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Appendix L
Flux Chamber and Ambient Air Sampling and Analysis

Final Report

Flux Chamber Sampling and Analysis
Pre-Design Field Test
New Bedford Harbor Superfund Site

Prepared for:

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Attention: Helen Douglas

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15 June 2001

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ACRONYMS AND ABBREVIATIONS

Avg	Average
CB	Chlorinated biphenyl
CDF	Confined disposal facility
CoC	Chain-of-Custody
Conc	Concentration
% CV	Percent coefficient of variation
DL	Detection limit
deg	Degree
EPA	Environmental Protection Agency
ft	Feet
FWENC	Foster Wheeler Environmental Corporation
IUPAC	International Union of Pure and Applied Chemistry
LCS	Laboratory control sample
MS	Matrix spike
MSD	Matrix spike duplicate
NA or n/a	Not applicable
NC	Not calculated
ND	Not detected
ng	Nanogram (1 ng = 10^{-9} g)
NIST	National Institute for Standards and Testing
NOAA	National Oceanic and Atmospheric Administration
OSHA	Occupational Safety and Health Administration
PCBs	Polychlorinated biphenyls
ppm	Parts-per-million
ppm-v	Parts-per-million on a volume basis
ppm-w	Parts-per-million on a weight basis
QA	Quality assurance
QAPP	Quality assurance project plan
QC	Quality control
RPD	Relative percent difference
T	Temperature
μg	Microgram (1 μg = 10^{-6} g)
VOC	Volatile organic compound
WHO	World Health Organization

METRIC CONVERSIONS

Non-Metric Unit	Multiplied by	Yields Metric Unit
Degree Fahrenheit (°F)	0.555556 (°F-32)	Degree Celsius (°C)
Inch (in.)	2.54	Centimeter (cm)
Foot (ft.)	0.3048	Meter (m)
Mile	1609.344	Meter (m)
Pound (lb.)	0.453592	Kilogram (kg)
Gallon (gal.)	3.78541	Liter (L)
Miles per hour (mph)	0.44704	Meters per second (m/sec)

1.0 Introduction

URS Corporation (URS), under contract to Foster Wheeler Environmental Corporation (FWEC), measured the emission flux of polychlorinated biphenyls (PCBs) associated with dredging operations. This report summarizes the results of the testing performed by URS.

1.1 Background

The New Bedford Harbor Superfund site is located in New Bedford, Massachusetts. The 18,000-acre site is an urban tidal estuary with sediments that are contaminated with PCBs. Local manufacturers of electric devices used PCBs from 1940 to the late 1970s, when the US EPA banned the use of PCBs. Industrial wastes containing PCBs were discharged directly into the harbor and indirectly, via the city's sewer system. As a result, the harbor is contaminated in varying degrees from the upper Acushnet River to Buzzards Bay. The highest levels of PCBs occur in the northern Acushnet River Estuary. Tidal action transports contamination from the upper harbor to the lower harbor, and ultimately into Buzzrds Bay.

A pre-design field test was performed during August 2000 to evaluate one dredging approach being considered for use during the future full-scale remediation. The dredge was floated on a barge. Sediments were dredged from several cuts (areas) in the harbor where the level of PCB contamination has previously been characterized. Sediments were removed from several cells within each cut. The dredging approach utilized equipment to accurately position the dredge at areas of suspected contamination to minimize the amount of sediment to be removed. The dredged material was placed into a hopper on the barge and ultimately pumped to a confined disposal facility (CDF) located on shore. The dredge bucket was self-sealing to minimize loss of water and sediment during transfer of the dredged material from the harbor to the hopper. Equipment on the barge was used to control the percent solids in the pumped material and thereby minimize the amount of wastewater to be treated.

1.2 Objective

URS used a flux chamber to collect samples of gas-phase PCBs, which were sent to an off-site laboratory for analysis. The flux chamber was placed over the emitting material and operated as specified in "Measurement of Gaseous Emission Rates from Land Surfaces Using an Emission Isolation Flux Chamber - User's Guide", EPA/600/8-86/008, February 1986. XAD resin was used to collect the PCBs.

The overall objective of the sampling effort was to characterize the emission flux of PCBs from each emission source associated with dredging operations. The emission flux was measured at and around the dredge barge, as well as at the CDF where dredged material was pumped for storage. The effect of additives (e.g., surfactants) was measured. Ultimately, the measured emission rates will be used as input to an atmospheric dispersion model to estimate impacts to local air quality.

2.0 Technical Approach

This section contains a description of the technical approach that was employed in the study. The test matrix is given below, followed by presentation of the sampling procedures, test description, analytical procedures, calibration procedures, and sample handling procedures.

2.1 Test Matrix

A total of 27 emission flux tests were performed, following the test matrix summarized in Table L-1. The tests fall into three general categories: 1) Tests to characterize the emissions from the dredge barge; 2) Tests to characterize the emissions from the confined disposal facility; and 3) Tests to characterize the effectiveness of various options for emission control at the CDF.

2.2 Sampling Procedures

2.2.1 Flux Chamber Sampling

The air emissions of PCB's from the various sources were measured using a flux chamber, a standard US EPA measurement method (Ref. 1). Flux chambers have been widely used to measure emission fluxes of volatile organic compounds (VOCs) and inorganic gaseous pollutants from a wide variety of sources. The method has been applied to measuring emission rates from quiescent surface impoundments (Refs. 2, 3).

The flux chamber is an enclosure, which is used to isolate and sample gaseous emissions from a defined surface area (0.13 m^2). Clean, dry sweep air is added to the chamber at a fixed, controlled rate (e.g., 0.005 m^3/min). The volumetric flow rate of sweep air through the chamber is recorded and the concentration of the species of interest is measured at the exit of the chamber.

Emission flux measurements provide an estimate of the amount of a single species or multiple species being emitted from a given surface area per unit time. These data can then be used to develop emission rates for a given source for purposes of predictive modeling for population exposure assessments.

The flux chamber is effectively isolated from most external environmental conditions such as wind speed. Therefore, the measurement data are not strongly dependent on the meteorological conditions present at the site on the days of sampling. The data are thus directly comparable from day to day and site to site.

Table L-1. Test Matrix

Test Series	Location	Description of Test	No. of Tests	Notes
A	CDF	Fresh slurry transferred into container	3	
B	CDF	Water surface of CDF	3	Test series A material + water layer
C	CDF	Sheen on surface of CDF	3	
D	CDF	Water surface near sheen	2	
E	CDF	Sheen + surfactant	3	Test series C location + surfactant. Three separate surfactants were tested
F	Dredge Barge	Moon pool	4	
G	Dredge Barge	Outside silt fence	3	Measurements made in area immediately after dredge moved out of area
H	Dredge Barge	Hopper / grizzly screen	3	Headspace sample
I	Harbor	Mud flat in harbor	3	Measurements to be made at areas with relatively high levels of PCB contamination
	N/A	Reagent Blanks	2	One blank included per shipment of samples to off-site laboratory

Data Comparisons:

A vs. B = Control effectiveness of water cover
C vs. E = Control effectiveness of surfactant
C vs. D = Evaluate model assumption that floating oil layer reduces emissions
C vs. F = "Reality check" of measured emission levels
A vs. I = "Reality check" of measured emission levels
F + G + H = Total emissions from dredging barge

There is a practical limit to the size of the flux chamber. Therefore, it is necessary to make a series of flux measurements to assess the spatial variability in emissions for a given source. These data allow estimation of an emission rate with a known confidence limit; i.e., a set of emission flux (mass/time-area) measurements are necessary to estimate an emission rate (mass/time) for an entire source. Repeated measurements at a given location can be performed to assess temporal variability.

The testing procedures used during this study were based on the EPA User's Guide for flux chamber monitoring prepared by URS (Radian) for the U.S. EPA in the 1980's. A boat was used to access the sampling points, both at the dredge barge and at the CDF. The flux chamber was outfitted with a flotation system (i.e., inner tube from an automobile tire) and operated adjacent to the boat. Two flux chambers were operated simultaneously for some sources. The generic sampling procedure was as follows:

- Move equipment to the location to be sampled;
- Begin sweep air flow;
- Record time, meteorological conditions, and temperatures;
- Place clean enclosure on emitting surface;
- Monitor flowrates and note when steady-state concentrations are reached;
- Record air temperature inside the chamber;
- Collect samples;
- Remove enclosure; and
- Decontaminate enclosure prior to next use.

The flux chamber was operated at a sweep airflow rate of 5 liters per minute (0.005 m^3/min). It typically takes three to four residence times before steady-state concentrations are reached inside the chamber and sampling can be initiated. The residence time,τ, is defined as the chamber volume divided by the sweep air flow rate. For this study, the volume of the flux chambers was 30 liters, so steady state conditions were reached after 24 minutes [(30/5) x 4 = 24]. Sample collection began 24 minutes after the start of each run and samples were collected over a period of 60 to 120 minutes.

2.2.2 Air Samples

Once steady state concentrations were achieved inside the flux chamber atmosphere, the PCB samples were collected. The samples were collected through one of two sample ports at the top of the flux chamber. Each sample port consisted of a perforated sampling tube extending about six inches into the flux chamber headspace to ensure a representative sample.

PCB samples were collected using about 40g of XAD resin contained within a standard glass trap used in stack sampling by modified method 5 (MM5). The inlet to the glass trap was connected to the flux chamber sample port using teflon tubing. A sampling pump was used to collect the PCB samples at a flowrate of approximately 2.5 L/min. The flowrate was determined using a rotometer attached to the outlet of the PCB sampling apparatus. The samples typically ran for 60 minutes, yielding a total sample volume of 150 L. At the conclusion of the sampling, the glass trap was removed from the apparatus, wrapped in aluminum foil, and placed into a transport container. The transport container was labeled with all necessary sampling information.

2.2.3 Source Samples

Samples of the water, slurry, or other contaminated material under the flux chamber were collected as part of each emission flux test. Grab samples were collected from the surface immediately under the flux chamber, if this area could be accessed, or immediately adjacent to the flux chamber, if the area under the chamber could not be accessed. The samples were collected in 125-mL glass containers with minimal headspace present and stored on-site at 4°C. FWEC was responsible for the analysis of these samples. Results of these analyses are given in Attachment F.

2.3 Description of Tests

Each of the series of tests presented in Table L-1 is described in the following subsections. Additional information may be found in the field data sheets (see Attachment B).

2.3.1 Test Series A - Fresh Slurry

The dredged sediments were placed into a hopper on the barge, mixed with recirculating water, and pumped about 1 kilometer to the CDF through a flexible pipe. While dredging was underway, slurry was continuously discharged into the CDF from the end of the pipe, suspended about two meters above the water surface.

Surface emission isolation flux chamber tests were performed on three samples of fresh slurry to determine the steady-state air emissions from exposed slurry and sediment within the CDF. Samples of fresh slurry were collected from the discharge end of the pipe using a 5-gallon plastic bucket fixed to the end of a pole. The samples were transferred to a galvanized metal wash basin that was approximately 0.5m (20 in) in diameter at its base and 0.6m (24 in) at its mouth. The depth of slurry in the basins was about 7.5 cm (3 in), yielding a total volume of about 15 L (4 gal) of material. The percent solids content of the three batches of slurry appeared to vary, with the 2nd test (A2) having the highest solids content and the 3rd test (A3) having the lowest solids content.

The flux chamber was placed within the wash basin with the bottom edge of the chamber beneath the liquid surface to seal the chamber. The tests were performed as described in section 2.2.

