	6.6	14	2.4	28	0.25	0.25	0.047	0.0249	1.0	0.33	2.610	500.00	0.005
A3	0.0002	0.020	0.083	1.9	23	0.25	0.25	0.047	0.0249	1.0	0.33	2.055	500.00	0.004
A4	0.0002	0.019	0.045	2.0	24	0.25	0.25	0.047	0.0249	1.0	0.33	2.145	500.00	0.004
A5	0.0002	3.3	5.2	1.1	22	0.25	0.25	0.047	0.0249	1.0	0.33	1.957	500.00	0.004
A6	0.0002	0.95	4.8	—	36	—	0.5	0.047	0.0249	1.0	0.33	5.955	500.00	0.012
Location	Mean Water Conc.	Mean Sed. Conc.	Mean Sed. Conc.	Mean Conc. in Crayfish	Mean Conc. in Fish	Crayfish Ingestion Rate	Fish Ingestion Rate	Sed. Ing. Rate	Water Ing. Rate	AUF	Body Wei	Dose	Acute Toxicity Value	Acute HQ
	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	mg/kg, ww	kg/day	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
A1	0.0002	0.84	2.3	0.77	4.1	0.25	0.25	0.047	0.0249	1.0	0.33	0.415	500.00	0.001
A2	0.0002	5.6	14	1.8	12	0.25	0.25	0.047	0.0249	1.0	0.33	1.225	500.00	0.002
A3	0.0002	0.020	0.076	1.3	7.9	0.25	0.25	0.047	0.0249	1.0	0.33	0.759	500.00	0.002
A4	0.0002	0.019	0.036	1.3	6.5	0.25	0.25	0.047	0.0249	1.0	0.33	0.644	500.00	0.001
A5	0.0002	1.9	2.9	0.79	5.6	0.25	0.25	0.047	0.0249	1.0	0.33	0.557	500.00	0.001
A6	0.0002	0.75	3.5	—	3.6	—	0.5	0.047	0.0249	1.0	0.33	0.606	500.00	0.001

Notes:
1) Surface water concentrations are for unfiltered samples only.
2) A value of 1/2 the MDL was used to calculate the metal concentration for those compounds which were not detected in a given sample.
3) A value of 1/10 the MDL was used to calculate the organic concentration for those compounds which were not detected in a given sample.
4) Maximum fish concentrations were calculated using all fish samples collected and analyzed (including fillets, whole body, and carcasses).
5) Mean fish concentrations were calculated using whole body concentrations for forage fish only.

TABLE 74
Chronic Hazard Quotient Calculations for Carnivorous Mammals (Red Fox) - LOCATION T1
Cornell-Dubilier Electronics Site
South Plainfield, NJ
July 1999

COPC	Max. Water Conc.	Max. Soil Conc.	Max. Soil Conc.	Max. Conc. in Small Mammals	Small Mammal Ingestion Rate	Soil Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	NOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0051	0.0065	0.010	0.432	0.0121	0.2322	1.0	0.37	0.002	1.8	0.0
Methoxychlor	0.00005	0.0051	0.0071	0.010	0.432	0.0121	0.2322	1.0	0.37	0.002	0.015	0.1
Dieldrin	0.00001	0.010	0.014	0.063	0.432	0.0121	0.2322	1.0	0.37	0.010	1.5	0.0
Endrin (total)	0.00003	0.030	0.041	0.006	0.432	0.0121	0.2322	1.0	0.37	0.001	0.3	0.0
Heptachlor (total)	0.00001	0.001	0.0014	0.002	0.432	0.0121	0.2322	1.0	0.37	0.0003	1.68	0.0
DDT (total)	0.00002	0.030	0.041	0.062	0.432	0.0121	0.2322	1.0	0.37	0.010	5.0	0.0
PCBs (total)	0.0002	470	580	5.4	0.432	0.0121	0.2322	1.0	0.37	2.967	0.13	22.8

COPC	Max. Water Conc.	Max. Soil Conc.	Max. Soil Conc.	Max. Conc. in Small Mammals	Small Mammal Ingestion Rate	Soil Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	LOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.0051	0.0065	0.010	0.432	0.0121	0.2322	1.0	0.37	0.002	3.6	0.0
Methoxychlor	0.00005	0.0051	0.0071	0.010	0.432	0.0121	0.2322	1.0	0.37	0.002	0.15	0.0
Dieldrin	0.00001	0.010	0.014	0.063	0.432	0.0121	0.2322	1.0	0.37	0.010	15	0.0
Endrin (total)	0.00003	0.030	0.041	0.006	0.432	0.0121	0.2322	1.0	0.37	0.001	1.5	0.0
Heptachlor (total)	0.00001	0.001	0.0014	0.002	0.432	0.0121	0.2322	1.0	0.37	0.0003	16.8	0.0
DDT (total)	0.00002	0.030	0.041	0.062	0.432	0.0121	0.2322	1.0	0.37	0.010	50	0.0
PCBs (total)	0.0002	470	580	5.4	0.432	0.0121	0.2322	1.0	0.37	2.967	1.3	2.3

COPC	Mean Water Conc.	Mean Soil Conc.	Mean Soil Conc.	Mean Conc. in Small Mammals	Small Mammal Ingestion Rate	Soil Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	NOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.005	0.0062	0.0073	0.432	0.0121	0.2322	1.0	0.37	0.001	1.6	0.0
Methoxychlor	0.00005	0.005	0.0062	0.0065	0.432	0.0121	0.2322	1.0	0.37	0.001	0.015	0.1
Dieldrin	0.00001	0.0054	0.007	0.021	0.432	0.0121	0.2322	1.0	0.37	0.003	1.5	0.0
Endrin (total)	0.00003	0.016	0.021	0.0044	0.432	0.0121	0.2322	1.0	0.37	0.001	0.3	0.0
Heptachlor (total)	0.00001	0.001	0.0012	0.0015	0.432	0.0121	0.2322	1.0	0.37	0.0002	1.68	0.0
DDT (total)	0.00002	0.016	0.021	0.010	0.432	0.0121	0.2322	1.0	0.37	0.002	5.0	0.0
PCBs (total)	0.0002	140	160	3.3	0.432	0.0121	0.2322	1.0	0.37	1.154	0.13	8.9

COPC	Mean Water Conc.	Mean Soil Conc.	Mean Soil Conc.	Mean Conc. in Small Mammals	Small Mammal Ingestion Rate	Soil Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	LOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.005	0.0062	0.0073	0.432	0.0121	0.2322	1.0	0.37	0.001	3.6	0.0
Methoxychlor	0.00005	0.005	0.0062	0.0065	0.432	0.0121	0.2322	1.0	0.37	0.001	0.15	0.0
Dieldrin	0.00001	0.0054	0.007	0.021	0.432	0.0121	0.2322	1.0	0.37	0.003	15	0.0
Endrin (total)	0.00003	0.016	0.021	0.0044	0.432	0.0121	0.2322	1.0	0.37	0.001	1.5	0.0
Heptachlor (total)	0.00001	0.001	0.0012	0.0015	0.432	0.0121	0.2322	1.0	0.37	0.0002	16.8	0.0
DDT (total)	0.00002	0.016	0.021	0.010	0.432	0.0121	0.2322	1.0	0.37	0.002	50	0.0
PCBs (total)	0.0002	140	160	3.3	0.432	0.0121	0.2322	1.0	0.37	1.154	1.3	0.9

Notes:
1) Surface water concentrations are for unfiltered samples only.
2) A value of 1/2 the MDL was used to calculate the metal concentration for those compounds which were not detected in a given sample.
3) A value of 1/10 the MDL was used to calculate the organic concentration for those compounds which were not detected in a given sample.

TABLE 75
Chronic Hazard Quotient Calculations for Carnivorous Mammals (Red Fox) - LOCATION T2
Cornell-Dubilier Electronics Site
South Plainfield, NJ
July 1999

COPC	Max. Water Conc.	Max. Soil Conc.	Max. Soil Conc.	Max. Conc. in Small Mammals	Small Mammal Ingestion Rate	Soil Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	NOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.005	0.0086	0.0074	0.432	0.0121	0.2322	1.0	0.37	0.001	1.8	0.0
Methoxychlor	0.00005	0.005	0.0086	0.0074	0.432	0.0121	0.2322	1.0	0.37	0.001	0.015	0.1
Dieldrin	0.00001	0.001	0.0017	0.021	0.432	0.0121	0.2322	1.0	0.37	0.003	1.5	0.0
Endrin (total)	0.00003	0.003	0.0052	0.0033	0.432	0.0121	0.2322	1.0	0.37	0.001	0.3	0.0
Heptachlor (total)	0.00001	0.001	0.0017	0.0015	0.432	0.0121	0.2322	1.0	0.37	0.0002	1.68	0.0
DDT (total)	0.00002	0.003	0.0052	0.0045	0.432	0.0121	0.2322	1.0	0.37	0.001	5.0	0.0
PCBs (total)	0.0002	49	64	1.8	0.432	0.0121	0.2322	1.0	0.37	0.507	0.13	3.9

COPC	Max. Water Conc.	Max. Soil Conc.	Max. Soil Conc.	Max. Conc. in Small Mammals	Small Mammal Ingestion Rate	Soil Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	LOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.005	0.0086	0.0074	0.432	0.0121	0.2322	1.0	0.37	0.001	3.6	0.0
Methoxychlor	0.00005	0.005	0.0086	0.0074	0.432	0.0121	0.2322	1.0	0.37	0.001	0.15	0.0
Dieldrin	0.00001	0.001	0.0017	0.021	0.432	0.0121	0.2322	1.0	0.37	0.003	15	0.0
Endrin (total)	0.00003	0.003	0.0052	0.0033	0.432	0.0121	0.2322	1.0	0.37	0.001	1.5	0.0
Heptachlor (total)	0.00001	0.001	0.0017	0.0015	0.432	0.0121	0.2322	1.0	0.37	0.0002	16.8	0.0
DDT (total)	0.00002	0.003	0.0052	0.0045	0.432	0.0121	0.2322	1.0	0.37	0.001	50	0.0
PCBs (total)	0.0002	49	64	1.8	0.432	0.0121	0.2322	1.0	0.37	0.507	1.3	0.4

COPC	Mean Water Conc.	Mean Soil Conc.	Mean Soil Conc.	Mean Conc. in Small Mammals	Small Mammal Ingestion Rate	Soil Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	NOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.005	0.0078	0.0055	0.432	0.0121	0.2322	1.0	0.37	0.001	1.8	0.0
Methoxychlor	0.00005	0.005	0.0078	0.0055	0.432	0.0121	0.2322	1.0	0.37	0.001	0.015	0.1
Dieldrin	0.00001	0.0010	0.0015	0.0073	0.432	0.0121	0.2322	1.0	0.37	0.001	1.5	0.0
Endrin (total)	0.00003	0.003	0.0047	0.0033	0.432	0.0121	0.2322	1.0	0.37	0.001	0.3	0.0
Heptachlor (total)	0.00001	0.00099	0.0016	0.0011	0.432	0.0121	0.2322	1.0	0.37	0.0002	1.68	0.0
DDT (total)	0.00002	0.003	0.0047	0.0033	0.432	0.0121	0.2322	1.0	0.37	0.001	5.0	0.0
PCBs (total)	0.0002	26	39	0.8	0.432	0.0121	0.2322	1.0	0.37	0.246	0.13	1.9

COPC	Mean Water Conc.	Mean Soil Conc.	Mean Soil Conc.	Mean Conc. in Small Mammals	Small Mammal Ingestion Rate	Soil Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	LOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.005	0.0078	0.0055	0.432	0.0121	0.2322	1.0	0.37	0.001	3.6	0.0
Methoxychlor	0.00005	0.005	0.0078	0.0055	0.432	0.0121	0.2322	1.0	0.37	0.001	0.15	0.0
Dieldrin	0.00001	0.0010	0.0015	0.0073	0.432	0.0121	0.2322	1.0	0.37	0.001	15	0.0
Endrin (total)	0.00003	0.003	0.0047	0.0033	0.432	0.0121	0.2322	1.0	0.37	0.001	1.5	0.0
Heptachlor (total)	0.00001	0.00099	0.0016	0.0011	0.432	0.0121	0.2322	1.0	0.37	0.0002	16.8	0.0
DDT (total)	0.00002	0.003	0.0047	0.0033	0.432	0.0121	0.2322	1.0	0.37	0.001	50	0.0
PCBs (total)	0.0002	26	39	0.8	0.432	0.0121	0.2322	1.0	0.37	0.246	1.3	0.2

Notes:
1) Surface water concentrations are for unfiltered samples only.
2) A value of 1/2 the MDL was used to calculate the metal concentration for those compounds which were not detected in a given sample.
3) A value of 1/10 the MDL was used to calculate the organic concentration for those compounds which were not detected in a given sample.

TABLE 76
Chronic Hazard Quotient Calculations for Carnivorous Mammals (Red Fox) - LOCATION T3
Cornell-Dubilier Electronics Site
South Plainfield, NJ
July 1999

COPC	Max. Water Conc.	Max. Soil Conc.	Max. Soil Conc.	Max. Conc. in Small Mammals	Small Mammal Ingestion Rate	Soil Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	NOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.005	0.0084	0.012	0.432	0.0121	0.2322	1.0	0.37	0.002	1.8	0.0
Methoxychlor	0.00005	0.005	0.0084	0.012	0.432	0.0121	0.2322	1.0	0.37	0.002	0.015	0.1
Dieldrin	0.00001	0.001	0.0017	0.0024	0.432	0.0121	0.2322	1.0	0.37	0.0004	1.5	0.0
Endrin (total)	0.00003	0.003	0.0052	0.0072	0.432	0.0121	0.2322	1.0	0.37	0.001	0.3	0.0
Heptachlor (total)	0.00001	0.015	0.021	0.0024	0.432	0.0121	0.2322	1.0	0.37	0.0005	1.68	0.0
DDT (total)	0.00002	0.026	0.036	0.0072	0.432	0.0121	0.2322	1.0	0.37	0.001	5.0	0.0
PCBs (total)	0.0002	0.020	0.035	0.470	0.432	0.0121	0.2322	1.0	0.37	0.075	0.13	0.6

COPC	Max. Water Conc.	Max. Soil Conc.	Max. Soil Conc.	Max. Conc. in Small Mammals	Small Mammal Ingestion Rate	Soil Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	LOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.005	0.0084	0.012	0.432	0.0121	0.2322	1.0	0.37	0.002	3.6	0.0
Methoxychlor	0.00005	0.005	0.0084	0.012	0.432	0.0121	0.2322	1.0	0.37	0.002	0.15	0.0
Dieldrin	0.00001	0.001	0.0017	0.0024	0.432	0.0121	0.2322	1.0	0.37	0.0004	15	0.0
Endrin (total)	0.00003	0.003	0.0052	0.0072	0.432	0.0121	0.2322	1.0	0.37	0.001	1.5	0.0
Heptachlor (total)	0.00001	0.015	0.021	0.0024	0.432	0.0121	0.2322	1.0	0.37	0.0005	16.8	0.0
DDT (total)	0.00002	0.026	0.036	0.0072	0.432	0.0121	0.2322	1.0	0.37	0.001	50	0.0
PCBs (total)	0.0002	0.020	0.035	0.470	0.432	0.0121	0.2322	1.0	0.37	0.075	1.3	0.1

COPC	Mean Water Conc.	Mean Soil Conc.	Mean Soil Conc.	Mean Conc. in Small Mammals	Small Mammal Ingestion Rate	Soil Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	NOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.005	0.0074	0.0059	0.432	0.0121	0.2322	1.0	0.37	0.001	1.8	0.0
Methoxychlor	0.00005	0.005	0.0074	0.0059	0.432	0.0121	0.2322	1.0	0.37	0.001	0.015	0.1
Dieldrin	0.00001	0.00099	0.0015	0.0012	0.432	0.0121	0.2322	1.0	0.37	0.0002	1.5	0.0
Endrin (total)	0.00003	0.003	0.0044	0.0035	0.432	0.0121	0.2322	1.0	0.37	0.001	0.3	0.0
Heptachlor (total)	0.00001	0.0033	0.0047	0.0012	0.432	0.0121	0.2322	1.0	0.37	0.0002	1.68	0.0
DDT (total)	0.00002	0.011	0.015	0.0035	0.432	0.0121	0.2322	1.0	0.37	0.001	5.0	0.0
PCBs (total)	0.0002	0.020	0.030	0.155	0.432	0.0121	0.2322	1.0	0.37	0.025	0.13	0.2

COPC	Mean Water Conc.	Mean Soil Conc.	Mean Soil Conc.	Mean Conc. in Small Mammals	Small Mammal Ingestion Rate	Soil Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	LOAEL	HQ
Pesticides/PCBs	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	mg/kg BW/day	mg/kg BW/day	
Chlordane (total)	0.00005	0.005	0.0074	0.0059	0.432	0.0121	0.2322	1.0	0.37	0.001	3.6	0.0
Methoxychlor	0.00005	0.005	0.0074	0.0059	0.432	0.0121	0.2322	1.0	0.37	0.001	0.15	0.0
Dieldrin	0.00001	0.00099	0.0015	0.0012	0.432	0.0121	0.2322	1.0	0.37	0.0002	15	0.0
Endrin (total)	0.00003	0.003	0.0044	0.0035	0.432	0.0121	0.2322	1.0	0.37	0.001	1.5	0.0
Heptachlor (total)	0.00001	0.0033	0.0047	0.0012	0.432	0.0121	0.2322	1.0	0.37	0.0002	16.8	0.0
DDT (total)	0.00002	0.011	0.015	0.0035	0.432	0.0121	0.2322	1.0	0.37	0.001	50	0.0
PCBs (total)	0.0002	0.020	0.030	0.155	0.432	0.0121	0.2322	1.0	0.37	0.025	1.3	0.0

Notes:
1) Surface water concentrations are for unfiltered samples only.
2) A value of 1/2 the MDL was used to calculate the metal concentration for those compounds which were not detected in a given sample.
3) A value of 1/10 the MDL was used to calculate the organic concentration for those compounds which were not detected in a given sample.

