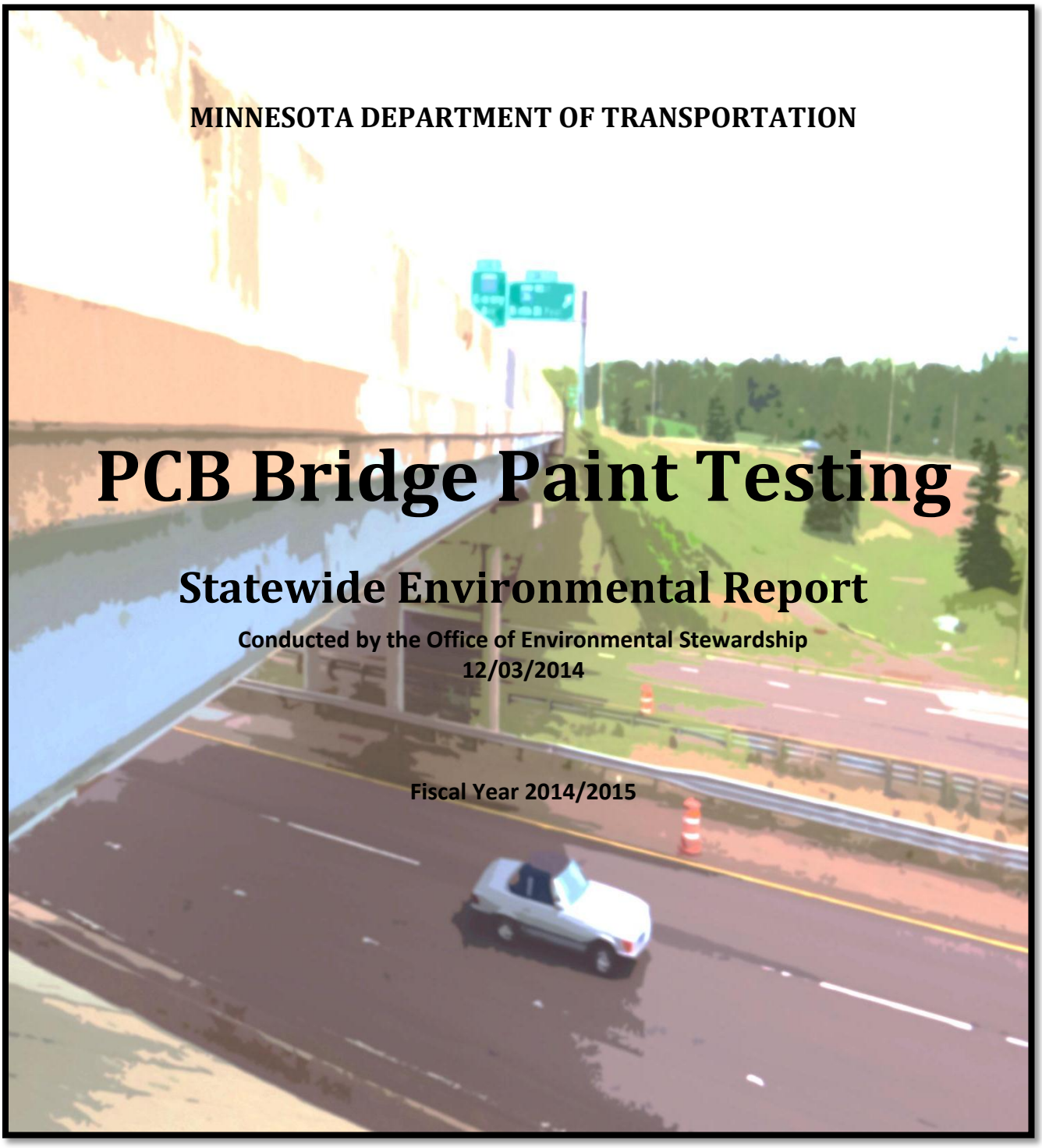
MINNESOTA DEPARTMENT OF TRANSPORTATION



PCB Bridge Paint Testing

Statewide Environmental Report

Conducted by the Office of Environmental Stewardship
12/03/2014

Fiscal Year 2014/2015

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EXECUTIVE SUMMARY

This study was conducted during fiscal year (FY) 2014 by Minnesota Department of Transportation's (MnDOT) Environmental Modeling and Testing Unit (EMTU) within the Office of Environmental Stewardship. The objective of the study was to determine if potentially hazardous chemical concentrations (50 parts per million (ppm) or 50,000 parts per billion (ppb)) of Polychlorinated biphenyls (PCBs) are present in bridge paint systems utilized by MnDOT before 1980. This information is necessary to determine if specialized abatement and safety procedures are needed when future bridge rehabilitation or restoration activities occur. Ninety-eight randomly-selected bridges were sampled throughout Minnesota. These ninety-eight bridges account for 10% of existing bridges within the state that have pre-1980 bridge paint systems. Analyses of PCB contaminants were conducted utilizing two United States Environmental Protection Agency (USEPA) methods: 3550 (1) and 8082 (2) to determine PCB paint concentrations. Based on the laboratory results, only two bridges (<2%) exceeded the state hazardous chemical concentration standard of 50,000 ppb. Bridge #6876 had a concentration of 110,000 ppb. Bridge #7202 had a PCB concentration of 131,000 ppb. These PCB concentrations are two times the allowable amount determined by the state standard. Therefore, future bridge paint abatement may need to be address before rehabilitation begins. Again, this will be dependent on each bridge's paint system due to the variability within each individual paint matrix.

1. INTRODUCTION

PCBs are man-made organic chemicals known as chlorinated hydrocarbons. PCBs were domestically manufactured from 1929 until it was banned in 1979. They range in toxicity and vary in consistency from thin, light-colored liquids to yellow or black waxy solids. Due to their non-flammability, chemical stability, high boiling point, and electrical insulating properties, PCBs were used in hundreds of industrial and commercial applications including electrical, heat transfer, and hydraulic equipment; as plasticizers in paints, plastics, and rubber products; in pigments, dyes, and carbonless copy paper; and many other industrial applications. PCBs have been demonstrated to cause cancer, as well as a variety of other adverse health effects on the immune system, reproductive system, nervous system, and endocrine system. The only North American producer, Monsanto Company, marketed PCBs under the trade name Aroclor from 1930 to 1977. These were sold under trade names followed by a 4-digit number. In general, the first two digits refer to the number of carbon atoms in the biphenyl skeleton (for PCBs this is 12); the second two numbers indicate the percentage of chlorine by mass in the mixture.

The specific rule within the State of Minnesota statue is as follows:
MN rule MN Rule 7045.0135 LISTS OF HAZARDOUS WASTES.
Subp. 5. PCB wastes. Requirements for PCB wastes are as follows:
(2) "PCB" means a substance that contains PCB's at a concentration of 50 parts per million or greater

EMTU was charged with conducting a state-wide study to determine extent of PCB concentrations found in bridge paint systems utilized by MnDOT Office of Maintenance before 1980. Of the 976 statewide bridges with paint systems applied before 1980, 98 bridges (10%)

had paint sampled and analyzed by a certified laboratory. (Methodology on bridge selection, sampling, and analysis will be described within the procedure section below).