2.3.2 Test Series B - Water Cover Over Fresh Slurry

This test series was performed to evaluate the effectiveness of a water cover at the CDF for reducing air emissions from the quiescent waste material. Immediately after the completion of test series A (see 2.3.1), the flux chambers were removed from the basins and 7.5 L (2 gal) of water from the harbor was slowly added to the slurry surface. The added water diluted the slurry and increased the depth of liquid in the basins by about 5 cm (2 in). The flux chamber was placed within the wash basin with the bottom edge of the chamber beneath the liquid surface to seal the chamber. The tests were performed as described in section 2.2.

2.3.3 Test Series C - Sheen on Water Surface

The emissions modeling performed by FWENC prior to the measurement program indicated that emissions from the CDF should be reduced by the oil sheen that forms on the water surface. The sheen serves as a floating cover or barrier to volatilization of the PCBs present in the underlying water. Surface emission isolation flux chamber tests were performed on three areas of floating sheet to determine the steady-state air emissions from areas covered by sheen within the CDF. During the initial days of dredging, a floating boom was used to contain the sheen around the area where slurry was discharged entered the CDF. The first two tests in the series (C1 and C2) were performed simultaneously at adjacent locations within the boom about 10m from the discharge end of the pipe. Continued discharge of fresh slurry may have contributed to mixing of the material under the flux chamber during these two tests.

The third test in the series (C3) was performed the following day, by which time large volumes of slurry had been pumped to the CDF and a "sand bar" of sediment had formed. Test C3 was performed over a light sheen outside the boom in an area containing large amounts of sediment and not affected by the further discharge of fresh slurry. All three tests were performed from a small boat in the CDF. The flux chambers were floated next to the boat and the tests were performed as described in section 2.2.

2.3.4 Test Series D - Water Surface Near Sheen

This series of tests was performed to determine if the emissions modeling was correct in predicting that the air emissions from water surfaces near a floating oil sheen are higher than air emissions from the oil sheen itself. Tests D1 and D2 were performed consecutively at locations along the east wall of the CDF. Test D1 was performed about 4.5m (15 ft) away from the location of tests C3 and E3, near the area of light sheen. For Test D2, the flux chamber was moved another 3m (10 ft) away from the area of light sheen. Flux chamber testing and measurements were conducted as described in Section 2.2.

2.3.5 Test Series E - Sheen + Surfactant

This test series was conducted in conjunction with test series C. Immediately after the conclusion of tests C1, C2, and C3, a surfactant was introduced and the emission flux test repeated. Five to six squirts of surfactant from a hand-pump sprayer were introduced directly into the flux chamber through the pressure relief hole on the top of the chamber. The tests were as follows:

- Test D1 = Dawn surfactant added to Test C1;
- Test D2 = Biosolve surfactant added to Test C2; and
- Test D3 = Simple Green surfactant added to Test C3.

Flux chamber testing and measurements were conducted as described in Section 2.2.

2.3.6 Test Series F - Moon Pool at Dredge Barge

Dredging was conducted in a rectangular area called the moon pool, which was bounded on three sides by the barge and on the fourth side by a sediment fence. Surface emission isolation flux chamber tests were performed at four locations to determine the steady-state air emissions from water and sediment stirred-up by the dredging action.

The first two tests (F1 and F2) were performed immediately after dredging concluded for the day on August 11 to avoid interfering with the movement of the dredge bucket. The two tests were performed simultaneously from the edge of the barge. Tests F3 and F4 were performed on August 14 while dredging was underway at the top of Cut 8. The two flux chambers were positioned adjacent to one another just within the sediment fence and outside the reach of the dredge bucket. In all cases, flux chamber testing and measurements were conducted as described in Section 2.2.

2.3.7 Test Series G - Outside the Silt Fence at Dredge Barge

This test series was performed to qualitatively evaluate the air emissions from the sediment plume outside the silt fence. Surface emission isolation flux chamber tests were performed at three locations to determine the steady-state air emissions from water and sediment stirred-up by the dredging action. The sediment plume and any associated emissions can also be estimated from water quality measurements performed by other contractors at the site, and these water quality measurements should provide much better plume definition than the limited number of air emission tests.

The first test in the series, F1, was conducted on August 11 at a location just outside the silt fence while dredging was underway. Moon pool test G2 was performed at a nearby location immediately after the conclusion of test F1. Tests G2 and G3 were performed simultaneously at adjacent locations about 12m (40 ft) outside the site fence while dredging was underway. Test G3 was performed at a slightly farther distance from the dredging than Test G2. In all cases, flux chamber testing and measurements were conducted as described in Section 2.2.

2.3.8 Test Series H - Hopper / Grizzly Screen

The dredged material was placed into a large hopper, where a grate (i.e., the grizzly) was used to remove large objects. The material that passed the grizzly was mixed with water and pumped to the CDF. The hopper was not suited for flux chamber testing, so an alternative approach was employed. A sampling line was extended down into the hopper to a level 10 to 15 cm (4 to 6 in) below the grizzly and a "headspace" sample within the hopper was collected while dredging was underway and the hopper was being used. Three "headspace" samples were collected.

2.3.9 Test Series I - Mud Flat in Harbor

The mud flats along the Acushnet River at the extreme north end of the harbor include areas that are heavily contaminated with PCBs. Surface emission isolation flux chamber tests were performed at three locations to determine the steady-state air emissions from contaminated soils. The samples were collected for comparison to the fresh slurry tested in test series A.

The three sampling locations were selected from a map provided by FWENC showing the results of shallow soil borings collected during a previous sampling effort this year. The tests were as follows:

- Test I1 = Soil boring SB-657, which contains 15,500 ppmw (dry) total aroclors at the 0-1 ft depth;
- Test I2 = Soil boring SB-602, which contains 9,500 ppmw (dry) total aroclors at the 0-1 ft depth; and
- Test I3 = Soil boring SB-650, which contains 16,600 ppmw (dry) total aroclors at the 1-2 ft depth.

The sampling locations are shown in Figure L-1. The sampling locations are close together and the survey markers were no longer present at some locations, so it was difficult to tell if locations I2 and I3 were at the soil borings identified above. Test I3 was performed about 2.5m (8 ft) from the water's edge and test I2 was performed another 2.5m (8 ft) further inland.

All three tests were performed in areas that were wet and muddy, with lots of organic matter in the soil. Some vegetation was removed to allow the flux chamber to be placed onto the location and worked into the ground to effect a good seal. The flux chamber testing and measurements were conducted as described in Section 2.2.

2.4 Analytical Procedures

All air samples were shipped to Alta Analytical Laboratory (Alta) in El Dorado Hills, CA for analysis. Alta maintains USACE validation. The PCB analysis was performed using high resolution gas chromatography with high resolution gas spectromery (HRGCMS)(mass resolution $\geq$10,000) operating in selected ion (SIM) mode for total PCB homologue groups and 30 individual PCB congeners. The samples were extracted within 10 days of the date sampled and the extracts were analyzed within 40 days of extraction.

All liquid and solid samples were turned over to FWENC for compositing and off-site analysis for PCBs. The results of these analyses are shown in Attachment F.

2.5 Calibration Procedures

Rotometers were used to maintained sample and sweep air flow. The calibrations of the rotometers were completed at the URS Austin laboratory, prior to shipment to the field. Using these calibration data, URS calculated sample flows. The results of the various calibrations that were performed are summarized in Section 5 along with other quality control results.

2.6 Sample Handling and Chain of Custody Procedures

Upon completion of the collection of each field sample, the sample was labeled with the project sample number (e.g., URS A1). The project sample number, along with the date, time, location, and test number were recorded in the master data logbook. The samples were decontaminated, if needed, and taken out of the exclusion zone. The samples were then packed for shipment and chain-of-custody forms were filled out to accompany the samples.


LEGEND
Air Sampling Station
Mean Lower Low Water
Mean High Water
Vegetation Line
Elevation 13.0 NGVD
N
50 0 50 Feet
NEW BEDFORD HARBOR SUPERFUND SITE
BRISTOL COUNTY, MASSACHUSETTS
FLUX CHAMBER SAMPLING COLLECTION LOCATIONS IN MUDFLAT AREAS
SCALE 1" = 50'
2709650
2709600
2709550
2709500
2709450
2709400
2709350
2709300
2709250
2709200
815000
815050
815100
815150
815200
815250
815300

Figure L-1

3.0 Results

This section presents the summarized results of the field measurements, with the exception of the results of QC checks, which are presented in Section 5.

3.1 Summary of Tests

The key information for the 27 flux chamber tests is summarized in Table L-2. The master logbook and the individual field data sheets may be found in Attachments A and B, respectively.

3.2 Measured Mass of PCBs

The exhaust gas from the flux chamber was passed through XAD resin for subsequent off-site analysis of PCBs. These data are presented in Table L-3 along with the total volume of air drawn through the sorbent. The average concentration (ng/m^3) of PCBs within the flux chamber can be calculated by dividing the mass of PCBs in ng by the sample size in m^3. The laboratory analytical summary is Attachment C to this report.

3.3 Calculated Emission Fluxes

Emission fluxes for each of the flux chamber tests are given in Table L-4. The emission fluxes for each test were calculated as follows:

$$E = \frac{(C)(Q)}{A}$$

where:
- E = emission flux ($\mu g/m^2$ - min);
- C = concentration ($\mu g/m^3$);
- Q = sweep air flow rate (m^3/min); and
- A = surface area (m^2).

For all of the flux chamber tests, the sweep air flow rate was 5 L/min (0.005 m^3/min) and the surface area of source material that was monitored was 0.13 m^2. Therefore, the above equation reduces to: E = (0.038)(C).

Note that the samples collected from the hopper are reported in Table L-4 as a concentration (ng/m^3), rather than as an emission flux. As discussed in Section 2, these samples are a headspace concentration of the air within the hopper.