TABLE 77
Acute Hazard Quotient Calculations for Carnivorous Mammals - LEAD
Cornell-Dubilier Electronics Site
South Plainfield, NJ
July 1999

LEAD:

Location	Max. Water Conc.	Max. Soil Conc.	Max. Soil Conc.	Max. Conc. in Small Mammals	Small Mammal Ingestion Rate	Soil Ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	Acute Toxicity Value	Acute HQ
	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	/kg BW/d	mg/kg BW/day	
T1	0.0002	470	580	5.4	0.432	0.0121	0.2322	1.0	0.37	2.967	500.00	0.006
Location	Mean Water Conc.	Mean Soil Conc.	Mean Soil Conc.	Mean Conc. in Small Mammals	Small Mammal Ingestion Rate	Soil ing. Rate	Water Ing. Rate	AUF	Body Weight	Dose	Acute Toxicity Value	Acute HQ
	mg/L	mg/kg, ww	mg/kg, dw	mg/kg, ww	kg/day	kg/day	L/day		1/kg	/kg BW/d	mg/kg BW/day	
T1	0.0002	140	160	3.3	0.432	0.0121	0.2322	1.0	0.37	1.154	500.00	0.002

Notes:
1) Surface water concentrations are for unfiltered samples only.
2) A value of 1/2 the MDL was used to calculate the metal concentration for those compounds which were not detected in a given sample.
3) A value of 1/10 the MDL was used to calculate the organic concentration for those compounds which were not detected in a given sample.

TABLE 78
Summary Pesticide and PCB Concentrations in Edible Fish Tissue
Cornell-Dubilier Electronics Site
South Plainfield, NJ
July 1999

(Results reported in mg/kg, wet weight)

Aroclor 1248

	Carp				Bass				Sunfish				White Sucker				Catfish			
Location	mean	cv	n	freq det	mean	cv	n	freq det	mean	cv	n	freq det	mean	cv	n	freq det	mean	cv	n	freq det
A9	0.07	0.3	3	100%									0.69	1.1	3	100%				
A10	0.26	1.1	3	100%	0.041	0.S	3	100%	0.035	0.47	2	100%	0.15	0.29	3	100%				
A1	1.4	0.19	3	100%					0.67	1.3	3	100%	0.83	0.88	3	100%				
A2									1.7	0.3	2	100%	2.5	0.5	3	100%				
A3									0.87	0.33	3	100%	2.7	0.21	3	100%				
A4									0.73	0.93	3	100%								
A5	6.1	NA	1	100%	0.36	0.19	3	100%	0.89	0.33	3	100%					0.28	NA	1	100%
A6	7.2	0.55	3	100%	0.4	0.48	3	100%	0.53	0.11	3	100%								
A11	1.3	0.66	3	100%	0.21	0.83	3	100%	0.066	0.34	3	100%	0.16	0.61	3	100%	0.17	0.72	3	100%
A12	3.8	0.91	3	100%	0.11	0.44	2	100%	0.054	0.056	3	100%	0.3	0.067	3	100%	0.12	NA	1	100%
A13	3.2	NA	1	100%	0.06	0.024	2	100%	0.1	0.0071	2	100%	1	1.2	3	100%				
A14					0.02	NA	1	100%	0.03	0.024	2	100%	0.061	0.23	3	100%	0.024	NA	1	100%

Aroclor 1254

	Carp				Bass				Sunfish				White Sucker				Catfish			
Location	mean	cv	n	freq det	mean	cv	n	freq det	mean	cv	n	freq det	mean	cv	n	freq det	mean	cv	n	freq det
A9	0.28	0.34	3	100%									3.2	0.94	3	100%				
A10	1	0.81	3	100%	0.53	1.3	3	100%	0.15	0.73	2	100%	0.95	0.35	3	100%				
A1	7.2	0.13	3	100%					1.9	1.3	3	100%	3.5	0.69	3	100%				
A2									3.9	0.42	2	100%	5.7	0.45	3	100%				
A3									1.7	0.24	3	100%	6.5	0.16	3	100%				
A4									1.4	0.73	3	100%								
A5	16	NA	1	100%	0.89	0.21	3	100%	1.8	0.23	3	100%					1.7	NA	1	100%
A6	17	0.52	3	100%	1.1	0.49	3	100%	1.3	0.087	3	100%								
A11	11	0.76	3	100%	1.7	0.77	3	100%	0.52	0.57	3	100%	1.3	0.26	3	100%	1	0.78	3	100%
A12	24	0.68	3	100%	1	0.41	2	100%	0.81	0.014	3	100%	1.7	0.33	3	100%	0.58	NA	1	100%
A13	28	NA	1	100%	0.53	0.11	2	100%	0.75	0.057	2	100%	1	0.77	3	100%				
A14					0.096	NA	1	100%	0.13	0.37	2	100%	0.33	0.052	3	100%	0.12	NA	1	100%

Heptachlor Epoxide

	Carp				Bass				Sunfish				White Sucker				Catfish			
Location	mean	cv	n	freq det	mean	cv	n	freq det	mean	cv	n	freq det	mean	cv	n	freq det	mean	cv	n	freq det
A9	0.0026	0.42	3	100%									0.013	0.78	3	100%				
A10	0.022	0.93	3	100%	0.0026	1.5	3	33%	0.0027	1.2	2	50%	0.00039	0.03	3	0%				
A1	0.036	0.25	3	100%					0.017	1.3	3	100%	0.0018	1.4	3	33%				
A2									0.026	0.36	2	100%	0.035	0.48	3	100%				
A3									0.014	0.31	3	100%	0.037	0.45	3	100%				
A4									0.014	0.72	3	100%								
A5	0.00038	NA	1	0%	0.0022	1.4	3	33%	0.02	0.34	3	100%					0.0004	NA	1	0%
A6	0.072	0.62	3	100%	0.0041	0.84	3	67%	0.0083	0.21	3	100%								
A11	0.00038	0.026	3	0%	0.00038	0.05	3	0%	0.0004	0.0014	3	0%	0.00039	0.028	3	0%	0.00039	0.027	3	0%
A12	0.00038	0.023	3	0%	0.0004	0.0071	2	0%	0.0018	1.3	3	33%	0.00039	0.032	3	0%	0.00041	NA	1	0%
A13	0.00041	NA	1	0%	0.00039	0.038	2	0%	0.0004	0	2	0%	0.00038	0.057	3	0%				
A14					0.00038	NA	1	0%	0.0004	0	2	0%	0.00038	0.041	3	0%	0.00041	NA	1	0%

Blank fields indicate no fish were collected at that location
cv = coefficent of variation
n = sample size
freq det = frequency of detection

\274\del\fr\9907\tables.wb2

TABLE 78 (Cont'd.)
Summary Pesticide and PCB Concentrations in Edible Fish Tissue
Cornell-Dubilier Electronics Site
South Plainfield, NJ
July 1999

(Results reported in mg/kg, wet weight)

g-Chlordane

	Carp				Bass				Sunfish				White Sucker				Catfish			
Location	mean	cv	n	freq det	mean	cv	n	freq det	mean	cv	n	freq det	mean	cv	n	freq det	mean	cv	n	freq det
A9	0.018	0.54	3	100%									0.0021	1.4	3	33%				
A10	0.067	1.2	3	67%	0.00038	0.003	3	0%	0.00039	0.036	2	0%	0.036	0.11	3	100%				
A1	0.18	0.28	3	100%					0.00039	0.029	3	0%	0.0056	1.6	3	33%				
A2									0.00041	0.12	2	0%	0.0004	0.0014	3	0%				
A3									0.00038	0.026	3	0%	0.00039	0.027	3	0%				
A4									0.0004	0.012	3	0%								
A5	0.00038	NA	1	0%	0.00038	0.003	3	0%	0.00039	0.032	3	0%					0.0004	NA	1	0%
A6	0.00038	0.041	3	0%	0.00039	0.024	3	0%	0.00039	0.027	3	0%								
A11	0.00038	0.026	3	0%	0.00038	0.05	3	0%	0.0004	0.0014	3	0%	0.00039	0.028	3	0%	0.00039	0.027	3	0%
A12	0.00038	0.023	3	0%	0.0004	0.0071	2	0%	0.00039	0.028	3	0%	0.00039	0.032	3	0%	0.00041	NA	1	0%
A13	0.00041	NA	1	0%	0.00039	0.038	2	0%	0.0004	0	2	0%	0.0099	1.3	3	67%				
A14					0.00038	NA	1	0%	0.0004	0	2	0%	0.005	0.83	3	67%	0.00041	NA	1	0%

a-Chlordane

	Carp				Bass				Sunfish				White Sucker				Catfish			
Location	mean	cv	n	freq det	mean	cv	n	freq det	mean	cv	n	freq det	mean	cv	n	freq det	mean	cv	n	freq det
A9	0.043	0.74	3	100%									0.0039	1.6	3	33%				
A10	0.14	0.69	3	100%	0.00039	0.032	3	0%	0.00039	0.036	2	0%	0.067	0.12	3	100%				
A1	0.1	1.7	3	33%					0.00039	0.029	3	0%	0.0099	1.7	3	33%				
A2									0.00041	0.12	2	0%	0.0004	0.0014	3	0%				
A3									0.00038	0.026	3	0%	0.00039	0.027	3	0%				
A4									0.0004	0.012	3	0%								
A5	0.00038	NA	1	0%	0.00038	0.003	3	0%	0.00039	0.032	3	0%					0.0004	NA	1	0%
A6	0.00038	0.041	3	0%	0.00039	0.024	3	0%	0.00039	0.027	3	0%								
A11	0.061	0.5	3	100%	0.00038	0.05	3	0%	0.0004	0.0014	3	0%	0.0079	1.6	3	33%	0.017	1.7	3	33%
A12	0.061	0.98	3	67%	0.0004	0.0071	2	0%	0.00039	0.028	3	0%	0.015	0.87	3	67%	0.02	NA	1	100%
A13	0.00041	NA	1	0%	0.00039	0.038	2	0%	0.0004	0	2	0%	0.0062	1.6	3	33%				
A14					0.00038	NA	1	0%	0.0004	0	2	0%	0.00038	0.041	3	0%	0.00041	NA	1	0%

4,4'-DDE

	Carp				Bass				Sunfish				White Sucker				Catfish			
Location	mean	cv	n	freq det	mean	cv	n	freq det	mean	cv	n	freq det	mean	cv	n	freq det	mean	cv	n	freq det
A9	0.0082	0.91	3	67%									0.031	0.74	3	100%				
A10	0.068	0.53	3	100%	0.009	0.62	3	100%	0.0077	0.4	2	100%	0.031	0.034	3	100%				
A1	0.14	0.071	3	100%					0.025	1.1	3	100%	0.04	0.53	3	100%				
A2									0.039	0.42	2	100%	0.063	0.38	3	100%				
A3									0.019	0.32	3	100%	0.074	0.17	3	100%				
A4									0.022	0.47	3	100%								
A5	0.00038	NA	1	0%	0.00038	0.003	3	0%	0.00039	0.032	3	0%					0.044	NA	1	100%
A6	0.13	1.2	3	67%	0.01	0.93	3	67%	0.012	0.2	3	100%								
A11	0.11	0.62	3	100%	0.037	0.52	3	100%	0.0021	1.4	3	33%	0.018	0.66	3	100%	0.023	0.68	3	100%
A12	0.00038	0.023	3	0%	0.017	0.39	2	100%	0.007	0.82	3	67%	0.031	0.29	3	100%	0.014	NA	1	100%
A13	0.00041	NA	1	0%	0.011	0.083	2	100%	0.014	0.095	2	100%	0.017	0.52	3	100%				
A14					0.0062	NA	1	100%	0.005	0.29	2	100%	0.024	0.53	3	100%	0.0046	NA	1	100%

Blank fields indicate no fish were collected at location
cv = coefficent of variation
n = sample size
freq det = frequency of detection

TABLE 78 (Cont'd.)
Summary Pesticide and PCB Concentrations in Edible Fish Tissue
Cornell-Dubilier Electronics Site
South Plainfield, NJ
July 1999

(Results reported in mg/kg, wet weight)

4,4'-DDD

	Carp				Bass				Sunfish				White Sucker				Catfish			
Location	mean	cv	n	freq det	mean	cv	n	freq det	mean	cv	n	freq det	mean	cv	n	freq det	mean	cv	n	freq det
A9	0.0054	0.44	3	100%									0.00093	0.99	3	33%				
A10	0.061	0.54	3	100%	0.00039	0.032	3	0%	0.0061	1.3	2	50%	0.00039	0.03	3	0%				
A1	0.16	0.36	3	100%					0.0015	1.3	3	33%	0.00039	0.027	3	0%				
A2									0.00041	0.12	2	0%	0.0004	0.0014	3	0%				
A3									0.00038	0.026	3	0%	0.00039	0.027	3	0%				
A4									0.0037	1.5	3	33%								
A5	0.00038	NA	1	0%	0.00038	0.003	3	0%	0.00039	0.032	3	0%					0.0004	NA	1	0%
A6	0.00038	0.041	3	0%	0.00039	0.024	3	0%	0.00039	0.027	3	0%								
A11	0.00038	0.026	3	0%	0.012	1.7	3	33%	0.0004	0.0014	3	0%	0.00039	0.028	3	0%	0.00039	0.027	3	0%
A12	0.00038	0.023	3	0%	0.0004	0.0071	2	0%	0.00039	0.028	3	0%	0.00039	0.032	3	0%	0.00041	NA	1	0%
A13	0.00041	NA	1	0%	0.00039	0.038	2	0%	0.0004	0	2	0%	0.0017	1.4	3	33%				
A14					0.00038	NA	1	0%	0.0004	0	2	0%	0.0086	0.41	3	100%	0.00041	NA	1	0%