2. PROCEDURE

2.1 Bridge Selection

Analyzing paint samples from 976 bridges within Minnesota containing paint systems applied before 1980 would not be economically feasible therefore, 98 bridges (10% sample size) were selected at random to avoid sampling bias. The random bridge selection was done by assigning each bridge a specific number, then randomizing those numbers using Research Randomizer Software. This software uses a complex algorithm to generate "pseudorandom" numbers (3). The first ninety-eight bridges that were randomly-selected were evaluated for sampling accessibility and safety (Appendix A). If a location was deemed inaccessible due to water, elevation or required additional safety equipment, then the next bridge on the randomized list was selected as an alternative to be sampled. Figures B.1 and B.2 (pages 62-63), identify the locations where PCB paint samples were collected and tested in outlying rural districts and within the metro area, respectively. Sampled bridge distribution was as follows: 15 bridges in District #1, ten bridges in District #2, eleven bridge in District #3, ten bridges in District #4, sixteen bridges in District #6, twelve bridge in District #7, six bridges in District #8 and eighteen bridges in the Metro area.

2.2 PCB Paint Sample Collection

Tools displayed below in Figure 2.2.1 were utilized to collect each PCB paint sample (4). A minimum of five grams of paint was needed for laboratory analysis at each bridge location. However, if a bridge had paint that was too thin to collect the required five grams we chose another alternative bridge for sampling. After the paint was removed, the area was repainted with a spray paint primer displayed in Figure 2.2.1. This was done to prevent future bridge corrosion. The five grams of paint required for analysis was weighed on-site and sent to the Minnesota Department of Health laboratory for chemical analysis. Figure 2.2.2 is an example of a typical paint sample location after bridge paint removal was completed.

Figure 2.2.1 Sampling tools used during collection.

Figure 2.2.2 Example of a sampled bridge location

2.3.1 EPA 3550 Method

This method describes a procedure for extracting nonvolatile and semi-volatile organic compounds from solids such as soils, sludges, and wastes. The ultrasonic process ensures intimate contact of the sample matrix with the extraction solvent (1).

2.3.2 EPA 8082 Method

This method determines the concentrations of Polychlorinated Biphenyls (PCBs) as Aroclors or as individual PCB congeners in extracts from solid, tissue, and aqueous matrices, using open-tubular, capillary columns with electron capture detectors (ECD) or electrolytic conductivity detectors (ELCD). The Aroclors and PCB congeners listed below are determined by this method, using both a single or dual column analysis system and this method may be appropriate for additional congeners and Aroclors (2).Utilizing the method described above we will analyze the following Aroclor matrixes: 1016, 1221, 1232, 1242, 1248, 1254, 1260, 1262 and 1268.

3. RESULTS

The results section below will include pictures from each sampled bridge and the general location where paint was taken for any future reference. In addition, Figure B.1 and B.2, on pages 61-62 revealed where these sampled bridges are located in relation to the Twin Cities Metropolitan Area and outlying districts. Laboratory results within this report will be given in micrograms per kilogram (ug/kg). **Therefore, the correct conversion is 1 ug/kg = 1.0 part per billion (ppb). Concentrations for PCBs greater than 50,000 ppb will be considered an exceedance of the State standard**. PCB test results are noted below the bridge picture(s) as well as Appendix C, page 63-66. Within this table each PCB variant will have a chemical concentration associated with it. For example, Bridge #6853 had no chemical concentration detections for eight of the PCB variants. However, Aroclor variant 1260 had a concentration of 23,400 ug/kg. This is equivalent to 23,400 ppb which does not exceed State of Minnesota hazardous waste standard. Of the 98 bridges tested, 33% (32 bridges) tested positive for PCBs found within the paint system applied. From these positive PCB detections, only **two bridge** samples exceeded the 50,000 ppb standard (Bridge #6876 and #7202, at 110,000 ppb and 131,000 ppb, respectively).

3.1 District #1

Fifteen bridges were randomly selected and sampled from District #1. Figures 3.1.1 through 3.1.30 show the bridges and locations of where the samples were collected. The individual PCB analysis results are noted below the bridge picture(s).

Bridge #6546

Figure 3.1.1 Bridge #6546 overall design

Figure 3.1.2 Bridge #6546 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #09502

Figure 3.1.3 Bridge #09502 overall design

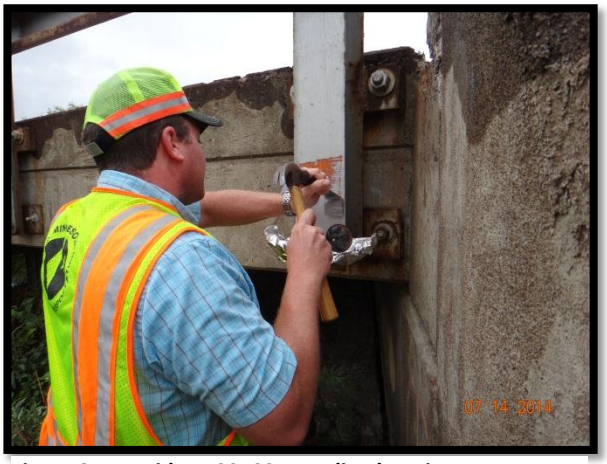

Figure 3.1.4 Bridge #09502 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	**25,300**	ND	ND	ND

Bridge #09503

Figure 3.1.5 Bridge #09503 overall design

Figure 3.1.6 Bridge #09503 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #33502

Figure 3.1.7 Bridge #33502 overall design

Figure 3.1.8 Bridge #33502 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #69824

Figure 3.1.9 Bridge #69824 overall design

Figure 3.1.10 Bridge #69824 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #69839

Figure 3.1.11 Bridge #69839 overall design

Figure 3.1.12 Bridge #69839 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	209	149	ND	ND	ND

Bridge #69840

Figure 3.1.13 Bridge #69840 overall design

Figure 3.1.14 Bridge #69840 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	**77.9**	ND	ND	ND

Bridge #69879

Figure 3.1.15 Bridge #69879 overall design

Figure 3.1.16 Bridge #69879 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #L1207

Figure 3.1.17 Bridge #L1207 overall design

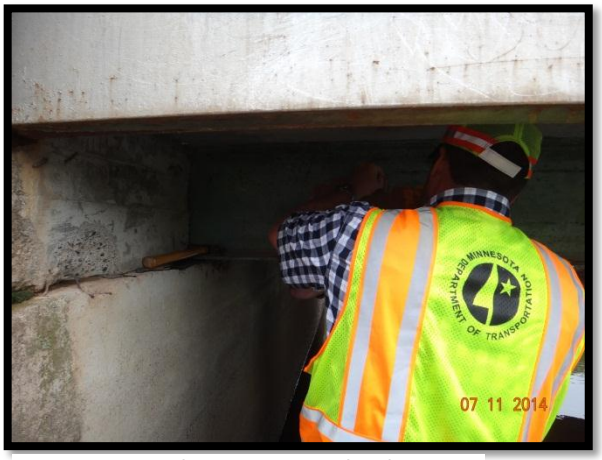

Figure 3.1.18 Bridge #L1207 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #6881

Figure 3.1.19 Bridge #6881 overall design

Figure 3.1.20 Bridge #6881 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #36516

Figure 3.1.21 Bridge #36516 overall design

Figure 3.1.22 Bridge #36516 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #69023

Figure 3.1.23 Bridge #69023 overall design

Figure 3.1.24 Bridge #69023 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	**414**	ND	ND	ND

Bridge #5923

Figure 3.1.25 Bridge #5923 overall design

Figure 3.1.26 Bridge #5923 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #36003

Figure 3.1.27 Bridge #36003 overall design

Figure 3.1.28 Bridge #36003 sampling

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	**4,100**	ND	ND	ND

Bridge #92241

Figure 3.1.29 Bridge #92241 overall design

Figure 3.1.30 Bridge #92241 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

3.2 District #2

Ten bridges were randomly selected and sampled from District #2. Figures 3.2.1 through 3.2.20 show the bridges and locations of where the samples were collected. The individual PCB analysis results are noted below the bridge picture(s).