Table L-2. Summary of Flux Chamber Tests

Test ID[a]	Sample No.	Date	Test Type	Location	Duration of Sample Collection (min)	Comments
A1	URS A16	15-Aug	Fresh Slurry	CDF	66	Slurry appears to be about 5% solids.
A2	URS A17	15-Aug	Fresh Slurry	CDF	65	Highest solids loading of the three slurry samples.
A3	URS A18	15-Aug	Fresh Slurry	CDF	64	Lowest solids loading of the three slurry samples.
B1	URS A19	15-Aug	Slurry + water	CDF	60	Two in. layer of harbor water added to A1.
B2	URS A20	15-Aug	Slurry + water	CDF	60	Two in. layer of harbor water added to A2.
B3	URS A21	15-Aug	Slurry + water	CDF	60	Two in. layer of harbor water added to A3.
C1	URS A10	14-Aug	Sheen	CDF	60	Sample collected within boom 50 ft. from discharge end of pipe
C2	URS A11	14-Aug	Sheen	CDF	60	Sample collected within boom 50 ft. from discharge end of pipe
C3	URS A23	15-Aug	Sheen	CDF	62	Sample collected in area of sediment "sand bar"
D1	URS A22	15-Aug	Water near sheen	CDF	63	Sample collected 15 ft. from location C3.
D2	URS A25	15-Aug	Water near sheen	CDF	60	Sample collected 25 ft. from location C3.
E1	URS A12	14-Aug	Sheen + surfactant	CDF	60	Same location as C1. Surfactant = dawn.
E2	URS A13	14-Aug	Sheen + surfactant	CDF	60	Same location as C2. Surfactant = biosolve.
E3	URS A24	15-Aug	Sheen + surfactant	CDF	60	Same location as C3. Surfactant = simple green
F1	URS A8	11-Aug	Moon pool	Barge	60	Sample collected on starboard side, 10 ft. from aft, starboard corner of moon pool
F2	URS A9	11-Aug	Moon pool	Barge	60	Sample collected on starboard side, 25 ft. from aft, starboard corner of moon pool
F3	URS A14	14-Aug	Moon pool	Barge	60	Sample collected on starboard side at fore, starboard corner of moon pool.
F4	URS A15	14-Aug	Moon pool	Barge	60	Sample collected on starboard side at fore, starboard corner of moon pool, just beyond location F3.
G1	URS A7	11-Aug	Outside Silt Fence	Barge	60	Sample collected just outside silt fence on starboard side of moon pool
G2	URS A26	16-Aug	Outside Silt Fence	Barge	60	Sample collected about 40 ft. from silt fence.
G3	URS A27	16-Aug	Outside Silt Fence	Barge	60	Sample collected about 47 ft. from silt fence.
H1	URS A4	10-Aug	Hopper / Grizzly	Barge	53	Start/Stop over 120 minute period. Dredging cycle = 1 bucket every 4-5 min
H2	H2	11-Aug	Hopper / Grizzly	Barge	46	Start/Stop over 125 minute period

Table L-2. Summary of Flux Chamber Tests (Continued)

Test ID[a]	Sample No.	Date	Test Type	Location	Duration of Sample Collection (min)	Comments
H3	URS A6	11-Aug	Hopper / Grizzly	Barge	43	Continuous sample
I1	URS A1	8-Aug	Mud flat	Along river	128	Location SB-657
I2	URS A2	8-Aug	Mud flat	Along river	120	Location SB-602
I3	URS A3	8-Aug	Mud flat	Along river	120	Location SB-650

[a]A = Fresh slurry
B = Water cover over fresh slurry
C = Sheen on water surface
D = Water surface near sheen
E = Sheen plus surfactant
F = Moon pool at dredge barge
G = Outside the silt fence at dredge barge
H = Hopper/grizzly screen
I = Mud flat in harbor

Table L-3. Measured Values from Flux Chamber Tests

Congener	Mass of Analyte (ng)								
	Test A1 Fresh Slurry	**Test A2 Fresh Slurry**	**Test A3 Fresh Slurry**	**Test B1 Water + Slurry**	**Test B2 Water + Slurry**	**Test B3 Water + Slurry**	**Test C1 Sheen**	**Test C2 Sheen**	**Test C3 Sheen**
Sample size (m^3)	0.162	0.201	0.177	0.148	0.187	0.169	0.199	0.142	0.154
PCB-8	450	1,800	2,400	230	1,600	1,700	2,800	1,800	710
PCB-18	470	1,600	2,900	240	1,900	2,200	2,000	1,100	840
PCB-28	130	380	610	110	690	880	360	160	100
PCB-44	88	190	260	88	250	430	150	75	93
PCB-52	160	370	520	140	450	740	290	120	170
PCB-66	3.9	9.4	--	7.2	15	21	6.8	3.7	1.6
PCB-77, PCB-81	--	--	--	--	--	--	--	--	--
PCB-90/101	9.4	21	22	14	32	47	8.5	--	4.2
PCB-118, PCB-123	--	--	--	--	1.2	1.7	--	--	--
PCB-105, PCB-114, PCB-126	--	--	--	--	--	--	--	--	--
PCB-151	--	1.0	1.2	--	2.6	3.2	--	--	--
PCB-128	--	--	--	--	--	--	--	--	--
PCB-138	--	--	--	--	--	--	--	--	--
PCB-153	--	--	--	--	--	1.3	--	--	--
PCB-167, -156, -157, -169, -170, -180, -187, -189, -195, -206, -209	--	--	--	--	--	--	--	--	--
Total mono-CB	37	250	200	12	120	91	620	460	49
Total di-CB	1,400	5,900	7,400	700	5,000	5,300	9,700	6,400	2,200
Total tri-CB	1,600	4,900	8,900	1,100	6,800	8,400	5,500	2,900	2,300
Total tetra-CB	700	1,600	2,200	660	2,000	3,300	1,300	580	680
Total penta-CB	66	120	160	79	280	470	59	28	74
Total hexa-CB	3.7	7.7	9.2	6.4	12	5.5	2.7	1.5	1.1
Total hepta-CB	--	--	--	--	--	--	--	--	--
Total Octa CB	--	--	--	--	--	--	--	--	--
Total Non-CB	--	--	--	--	--	--	--	--	--
Total PCBs	3,810	12,800	18,900	2,560	14,200	17,600	17,200	10,400	5,300

"--" = Not detectedTable L-3. Continued

Table L-3. Measured Values from Flux Chamber Tests (Continued)

Congener	Mass of Analyte (ng)								
	Test D1 Water Near Sheen	Test D2 Water Near Sheen	Test E1 Sheen + Surfactant	Test E2 Sheen + Surfactant	Test E3 Sheen + Surfactant	Test F1 Moon Pool	Test F2 Moon Pool	Test F3 Moon Pool	Test F4 Moon Pool
Sample size (m^3)	0.187	0.178	0.195	0.142	0.149	0.148	0.157	0.195	0.142
PCB-8	680	650	3,900	2,000	280	31	120	440	360
PCB-18	810	1,100	2,600	1,600	520	42	140	460	470
PCB-28	290	280	650	320	200	14	62	230	130
PCB-44	120	140	240	140	92	9.8	36	140	91
PCB-52	210	230	420	250	160	28	78	230	160
PCB-66	6.9	6.9	14	7.9	2.2	1.9	9.7	11	2.7
PCB-77, PCB-81	--	--	--	--	--	--	--	--	--
PCB-90/101	16	16	17	9.2	7.8	3.3	17	16	5.8
PCB-118, PCB-123	--	--	--	--	--	--	--	--	--
PCB-105, PCB-114, PCB-126	--	--	--	--	--	--	--	--	--
PCB-151	--	--	--	--	--	--	1.2	--	--
PCB-128	--	--	--	--	--	--	--	--	--
PCB-138	--	--	--	--	--	--	--	--	--
PCB-153	--	--	--	--	--	--	--	--	--
PCB-167, -156, -157, -169, -170, -180, -187, -189, -195, -206, -209	--	--	--	--	--	--	--	--	--
Total mono-CB	90	46	670	380	9.3	--	4.3	29	17
Total di-CB	2,300	2,000	13,000	6,600	820	64	290	1,400	1,100
Total tri-CB	2,800	3,400	8,000	4,400	2,000	140	520	2,000	1,600
Total tetra-CB	920	1,000	2,000	1,200	670	110	340	1,000	690
Total penta-CB	130	160	110	64	90	16	76	100	47
Total hexa-CB	3.6	3.4	5.1	2.4	1.9	1.5	8.3	5.9	1.6
Total hepta-CB	--	--	--	--	--	--	--	--	--
Total Octa CB	--	--	--	--	--	--	--	--	--
Total Non-CB	--	--	--	--	--	--	--	--	--
Total PCBs	6,240	6,610	23,800	12,600	3,590	332	1,240	4,530	3,460

"--" = Not detected

Table L-3. Measured Values from Flux Chamber Tests (Continued)

Congener	Mass of Analyte (ng)								
	Test G1 Outside Silt Fence	Test G2 Outside Silt Fence	Test G3 Outside Silt Fence	Test H1 Hopper	Test H2 Hopper	Test H3 Hopper	Test I1 Mud Flat	Test I2 Mud Flat	Test I3 Mud Flat
Sample size (m^3)	0.163	0.164	0.191	0.185	0.203	0.150	0.315	0.370	0.352
PCB-8	41	94	81	57	120	120	15	84	25
PCB-18	68	130	110	57	160	150	160	140	66
PCB-28	27	90	68	2.7	5	11	280	71	32
PCB-44	20	28	39	3.2	11	19	370	22	13
PCB-52	49	45	62	9.4	29	46	640	93	51
PCB-66	5.7	5.4	3.8	--	--	--	--	2.5	--
PCB-77, PCB-81	--	--	--	--	--	--	--	--	--
PCB-90/101	5.9	11	9.5	--	--	--	50	3.6	2.1
PCB-118, PCB-123	--	--	--	--	--	--	1.5	--	--
PCB-105, PCB-114, PCB-126	--	--	--	--	--	--	--	--	--
PCB-151	--	--	--	--	--	--	3.2	--	--
PCB-128	--	--	--	--	--	--	--	--	--
PCB-138	--	--	--	--	--	--	1.4	--	--
PCB-153	--	--	--	--	--	--	1.4	--	--
PCB-167, -156, -157, -169, -170, -180, -187, -189, -195, -206, -209	--	--	--	--	--	--	--	--	--
Total mono-CB	2.3	--	--	8.4	22	16	--	7.7	--
Total di-CB	80	310	270	210	420	370	170	350	120
Total tri-CB	230	600	500	130	320	360	1,600	580	270
Total tetra-CB	200	220	290	33	100	160	2,800	310	170
Total penta-CB	27	76	80	1.2	3.4	10	320	23	14
Total hexa-CB	2.2	--	--	--	--	--	27	1.6	--
Total hepta-CB	--	--	--	--	--	--	--	--	--
Total Octa CB	--	--	--	--	--	--	--	--	--
Total Non-CB	--	--	--	--	--	--	--	--	--
Total PCBs	542	1,210	1,140	383	865	916	4,920	1,270	574

"--" = Not detected

Table L-4. Measured Emission Fluxes

Congener	Measured Emission Flux by Test (ng/m^2-min)								
	Test A1 Fresh Slurry	Test A2 Fresh Slurry	Test A3 Fresh Slurry	Test B1 Water + Slurry	Test B2 Water + Slurry	Test B3 Water + Slurry	Test C1 Sheen	Test C2 Sheen	Test C3 Sheen
PCB-8	110	340	520	60	330	390	540	490	180
PCB-18	110	310	630	62	390	500	390	300	210
PCB-28	31	73	130	29	140	200	70	43	25
PCB-44	21	36	56	23	52	98	29	20	23
PCB-52	38	71	110	36	93	170	56	32	42
PCB-66	0.9	1.8	--	1.9	3.1	4.8	1.3	1.0	0.4
PCB-77, PCB-81	--	--	--	--	--	--	--	--	--
PCB-90/101	2.2	4.0	4.8	3.6	6.6	11	1.6	--	1.0
PCB-118, PCB-123	--	--	--	--	0.2	0.4	--	--	--
PCB-105, PCB-114, PCB-126	--	--	--	--	--	--	--	--	--
PCB-151	--	0.2	0.3	--	0.5	0.7	--	--	--
PCB-128	--	--	--	--	--	--	--	--	--
PCB-138	--	--	--	--	--	--	--	--	--
PCB-153	--	--	--	--	--	0.3	--	--	--
PCB-167, -156, -157, -169, -170, -180, -187, -189, -195, -206, -209	--	--	--	--	--	--	--	--	--
Total mono-CB	8.8	48	43	3.1	25	21	120	120	12
Total di-CB	330	1,100	1,600	180	1,000	1,200	1,900	1,700	550
Total tri-CB	380	940	1,900	290	1,400	1,900	1,100	780	570
Total tetra-CB	170	310	480	170	410	750	250	160	170
Total penta-CB	16	23	35	21	58	110	11	7.6	18
Total hexa-CB	0.9	1.5	2.0	1.7	2.5	1.2	0.5	0.4	0.3
Total hepta-CB	--	--	--	--	--	--	--	--	--
Total Octa CB	--	--	--	--	--	--	--	--	--
Total Non-CB	--	--	--	--	--	--	--	--	--
Total PCBs	901	2,440	4,090	666	2,930	3,990	3,320	2,800	1,320