Endrin Aldehyde

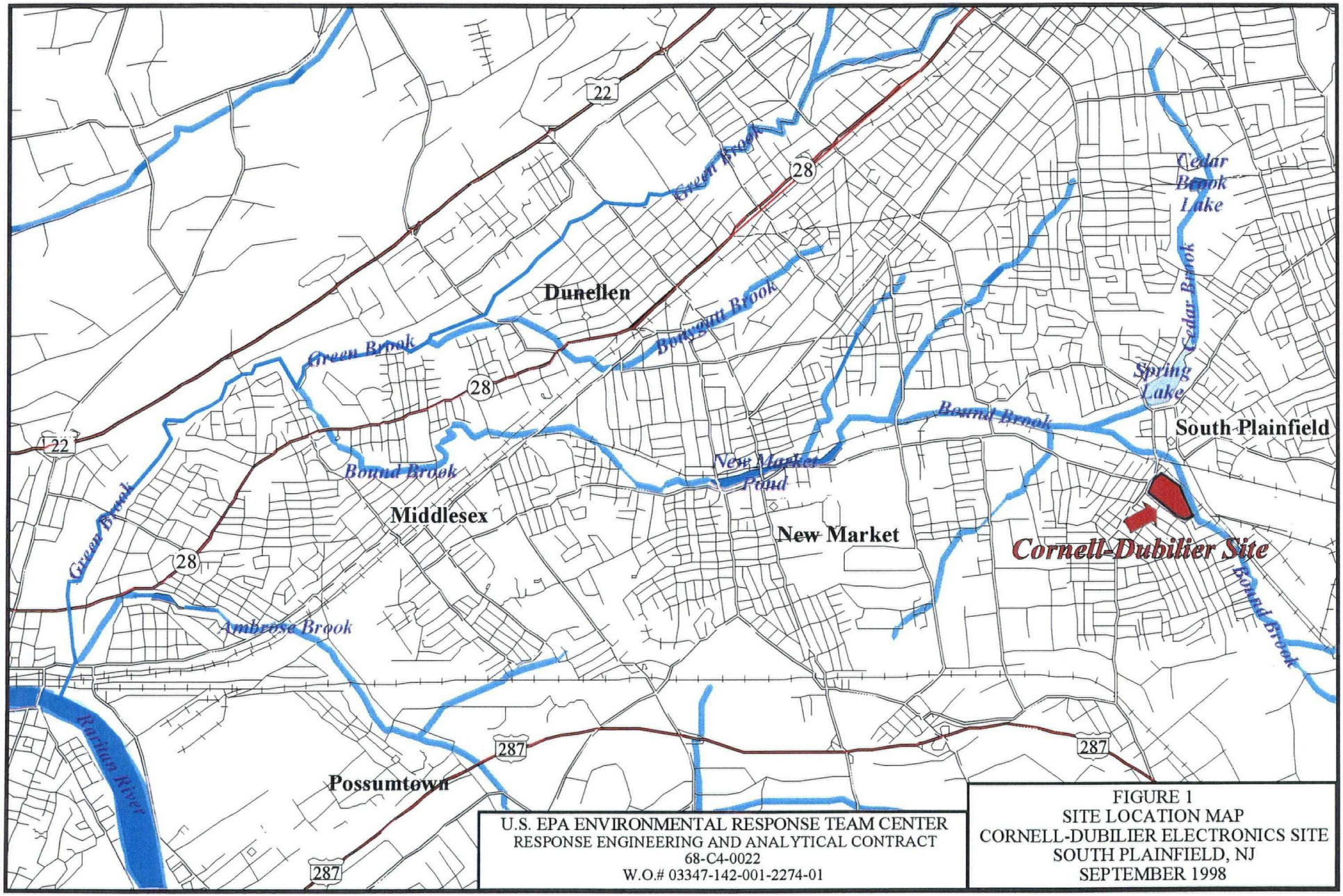
	Carp				Bass				Sunfish				White Sucker				Catfish			
Location	mean	cv	n	freq det	mean	cv	n	freq det	mean	cv	n	freq det	mean	cv	n	freq det	mean	cv	n	freq det
A9	0.00042	0.13	3	0%									0.0004	0.0044	3	0%				
A10	0.00039	0.019	3	0%	0.00039	0.032	3	0%	0.00039	0.036	2	0%	0.00039	0.03	3	0%				
A1	0.0004	0.022	3	0%					0.00039	0.029	3	0%	0.00039	0.027	3	0%				
A2									0.00041	0.12	2	0%	0.0004	0.0014	3	0%				
A3									0.00038	0.026	3	0%	0.00039	0.027	3	0%				
A4									0.0004	0.012	3	0%								
A5	0.11	NA	1	100%	0.0062	0.12	3	100%	0.0064	0.84	3	67%					0.0004	NA	1	0%
A6	0.00038	0.041	3	0%	0.0018	1.4	3	33%	0.00039	0.027	3	0%								
A11	0.00038	0.026	3	0%	0.00038	0.05	3	0%	0.0004	0.0014	3	0%	0.00039	0.028	3	0%	0.00039	0.027	3	0%
A12	0.013	1.7	3	33%	0.0004	0.0071	2	0%	0.00039	0.028	3	0%	0.00039	0.032	3	0%	0.00041	NA	1	0%
A13	0.00041	NA	1	0%	0.00039	0.038	2	0%	0.0004	0	2	0%	0.00038	0.056	3	0%				
A14					0.00038	NA	1	0%	0.0004	0	2	0%	0.00038	0.041	3	0%	0.00041	NA	1	0%

Dieldrin

	Carp				Bass				Sunfish				White Sucker				Catfish			
Location	mean	cv	n	freq det	mean	cv	n	freq det	mean	cv	n	freq det	mean	cv	n	freq det	mean	cv	n	freq det
A10	0.023	1.3	3	37%	0.00039	0.033	3	0%	0.0041	1.3	3	50%	0.0043	1.6	3	33%				
A11	0.00038	0.026	3	0%	0.00038	0.05	3	0%	0.0004	0.0014	3	0%	0.00039	0.028	3	0%	0.00039	0.027	3	0%
A12	0.00038	0.023	3	0%	0.0004	0.0071	2	0%	0.00039	0.028	3	0%	0.00039	0.032	3	0%	0.00041	NA	1	0%
A13	0.00041	NA	1	0%	0.00039	0.038	2	0%	0.0004	0	2	0%	0.00038	0.056	3	0%				
A14					0.00038	NA	1	0%	0.0004	0	2	0%	0.00038	0.041	3	0%	0.00041	NA	1	0%

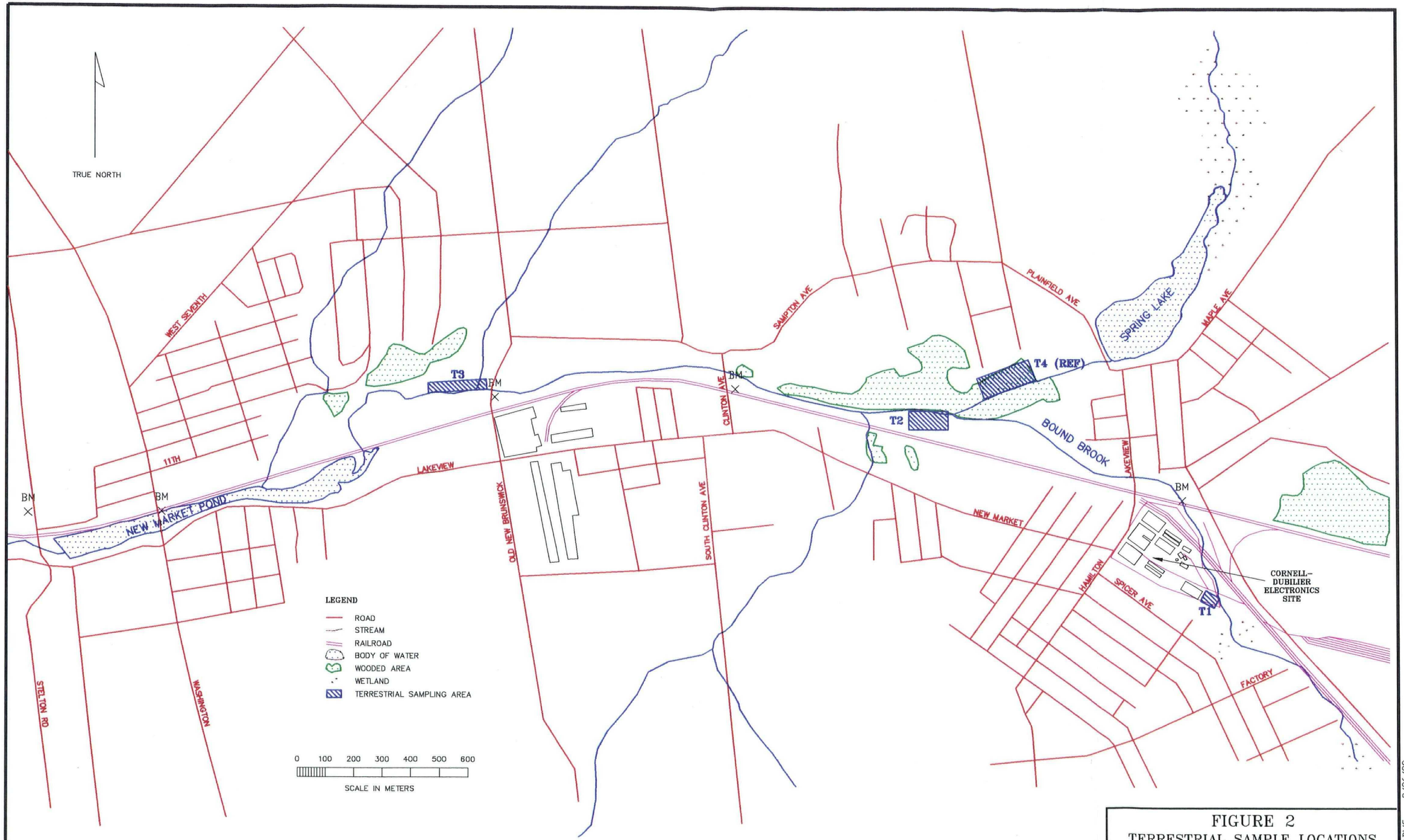
Blank fields indicate no fish were collected at location
cv = coefficent of variation
n = sample size
freq det = frequency of detection

Figures



U.S. EPA ENVIRONMENTAL RESPONSE TEAM CENTER
RESPONSE ENGINEERING AND ANALYTICAL CONTRACT
68-C4-0022
W.O.# 03347-142-001-2274-01

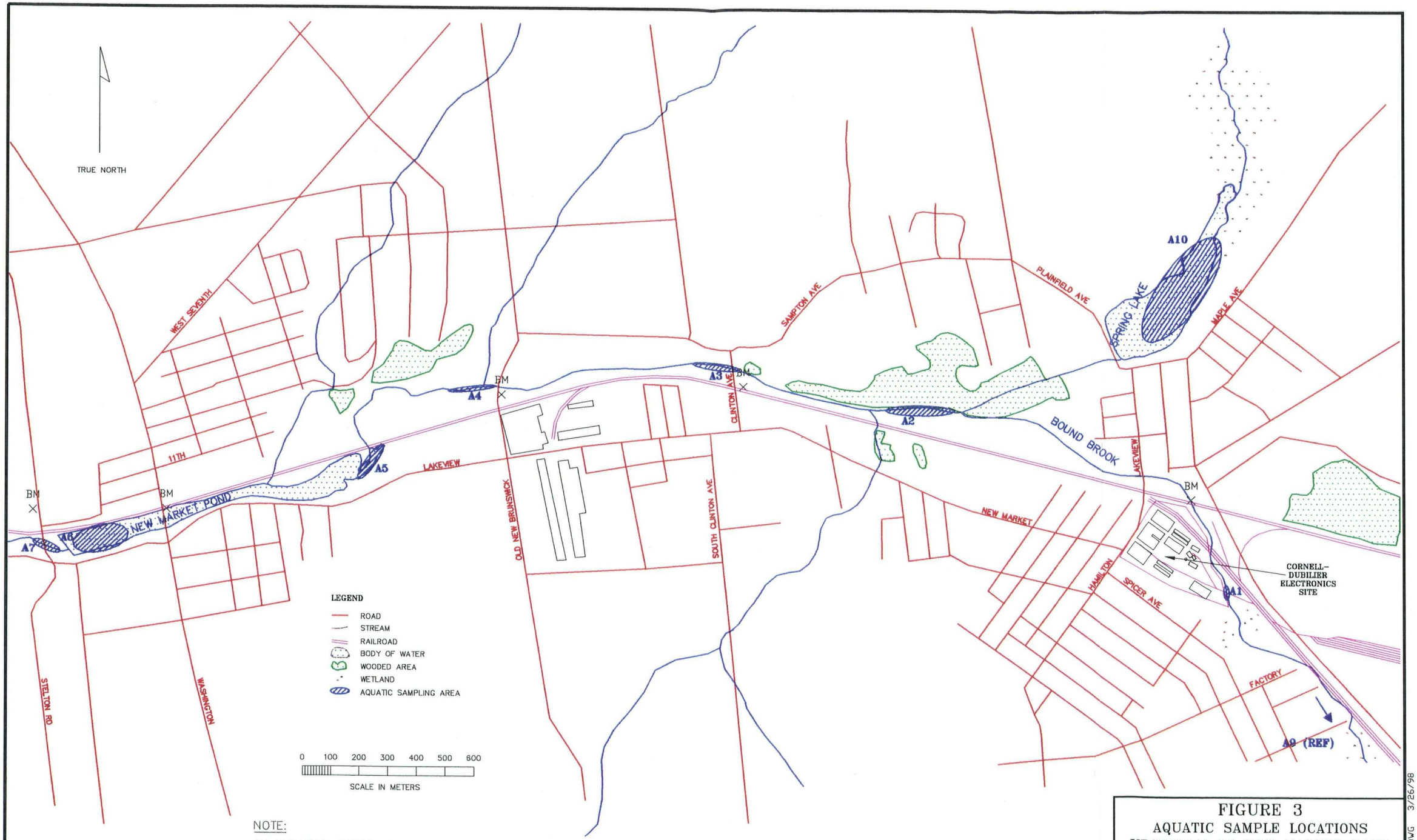
FIGURE 1
SITE LOCATION MAP
CORNELL-DUBILIER ELECTRONICS SITE
SOUTH PLAINFIELD, NJ
SEPTEMBER 1998



U.S. EPA ENVIRONMENTAL RESPONSE TEAM CENTER
RESPONSE ENGINEERING AND ANALYTICAL CONTRACT
68-C4-0022
W.O.# 03347-143-001-3274-01

FIGURE 2
TERRESTRIAL SAMPLE LOCATIONS
CORNELL-DUBILIER ELECTRONICS SITE
SOUTH PLAINFIELD, NJ
SEPTEMBER 1998

274/FR274_F2.DWG 3/26/98



NOTE:

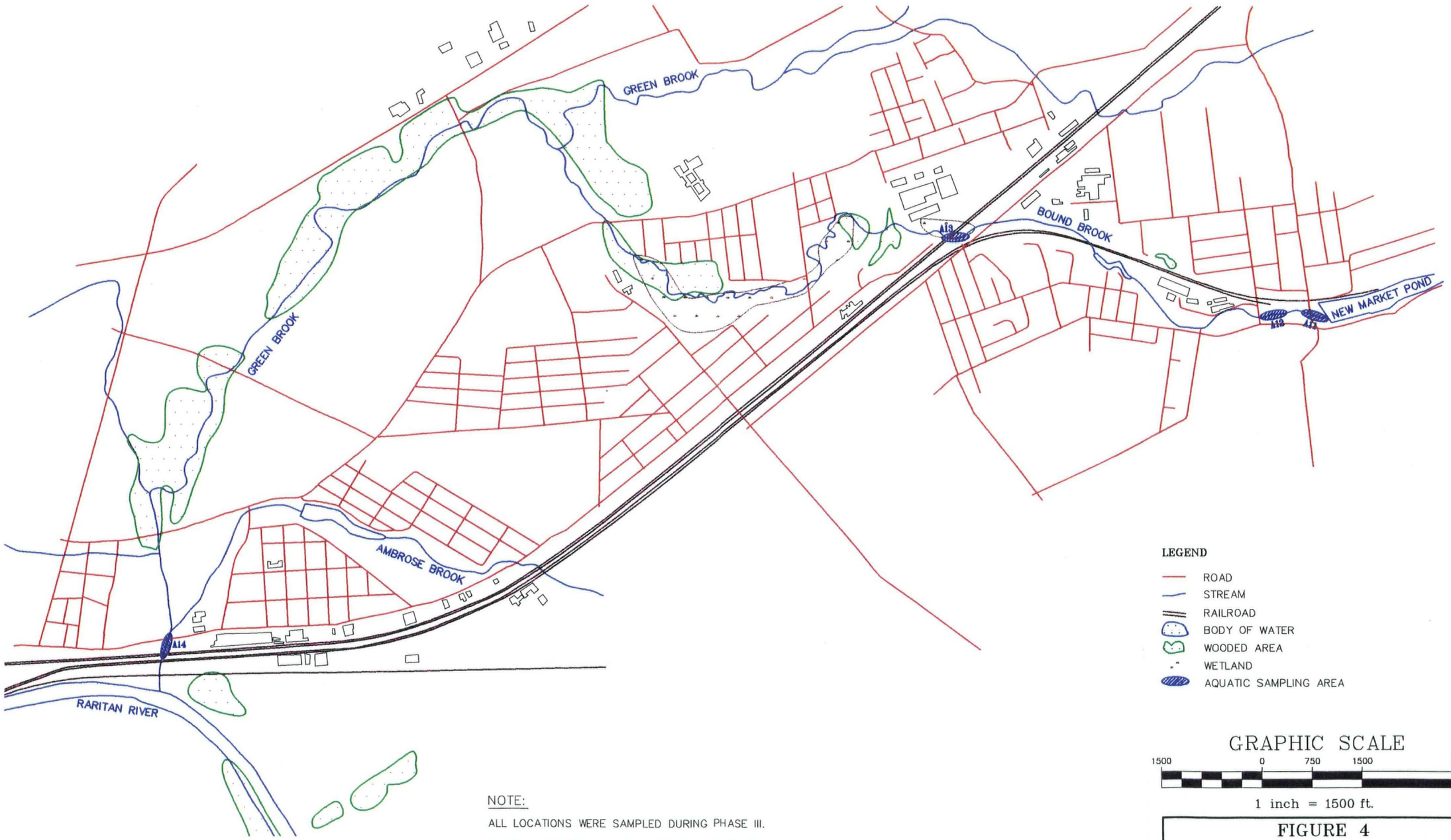
ALL LOCATIONS, EXCEPT **A10** WERE SAMPLED DURING PHASE II

LOCATION **A10** WAS SAMPLED DURING PHASE III

U.S. EPA ENVIRONMENTAL RESPONSE TEAM CENTER
RESPONSE ENGINEERING AND ANALYTICAL CONTRACT
68-C4-0022
W.O.# 03347-143-001-3274-01