Bridge #35502

Figure 3.2.1 Bridge #35502 overall design

Figure 3.2.2 Bridge #35502 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #35517

Figure 3.2.3 Bridge #35517 overall design

Figure 3.2.4 Bridge #35517 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268

Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #45515

Figure 3.2.5 Bridge #45515 overall design

Figure 3.2.6 Bridge #45515 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #54003

Figure 3.2.7 Bridge #54003 overall design

Figure 3.2.8 Bridge #54003 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #45001

Figure 3.2.9 Bridge #45001 overall design

Figure 3.2.10 Bridge #45001 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	**550**	ND	**150**	**59.9**	ND	ND

Bridge #45513

Figure 3.2.11 Bridge #45513 overall design

Figure 3.2.12 Bridge #45513 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	**200**	ND	ND	ND	ND

Bridge #45002

Figure 3.2.13 Bridge #45002 overall design

Figure 3.2.14 Bridge #45002 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #45526

Figure 3.2.15 Bridge #45526 overall design

Figure 3.2.16 Bridge #45526 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #45518

Figure 3.2.17 Bridge #45518 overall design

Figure 3.2.18 Bridge #45518 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #54001

Figure 3.2.19 Bridge #54001 overall design

Figure 3.2.20 Bridge #54001 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

3.3 District #3

Eleven bridges were randomly selected and sampled from District #3. Figures 3.3.1 through 3.3.22 show the bridges and locations of where the samples were collected. The individual PCB analysis results are noted below the bridge picture(s).

Bridge #6557

Figure 3.3.1 Bridge #6557 overall design

Figure 3.3.2 Bridge #6557 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	**208**	ND	ND	ND

Bridge #18503

Figure 3.3.3 Bridge #18503 overall design

Figure 3.3.4 Bridge #18503 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	**78.8**	ND	ND	ND

Bridge #18506

Figure 3.3.5 Bridge #18506 overall design

Figure 3.3.6 Bridge #18506 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	**133**	ND	ND	ND

Bridge #48504

Figure 3.3.7 Bridge #48504 overall design

Figure 3.3.8 Bridge #48504 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #48518

Figure 3.3.9 Bridge #48518 overall design

Figure 3.3.10 Bridge #48518 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #49513

Figure 3.3.11 Bridge #49513 overall design

Figure 3.3.12 Bridge #49513 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	**284**	ND	ND

Bridge #73820

Figure 3.3.13 Bridge #73820 overall design

Figure 3.3.14 Bridge #73820 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	**229**	ND	ND	ND

Bridge #77509

Figure 3.3.15 Bridge #77509 overall design

Figure 3.3.16 Bridge #77509 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	**707**	ND	ND	ND

Bridge #77510

Figure 3.3.17 Bridge #77510 overall design

Figure 3.3.18 Bridge #77510 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #77512

Figure 3.3.19 Bridge #77512 overall design

Figure 3.3.20 Bridge #77512 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #80506

Figure 3.3.21 Bridge #80506 overall design

Figure 3.3.22 Bridge #80506 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

3.4 District #4

Ten bridges were randomly selected and sampled from District #4. Figures 3.4.1 through 3.4.21 show the bridges and locations of where the samples were collected. The individual PCB analysis results are noted below the bridge picture(s).

Bridge #21824

Figure 3.4.1 Bridge #21824 overall design

Figure 3.4.2 Bridge #21824 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #21805

Figure 3.4.3 Bridge #21805 overall design

Figure 3.4.4 Bridge #21805 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #14804

Figure 3.4.5 Bridge #14804 overall design

Figure 3.4.6 Bridge #14804 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #76002

Figure 3.4.7 Bridge #76002 overall design

Figure 3.4.8 Bridge #76002 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #9692

Figure 3.4.9 Bridge #9692 overall design

Figure 3.4.10 Bridge #9692 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #14005

Figure 3.4.11 Bridge #14005 overall design

Figure 3.4.12 Bridge #14005 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #75502

Figure 3.4.13 Bridge #75502 overall design

Figure 3.4.14 Bridge #75502 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	**716**	ND	ND	ND

Bridge #7275

Figure 3.4.15 Bridge #7275 overall design

Figure 3.4.16 Bridge #7275 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	**268**	ND	ND	ND

Bridge #9017

Figure 3.4.17 Bridge #9017 overall design

Figure 3.4.18 Bridge #9017 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	**842**	ND	ND	ND

Bridge #6550

Figure 3.4.19 Bridge #6550 overall design

Figure 3.4.20 Bridge #6550 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	**2,960**	ND	ND	ND

3.5 District #6

Sixteen bridges were randomly selected and sampled from District #6. Figures 3.5.1 through 3.5.34 show the bridges and locations of where the samples were collected. The individual PCB analysis results are noted below the bridge picture(s).

Bridge #9425

Figure 3.5.1 Bridge #9425 overall design

Figure 3.5.2 Bridge #9425 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	**1,570**	ND	ND	ND

Bridge #79511

Figure 3.5.3 Bridge #79511 overall design

Figure 3.5.4 Bridge #79511 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #79510

Figure 3.5.5 Bridge #79510 overall design

Figure 3.5.6 Bridge #79510 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #7212

Figure 3.5.7 Bridge #7212 overall design

Figure 3.5.8 Bridge #7212 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	**27,300**	ND	ND	ND

Bridge #85813

Figure 3.5.9 Bridge #85813 overall design

Figure 3.5.10 Bridge #85813 sampling

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #L5065

Figure 3.5.11 Bridge #L5065 overall design

Figure 3.5.12 Bridge #L5065 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #55506

Figure 3.5.13 Bridge #55506 overall design

Figure 3.5.14 Bridge #55506 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #55010

Figure 3.5.15 Bridge #55010 overall design

Figure 3.5.16 Bridge #55010 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #85507

Figure 3.5.17 Bridge #85507 overall design

Figure 3.5.18 Bridge #85507 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	**485**	ND	ND	ND

Bridge #55535

Figure 3.5.19 Bridge #55535 overall design

Figure 3.5.20 Bridge #55535 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #L1072

Figure 3.5.21 Bridge #L1072 overall design

Figure 3.5.22 Bridge #L1072 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #4909

Figure 3.5.23 Bridge #4909 overall design

Figure 3.5.24 Bridge #4909 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #2992

Figure 3.5.25 Bridge #2992 overall design

Figure 3.5.26 Bridge #2992 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #6470

Figure 3.5.27 Bridge #6470 overall design

Figure 3.5.28 Bridge #6470 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	**1,090**	ND	ND	ND

Bridge #3345

Figure 3.5.31 Bridge #3345 overall design

Figure 3.5.32 Bridge #3345 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #9727

Figure 3.5.33 Bridge #9727 overall design

Figure 3.5.34 Bridge #9727 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

3.6 District #7

Twelve bridges were randomly selected and sampled from District #7. Figures 3.6.1 through 3.6.22 show the bridges and locations of where the samples were collected. The individual PCB analysis results are noted below the bridge picture(s).