"--" = Not calculated

Table L-4. Measured Emission Fluxes(Continued)

Congener	Measured Emission Flux by Test (ng/m^2-min)								
	Test D1 Water Near Sheen	Test D2 Water Near Sheen	Test E1 Sheen + Surfactant	Test E2 Sheen + Surfactant	Test E3 Sheen + Surfactant	Test F1 Moon Pool	Test F2 Moon Pool	Test F3 Moon Pool	Test F4 Moon Pool
PCB-8	140	140	770	540	72	8.1	29	87	97
PCB-18	170	240	510	430	130	11	34	91	130
PCB-28	60	60	130	86	52	3.6	15	45	35
PCB-44	25	30	47	38	24	2.6	8.8	28	25
PCB-52	43	50	83	68	41	7.3	19	45	43
PCB-66	1.4	1.5	2.8	2.1	0.6	0.5	2.4	2.2	0.7
PCB-77, PCB-81	--	--	--	--	--	--	--	--	--
PCB-90/101	3.3	3.5	3.4	2.5	2.0	0.9	4.2	3.2	1.6
PCB-118, PCB-123	--	--	--	--	--	--	--	--	--
PCB-105, PCB-114, PCB-126	--	--	--	--	--	--	--	--	--
PCB-151	--	--	--	--	--	--	0.3	--	--
PCB-128	--	--	--	--	--	--	--	--	--
PCB-138	--	--	--	--	--	--	--	--	--
PCB-153	--	--	--	--	--	--	--	--	--
PCB-167, -156, -157, -169, -170, -180, -187, -189, -195, -206, -209	--	--	--	--	--	--	--	--	--
Total mono-CB	18	9.9	130	100	2.4	--	1.1	5.7	4.6
Total di-CB	470	430	2,600	1,800	210	17	71	280	300
Total tri-CB	580	730	1,600	1,200	520	36	130	400	430
Total tetra-CB	190	220	400	320	170	29	83	200	190
Total penta-CB	27	34	22	17	23	4.2	19	20	13
Total hexa-CB	0.7	0.7	1.0	0.6	0.5	0.4	2.0	1.2	0.4
Total hepta-CB	--	--	--	--	--	--	--	--	--
Total Octa CB	--	--	--	--	--	--	--	--	--
Total Non-CB	--	--	--	--	--	--	--	--	--
Total PCBs	1,280	1,430	4,700	3,420	925	86.3	303	896	934

"--" = Not calculated

Table L-4 Measured Emission Fluxes (Continued)

Congener	Measured Emission Flux by Test (ng/m^2-min)								
	Test G1 Outside Silt Fence	Test G2 Outside Silt Fence	Test G3 Outside Silt Fence	Test H1 Hopper (ng/m3)	Test H2 Hopper (ng/m3)	Test H3 Hopper (ng/m3)	Test I1 Mud Flat	Test I2 Mud Flat	Test I3 Mud Flat
PCB-8	9.6	22	16	308	592	798	1.8	8.7	2.7
PCB-18	16	30	22	308	789	998	20	14	7.2
PCB-28	6.4	21	14	14.6	24.7	73.2	34	7.4	3.5
PCB-44	4.7	6.6	7.9	17.3	54.3	126	45	2.3	1.4
PCB-52	12	10	12	50.7	143	306	78	9.7	5.6
PCB-66	1.3	1.3	0.8	--	--	--	--	0.3	--
PCB-77, PCB-81	--	--	--	--	--	--	--	--	--
PCB-90/101	1.4	2.6	1.9	--	--	--	6.1	0.4	0.2
PCB-118, PCB-123	--	--	--	--	--	--	0.2	--	--
PCB-105, PCB-114, PCB-126	--	--	--	--	--	--	--	--	--
PCB-151	--	--	--	--	--	--	0.4	--	--
PCB-128	--	--	--	--	--	--	--	--	--
PCB-138	--	--	--	--	--	--	0.2	--	--
PCB-153	--	--	--	--	--	--	0.2	--	--
PCB-167, -156, -157, -169, -170, -180, -187, -189, -195, -206, -209	--	--	--	--	--	--	--	--	--
Total mono-CB	0.5	--	--	45.3	108	106	--	0.8	--
Total di-CB	19	73	54	1,130	2,070	2,460	21	36	13
Total tri-CB	54	140	100	702	1,580	2,400	200	60	30
Total tetra-CB	47	52	58	178	493	1,060	340	32	19
Total penta-CB	6.4	18	16	6.5	16.8	66.5	39	2.4	1.5
Total hexa-CB	0.5	--	--	--	--	--	3.3	0.2	--
Total hepta-CB	--	--	--	--	--	--	--	--	--
Total Octa CB	--	--	--	--	--	--	--	--	--
Total Non-CB	--	--	--	--	--	--	--	--	--
Total PCBs	127	282	230	2,070	4,270	6,100	600	132	62.7

"--" = Not calculated

4.0 Discussion of Results

This section contains a brief discussion of the results presented in Section 3. The general analytical results are discussed first, followed by a discussion of each test series, and the total estimated emission rate from the CDF and from the dredge barge. A discussion of the data limitations also is included.

4.1 Analytical Results

Polychlorinated biphenyls (PCBs) are aromatic compounds containing two benzene rings with one or more substituent chlorine atoms. There are 209 individual chlorinated chemicals (known as congeners). PCBs include compounds with a range of molecular weights, so they exhibit a range of physical properties. They exist at room temperature as oily liquids or solids. PCBs have no odor. Some commercial PCB mixtures are known in the United States by their industrial trade name, Aroclor.

The samples were analyzed for 30 individual PCB congeners and for class totals, based on the number of chlorine atoms present in the molecule (e.g., di-substituted, tri-substituted). Because they represent all 209 possible congeners, the class totals typically exceed the sum of the 30 individual PCB congeners on the target analyte list. The PCB congeners chosen by the project team include the combined NOAA and WHO list of 28 congeners. The congener number and IUPAC name for each of the 30 target analytes are shown in Table L-5 (all tables appear at the end of the section).

All of the emission flux samples had a similar composition of PCB congeners. Di-, tri-, and tetra-substituted chlorinated biphenyls (CBs) were the most common PCBs in each sample. Lesser amounts of mono-, penta-, and hexa-substituted CBs also were present in most of the samples.

4.2 Results by Test Series

4.2.1 Test Series A - Fresh Slurry

Flux chamber tests were performed on three samples of fresh slurry to determine the steady-state emissions of this material. No floating sheen or phase separation was observed for any of the tests. All three samples contained a similar composition of PCB congeners. Di-, tri-, and tetra-substituted chlorinated biphenyls (CBs) were the most common PCBs in each sample. Lesser amounts of mono-, penta-, and hexa-substituted CBs also were present in each sample.

The largest emission flux for any single congener in this test series was 630 ng/m^2-min for PCB-18 (a tri-chlorinated congener) in test A3.

Tests A2 and A3 exhibited a similar range of emission fluxes with the values generally being within a factor of 2x between the two samples. Test A1 had lower emission fluxes, roughly 1/3 of the emission fluxes measured for test A2 and 1/5 of those for test A3. The variability in emissions is thought to be due to the short-term variability in the contaminant level of the slurry being discharged from the pipe.

The floating boom within the CDF was constructed of 20 floats, each of which was 3m (10 ft) in length. Taking the overlap between floats into account, the circumference of the boom was about 50m (160 ft). The surface area enclosed within the boom is estimated to be 190 m^2 (2,000 ft^2). If this entire area was covered with fresh slurry, the emission rate could be as high as 120 μg/min for PCB-18 and 780 μg/min for total PCBs (based on the results from test A3). If maintained for 24 hours, this emission rate is equivalent to 0.17 g/day of PCB-18 and 1.1 g/day of total PCBs.

4.2.2 Test Series B - Water Cover Over Fresh Slurry

A series of tests were performed to measure the reduction in emissions after a 5 cm (2 in) water layer was added over the fresh slurry. The % control efficiency for each test pair is shown in Table L-6. In general, the addition of a water layer did not achieve a significant reduction in emissions. The average emission flux for the three tests of fresh slurry was actually 2% lower than the average emission flux for the three tests after addition of water (2,480 versus 2,530 ng/m^2-min). The individual tests exhibited some variability in results. Test B1 showed that total PCB air emissions were reduced by 26%, whereas test B2 showed an increase in total PCB air emissions of 20% and test B3 had essentially no change versus the fresh slurry before the addition of water. The original slurry had a relatively low solids content and the addition of water served primarily to further dilute the slurry.

4.2.3 Test Series C -Sheen on Water Surface

Three tests were performed to measure the emission flux from sheen floating on the water surface within cell 1 of the CDF. The first two tests, C1 and C2, were performed at adjacent locations. As expected, the results for these two tests were equivalent. The same congeners were found in each sample and the measured emission flux for each congener and class total generally agreed within ±20%. The water surface during these two tests was covered by a foam or froth resulting from the nearby discharge of fresh slurry. The third test, C3, was performed

near an area of exposed sediment (i.e., a "sand bar"). The measured emission flux at this location was a factor of 2x to 3x lower than the emission flux measured during tests C1 and C2.

The emission fluxes for the sheen were comparable to the emission fluxes measured for the fresh slurry and for the fresh slurry with added water. The average emission flux for the three tests on sheen was 2,480 ng/m^2-min, the same as the average emission flux for the three tests performed with fresh slurry. This suggests the sheen contains PCB's dissolved in oil. For estimating the total emission rate for the CDF, it may not be necessary to differentiate between areas of fresh slurry and areas covered by sheen.

The total surface area within the CDF covered by sheen varied over the course of testing. During the initial days of dredging, the sheen appeared to be largely contained within the floating boom. During the subsequent days of dredging, however, the area within the boom filled with sediment and the boom became less effective at containing the discharged slurry. A large sheen developed outside the boom and, at times, covered an area of several hundred square meters.

4.2.4 Test Series D - Water Surface Near Sheen

Two tests were performed to measure the emission flux from the water surface near areas of sheen to evaluate the effects of a sheen on air emissions. The two tests were performed at differing distances from the nearest layer of sheen, but the measured emission fluxes are essentially identical. As shown in Table L-4, the results for tests D1 and D2 agree even more closely with one another than the tests C1 and C2 where the flux chambers were positioned side-by-side. This suggests that the spatial variability in the emission flux from the water surface within cell 1 of the CDF is not large.

The measured emission fluxes for this test series are compared in Table L-7 with the results from the measurements made over sheen. In general, the measured emission fluxes of total PCBs from the water surface near sheen are about 45% lower than the measured emission fluxes from the sheen itself. The measurements over the water surface had reduced emissions of mono-, di-, and tri-substituted CBs, but higher emissions of the heavier classes of PCBs.

The two tests, D1 and D2, were conducted near the location of test C3 and at roughly the same time. If the comparison is limited to just this one measurement over sheen, the measured emission fluxes from the water surface are essentially identical to the measured emission fluxes from sheen. For example, the emission flux of total PCBs for test C3 was 1,320 ng/m^2-min versus emission fluxes of 1,280 and 1,430 ng/m^2-min for tests D1 and D2, respectively.