FIGURE 3
AQUATIC SAMPLE LOCATIONS
UPSTREAM OF NEW MARKET POND
CORNELL-DUBILIER ELECTRONICS SITE
SOUTH PLAINFIELD, NJ
SEPTEMBER 1998

274/FR274_F3.DWG 3/26/98



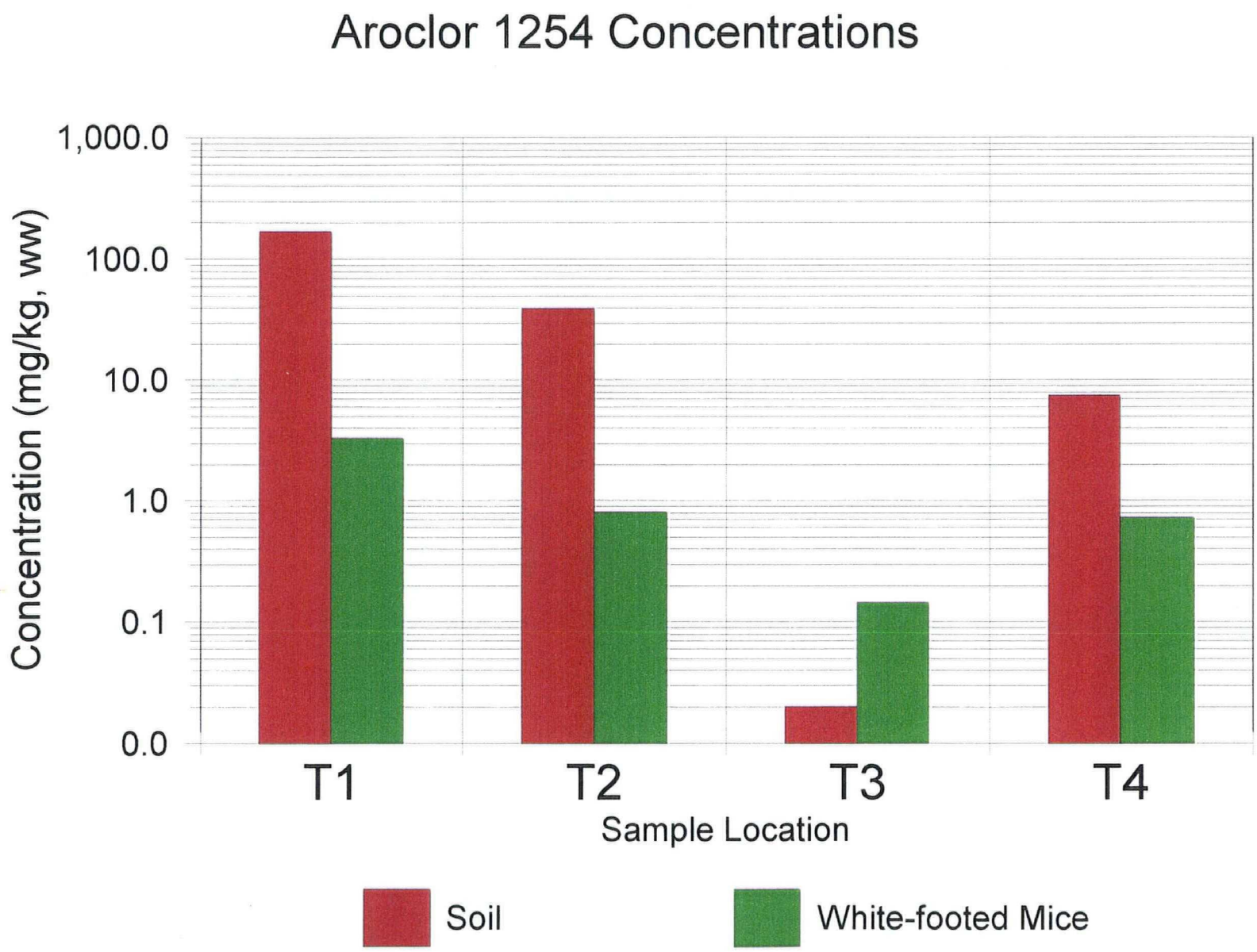
NOTE:

ALL LOCATIONS WERE SAMPLED DURING PHASE III.
SAMPLE LOCATION A10 WAS ALSO SAMPLED DURING PHASE III AND IS DISPLAYED ON FIGURE 3.

U.S. EPA ENVIRONMENTAL RESPONSE TEAM CENTER
RESPONSE ENGINEERING AND ANALYTICAL CONTRACT
68-C4-0022
W.O.# 03347-143-001-3274-01

FIGURE 4
AQUATIC SAMPLE LOCATIONS
DOWNSTREAM OF NEW MARKET POND
CORNELL-DUBILIER ELECTRONICS SITE
SOUTH PLAINFIELD, NJ
SEPTEMBER 1998

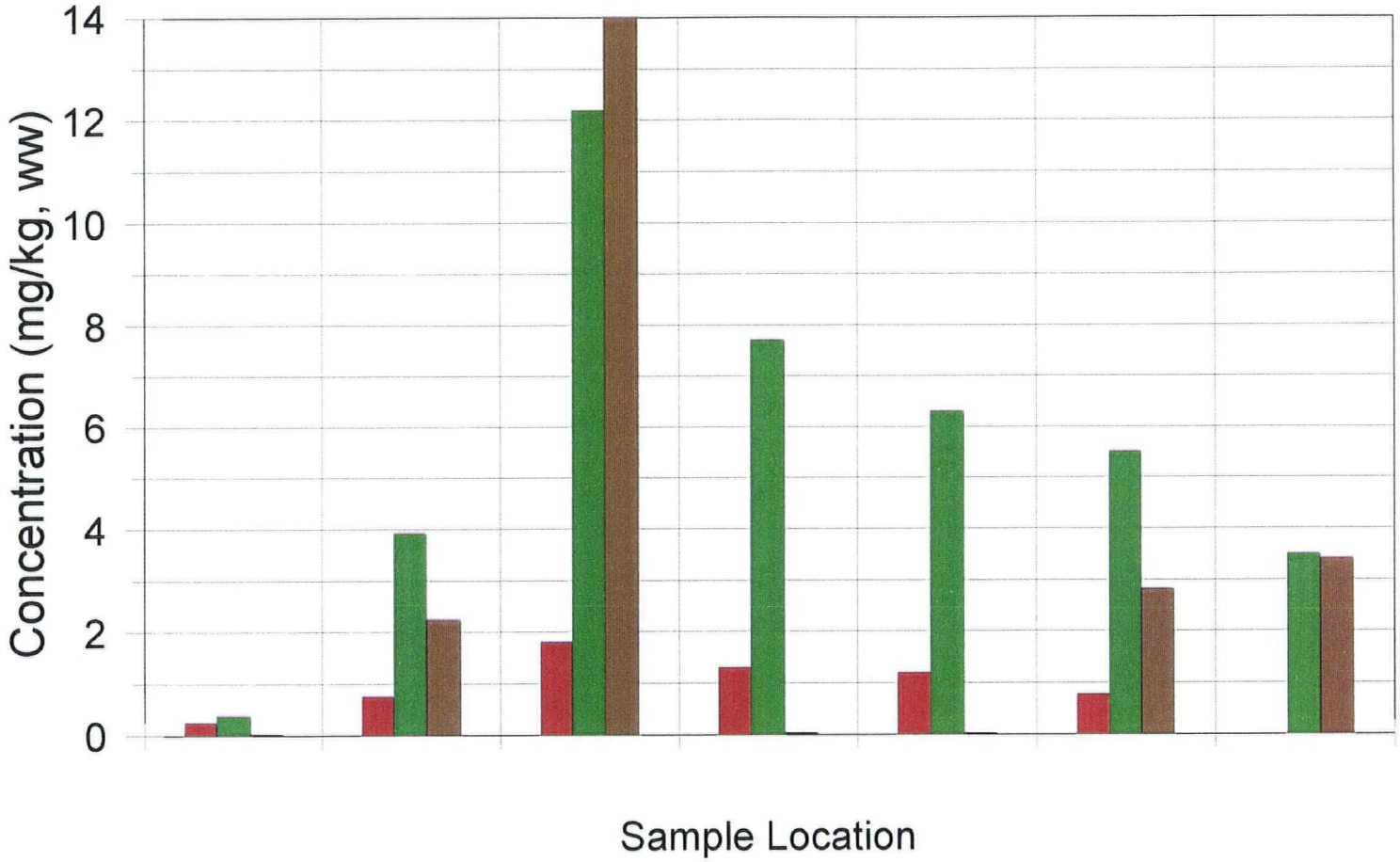
3/26/98
sitemap.dwg



U.S. ENVIRNOMENTAL PROTECTION AGENCY/ENVIRONMENTAL RESPONSE TEAM CENTER
RESPONSE ENGINEERING AND ANALYTICAL CONTRACT
68-C4-0022
W.O. # 03347-142-001-2274-01

FIGURE 5
COMPARISON OF PCBS IN BIOTA AND SOIL
CORNELL DUBILIER ELECTRONICS SITE
SOUTH PLAINFILED, NEW JERSEY
JULY 1999

Aroclor 1254 Concentrations

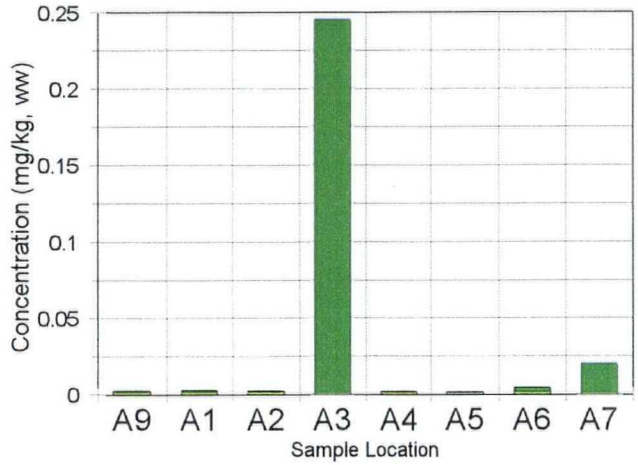


U.S. ENVIRNOMENTAL PROTECTION AGENCY/ENVIRONMENTAL RESPONSE TEAM CENTER
RESPONSE ENGINEERING AND ANALYTICAL CONTRACT
68-C4-0022
W.O. # 03347-142-001-2274-01

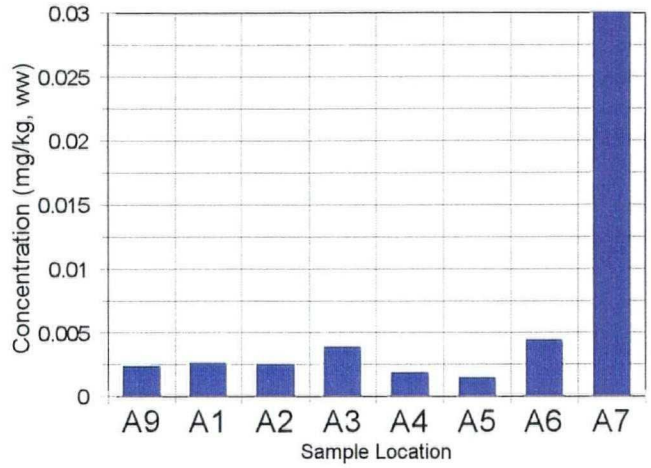
FIGURE 6
COMPARISON OF PCBS IN BIOTA AND SEDIMENT
CORNELL DUBILIER ELECTRONICS SITE
SOUTH PLAINFILED, NEW JERSEY
JULY 1999

Pesticide and PCB Levels in Sediments

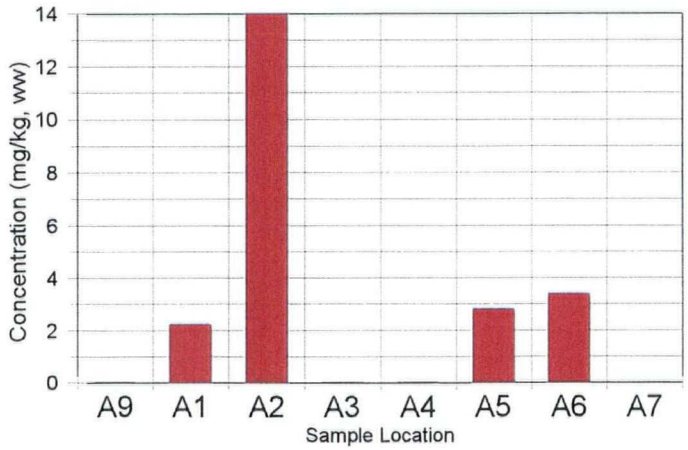
Dieldrin Concentrations



4,4'-D D D Concentrations



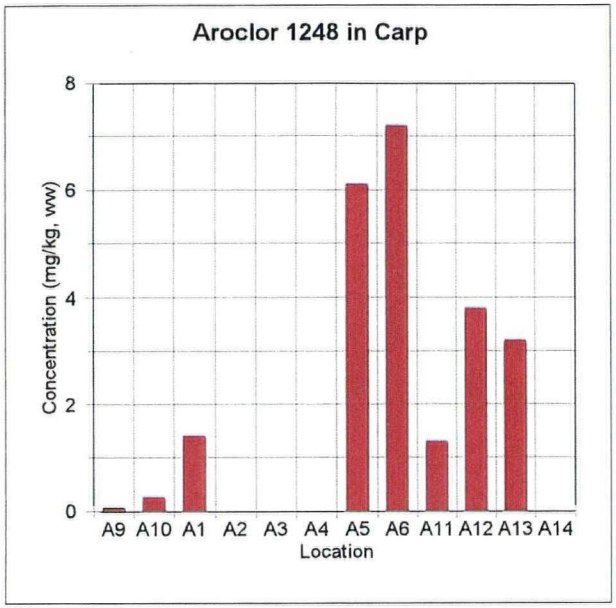
Aroclor 1254 Concentrations

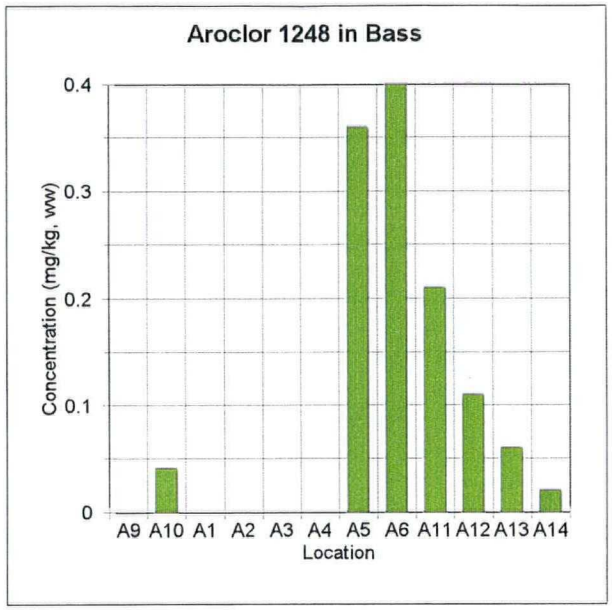


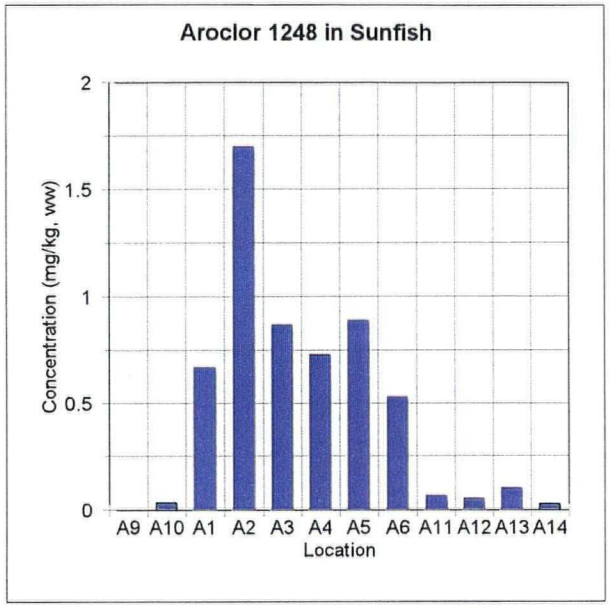
U.S. ENVIRNOMENTAL PROTECTION AGENCY/ENVIRONMENTAL RESPONSE TEAM CENTER
RESPONSE ENGINEERING AND ANALYTICAL CONTRACT
68-C4-0022
W.O. # 03347-142-001-2274-01