Bridge #776

Figure 3.6.1 Bridge #776 overall design

Figure 3.6.2 Bridge #776 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #5084

Figure 3.6.3 Bridge #5084 overall design

Figure 3.6.4 Bridge #5084 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #6787

Figure 3.6.5 Bridge #6787 overall design

Figure 3.6.6 Bridge #6787 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #7008

Figure 3.6.7 Bridge #7008 overall design

Figure 3.6.8 Bridge #7008 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #08519

Figure 3.6.9 Bridge #08519 overall design

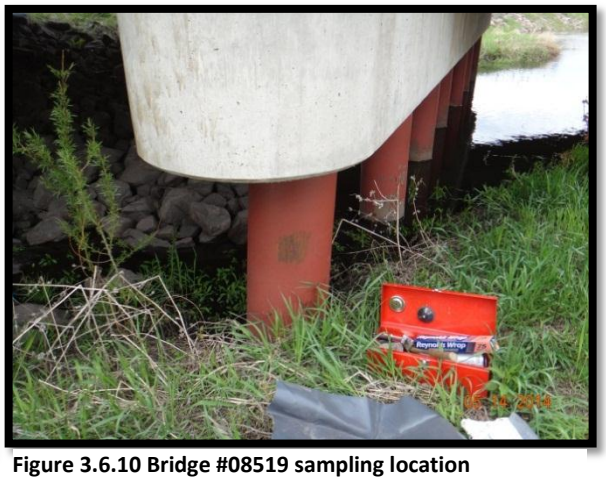

Figure 3.6.10 Bridge #08519 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #17503

Figure 3.6.11 Bridge #17503 overall design

Figure 3.6.12 Bridge #17503 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #22803

Figure 3.6.13 Bridge #22803 overall design

Figure 3.6.14 Bridge #22803 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #32501

Figure 3.6.15 Bridge #32501 overall design

Figure 3.6.16 Bridge #32501 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #53523

Figure 3.6.17 Bridge #53523 overall design

Figure 3.6.18 Bridge #53523 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #53524

Figure 3.6.19 Bridge #53524 overall design

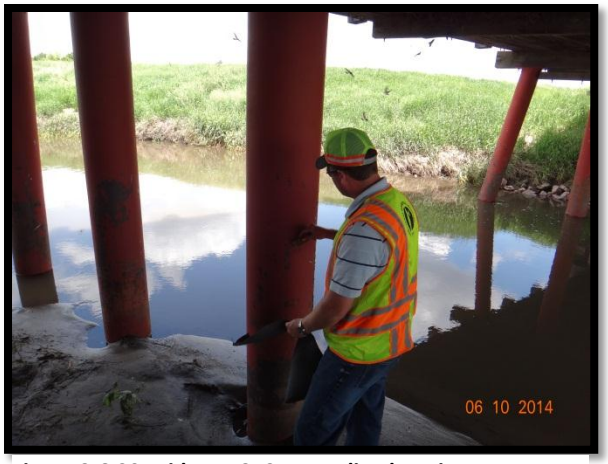

Figure 3.6.20 Bridge #53524 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #53804

Figure 3.6.21 Bridge #53804 overall design

Figure 3.6.22 Bridge #53804 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	**604**	ND	ND	ND

Bridge #6876

Figure 3.5.29 Bridge #6876 overall design

Figure 3.5.30 Bridge #6876 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	**110,000**	ND	ND	ND

3.7 District #8

Six bridges were randomly selected and sampled from District #8. Figures 3.7.1 through 3.7.14 show the bridges and locations of where the samples were collected. The individual PCB analysis results are noted below the bridge picture(s).

Bridge #5615

Figure 3.7.1 Bridge #5615 overall design

Figure 3.7.2 Bridge #5615 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	**132**	ND	ND	ND

Bridge #7202

Figure 3.7.3 Bridge #7202 overall design

Figure 3.7.4 Bridge #7202 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	**131,000**	ND	ND	ND

Bridge #47526

Figure 3.7.7 Bridge #47526 overall design

Figure 3.7.8 Bridge #47526 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #64502

Figure 3.7.9 Bridge #64502 overall design

Figure 3.7.10 Bridge #64502 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #65532

Figure 3.7.11 Bridge #65532 overall design

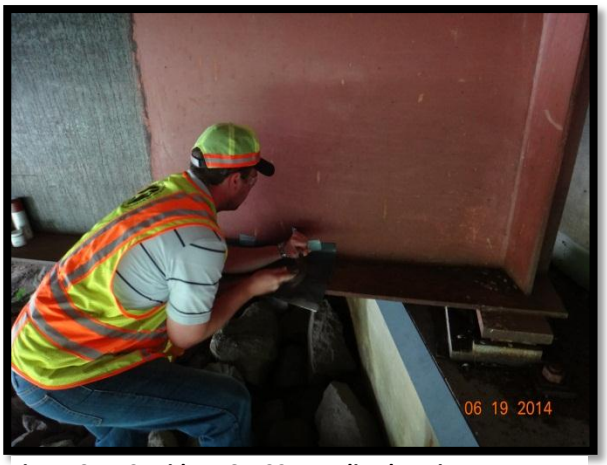

Figure 3.7.12 Bridge #65532 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #L1993

Figure 3.7.13 Bridge #L1993 overall design

Figure 3.7.14 Bridge #L1993 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	**1,600**	**455**	ND	ND

3.8 Metro District

Eighteen bridges were randomly selected and sampled within the Metro District. Figures 3.8.1 through 3.8.34 show the bridges and locations of where the PCB paint samples were collected. The individual PCB analysis results are noted below the bridge picture(s).