The data suggest that the hypothesis is incorrect and that the areas of sheen may not act as a barrier to air emissions.

Cell 1 of the CDF has dimensions of 122m (400 ft) by 73m (240 ft), giving a total surface area of 8,900 m^2 (96,000 ft^2). If this entire area were water cover over fresh slurry, the emission rate could be as high as 2,100 μg/min for PCB-18 and 12,700 μg/min for total PCBs (based on the results from test D2). If maintained for 24 hours, this emission rate is equivalent to 3.1 g/day of PCB-18 and 18 g/day of total PCBs.

During the testing performed at the CDF, it was estimated that fresh slurry covered an area of 190 m^2, so the total area covered by water was 8,700 m^2. Given the large surface area of this source and the relatively high emission flux that was measured, it would have been preferable to have conducted additional emission flux measurements of this source to better characterize the average emission flux and the spatial distribution of emissions.

4.2.5 Test Series E - Sheen + Surfactant

One test was performed with each of three different surfactants to measure the effectiveness of the surfactants in reducing air emissions. As noted above, areas with sheen had higher emission fluxes than adjacent areas without sheen, so removal of the sheen by a surfactant should reduce the measured emission flux. The tests were performed by adding surfactant to the flux chambers immediately after the end of each test in test series C. The % control efficiency for each test pair is shown in Table L-8. The most effective surfactant at achieving emissions reduction was simple green, which showed an average reduction of 30% in air emissions for post-application versus pre-application.

There was an increase in air emissions after the addition of the other two surfactants: Dawn and Biosolve. Even for the Simple Green, there were reduced emissions of mono-, di-, and tri-substituted CBs, but higher emissions of the heavier classes of PCBs than for the pre-application test. It is possible that the tests of Dawn and Biosolve were affected by changes in contaminant level of fresh slurry added to the boom area during the performance of the tests. An increase in PCB level in the fresh slurry could have increased the emission flux in the boom area and masked any reduction in emissions caused by the addition of surfactant. As previously noted, tests C3 and E3 (i.e., Simple Green) were performed outside the range of influence of the discharge end of the pipe.

4.2.6 Test Series F - Moon Pool at Dredge Barge

Four tests were performed within the moon pool at the dredge barge. Tests F1 and F2 were conducted immediately after dredging had been completed on August 11. Tests F3 and F4 were conducted while dredging was underway on August 14. All four tests showed a similar composition of PCBs. The measured emission flux of total PCBs was:

Test	Total PCBs (ng/m^2-min)
F1	86.3
F2	303
F3	896
F4	934

The variability between the results of test F1 and test F2 indicates that there may be significant spatial variability in emissions across the moon pool. Furthermore, it appears that the emission flux was much higher during active dredging than in the hour immediately after dredging had been completed for the day, assuming the level of contamination in both cells was roughly equivalent.

The emission fluxes measured at the moon pool were significantly lower than the emission fluxes measured for fresh sediment (test series A) and for sheen (test series B) at the CDF. It is thought that the water within the moon pool acts to reduce air emissions from the sediments stirred up from the harbor bottom.

The moon pool was roughly 7.6m (25 ft) by 9m (30 ft). The total area within the silt fence is estimated to be 85 m^2 (915 ft^2). The data from tests F3 and F4 indicate that the emission flux of total PCBs from the moon pool during dredging were approximately 78 μg/min.

4.2.7 Test Series G - Outside the Silt Fence at Dredge Barge

Three tests were performed outside the silt fence of the moon pool at the dredge barge. Test G1 was conducted immediately outside the silt fence during dredging, just before tests F1 and F2 were conducted on August 11. Tests G2 and G3 were conducted on August 16 from a boat some distance from the silt fence during dredging. The measured emission flux of total PCBs was:

Test	Total PCBs (ng/m^2-min)
G1	127
G2	282
G3	230

The results from test G1 were comparable to the results from tests F1 and F2, indicating that the emission flux immediately on either side of the silt fence was the same.

The area of the plume outside the silt fence is not known. The measurements in the boat were made about 15m away from the silt fence, so it is safe to assume that the plume is at least 15m by 10m (the width of the moon pool), or 150 m^2. If so, the emission flux of total PCBs from this area during dredging was approximately 38 μg/min.

4.2.8 Test Series H - Hopper / Grizzly at Dredge Barge

Three headspace samples were collected from the hopper at the dredge barge. The measured concentration of total PCBs was:

Test	Total PCBs (ng/m^3)	Estimated Emission Rate (μg/min)
H1	2,070	10
H2	4,270	20
H3	6,100	30

The volume of the hopper below the grizzly screen is estimated to be 72 m^3 (3m x 6m x 4m in height). This volume is large relative to the volume of the dredge bucket. An air emission rate can be estimated for the hopper by multiplying the measured headspace concentration by the volume of the hopper by the number of times per hour the air within the hopper is purged out from dredged material, wind, and other factors. The emission rates shown above were calculated assuming the hopper air is purged out once every 15 minutes.

4.2.9 Test Series I - Mud Flat in Harbor

Three tests were performed at areas known to be contaminated with relatively high levels of PCBs. The measured emission flux of total PCBs was:

Test	Total PCBs (ng/m^2-min)
I1	600
I2	132
I3	62.7

These emission fluxes are low compared with the average emission flux measured from fresh slurry during test series A (2,480 ng/m^2-min). It is likely that the surface soil in the mud flat has been depleted of PCBs over time via volatilization.

The spatial variability in air emissions at the mud flat is expected to be very large, based on the existing PCBs in soils data. No attempt was made to estimate an overall emission rate for the mud flat area.

4.3 Estimated Emission Rate from the CDF and Dredge Barge

The estimated emission rate of total PCBs from the CDF and from the dredge barge are shown in Table L-9. The emission rate of PCBs from the dredge barge is estimated to be 140 μg/min, with about one-half of that amount coming from the moon pool. The emissions from the dredge bucket itself are assumed to be zero. The emission rate of PCBs from the CDF is estimated to be 12,000 μg/min, with over 90% of that coming from the water surface of the CDF and only an insignificant fraction of the total emissions coming from the fresh slurry within the boom.

Overall, the PCB emissions are dominated by the emissions from the water surface of the CDF. All of the other air emission sources are small relative to this source. While other air emission sources had a larger emission flux, the surface area of these other sources is small relative to the nearly 8,700 m^2 of the CDF. The CDF contained only clean water at the start of the study and it is likely that the relative contribution of the CDF to the total emissions would increase over time as more slurry is added.

4.4 Limitations of the Data Set

The purpose of this study was to measure the emission flux of PCBs during dredging operations. Only a very limited number of data points were collected for each emission source

associated with the dredging, so the absolute magnitude of each emission source can not be reported with confidence. Instead, the measurement data should be viewed as providing information about the relative strength of the various emission sources.

Measurements were made during a one-week period when dredging operations were in a start-up mode. No attempt was made to determine the short-term or long-term variation in emissions from the various sources. The emission fluxes at the site may change with time. For example, emission fluxes from the dredge barge should vary as a function of the PCB concentration in the sediments being dredged. The emission fluxes from the CDF may change as the amount of sediments in the basin increases and as the average PCB level and % solids in the discharged material varies.

It was not the objective of this study to characterize the local air quality. The data presented in this report do not directly address this issue, but the data set can be used as an input to an atmospheric dispersion model to estimate short-term and long-term ambient concentrations at various locations within the community. These data then could be compared with existing regulatory and health standards as part of an air pathway assessment.

Table L-5. PCB Congener Number and IUPAC Naming Convention

Congener	IUPAC Chemical Name
PCB-8	2,4'-Dichlorobiphenyl
PCB-18	2,2',5-Trichlorobiphenyl
PCB-28	2,4,4'-Trichlorobiphenyl
PCB-44	2,2',3,5'-Tetrachlorobiphenyl
PCB-52	2,2',5,5'-Tetrachlorobiphenyl
PCB-66	2,3',4,4'-Tetrachlorobiphenyl
PCB-77	3,3',4,4'-Tetrachlorobiphenyl
PCB-81	3,3,4',5-Tetrachlorobiphenyl
PCB-90[1]	2,2',3,4',5-Pentachlorobiphenyl
PCB-101[1]	2,2',4,5,5'-Pentachlorobiphenyl
PCB-118	2,3',4,4',5-Pentachlorobiphenyl
PCB-123	2',3,4,4',5-Pentachlorobiphenyl
PCB-105	2,3,3',4,4'-Pentachlorobiphenyl
PCB-114	2,3,4,4',5-Pentachlorobiphenyl
PCB-126	2,2,3,4,5,-Pentachlorobiphenyl
PCB-151	2,2',3,5,5',6-Hexachlorobiphenyl
PCB-128	2,2',3,3',4,4'-Hexachlorobiphenyl
PCB-138	2,2',3,4,4',5-Hexachlorobiphenyl
PCB-153	2,2',4,4',5,5'-Hexachlorobiphenyl
PCB-167	2,3',4,4',5,5'-Hexachlorobiphenyl
PCB-156	2,3,3',4,4',5-Hexachlorobiphenyl
PCB-157	2,3,3',4,4',5'-Hexachlorobiphenyl
PCB-169	3,3',4,4',5,5'-Hexachlorobiphenyl
PCB-170	2,2',3,3',4,4',5-Heptachlorobiphenyl
PCB-180	2,2',3,4,4',5,5'-Heptachlorobiphenyl
PCB-187	2,2',3,4',5,5',6-Heptachlorobiphenyl
PCB-189	2,3,3',4,4',5,5'-Heptachlorobiphenyl
PCB-195	2,2',3,3',4,4',5,6-Octachlorobiphenyl
PCB-206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl
PCB-209	Decachlorobiphenyl

[1] These two congeners co-elute.

Note: PCB-90 and PCB-151 are not on the WHO or NOAA list of congeners.

Table L-6. Measured Emission Reduction after Application of Water Layer to Fresh Slurry

Congener	Reduction in Emissions Test B1 vs. Test A1 (%)	Reduction in Emissions Test B2 vs. Test A2 (%)	Reduction in Emissions Test B3 vs. Test A3 (%)
PCB-8	-44	-4.2	-26
PCB-18	-44	+28	-21
PCB-28	-6.9	+96	+51
PCB-44	+10	+42	+73
PCB-52	-3.8	+31	+49
PCB-66	+103	+72	--
PCB-90/101	+64	+64	+124
PCB-151	--	+180	+180
PCB-128	--	--	--
PCB-138	--	--	--
PCB-153	--	--	--
Total mono-CB	-64	-48	-52
Total di-CB	-45	-8.7	-25
Total tri-CB	-24	+50	-1.2
Total tetra-CB	+3.7	+35	+57
Total penta-CB	+32	+151	+208
Total hexa-CB	+90	+68	-37
Total hepta-CB	--	--	--
Total octa-CB	--	--	--
Total nona-CB	--	--	--
Total PCBs	-26	+20	-2.6

Notes: 1. A positive value (e.g., +64%) indicates that the emissions increased after the water layer was applied.
2. "--" indicates that the value was not calculated because no PCBs were detected.