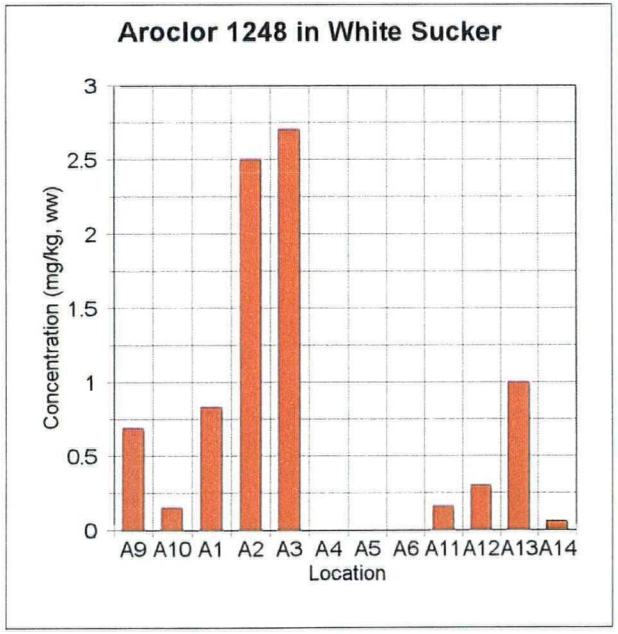
FIGURE 7
PESTICIDE AND PCB IN SEDIMENT
CORNELL DUBILIER ELECTRONICS SITE
SOUTH PLAINFILED, NEW JERSEY
JULY 1999

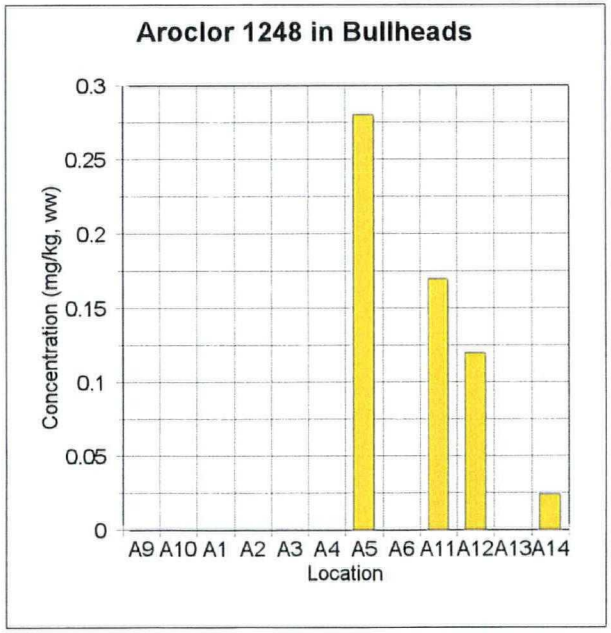
Aroclor 1248 Levels in Edible Fish Tissue

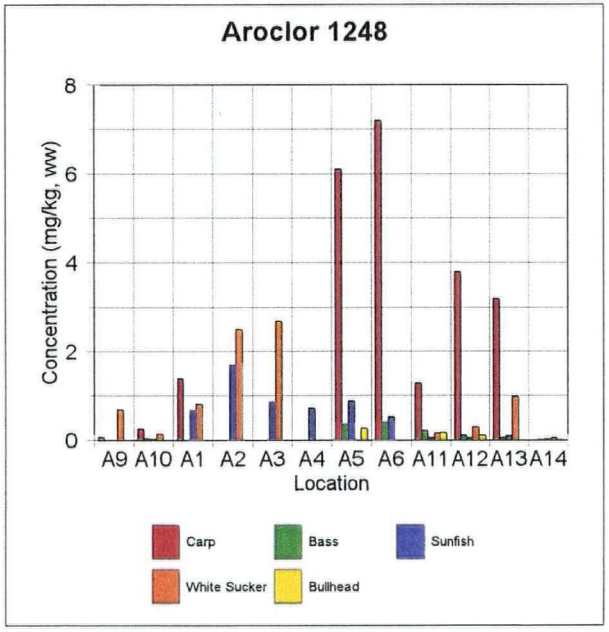








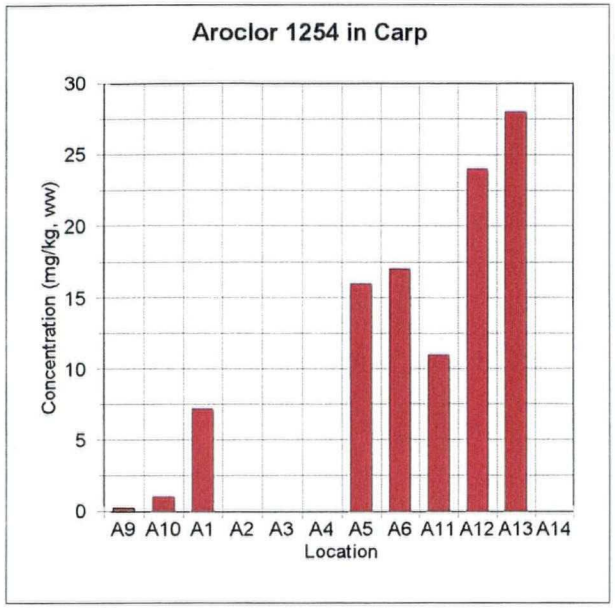


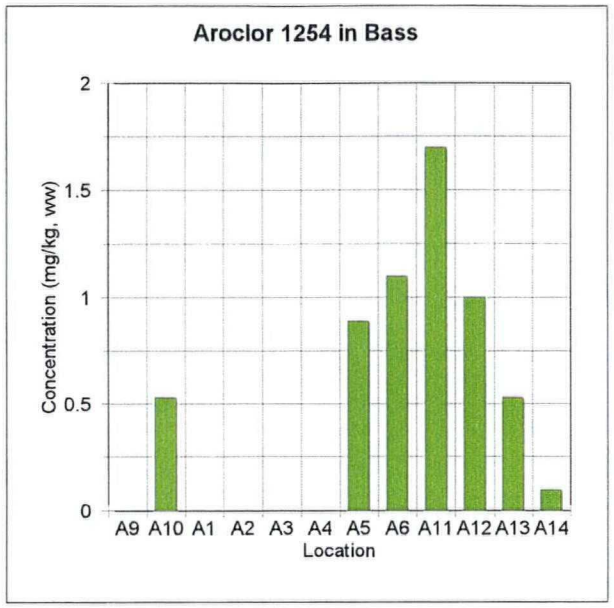


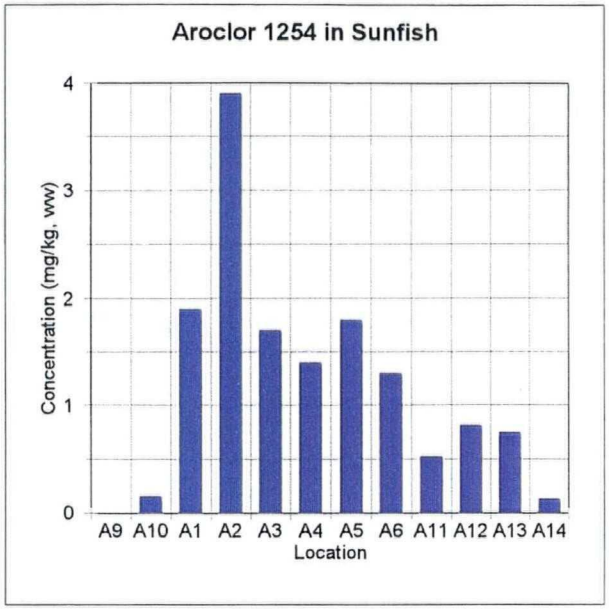
U.S. ENVIRNOMENTAL PROTECTION AGENCY/ENVIRONMENTAL RESPONSE TEAM CENTER
RESPONSE ENGINEERING AND ANALYTICAL CONTRACT
68-C4-0022
W.O. # 03347-142-001-2274-01

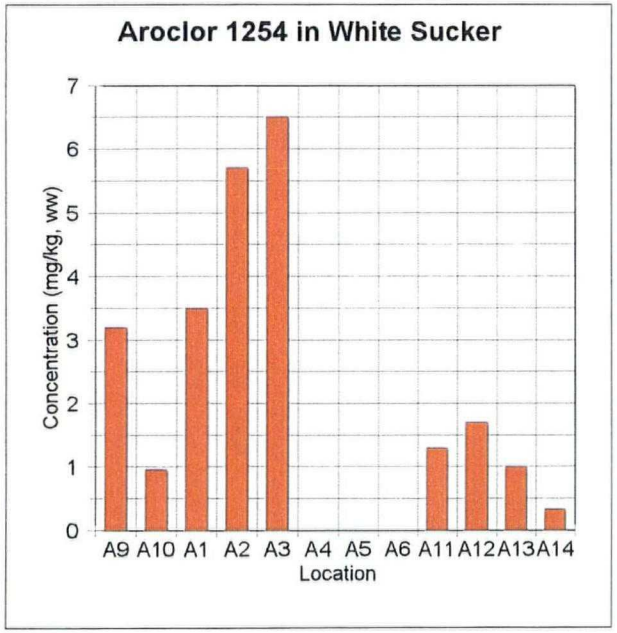
FIGURE 8
AROCLOR 1248 IN EDIBLE FISH
CORNELL DUBILIER ELECTRONICS SITE
SOUTH PLAINFILED, NEW JERSEY
JULY 1999

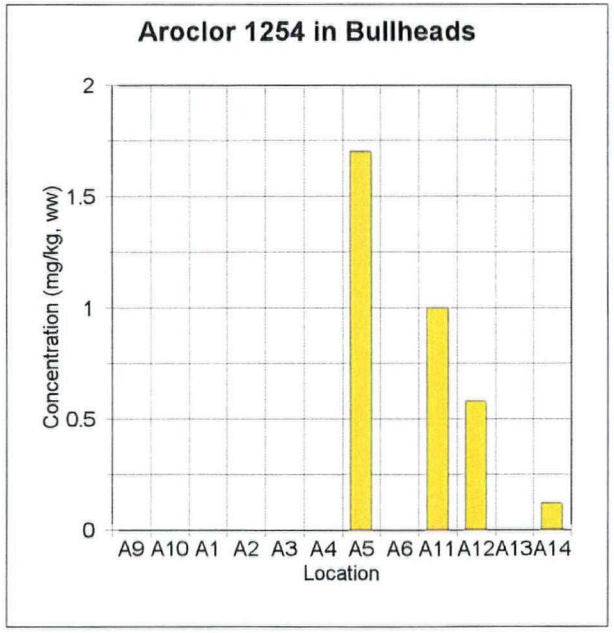
Aroclor 1254 Levels in Edible Fish Tissue

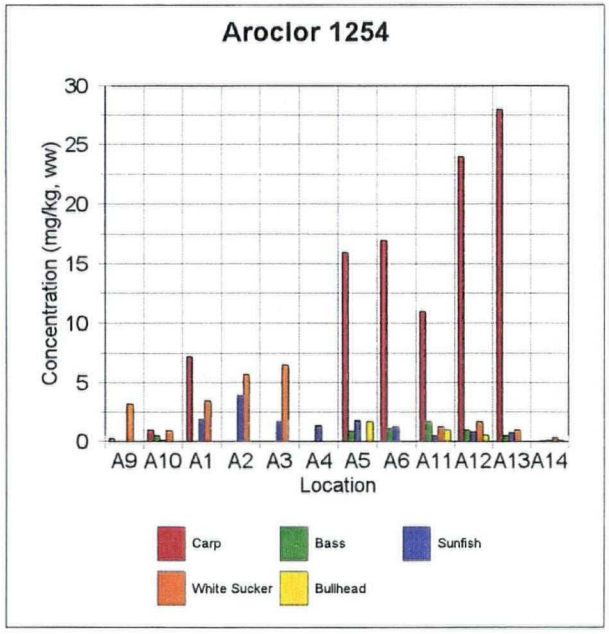








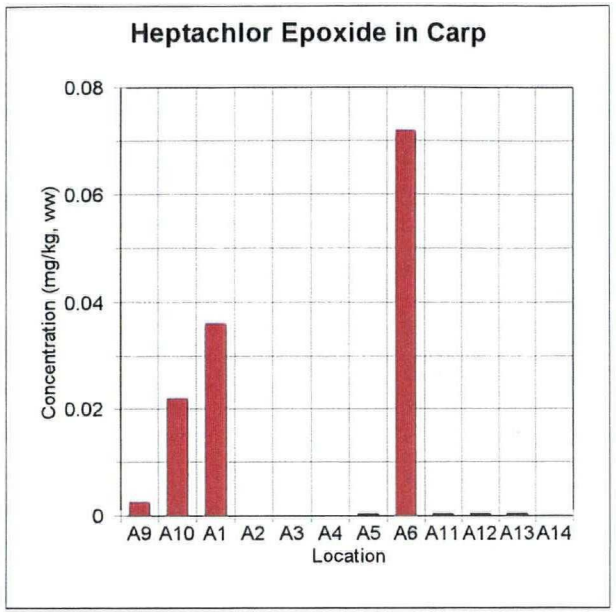


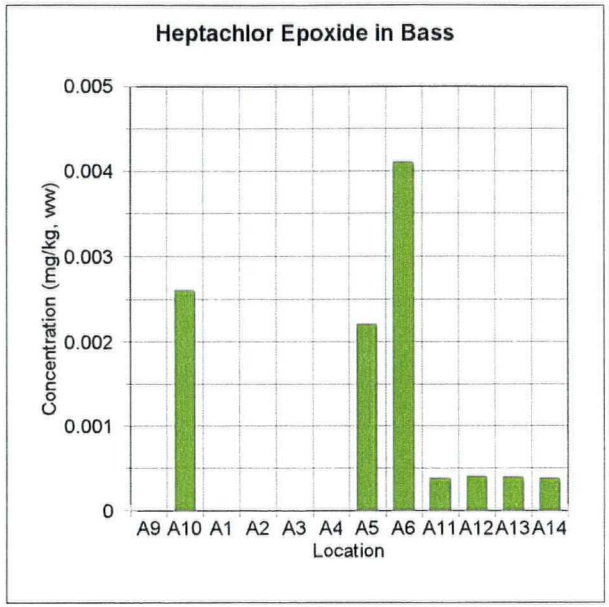


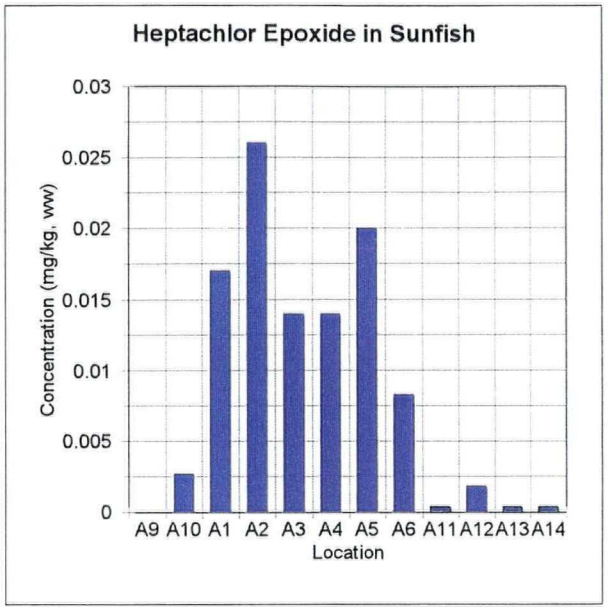
U.S. ENVIRNOMENTAL PROTECTION AGENCY/ENVIRONMENTAL RESPONSE TEAM CENTER
RESPONSE ENGINEERING AND ANALYTICAL CONTRACT
68-C4-0022
W.O. # 03347-142-001-2274-01

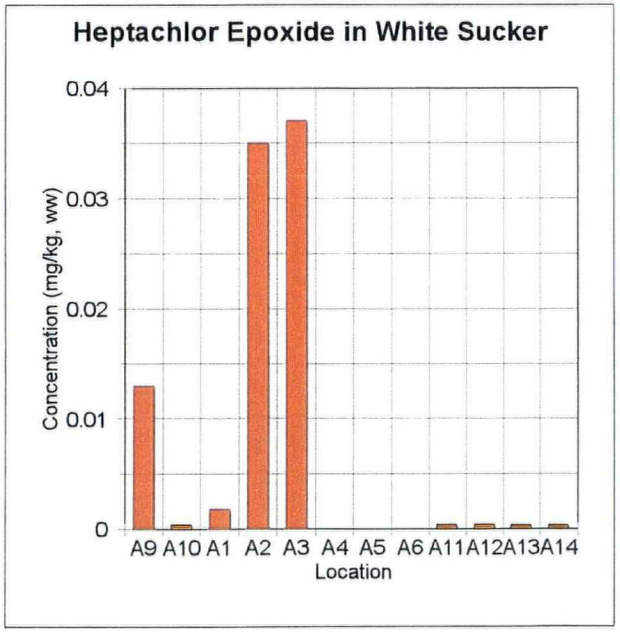
FIGURE 9
AROCLOR 1254 IN EDIBLE FISH
CORNELL DUBILIER ELECTRONICS SITE
SOUTH PLAINFILED, NEW JERSEY
JULY 1999