Bridge #656

Figure 3.8.1 Bridge #656 overall design

Figure 3.8.2 Bridge #656 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	**922**	ND	ND

Bridge #6582

Figure 3.8.3 Bridge #6582 overall design

Figure 3.8.4 Bridge #6582 sample location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #9417

Figure 3.8.5 Bridge #9417 overall design

Figure 3.8.6 Bridge #9417 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	**284**	**109**	ND	ND

Bridge #27211

Figure 3.8.7 Bridge #27211 overall design

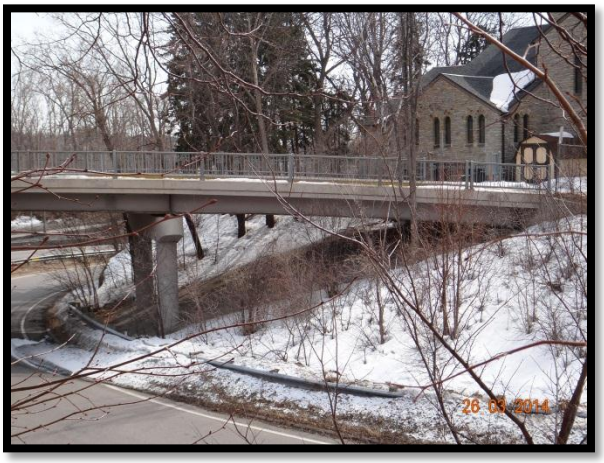

Figure 3.8.8 Bridge #27211 sample location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	**174**	ND	ND	ND

Bridge #82012

Figure 3.8.9 Bridge #82012 overall design

Figure 3.8.10 Bridge #82012 sample location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #6652

Figure 3.8.11 Bridge #6652 overall design

Figure 3.8.12 Bridge #6652 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #5528

Figure 3.8.13 Bridge #5528 overall design

Figure 3.8.14 Bridge #5528 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #10006

Figure 3.8.15 Bridge #10006 overall design

Figure 3.8.16 Bridge #10006 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #27958

Figure 3.8.17 Bridge #27958 overall design

Figure 3.8.18 Bridge #27958 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #27557

Figure 3.8.19 Bridge #27557 overall design

Figure 3.8.20 Bridge #27557 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #27038B

Figure 3.8.21 Bridge #27038B overall design

Figure 3.8.22 Bridge #27038B sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #6517

Figure 3.8.23 Bridge #6517 overall design

Figure 3.8.24 Bridge #6517 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #6512

Figure 3.8.25 Bridge #6512 overall design

Figure 3.8.26 Bridge #6512 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #62014

Figure 3.8.27 Bridge #62014 overall design

Figure 3.8.28 Bridge #62014 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	**1,460**	ND	ND	ND

Bridge #90421

Figure 3.8.29 Bridge #90421 overall design

Figure 3.7.30 Bridge #90421 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #6583

Figure 3.8.32 Bridge #6583 overall design

Figure 3.8.31 Bridge #6583 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #62023

Figure 3.8.33 Bridge #62023 overall design

Figure 3.8.34 Bridge #62023 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

Bridge #10009

Figure 3.7.5 Bridge #10009 overall design

Figure 3.7.6 Bridge #10009 sampling location

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Concentration (ug/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND

4. CONCLUSION

In conclusion, the Minnesota Department of Transportation wanted to determine the extent of PCBs concentration within bridge paint systems applied before 1980. It was determined that ninety-eight (10% sample set) randomly selected PCB paint bridges were to be sampled throughout the state and sent to an accredited analytical laboratory for analysis. Of the ninety-eight bridges tested, thirty-two bridges (33%) tested positive for a PCBs variant (PCB 1242, PCB 1248, PCB 1254 and PCB 1260). These concentrations ranged from 59.9-131,000 ppb (Table 1). However, it appears that only two bridges (2%) tested above the PCB state standard of 50,000 ppb. Bridge #6876 located in District #6, tested positive for PCB variant 1254 at a concentration of 110,000 ppb. Bridge #7202 located in District #8, tested positive for PCB variant 1254 at a concentration of 131,000 ppb. Both of these concentrations are two times higher than the allowable state standard. For any further questions regarding paint removal from steel bridge structures, please contact Mark Vogel or Jackie Klein at MnDOT OES or visit the regulated materials page at http://www.dot.state.mn.us/emvironment/regulatedmaterials/paintremoval.html .

Table 1 PCB summarized laboratory results

	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268
Positive PCB detections	0	0	0	1	2	29	5	0	0
Minimum Concentration (ug/kg)	0	0	0	550	200	78.8	59.9	0	0
Maximum Concentration (ug/kg)	0	0	0	550	209	**131,000**	922	0	0
Average Concentration (ug/kg)	0	0	0	550	204.5	10,781	365.9	0	0

Appendix A
Randomly Selected Bridges

Table A.1 98 Randomly selected PCB bridges and alternatives list

set Name	County	Description	Description	Route #	Alternate ?
L1207	009 - Carlton	CR 157	W FK MOOSE HORN RIVER	D1	
6881	016 - Cook	CLIFFS/ERIE MINE	MN 61	D1	
69840	069 - St. Louis	TH 194 NB	SUPERIOR ST(MSAS171)	D1	
36516	036 - Koochiching	UTWN 79	BEAVER BROOK	D1	
09502	009 - Carlton	CSAH 1	Creek	D1	
33502	035 - Kanebec	CSAH 22	S BR TWO RIVERS	D1	
6546	069 - St. Louis	I35 SB	DW&P RY (ABAN)	D1	
69023	069 - St. Louis	TH 135	DM&IR RY	D1	
5923	016 - Cook	TH 61	PIGEON RIVER	D1	
69824	069 - St. Louis	I 535 SB ON RAMP	I 535 NB & I 35 NB	D1	
69879	069 - St. Louis	I 35 NB	CP RAIL, RAMPS, & STRS	D1	
36003	036 - Koochiching	US 53	E BR RAT ROOT RIVER	D1	
09503	009 - Carlton	CSAH 6	Moose Horn River	D1	ALT
92241	069 - St. Louis	CR 189	JOULA CREEK	D1	
69839	069 - St. Louis	NB MICHIGAN ST	TH 194 SB	D1	
35502	035-Kittson	CR22	Hwy 75	D2	
35517	035 - Kittson	TWP 253	S BR TWO RIVERS	D2	
45515	045 - Marshall	CSAH 36	SNAKE RIVER	D2	ALT
54003	054 - Norman	TH 9	SPRING CREEK	D2	
45001	045 - Marshall	TH 1	SNAKE RIVER	D2	
45513	045 - Marshall	CSAH 6	TAMARAC RIVER	D2	
45002	045 - Marshall	TH 1	SNAKE RIVER	D2	ALT
45526	045 - Marshall	CSAH 2	THIEF RIVER	D2	ALT
45518	045 - Marshall	CSAH 1	MIDDLE RIVER	D2	ALT
54001	054- Norman	TH 9	Wild Rice Creek	D2	ALT
77512	077 - Todd	TWP 76	TURTLE CREEK	D3	
18503	018 - Crow Wing	CSAH 15	PINE RIVER	D3	
77509	077 - Todd	CSAH 14	LONG PRAIRIE RIVER	D3	
80506	080 - Wadena	CSAH 7	CROW WING RIVER	D3	
48518	048 - Mille Lacs	CSAH 18	W BR RUM RIVER	D3	
73820	073 - Stearns	I 94 EB	CR 184	D3	