Table L-7. Comparison of Measured Emission Flux from Areas of Water Near Sheen With Areas of Sheen

Congener	Average Emission Flux Test Series C - Sheen (ng/m2-min)	Average Emission Flux Test Series D - Water Near Sheen (ng/m2-min)	Reduction in Emissions Test Series D vs. C (%)
PCB-8	402	140	-65
PCB-18	298	202	-32
PCB-28	45.9	60.0	+31
PCB-44	24.1	27.4	+14
PCB-52	43.6	46.4	+6.4
PCB-66	0.9	1.5	+61
PCB-90/101	1.3	3.4	+151
PCB-151	--	--	--
PCB-128	--	--	--
PCB-138	--	--	--
PCB-153	--	--	--
Total mono-CB	85.4	14.2	-83
Total di-CB	1,380	452	-67
Total tri-CB	807	655	-19
Total tetra-CB	192	202	+5.2
Total penta-CB	12.5	30.6	+146
Total hexa-CB	0.4	0.7	+84
Total hepta-CB	--	--	--
Total octa-CB	--	--	--
Total nona-CB	--	--	--
Total PCBs	2,480	1,350	-45

Notes: 1. A positive value (e.g., +64%) indicates that the emissions from the water surface were higher than emissions from the sheen.
2. "--" indicates that the value was not calculated because no PCBs were detected.

Table L-8. Measured Emission Reduction after Application of Surfactant

Congener	Reduction in Emissions Test E1 vs. Test C1 Dawn (%)	Reduction in Emissions Test E2 vs. Test C2 Biosolve (%)	Reduction in Emissions Test E3 vs. Test C3 Simple Green (%)
PCB-8	+42	+11	-59
PCB-18	+33	+46	-36
PCB-28	+85	+100	+107
PCB-44	+64	+87	+2.2
PCB-52	+48	+108	-2.7
PCB-66	+110	+114	+42
PCB-90/101	+104	--[a]	+92
PCB-151	--	--	--
PCB-128	--	--	--
PCB-138	--	--	--
PCB-153	--	--	--
Total mono-CB	+10	-17	-80
Total di-CB	+37	+3.1	-62
Total tri-CB	+49	+52	-10
Total tetra-CB	+57	+107	+1.8
Total penta-CB	+90	+129	+26
Total hexa-CB	+93	+60	+79
Total hepta-CB	--	--	--
Total octa-CB	--	--	--
Total nona-CB	--	--	--
Total PCBs	+42	+22	-30

a - PCB-90/101 was detected after surfactant addition, but not before.

Notes: 1. A positive value (e.g., +64%) indicates that the emissions increased after the surfactant was applied.
2. "--" indicates that the value was not calculated because no PCBs were detected.

3.

Table L-9. Estimated Emission Rate for CDF and Dredge Barge

Emission Source	Emission Flux Total PCBs (ng/m^2-min)	Data Source	Surface Area (m^2)	Emission Rate Total PCBs (μg/min)
CDF - Fresh Slurry	2,480	Tests A1, A2, A3	190	470
CDF - Water Surface	1,360	Tests D1, D2	8,700	12,000
				Total for CDF = 12,000
Moon Pool	915	Tests F3, F4	85	78
Outside Silt Fence	256	Tests G2, G3	150	38
Hopper	n/a	Tests H1, H2, H3	n/a	20
				Total for Dredge Barge = 140

5.0 Quality Assurance and Quality Control Measures

The quality assurance and quality control (QA/QC) measures used during the monitoring program focused on defining the various elements of the monitoring in terms of precision, accuracy, and background contamination. Specific QA/QC actions during this program were:

- Use of pre-sampling surrogate spiking to assess sample collection efficiency;
- Collection of field blank samples to assess potential background contamination due to residual media background and sample handling;
- Calibration of thermocouples used to measure temperature; and
- Calibration of flow meters used to determine flow rates of the sweep air and sample collection.

Each of these elements is discussed in the following subsections.

5.1 Background Assessments

Background assessments were accomplished by collecting and analyzing two field blanks (one with each sample shipment to the off-site analytical laboratory). The field blanks were prepared and spiked sampling media that were sent to the field and handled in the same manner as a field sample, except that no sample air was drawn through the media. These samples were handled, shipped, extracted, and analyzed exactly the same as the regular field samples. Sorbent media is prone to residual contamination, which may occur due to laboratory contamination, exposure to environmental conditions at the monitoring site, or from handling and shipping. The field blank results include the contribution from all of these sources.

The field blank results are included in Attachment C. None of the individual 30 PCB congeners were detected in either of the blank samples above the reporting limit of 1 ng. A small amount of di-chlorinated biphenyl (1.4 ng) was detected in one blank, with no other congeners being detected. The total di-chlorinated biphenyl concentrations in the regular samples ranged from 64 ng to 13,000 ng per sample. Therefore, this blank value represents, at most, 1% or less of the total di-chlorinated biphenyl concentration. Therefore, neither laboratory nor environmental contamination had a significant impact on the sample concentrations.

5.2 Precision Assessments

No duplicate or replicate samples were included in the test matrix, so no field checks of combined sampling and analytical precision were performed. It is possible, however, to estimate the overall field precision from side-by-side samples collected over similar emitting surfaces (e.g., tests C1 and C2). As shown in Section 3, the results of these tests generally agreed with ±20% for each congener and class total.

The analytical precision was determined from the replicate analysis of laboratory control samples (LCS). These results of two sets of LCS1/LCS2 analyses are contained in Attachment C. The percent relative percent difference (%RPD) for all 28 congeners was generally less than 5% and always was less than or equal to 11%.

5.3 Accuracy Assessments

No checks of total sampling plus analytical accuracy, such as performance audit samples, were attempted during this short-term field sampling effort.

Analytical accuracy was assessed through the use of pre-sampling surrogates. Each sampling cartridge was spiked prior to sample collection with two deuterated surrogates; ^{13}C-PCB-52 and ^{13}C-PCB-178. The recovery of these two compounds includes losses due to sampling, extraction, and analytical recovery and the values should be representative of the recovery of native compounds. The surrogate recoveries are summarized in Table L-10. In general, surrogate recoveries of ± 30% (e.g., 70 – 130% recovery) are considered good. All surrogate recoveries for all 29 samples were within ± 30%. These data indicate that the PCB congeners were being collected efficiently and were not being lost during the extraction and analysis procedures.

The accuracy of the measurement equipment was checked. This included checks of the rotometers used to control and measure the flow of sweep air flow rate into the flux chamber, the rotometers used to measure the flow rate of sample through the sorbent cartridge, and the thermocouples used to measure the ambient and chamber temperatures. All were calibrated against primary measurement standards.

The flow meters used to regulate the flow of sweep air into the flux chamber were calibrated at a single point (5 L/min) since the flow rate for this parameter was kept constant during all of the flux chamber sampling runs. Following the determination of flow meter setting

for 5 L/min, the setting was written on each flow meter so the flow could be set and maintained during each run. The flow meters used to measure the flow rate for each sample were multipoint calibrated because these flows were subject to change due to differences in sorbent loading and cartridge back pressure. These flow meters were calibrated at four points over the range of the meter. All of these flow meters had correlation coefficients (r^2 values) of greater than 0.999. The calibration curves for the flow meters are shown in Attachment E.

The thermocouples were calibrated at three points (ice point, ambient temperature, and boiling water). The temperature measured with the thermocouple was compared against a NIST traceable mercury in glass thermometer. The thermocouples were accepted if the difference between the thermocouple temperature and the traceable thermometer were within 5%. Copies of the thermocouple calibrations are contained in Attachment E.

Table L-10. Summary of Surrogate Spike Recoveries

Sample	Surrogate Recovery (%)	
	^{13}C-PCB-52	^{13}C-PCB-178
URS -A1	102	106
URS -A2	110	110
URS -A3	114	110
URS-B1	106	106
URS -A4	104	106
URS -A5	114	102
URS -A6	102	104
URS -A7	108	104
URS -A8	104	112
URS -A9	88	98
URS -A10	112	100
URS -A11	90	98
URS -A12	96	102
URS -A13	110	104
URS -A14	103	105
URS -A15	101	109
URS -A16	105	105
URS -A17	105	104
URS -A18	101	102
URS -A19	105	109
URS -A20	94	101
URS -A21	103	104
URS -A22	85	91
URS -A23	76	102
URS -A24	89	101
URS -A25	70	78
URS -A26	87	98
URS -A27	83	104
URS-B2	90	105
Min	70	78
Max	114	112
Mean	98.5	102.8

6.0 References

1. Radian Corporation. Measurement of Gaseous Emission Rates from Land Surfaces Using an Emission Isolation Flux Chamber - User's Guide. EPA 600/8-86-008. February 1986.

2. Eklund, B., M. Kienbusch, D. Ranum, and T. Harrison. "Development of a Sampling Method for Measuring VOC Emissions from Surface Impoundments." Presented at the EPA/APCA Symposium on Measurement of Toxic and Related Air Pollutants, May 1987.

3. Gholson, A.R., J.R. Albritton, and R.K. Jayanty. "Evaluation of an Enclosure Method for Measuring Emissions of Volatile Organic Compounds from Quiescent Liquid Surfaces". ES&T, Vol. 25, No. 3, pp519-524, 1991.

Attachment A

Master Logbook

A = Air Samples

W = Water or Waste Samples

From Page No.___

Date	Sample ID	Test	Location	Sample Time start	Sample Time Stop	Comments
8-08-00	URS A1	I-1	657 Mudflat	0850	1058	
↓	URS A2	I-2	602	0908	1108	
↓	URS A3	I-3	650 ↓	0906	1108	
↓	URS B1	—	—	—	—	Blank
8-10-00	URS A4	H-1	Barge hopper	1529	1729	53 min total sampling time
8-11-00	URS A5	H-2	↓	1425	1630	46 min total sampling time
↓	URS A6	H-3		1639	1722	43 min total sampling time
↓	URS A7	G-1	outside silt fence	1729	1824	
↓	URS A8	F1	Moon pool	1809	1909	
↓	URS A9	F2	Moon pool	1851	1951	
8-14-00	URS A10	C1	CDF	0956	1056	Sheen inside boom
↓	URS A11	C2	CDF	1005	1054	Sheen inside boom F/C 003
↓	URS A12	E1	CDF	1108	1208	Dawn surfactant
↓	URS A13	E2	CDF	1102	1202	Bidsolve " F/C 003
↓	URS A14	F3	Moon Pool	1605	1705	
↓	URS A15	F4	Moon Pool	1605	1705	
8-15-00	URS A16	A1	Fresh sediment	0936	1042	
↓	URS A17	A2	Fresh sediment	0939	1044	
↓	URS A18	A3	Fresh sediment	0940	1044	
↓	URS A19	B1	Sediment + water	1127	1227	
↓	URS A20	B2	↓	1128	1228	
↓	URS A21	B3	↓	1130	1230	
↓	URS A22	D1	Water nr sheen	1508	1611	
↓	URS A23	C3	Sheen in CDF	1513	1615	
↓	URS A24	E3	Sheen + surf	1622	1722	CDF
↓	URS A25	D2	water nr sheen	1640	1740	
8-16-00	URS A26	G2	outside silt fence	1409	1509	start at t = 1409
↓	URS A27	G3	↓	1410	1510	start at t = 1410
↓	URS B2	—	—	—	—	Blank

To Page No.____

Witnessed & Understood by me, Date

Invented by Date

Recorded by

[redacted] L-A2 [redacted]

From Page No.