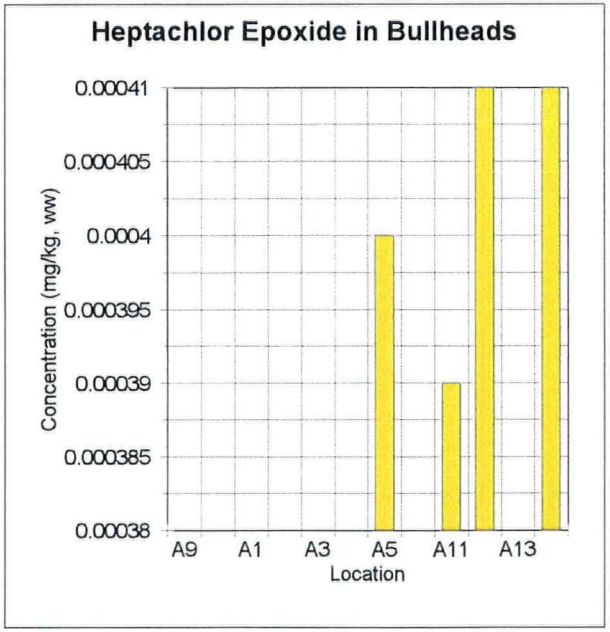
Heptachlor Epoxide Levels in Edible Fish Tissue

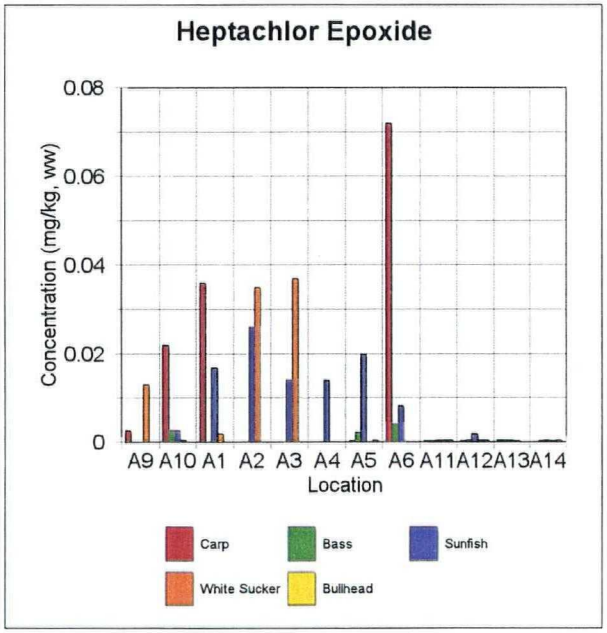








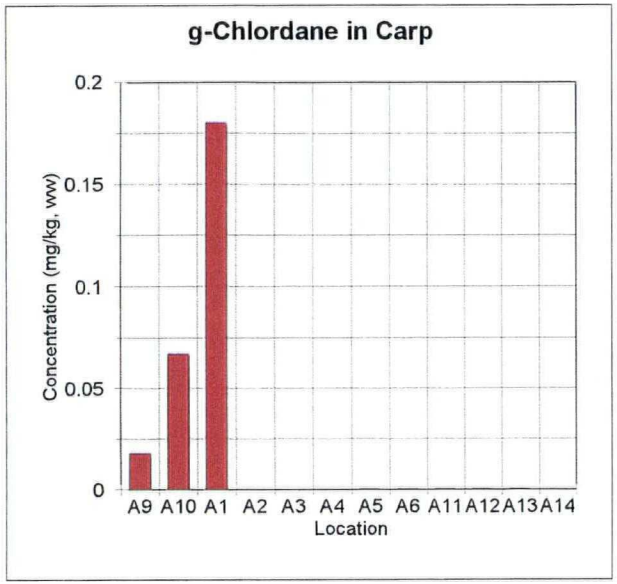


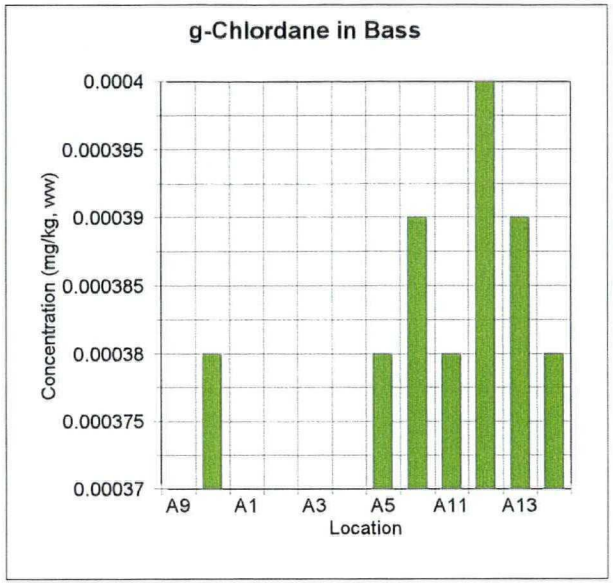


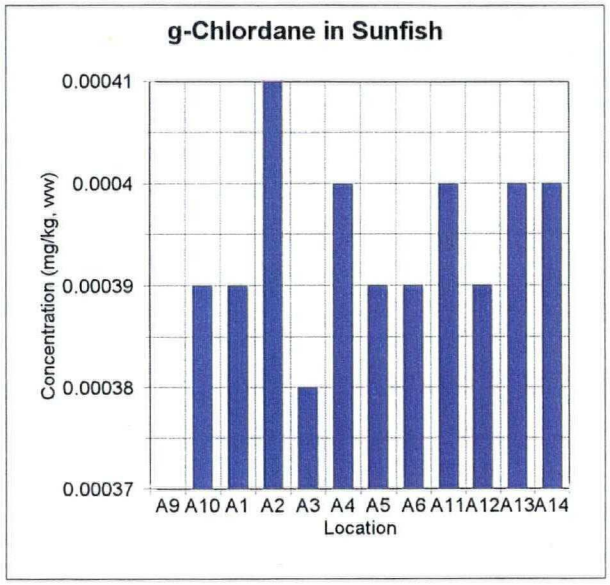
U.S. ENVIRNOMENTAL PROTECTION AGENCY/ENVIRONMENTAL RESPONSE TEAM CENTER
RESPONSE ENGINEERING AND ANALYTICAL CONTRACT
68-C4-0022
W.O. # 03347-142-001-2274-01

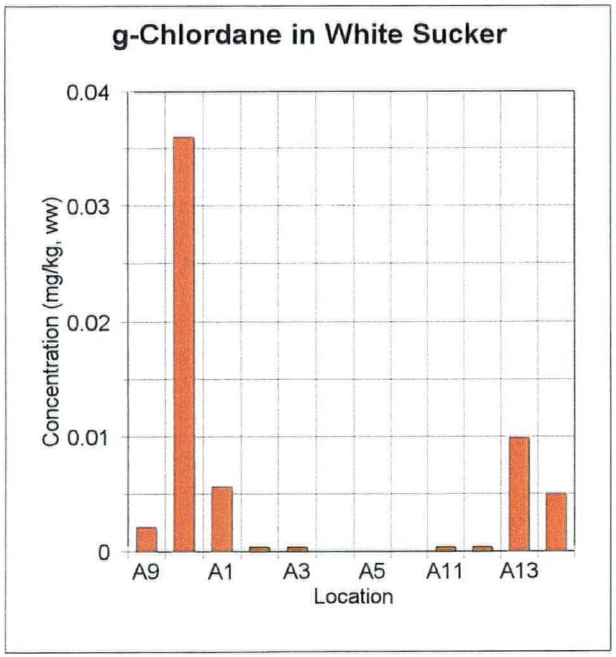
FIGURE 10
HEPTACHLOR EPOXIDE IN EDIBLE FISH
CORNELL DUBILIER ELECTRONICS SITE
SOUTH PLAINFILED, NEW JERSEY
JULY 1999

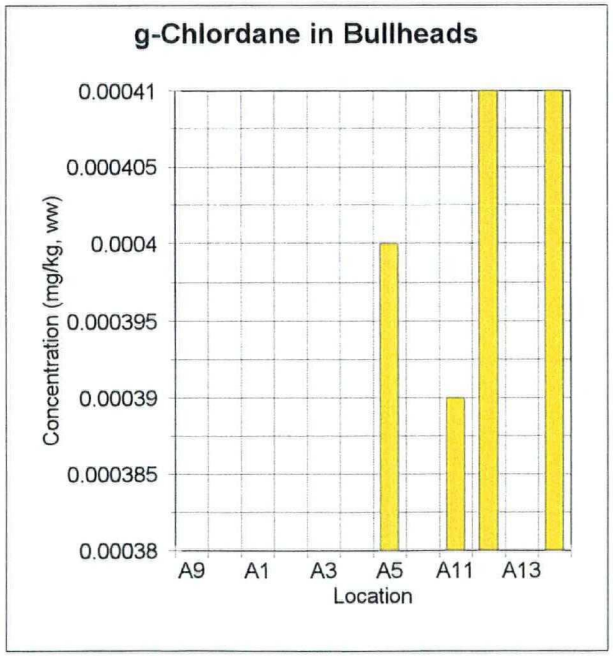
g-Chlordane Levels in Edible Fish Tissue

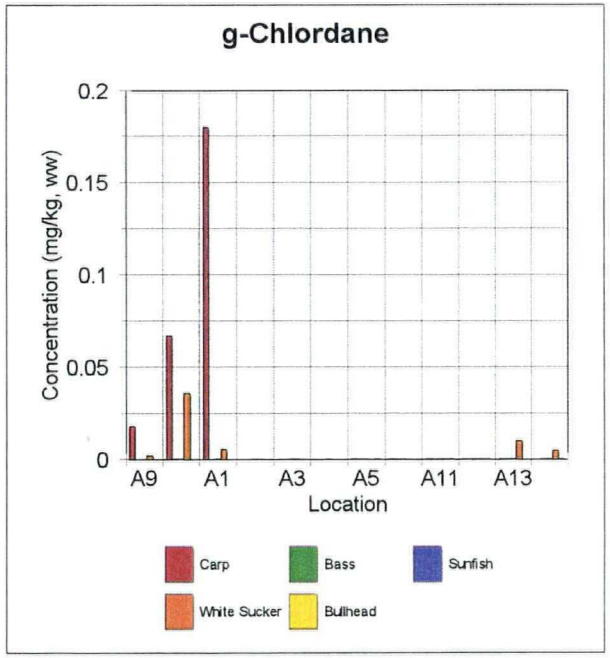








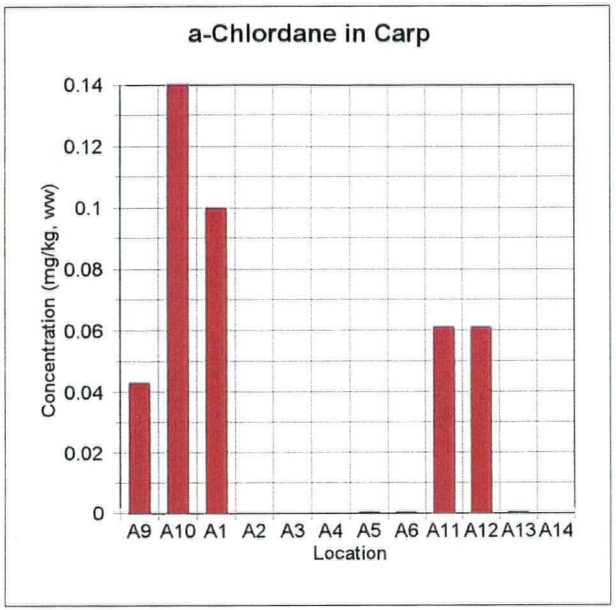


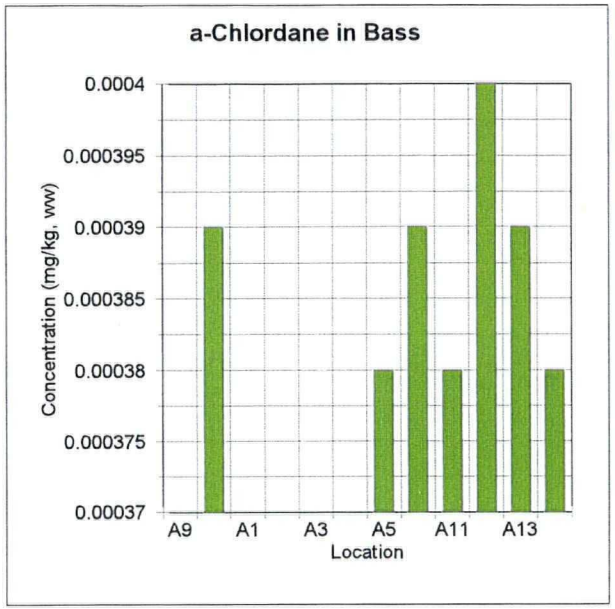


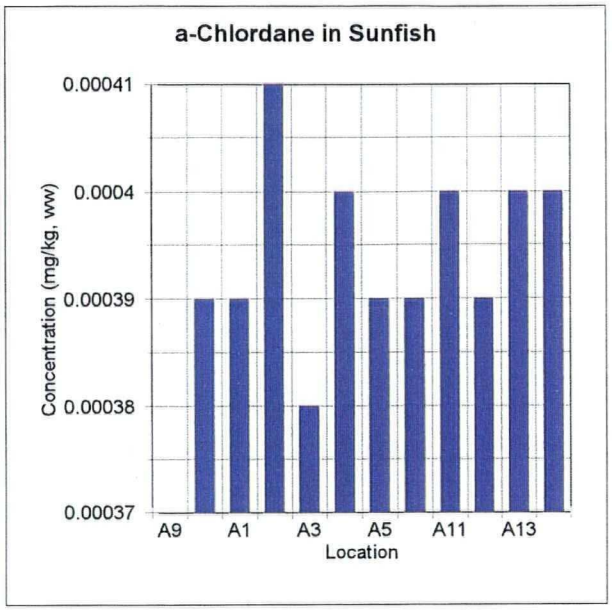
U.S. ENVIRNOMENTAL PROTECTION AGENCY/ENVIRONMENTAL RESPONSE TEAM CENTER
RESPONSE ENGINEERING AND ANALYTICAL CONTRACT
68-C4-0022
W.O. # 03347-142-001-2274-01

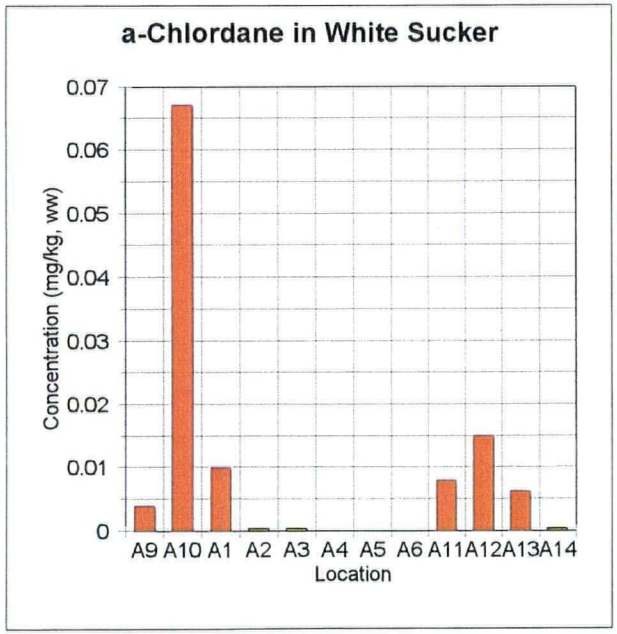
FIGURE 11
g-CHLORDANE IN EDIBLE FISH
CORNELL DUBILIER ELECTRONICS SITE
SOUTH PLAINFILED, NEW JERSEY
JULY 1999

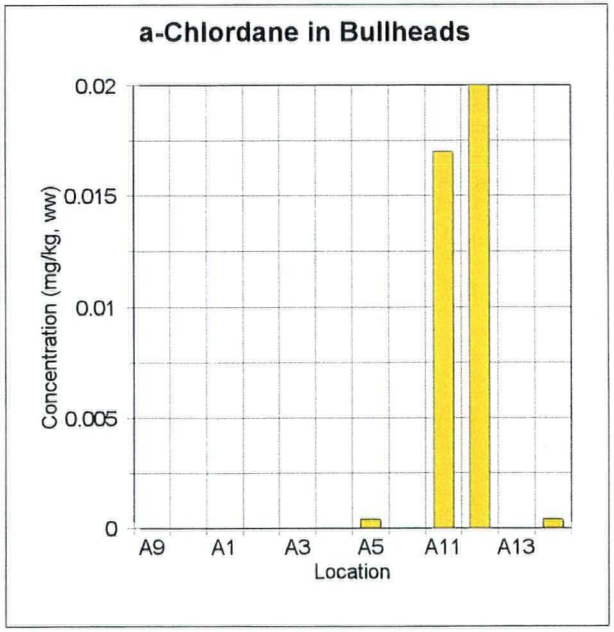
a-Chlordane Levels in Edible Fish Tissue