48504	048 - Mille Lacs	CSAH 20	RUM RIVER	D3	ALT
6557	071 - Sherburne	TH 24	MISS R & MAIN ST	D3	
77510	077 - Todd	CR 79	LONG PRAIRIE RIVER	D3	
18506	018 - Crow Wing	CSAH 31	RABBIT LAKE NARROWS	D3	ALT
49513	049 - Morrison	CSAH 21	S BR TWO RIVERS	D3	
21824	021 - Douglas	I 94 EB	CSAH 1	D4	ALT
21805	021 - Douglas	I 94 WB	LATOKA LAKE	D4	
14804	014 - Clay	I 94 EB	S BR BUFFALO R	D4	
76002	076 - Swift	US 59	POMME DE TERRE RIVER	D4	ALT
14005	014-Clay	Cty rd 9	Buffalo river	D4	ALT
9692	056 - Otter Tail	I 94 EB	CSAH 88	D4	
75502	075 - Stevens	CSAH 8	POMME DE TERRE RIVER	D4	
7275	084-Wilkin	US 210	Cty Rd 19	D4	ALT
6550	076 - Swift	TH 29	DITCH	D4	
9017	037 - Lac qui Parle County	US 75	STREAM	D4	
9425	019 - Dakota	US 52 NB	Cannon River	D6	
79511	079 - Wabasha	CSAH 5	GILBERT CREEK	D6	
79510	079 - Wabasha	CSAH 2	MILLER CREEK	D6	
7212	055 - Olmsted	CSAH 3	MID FK ZUMBRO RIVER	D6	
85813	085 - Winona	I 90 EB ON RAMP	CP RAIL	D6	
L5065	050 - Mower	TWP 123	STREAM	D6	
55506	055 - Olmsted	CSAH 14	S BR MID FK ZUMBRO RIVER	D6	
55010	055 - Olmsted	US 52 SB	TH 63	D6	
85507	085 - Winona	CSAH 30	BEAVER CREEK	D6	
55535	055 - Olmsted	CSAH 32	S FK WHITEWATER RIVER	D6	
L1072	079 - Wabasha	CR 70	STREAM	D6	
4909	055 - Olmsted	DM&E RR	US 14	D6	
2992	079 - Wabasha	TWP 231	WEST INDIAN CREEK	D6	
6470	050 - Mower	TH 56	STREAM	D6	
3345	050 - Mower	TWP 39	STREAM	D6	
9727	024 - Freeborn	I 90 WB	I&M RAIL & CSAH 46	D6	
53804	053 - Nobles	I 90 WB	Kanaranzi Cr	D7	
6787	067 - Rock	CSAH 17	BEAVER CREEK	D7	

776	032 - Jackson	CR 83	S FK ELM CREEK	D7	
32501	032 - Jackson	CSAH 4	DES MOINES RIVER	D7	
08519	008 - Brown	CSAH 22	LITTLE COTTONWOOD RIVER	D7	
7008	081 - Waseca	CR 34	LE SUEUR RIVER	D7	
22803	022 - Faribault	I 90 WB	BLUE EARTH RIVER	D7	ALT
17503	017 - Cottonwood	CSAH 15	DES MOINES RIVER	D7	
53524	053 - Nobles	TWP 176	JACK CREEK	D7	
5084	007 - Blue Earth	CR 169	LITTLE COBB RIVER	D7	ALT
6876	022 - Faribault	TH 253	E FK BLUE EARTH RIVER	D7	
53523	053 - Nobles	CSAH 16	JACK CREEK	D7	
L1993	041 - Lincoln	CR 101	E FK LAC QUI PARLE RIVER	D8	
7202	064 - Redwood	CSAH 11	MINNESOTA RIVER	D8	
5615	065 - Renville	CSAH 37	CHETAMBA RIVER	D8	ALT
65532	065 - Renville	CSAH 6	MINNESOTA RIVER	D8	ALT
64502	064 - Redwood	CSAH 7	REDWOOD RIVER	D8	ALT
47526	047 - Meeker	CSAH 30	N FK CROW RIVER	D8	
10009	Carver	TH5	RR xing	Metro	
9417	002 - Anoka	TH 65 NB	COON CREEK	Metro	
82012	082 - Washington	PED	GORGE	Metro	
6582	062 - Ramsey	CP RAIL	I 694 & Co Rd E	Metro	
27211	027 - Hennepin	Chapel Road	TH 5 WB on ramp	Metro	
27958	027 - Hennepin	PED @ Seymour	I 94	Metro	
656	062 - Ramsey	CP RAIL	CSAH 76(SNELLING AV)	Metro	
27557	027 - Hennepin	PEDESTRIAN	CSAH 66(DULUTH ST)	Metro	
5528	070 - Scott	CP RAIL	MN 13	Metro	
270388	027 - Hennepin	Ped Brooklyn Blvd	TH 100	Metro	
10006	010 - Carver	TH 41	TC&W RR	Metro	
L8069	027 - Hennepin	MUN 137(INDIAN RD)	STREAM	Metro	
5199	027 - Hennepin	CP RAIL	TH 7	Metro	
9592	062 - Ramsey	CP RAIL	I 35E	Metro	
L9265	027 - Hennepin	NORTHOME AVE	PED-BIKE	Metro	
92332	027 - Hennepin	BNSF RR	WASHINGTON ST NE	Metro	
91453	062 - Ramsey	SKYWAY	MSAS 236(ST PETER ST)	Metro	
62023	062-Ramsey	Ped bridge, Winfield st.	Off Hey 52,st. paul	Metro	ALT