Date	Sample ID	Test	Location	Sample Time Start	Sample Time Stop	Comments
8-08-00	657 Mud Flat	I-1	Mud Flat	0816		8-08-00 BME
↓	602 ↓	I-2	↓	0825		
	650	I-3		0827		
8-08-00	URS-W1	I-1	657 Mud Flat	0816		Mud
↓	URS W2	I-2	602	0825		↓
	URS W3	I-3	650 ↓	0827		
8-11-00	URS W7	G-1	outside silt fence	1712		water sample
↓	URS W8	F1	Moon Pool	1820		↓
	URS W9	F2	Moon Pool	1915		
8-14-00	URS W10	C1	CDF	0945		Sheen
	URS-W11	C2	CDF	0943		Sheen
	URS - W12	E1	CDF	1210		sheen+surfactant
	URS - W13	E2	CDF	1210		sheen+surfactant
	URS - W14	F3	Moon Pool	1640		water sample
	URS-W15	F4	Moon Pool	1640		water sample
8-15-00	URS-W16	A1	Fresh sediment	1050		sediment sample
	URS-W17	A2		1051		
	URS-W18	A3	↓	1052		↓
	URS-W19	B1	Sediment+water	1235		CDF
	URS-W20	B2	Sediment+water	1235		CDF
	URS-W21	B3	Sediment+water	1235		CDF
	URS-W22	D1	CDF	1615		Near sheen
	URS-W23	C3	↓	N/A		No Sample
	URS-W24	E3		N/A		No Sample
	URS-W25	D2	↓	1616		Near sheen
8-16-00	URS-W26	G1	Outside silt fence	1425		cut 4
↓	URS-W27	G2	↓	1426		cut 4

The following samples are nearly identical & can be composited

i) F1 & F2 (URS W8 & URS W9)
ii) C1 & C2 (URS W10 & URS W11)
iii) F3 & F4 (URS W14 & URS W15)
iv) G1 & G2 (URS W26 & URS W27)

To Page No.

Witnessed & Understood by me, Date | Invented by, Date | Recorded by

L-A3

Attachment B

Flux Chamber

Field Data Sheets

RADIAN

Flux Chamber Measurement Field Data Sheet

Date:	8 August 2000	**Sample Site:**	New Bedford Harbor Superfund Site
Test #:	I-3	**Location:**	Mud flat 650
Flux Chamber #:	2	**Sampler(s):**	EPA, BMS
Sweep Air Flow Meter #:	7067-002	**PCB Collection Time:**	0908-1106 URS A3
Sample Flow Meter #	7063-002 625=2L/min	**Weather:**	Hot, humid, hazy

Time	Sweep Air Roto Setting/ Flow L/min	PCB Sampling Tan	PCB Sampling Roto Setting	PCB Sampling Flow L/min	Temperature (°C) Ambient	Temperature (°C) Chamber	Temperature (°C) Surface
0628	69 / 5.0	0					
0840	69 / 5.0	2					
0904	69 / 5.0	6			26	27	
START 0908			100				
0914	69 5.0		97		27	26	
0921	69 5.0		97				
0958	69 5.0	15	90		27	27	
1040	69 5.0	22	88		29	30	
STOP 1108							

Comments: Sample = URS W3 URS-A-3

surface = wet, mud, lots of organic matter
Moved reeds out of way

Figure 1. Flux Chamber Sampling Form

8' 0602

8' 0650

water

L-B2

RADIAN

Flux Chamber Measurement Field Data Sheet

Date:	8 August 2000	Sample Site:	New Bedford Harbor Superfund Site
Test #:	I-2	Location:	Mud flat 602
Flux Chamber #:	3	Sampler(s):	BMS, EPA
Sweep Air Flow Meter #:	7067-003	PCB Collection Time:	0908-1106 URS-A2
Sample Flow Meter #	7063-001 21=63	Weather:	Hot, humid, hazy

Time	Sweep Air Rota Setting/ Flow L/min	PCB Sampling Tag	PCB Sampling Rota Setting	PCB Sampling Flow L/min	Temperature (°C) Ambient	Temperature (°C) Chamber	Temperature (°C) Surface
0828	71.5 / 5.0	0					
0840	71.5 / 5.0	2					
0904	71.5 5.0	6	98		27	26	
START 0908			~~100~~ BMS				
0914	71.5 / 5.0		96		27	26	
0920	71.5 / 5.0		96		27	26	
0958	71.5 / 5.0	15	95		27	29	
1040	70 / 5.0	~~22~~	95		30	30	
STOP 1108							

Comments: Surface = wet, mud, lots of organic mater.
Sample = URS W2

Sample at unmarked post (may be 650)
Sample ID - URS-A-2

Figure 1. Flux Chamber Sampling Form

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Flux Chamber Measurement Field Data Sheet

Date:	8 August 2000	**Sample Site:**	New Bedford Harbor Superfund Site
Test #:	T-1	**Location:**	657 / Mud flats
Flux Chamber #:	001	**Sampler(s):**	BMS / EPA
Sweep Air Flow Meter #:	7067-007	**PCB Collection Time:**	0850 - 1058
Sample Flow Meter #	7063-004	**Weather:**	Hot, clear, humid 80's; still URS-A1

Time	Sweep Air Rota Setting/ Flow L/min	PCB Sampling Tau	PCB Sampling Rota Setting	PCB Sampling Flow L/min	Temperature (°C) Ambient	Temperature (°C) Chamber	Temperature (°C) Surface
0816	71 5.0	0					
0840	71 5.0	4			23	26	
START ? 0850			78	63=24/min	~~26~~	~~26~~ BMS	
0852	71 5.0	6			26	26	
START 0858	71 5.0	7	77		26	25	
0912	71		76		26	25	
0923	71		76		26	24	
0956	71		76		26	25	
1043	71		76		27	26	
STOP 1058	STOP		76				
	128 minutes	on Counter			Sample URS-A-1		

Comments: 0816 collected soil/waste sample 0-4" under chamber URS #1

Surface = Moist, humic material, cleared of vegetation ~20' from water

Figure 1. Flux Chamber Sampling Form

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Flux Chamber Measurement Field Data Sheet

Date:	10 August 2000	**Sample Site:**	New Bedford Harbor Superfund Site
Test #:	H-1	**Location:**	Dredge / Hopper
Flux Chamber #:	N/A	**Sampler(s):**	EPA
Sweep Air Flow Meter #:	N/A	**PCB Collection Time:**	1529 - 1729 URS A-4
Sample Flow Meter #	7063-004	**Weather:**	Hot, Humid, Sunny

Time	Sweep Air Rota Setting/ Flow l/min	PCB Sampling			Temperature (°C)		
		Tan	Rota Setting	Flow l/min	Ambient	Chamber	Surface
1529	N/A		107				
1536	STOP for	Dredge	?				
1545	Resume		107				
1555			105				
1625	STOP						
1723	Resume		105				
1729	Stop						

Comments: Started Run After 3rd load into Hopper
Running A bucket (6 yds) every 4-5 minutes
Dredging up Very thick Silty Clay - Requiring small track-hoe to "mush" down - Run stopped 1625 Due to Clay Plugging

Figure 1. Flux Chamber Sampling Form

Flux Chamber Measurement Field Data Sheet

2000	Sample Site:	New Bedford Harbor Superfund Site	
-A-5	Location:	Hopper / Grizzly	
	Sampler(s):	EPA	
3 N/A	PCB Collection Time:	1425 - 1630	
-004	Weather:		

PCB Sampling			Temperature (°C)		
Tau	Rate Setting	Flow L/min	Ambient	Chamber	Surface
	105				
	105				
	105	Found Pump unplugged -			
	105	Likely less than 5min			
		- Dredge stopped for Pluggage			
topped Due to		uncertainty of Re-start			
	105				

~ 30 minutes Prior to start during 1505 - 1515 - Blown Seal.

L-B6

RADIAN

Flux Chamber Measurement Field Data Sheet

Date:	11 August 2000	Sample Site:	New Bedford Harbor Superfund Site
Test #:	MRS-A-6	Location:	Hopper / Grizzly
Flux Chamber #:	N/A	Sampler(s):	EPA
Sweep Air Flow Meter #:	N/A	PCB Collection Time:	1639-1722
Sample Flow Meter #	7063-004	Weather:	

	Time	Sweep Air Rota Setting/ Flow l/min	PCB Sampling Tau	PCB Sampling Rota Setting	PCB Sampling Flow L/min	Temperature (°C) Ambient	Temperature (°C) Chamber	Temperature (°C) Surface
START	1639			105				
	1712			105				
STOP	1722			105		- Stop for Day		

Comments: Started After Dredge Move - @ 1715 started Dumping Water into Hopper - To clean Clay out? - Stopped Run 1722 until Normal Dredging Resumes

Figure 1. Flux Chamber Sampling Form

URS A7

RADIAN

Flux Chamber Measurement Field Data Sheet

Date:	11 August 2000	**Sample Site:**	New Bedford Harbor Superfund Site
Test #:	G-1	**Location:**	outside silt fence
Flux Chamber #:	003	**Sampler(s):**	BMC/CPA.
Sweep Air Flow Meter #:	7067-002	**PCB Collection Time:**	URSA7 1724-1824
Sample Flow Meter #	7063-002	**Weather:**	clear, sunny, breeze

Time	Sweep Air Rota Setting/ Flow L/min		PCB Sampling Tau	PCB Sampling Rota Setting	PCB Sampling Flow L/min	Temperature (°C) Ambient	Temperature (°C) Chamber	Temperature (°C) Surface
1700	69	5.0	0					
1706	69	5.0	1			27		
1712	69	5.0	2			28		
1718	69	5.0	3			27		
1724	69	5.0	4	85	62.5= 2 L/min		start sample	
1730	69	5.0	5	85	>2	26		
1736	69	5.0	.6	85	>2	26		
1800	69	5.0	10	85	>2	26		
1812	69	5.0	12	85	>2	26		
1824	69	5.0	14	85	>2	26		

Collected sample URSW-7 @ 1730, pump surface water next to chamber & transferring to bottle.

Comments: Tied off F/C from barge just outside fence in area dredged.

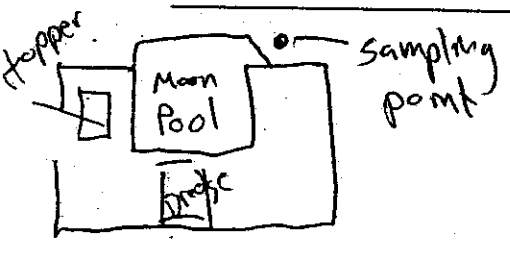


Figure 1. Flux Chamber Sampling Form

L-B8

RADIAN

URS A-8

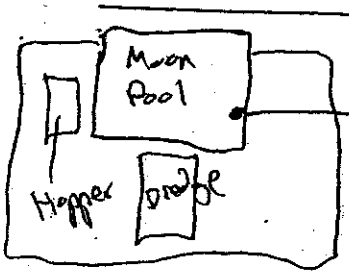
Flux Chamber Measurement Field Data Sheet

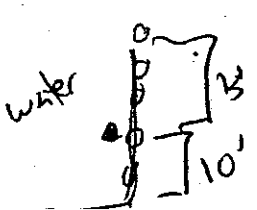
Date:	11 August 2000	Sample Site:	New Bedford Harbor Superfund Site
Test #:	F1	Location:	Moon Pool
Flux Chamber #:	002	Sampler(s):	BMC/CAA
Sweep Air Flow Meter #:	7067-003	PCB Collection Time:	URS A-8 1809-1909
Sample Flow Meter #	7063-004	Weather:	clear, sunny, breeze