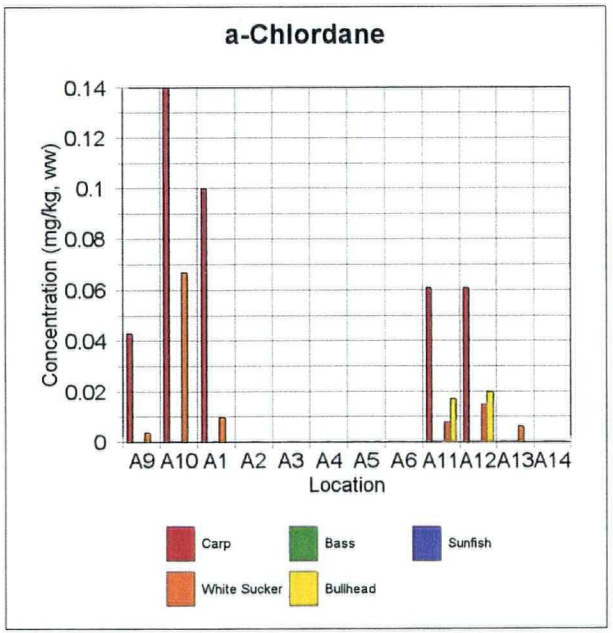








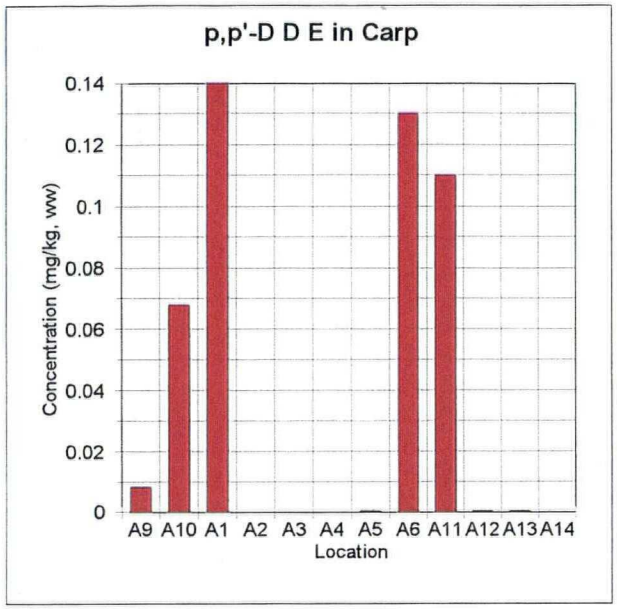


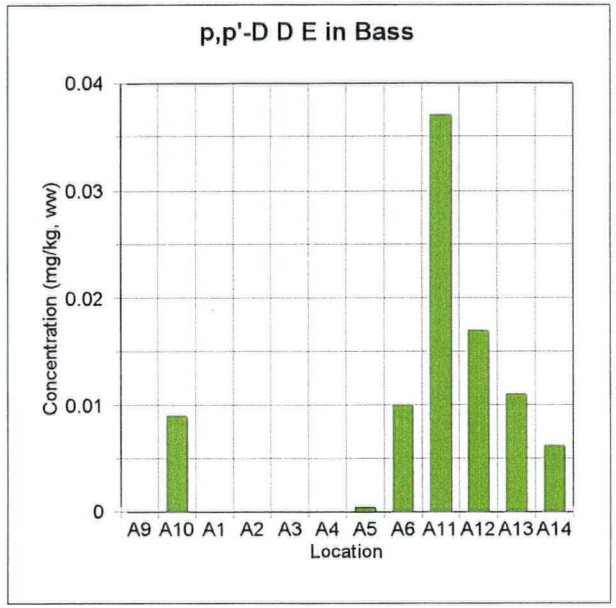


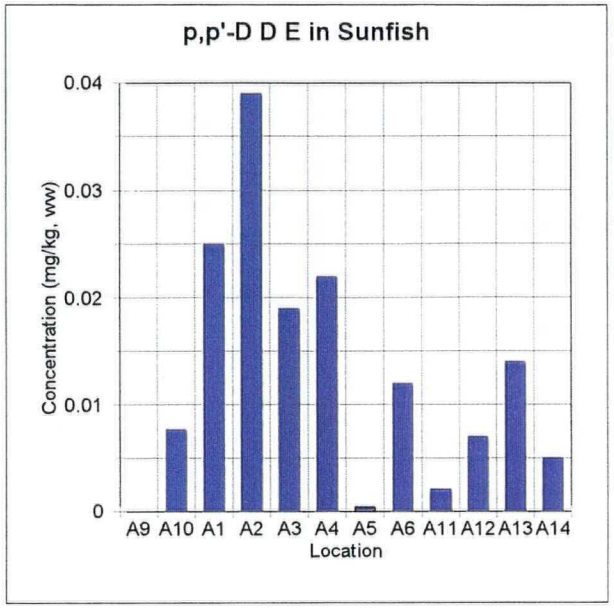
U.S. ENVIRNOMENTAL PROTECTION AGENCY/ENVIRONMENTAL RESPONSE TEAM CENTER
RESPONSE ENGINEERING AND ANALYTICAL CONTRACT
68-C4-0022
W.O. # 03347-142-001-2274-01

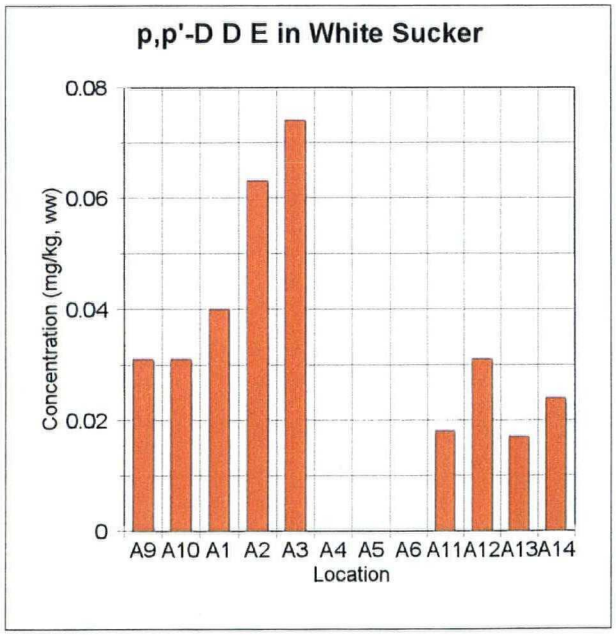
FIGURE 12
a-CHLORDANE IN EDIBLE FISH
CORNELL DUBILIER ELECTRONICS SITE
SOUTH PLAINFILED, NEW JERSEY
JULY 1999

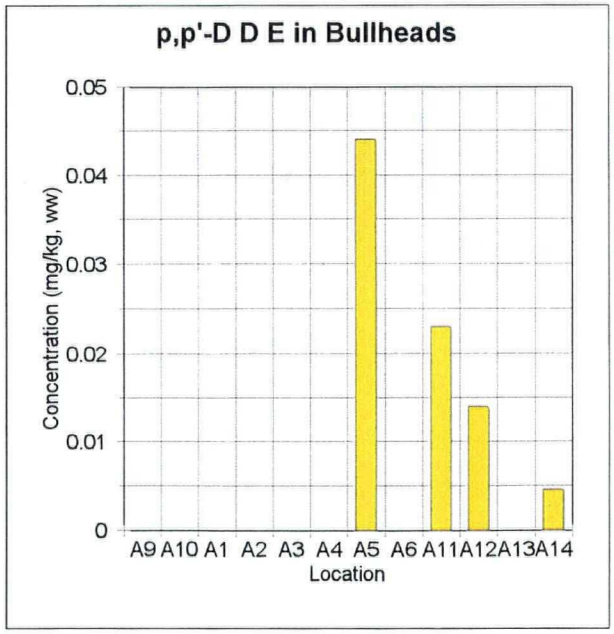
p,p' D D E Levels in Edible Fish Tissue

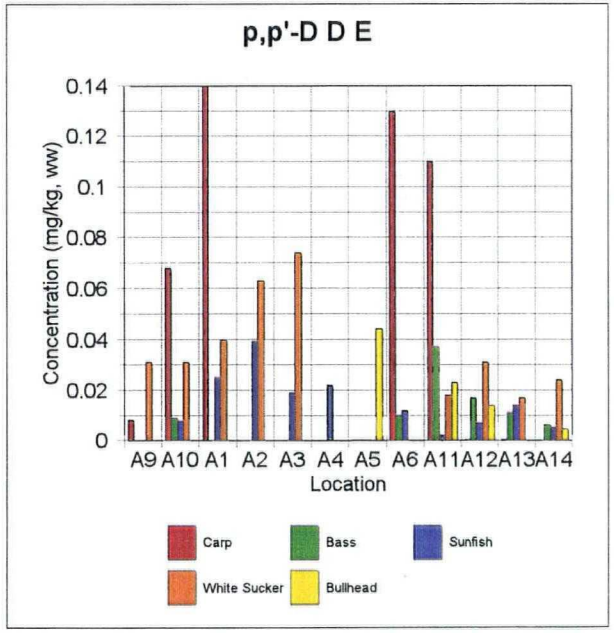








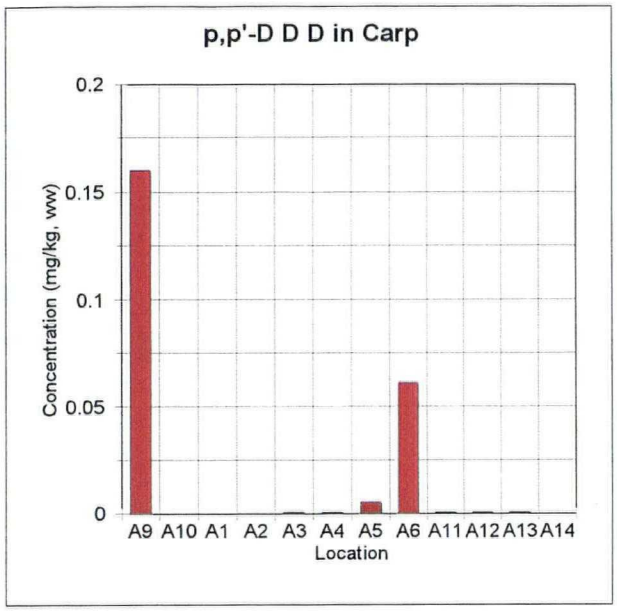


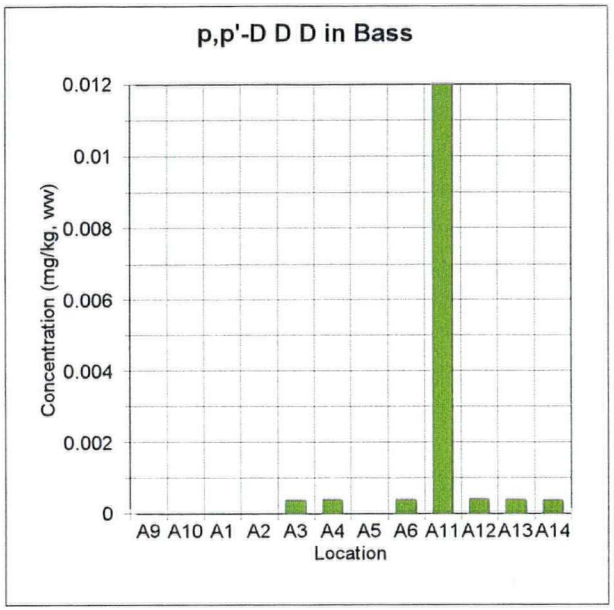


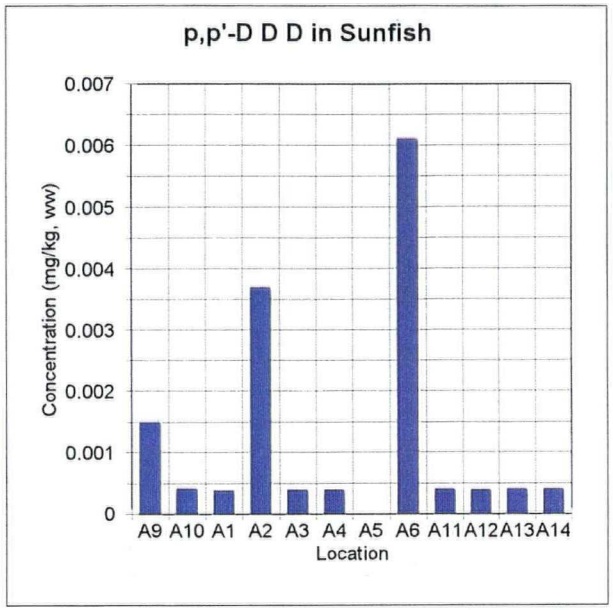
U.S. ENVIRNOMENTAL PROTECTION AGENCY/ENVIRONMENTAL RESPONSE TEAM CENTER
RESPONSE ENGINEERING AND ANALYTICAL CONTRACT
68-C4-0022
W.O. # 03347-142-001-2274-01

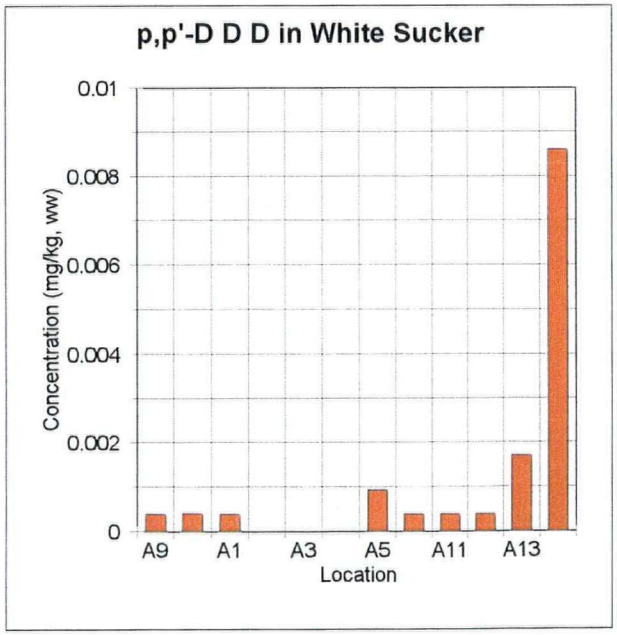
FIGURE 13
p,p'-D D E IN EDIBLE FISH
CORNELL DUBILIER ELECTRONICS SITE
SOUTH PLAINFILED, NEW JERSEY
JULY 1999