Appendix B
Statewide Bridge Locations

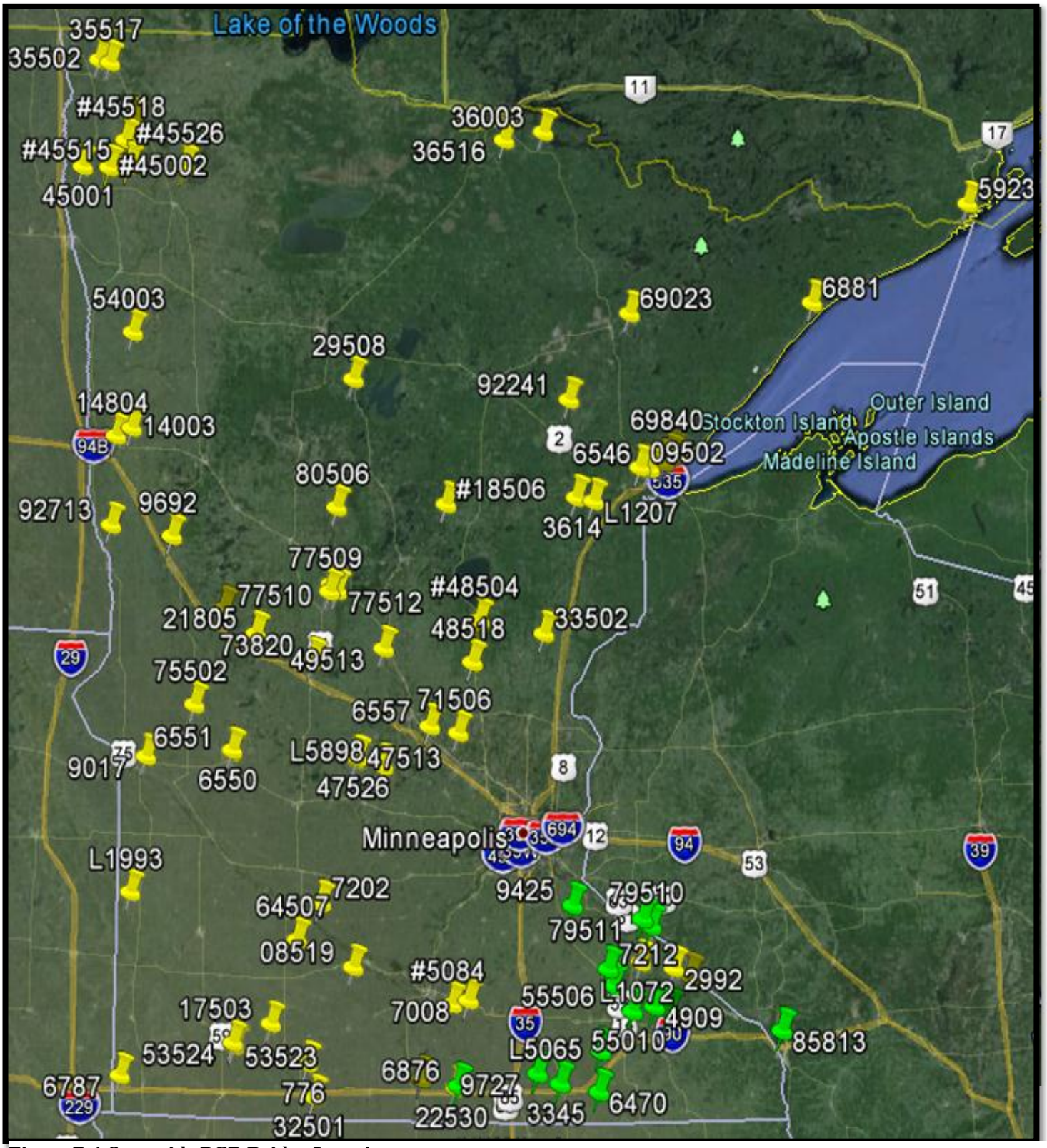

Figure B.1 Statewide PCB Bridge Locations

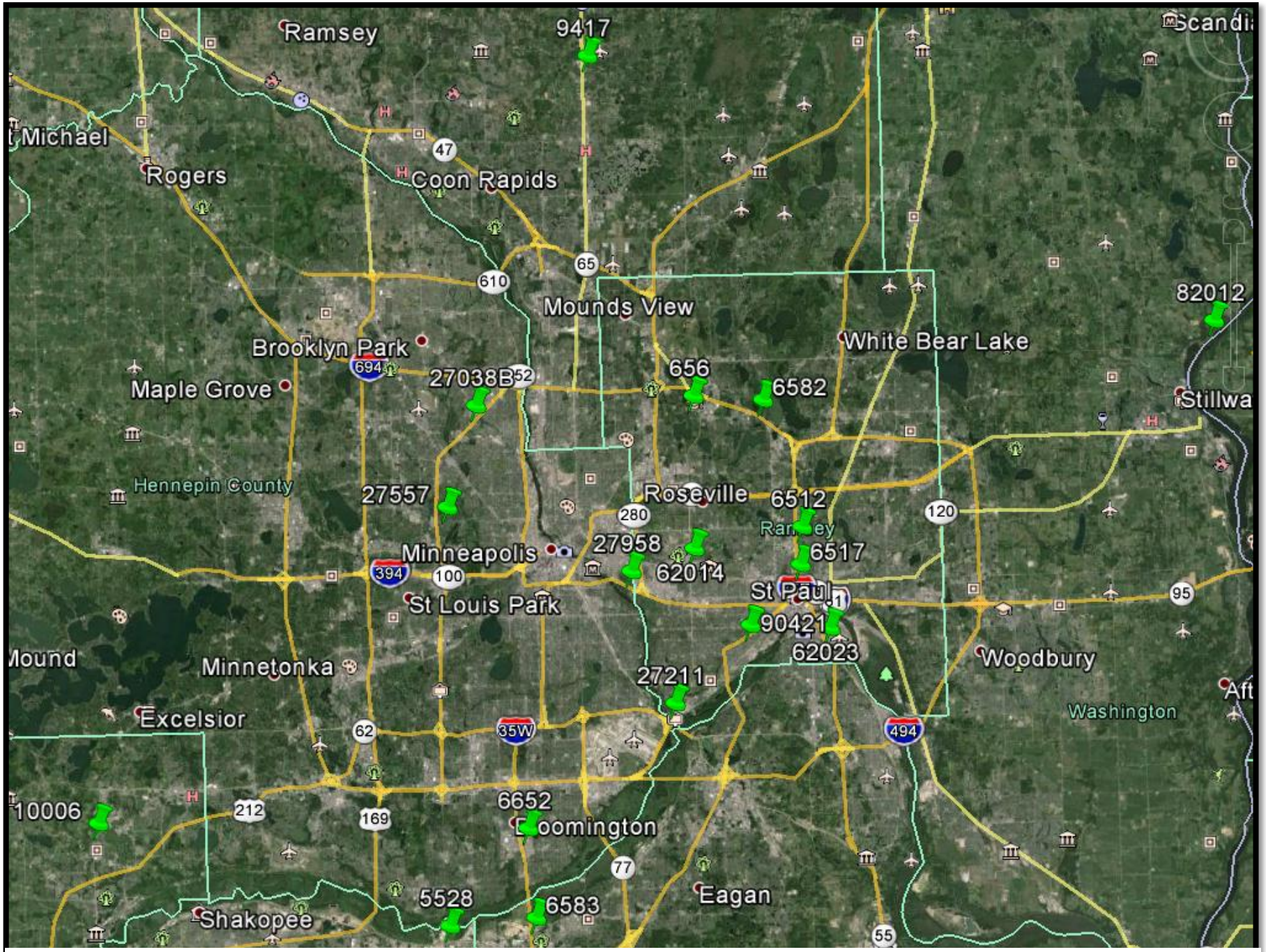

Figure B. 2 Metro PCB Bridge Locations

Appendix C
PCB Laboratory Analysis Result Summary (ppb)

Bridge #	District	Aroclor-1016	Aroclor-1221	Aroclor-1232	Aroclor-1242	Aroclor-1248	Aroclor-1254	Aroclor-1260	Aroclor-1262	Aroclor-1268
9417	Metro	ND	ND	ND	ND	ND	***284***	***109***	ND	ND
82012	Metro	ND	ND	ND	ND	ND	ND	ND	ND	ND
6582	Metro	ND	ND	ND	ND	ND	ND	ND	ND	ND
27211	Metro	ND	ND	ND	ND	ND	***174***	ND	ND	ND
656	Metro	ND	ND	ND	ND	ND	ND	***922***	ND	ND
5528	Metro	ND	ND	ND	ND	ND	ND	ND	ND	ND
10006	Metro	ND	ND	ND	ND	ND	ND	ND	ND	ND
6652	Metro	ND	ND	ND	ND	ND	ND	ND	ND	ND
27958	Metro	ND	ND	ND	ND	ND	ND	ND	ND	ND
27557	Metro	ND	ND	ND	ND	ND	ND	ND	ND	ND
27038B	Metro	ND	ND	ND	ND	ND	ND	ND	ND	ND
6517	Metro	ND	ND	ND	ND	ND	ND	ND	ND	ND
6512	Metro	ND	ND	ND	ND	ND	ND	ND	ND	ND
90421	Metro	ND	ND	ND	ND	ND	ND	ND	ND	ND
6583	Metro	ND	ND	ND	ND	ND	ND	ND	ND	ND
10009	Metro									
62014	Metro	ND	ND	ND	ND	ND	***1,460***	ND	ND	ND
62023	Metro	ND	ND	ND	ND	ND	ND	ND	ND	ND
L1207	D1	ND	ND	ND	ND	ND	ND	ND	ND	ND
6881	D1	ND	ND	ND	ND	ND	ND	ND	ND	ND
69840	D1	ND	ND	ND	ND	ND	***77.9***	ND	ND	ND
36516	D1	ND	ND	ND	ND	ND	ND	ND	ND	ND
09502	D1	ND	ND	ND	ND	ND	***25,300***	ND	ND	ND
35502	D1	ND	ND	ND	ND	ND	ND	ND	ND	ND
6546	D1	ND	ND	ND	ND	ND	ND	ND	ND	ND

*ND indicates no concentration detected

69023	D1	ND	ND	ND	ND	ND	***414***	ND	ND	ND
5923	D1	ND	ND	ND	ND	ND	ND	ND	ND	ND
69824	D1	ND	ND	ND	ND	ND	ND	ND	ND	ND
69879	D1	ND	ND	ND	ND	ND	ND	ND	ND	ND
36003	D1	ND	ND	ND	ND	ND	***4,100***	ND	ND	ND
09503	D1	ND	ND	ND	ND	ND	ND	ND	ND	ND
92241	D1	ND	ND	ND	ND	ND	ND	ND	ND	ND
69839	D1	ND	ND	ND	ND	***209***	***149***	ND	ND	ND
35502	D2	ND	ND	ND	ND	ND	ND	ND	ND	ND
35517	D2	ND	ND	ND	ND	ND	ND	ND	ND	ND
45515	D2	ND	ND	ND	ND	ND	ND	ND	ND	ND
54003	D2	ND	ND	ND	ND	ND	ND	ND	ND	ND
45001	D2	ND	ND	ND	***550***	ND	***150***	***59.9***	ND	ND
45513	D2	ND	ND	ND	ND	***200***	ND	ND	ND	ND
45002	D2	ND	ND	ND	ND	ND	ND	ND	ND	ND
45526	D2	ND	ND	ND	ND	ND	ND	ND	ND	ND
45518	D2	ND	ND	ND	ND	ND	ND	ND	ND	ND
54001	D2	ND	ND	ND	ND	ND	ND	ND	ND	ND
18503	D3	ND	ND	ND	ND	ND	***78.8***	ND	ND	ND
77512	D3	ND	ND	ND	ND	ND	ND	ND	ND	ND
77509	D3	ND	ND	ND	ND	ND	***707***	ND	ND	ND
80506	D3	ND	ND	ND	ND	ND	ND	ND	ND	ND
48518	D3	ND	ND	ND	ND	ND	ND	ND	ND	ND
73820	D3	ND	ND	ND	ND	ND	***229***	ND	ND	ND
48504	D3	ND	ND	ND	ND	ND	***487***	ND	ND	ND
6557	D3	ND	ND	ND	ND	ND	***208***	ND	ND	ND
77510	D3	ND	ND	ND	ND	ND	ND	ND	ND	ND
18506	D3	ND	ND	ND	ND	ND	***133***	ND	ND	ND
49513	D3	ND	ND	ND	ND	ND	ND	***284***	ND	ND
21824	D4	ND	ND	ND	ND	ND	ND	ND	ND	ND

*ND indicates no concentration detected

21805	D4	ND	ND	ND	ND	ND	***158***	ND	ND	ND
14804	D4	ND	ND	ND	ND	ND	ND	ND	ND	ND
7275	D4	ND	ND	ND	ND	ND	***268***	ND	ND	ND
9692	D4	ND	ND	ND	ND	ND	ND	ND	ND	ND
14005	D4	ND	ND	ND	ND	ND	ND	ND	ND	ND
75502	D4	ND	ND	ND	ND	ND	***716***	ND	ND	ND
6550	D4	ND	ND	ND	ND	ND	***2,960***	ND	ND	ND
76002	D4	ND	ND	ND	ND	ND	ND	ND	ND	ND
9017	D4	ND	ND	ND	ND	ND	***842***	ND	ND	ND
9425	D6	ND	ND	ND	ND	ND	***1,570***	ND	ND	ND
79511	D6	ND	ND	ND	ND	ND	ND	ND	ND	ND
79510	D6	ND	ND	ND	ND	ND	ND	ND	ND	ND
7212	D6	ND	ND	ND	ND	ND	***27,300***	ND	ND	ND
85813	D6	ND	ND	ND	ND	ND	ND	ND	ND	ND
L5065	D6	ND	ND	ND	ND	ND	ND	ND	ND	ND
55506	D6	ND	ND	ND	ND	ND	ND	ND	ND	ND
55010	D6	ND	ND	ND	ND	ND	ND	ND	ND	ND
85507	D6	ND	ND	ND	ND	ND	***485***	ND	ND	ND
55535	D6	ND	ND	ND	ND	ND	ND	ND	ND	ND
L1072	D6	ND	ND	ND	ND	ND	ND	ND	ND	ND
4909	D6	ND	ND	ND	ND	ND	ND	ND	ND	ND
2992	D6	ND	ND	ND	ND	ND	ND	ND	ND	ND
6470	D6	ND	ND	ND	ND	ND	***1,090***	ND	ND	ND
6876	D6	ND	ND	ND	ND	ND	***110,000***	ND	ND	ND
3345	D6	ND	ND	ND	ND	ND	ND	ND	ND	ND
9727	D6	ND	ND	ND	ND	ND	ND	ND	ND	ND
53804	D7	ND	ND	ND	ND	ND	***604***	ND	ND	ND
6787	D7	ND	ND	ND	ND	ND	ND	ND	ND	ND
776	D7	ND	ND	ND	ND	ND	ND	ND	ND	ND
32501	D7	ND	ND	ND	ND	ND	ND	ND	ND	ND

*ND indicates no concentration detected

08519	D7	ND	ND	ND	ND	ND	ND	ND	ND	ND
7008	D7	ND	ND	ND	ND	ND	ND	ND	ND	ND
22803	D7	ND	ND	ND	ND	ND	ND	ND	ND	ND
17503	D7	ND	ND	ND	ND	ND	ND	ND	ND	ND
5084	D7	ND	ND	ND	ND	ND	ND	ND	ND	ND
53523	D7	ND	ND	ND	ND	ND	ND	ND	ND	ND
53524	D7	ND	ND	ND	ND	ND	ND	ND	ND	ND
64502	D8	ND	ND	ND	ND	ND	ND	ND	ND	ND
L1993	D8	ND	ND	ND	ND	ND	***1,600***	***455***	ND	ND
7202	D8	ND	ND	ND	ND	ND	***131,000***	ND	ND	ND
5615	D8	ND	ND	ND	ND	ND	***132***	ND	ND	ND
10009	D8	ND	ND	ND	ND	ND	ND	ND	ND	ND
47526	D8	ND	ND	ND	ND	ND	ND	ND	ND	ND
65532	D8	ND	ND	ND	ND	ND	ND	ND	ND	ND

*ND indicates no concentration detected

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