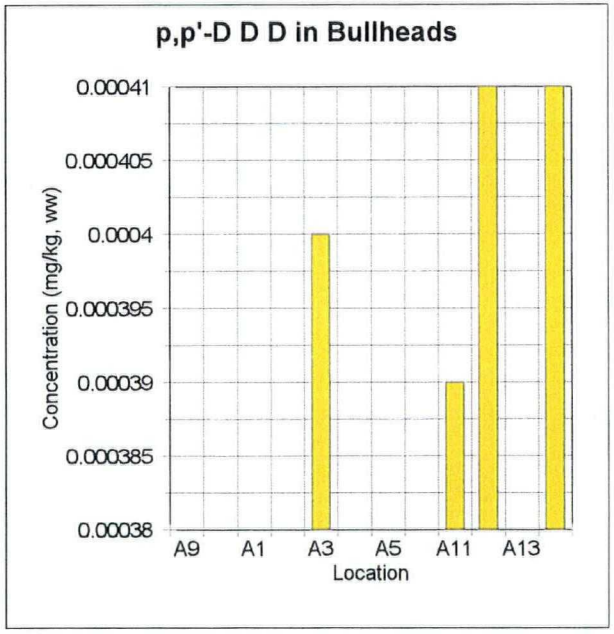
p,p'-D D D Levels in Edible Fish Tissue

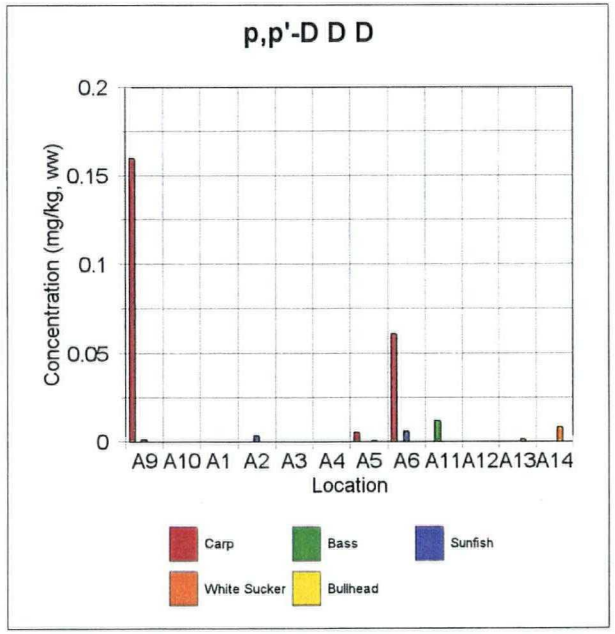








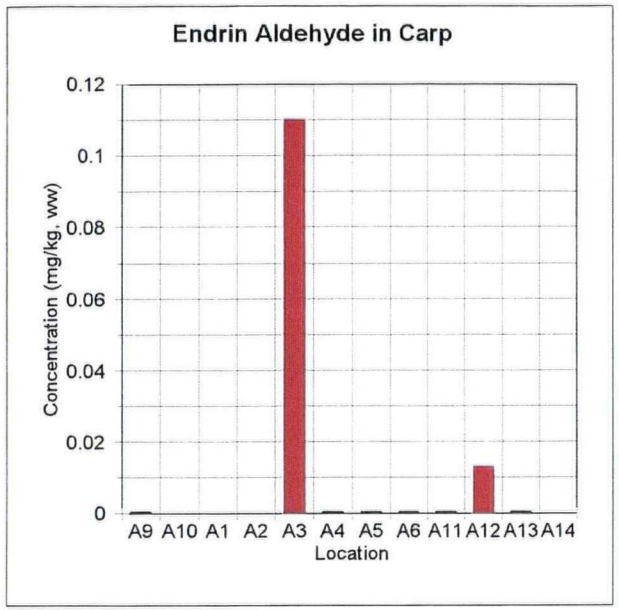


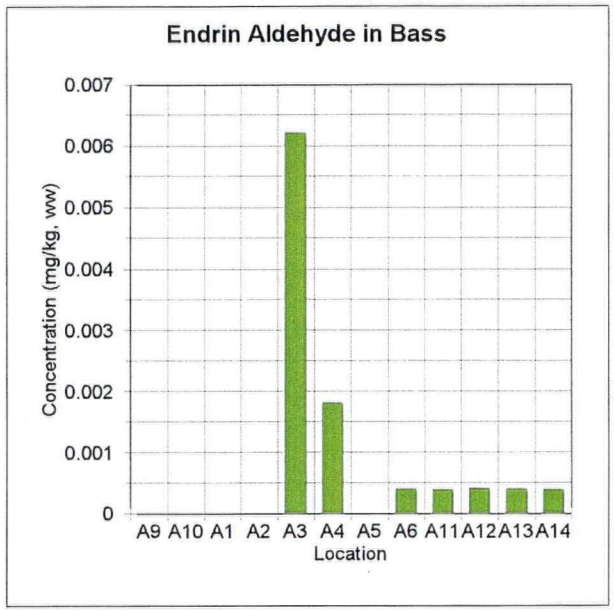


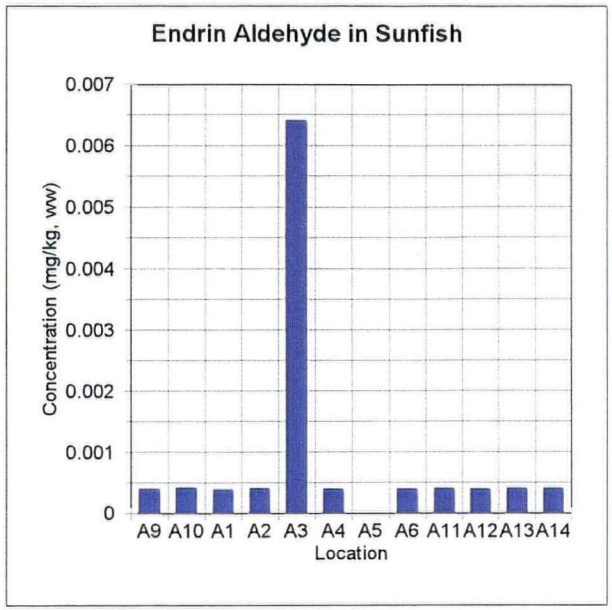
U.S. ENVIRNOMENTAL PROTECTION AGENCY/ENVIRONMENTAL RESPONSE TEAM CENTER
RESPONSE ENGINEERING AND ANALYTICAL CONTRACT
68-C4-0022
W.O. # 03347-142-001-2274-01

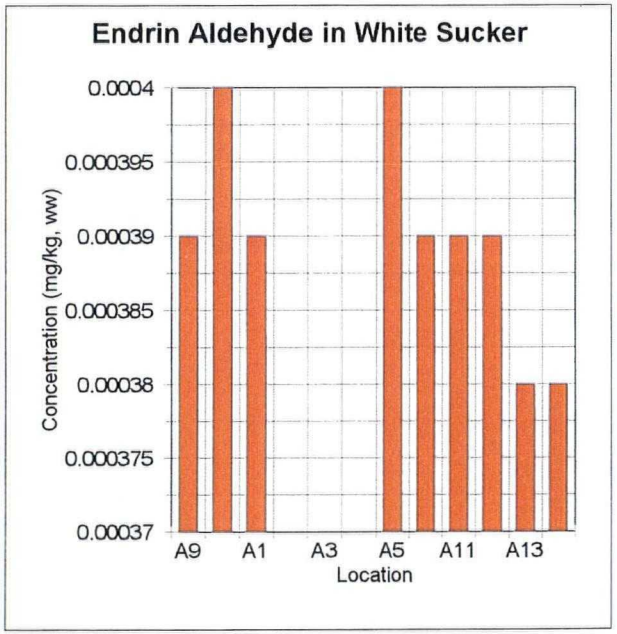
FIGURE 14
p,p'-D D D IN EDIBLE FISH
CORNELL DUBILIER ELECTRONICS SITE
SOUTH PLAINFILED, NEW JERSEY
JULY 1999

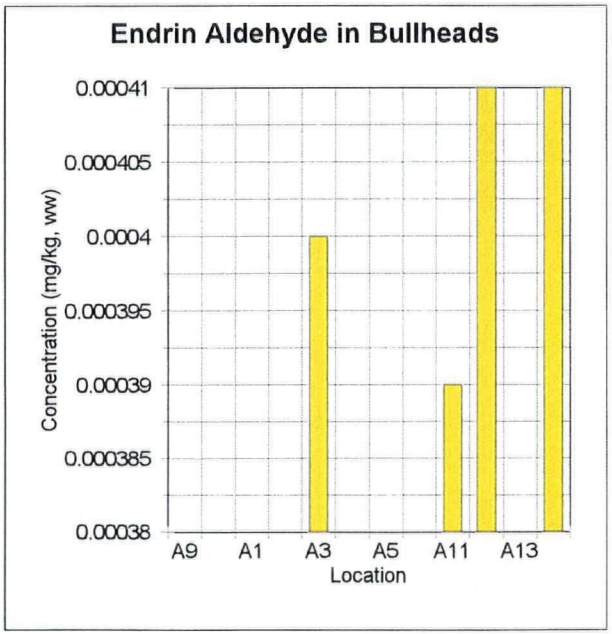
Endrin Aldehyde Levels in Edible Fish Tissue

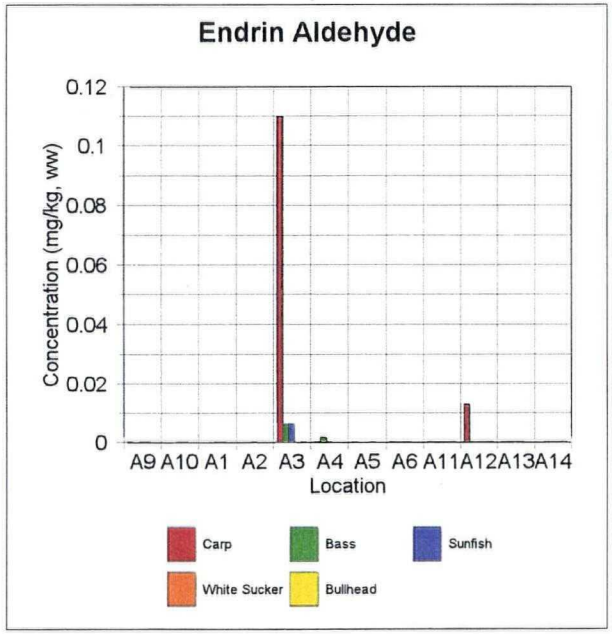








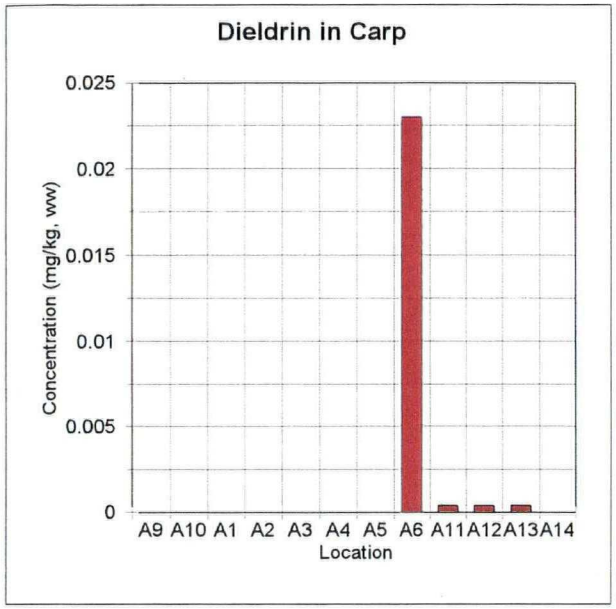


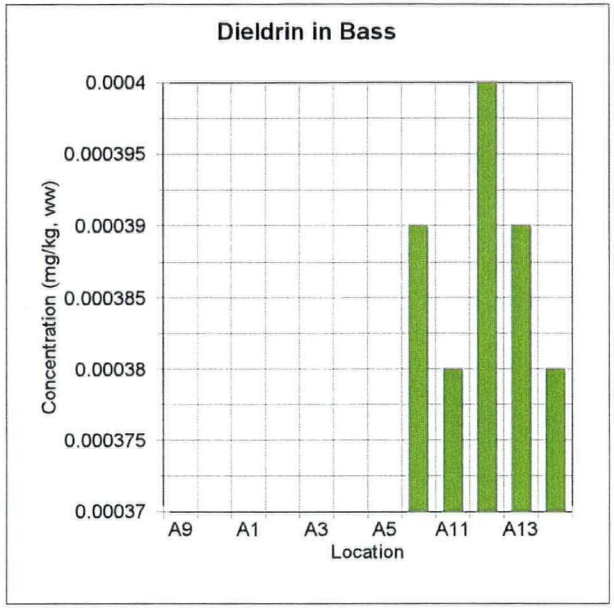


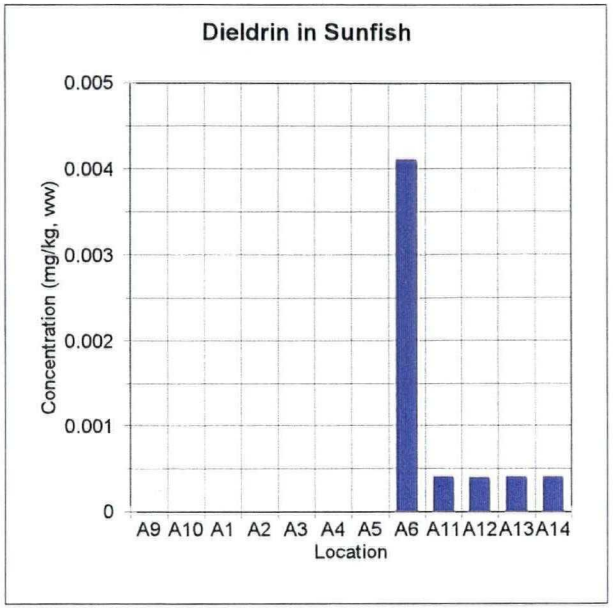
U.S. ENVIRNOMENTAL PROTECTION AGENCY/ENVIRONMENTAL RESPONSE TEAM CENTER
RESPONSE ENGINEERING AND ANALYTICAL CONTRACT
68-C4-0022
W.O. # 03347-142-001-2274-01

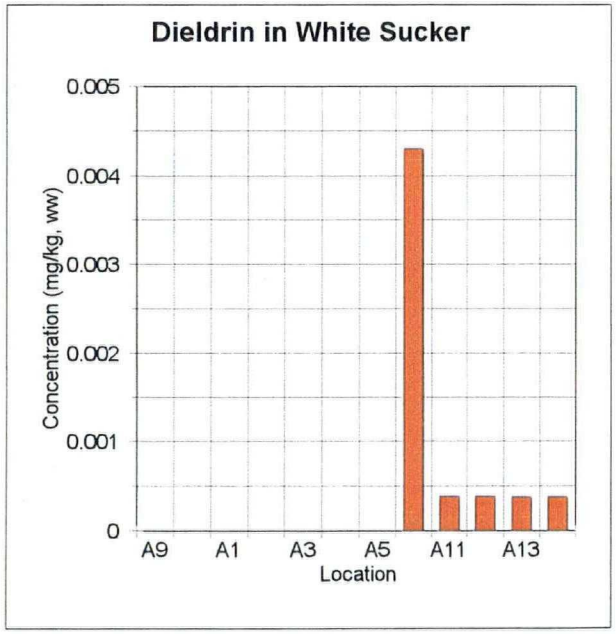
FIGURE 15
ENDRIN ALDEHYDE IN EDIBLE FISH
CORNELL DUBILIER ELECTRONICS SITE
SOUTH PLAINFILED, NEW JERSEY
JULY 1999

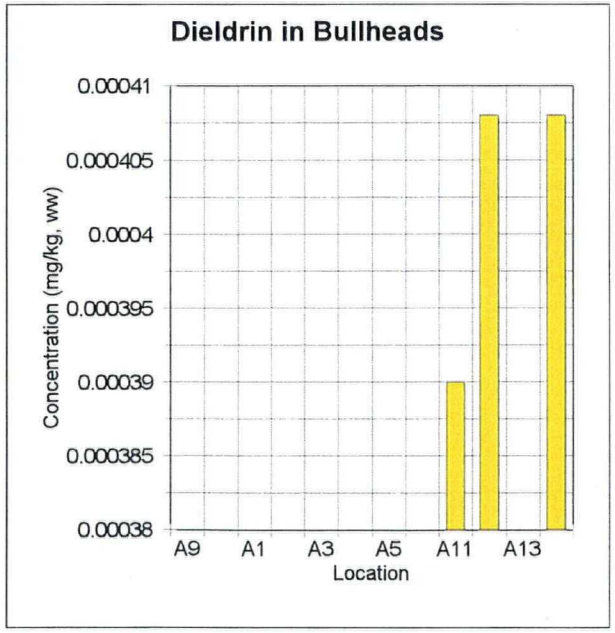
Dieldrin Levels in Edible Fish Tissue

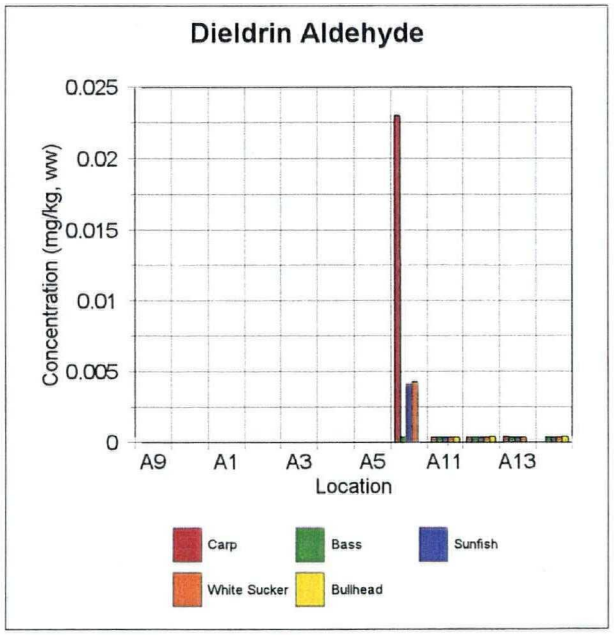












U.S. ENVIRNOMENTAL PROTECTION AGENCY/ENVIRONMENTAL RESPONSE TEAM CENTER
RESPONSE ENGINEERING AND ANALYTICAL CONTRACT
68-C4-0022
W.O. # 03347-142-001-2274-01

FIGURE 16
DIELDRIN IN EDIBLE FISH
CORNELL DUBILIER ELECTRONICS SITE
SOUTH PLAINFILED, NEW JERSEY
JULY 1999