Time	Sweep Air Rota Setting/ Flow L/min	PCB Sampling			Temperature (°C)		
		Tap	Rota Setting	Flow L/min	Ambient	Chamber	Surface
1745	71.5 5.0	0			26		
1751	71.5 5.0	1			26		
1803	71.5 5.0	3			26		
1809	71.5 5.0	4	76	63=2 L/min	26	start	sample
1815	71.5 5.0	5	75		25		
1821	71.5 5.0	6	76		25		
1833	71.5 5.0	8	76		25		
1845	71.5 5.0	10	76		25		
1857	71.5 5.0	12	76	>2	26		
1909	71.5 5.0	14	76	>2	25	End Sample	

Comments: sun at ~20° to horizon at start of sampling
Sample collected 2/3 from inside of "U"

Figure 1. Flux Chamber Sampling Form





5' between posts

L-B9

RADIAN

URS-A9

Flux Chamber Measurement Field Data Sheet

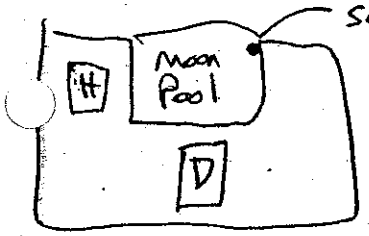
Date:	11 August 2000	Sample Site:	New Bedford Harbor Superfund Site
Test #:	F2	Location:	Moon pool
Flux Chamber #:	003	Sampler(s):	BMC/EPA
Sweep Air Flow Meter #:	7067-002	PCB Collection Time:	URS-A9 1851-1951
Sample Flow Meter #	7063-002	Weather:	clear, dusk

Time	Sweep Air Roto Setting/ Flow L/min		PCB Sampling Tap	PCB Sampling Roto Setting	PCB Sampling Flow L/min	Temperature (°C) Ambient	Chamber	Surface
1827	69	5.0	0		~~25~~ 2.5	25		
1833	69	5.0	1			25		
1839	69	5.0	2			25		
1845	69	5.0	3			25		
1851	69	5.0	4	84	62.5 = 2 L/min	25	start sample	
1857	69	5.0	5	84		26		
1903	69	5.0	6	83		26		
1915	69	5.0	8	83		25		
1927	69	5.0	10	82		25		
1939	69	5.0	12	81		24		
1947	condensation (water)				noted	in chamber		
1951	69	5.0	14	81		24	END	sample

Comments:

Sample collected below/next to 5th of 5 posts from inside of U (see diagram)

Figure 1. Flux Chamber Sampling Form



H = hopper
D = dredge

L-B10

RADIAN

Flux Chamber Measurement Field Data Sheet

Date:	14 August 2000	Sample Site:	New Bedford Harbor Superfund Site
Test #:	Sheen-1 C1	Location:	CDF
Flux Chamber #:	002	Sampler(s):	BME
Sweep Air Flow Meter #:	7067-003	PCB Collection Time:	VRS-ATO 1005 - 1105
Sample Flow Meter #	7063-002	Weather:	Cloudy, cool

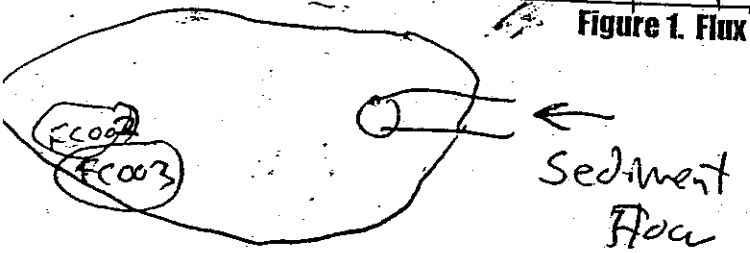
Time	Sweep Air Roto Setting/ Flow L/min		PCB Sampling Tau	PCB Sampling Roto Setting	PCB Sampling Flow L/min	Temperature (°C) Ambient	Temperature (°C) Chamber	Temperature (°C) Surface
0930	66	5.0	0					
0936	71.5	5.0	1					
0942	71.5	5.0	2			22		
0956			4			22		
1005						22	Start Sample	
1012	w71	5.0	~6	100	6.3-6.0L		Start sample	
1024	w71		7	100		22		
1036	w71	5.0	9	100		22		
1048	w71	5.0	11	100		22		
1105	w70		13	100		23		
						22	Stop sample	

Comments: Inside white boom

t=1012 scum layer on water surface

t=0945 collected grab sample of surface water next to F/C

Figure 1. Flux Chamber Sampling Form



RADIAN

C2

Flux Chamber Measurement Field Data Sheet

Date:	4 August 2000	Sample Site:	New Bedford Harbor Superfund Site
Test #:	Sweep 2 C2	Location:	CDF
Flux Chamber #:	003	Sampler(s):	BMS
Sweep Air Flow Meter #:	7067-002	PCB Collection Time:	0956-1056 URS-ATT
Sample Flow Meter #	7063-002	Weather:	Cloudy, cool

Time	Sweep Air Rota Setting/ Flow L/min		PCB Sampling Tag	PCB Sampling Rota Setting	PCB Sampling Flow L/min	Temperature (°C) Ambient	Chamber	Surface
0930	69	5.0	0					
0936	69	5.0	1			22		
0942	69	5.0	2			22		
0956			~4	75	6.2-5-20	22	Start sample	
1006			6	75		22		
1012	69	5.0	7	75		22		
1024	~69		9	75		22		
1036	~69	5.0	11	75		22		
1048	~70	5.0	13	75		23		
1056							Stop sample	

Comments: Inside white boom

+/- 0945 Collected grab sample of surface water next to F/CO

Continuous flow of sediment from pipe since ~0900

Figure 1. Flux Chamber Sampling Form

L-B12

E1

RADIAN

Flux Chamber Measurement Field Data Sheet

Date:	August 2000	Sample Site:	New Bedford Harbor Superfund Site
Test #:	Dawn Surfactant E1	Location:	CDF
Flux Chamber #:	002	Sampler(s):	BME
Sweep Air Flow Meter #:	7067-003	PCB Collection Time:	URS-412 1108-1208
Sample Flow Meter #	7063-004	Weather:	cloudy & cool, slight breeze

Time	Sweep Air Rota Setting/ Flow L/min	PCB Sampling Tau	PCB Sampling Rota Setting	PCB Sampling Flow L/min	Temperature (°C) Ambient	Temperature (°C) Chamber	Temperature (°C) Surface
0930	71.5 5.0						
1106	Spray	5-6 Squirts of Dawn into F/C					
1108	0	>10				Start Sample	
1114	~70 5.0		98		24		
1126	~70 5.0		98		23		
1138	~70 5.0		98		23		
1150	~70 5.0		98		23		
1202	~70 5.0		98		23		
1208						End Sample	

Comments: t=1121 a few soap bubbles on water surface inside F/C. Still there at t=1150

Figure 1. Flux Chamber Sampling Form

L-B13

RADIAN

E2

Flux Chamber Measurement Field Data Sheet

Date:	4 August 2000	**Sample Site:**	New Bedford Harbor Superfund Site
Test #:	Biosolve surfactant E2	**Location:**	CDF
Flux Chamber #:	OC3	**Sampler(s):**	BME
Sweep Air Flow Meter #:	7067-002	**PCB Collection Time:**	URSA13 1102-1202
Sample Flow Meter #	7063-002	**Weather:**	cloudy + cool, a little wind

Time	Sweep Air Rota Setting/ Flow L/min		PCB Sampling Tax	Rota Setting	Flow L/min	Temperature (°C) Ambient	Chamber	Surface
0930	69	5.0						
1100	spray 5		squirts of Biosolve			into chamber		
1102	~70	5.0	>10	75	60,5-2 L/min	22	start sample	
1114	~70	5.0		75		24		
1126	~70	5.0		75		23		
1138	~70	5.0		75		23		
1150	~70	5.0		75		23		
1202	~70	5.0		75		23	stop sample	

Comments:

Boom made of 20 floats, each of which is ~10' long w/some overlap (~1 ft') at each end of each segment.
$2\pi r \approx$ ~160 ft

Figure 1. Flux Chamber Sampling Form

L-B14

RADIAN

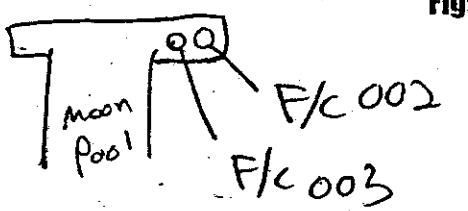
Flux Chamber Measurement Field Data Sheet

Date:	4 August 2000	**Sample Site:**	New Bedford Harbor Superfund Site
Test #:	F3	**Location:**	Moon Pool
Flux Chamber #:	003	**Sampler(s):**	BMI/EPA
Sweep Air Flow Meter #:	7067-002	**PCB Collection Time:**	1605 – 1705 URS-A14
Sample Flow Meter #	7063-004	**Weather:**	cloudy, warm, light breeze

Time	Sweep Air Rate Setting/ Flow L/min	PCB Sampling Tau	PCB Sampling Rate Setting	PCB Sampling Flow L/min	Temperature (°C) Ambient	Temperature (°C) Chamber	Temperature (°C) Surface
1454	69 5.0	0			22		
1506	~70 5.0	2			23		
1509	shut	off.	Barge to be moved.				
1535	69 5.0	0	BACK ON. NEW START				
1549	~70 5.0	2			23		
1605	~70 5.0	5	98	63=2.0 L/min	22	start SAMPLE	
1617	~70 5.0	7	98		23		
1629	~70 5.0	9	98		23		
1641	~70 5.0	11	98		22		
1653	~70 5.0	13	98		22		
1705	~70 5.0	15	98		22	END SAMPLE	

Comments: t=1549 start dredging
~t=1620 At least 2 bucketfuls taken immediately adjacent to F/C-003.
T = 1640 Dipped surface sample URS-W14 from next to F/C
t=1645 stopped dredging. Apparently a flow problem.

Figure 1. Flux Chamber Sampling Form



Approximate # Buckets Dredged
1607 – 1615 I
1615 – 1635 IIII III

RADIAN

Flux Chamber Measurement Field Data Sheet

Date:	14 August 2000	**Sample Site:**	New Bedford Harbor Superfund Site
Test #:	~~F-14~~ BME 8-14-00 F-4	**Location:**	Moon Pool
Flux Chamber #:	002	**Sampler(s):**	BME/EPA
Sweep Air Flow Meter #:	7067-003	**PCB Collection Time:**	VRS-A15 1605-1705
Sample Flow Meter #	7063-002	**Weather:**	cloudy, warm

Time	Sweep Air Rota Setting/ Flow L/min	PCB Sampling Tan	Rota Setting	Flow L/min	Temperature (°C) Ambient	Chamber	Surface
1454	71.5 5.0	0			23		
1506	~70 5.0	2			23		
1509	SHUT OFF. BARGE TO BE MOVED						
1535	71.5 5.0	0	New start 1				
1549	~70 5.0	2			23		
1605	70 5.0	5	76	62.5= 2 L/min	22	start Sample	
1617	~70 5.0	7	75		23		
1629	~70 5.0	9	75		23		
1641	~70 5.0	11	75		22		
1653	~70 5.0	13	75		22		
1705	~70 5.0	15	75		22	END SAMPLE	

Comments: T=1535. Moved to top of cut 8

Figure 1. Flux Chamber Sampling Form

L-B16

RADIAN

Flux Chamber Measurement Field Data Sheet

Date:	15 August 2000	**Sample Site:**	New Bedford Harbor Superfund Site
Test #:	A1	**Location:**	Fresh Sediment CDF
Flux Chamber #:	002	**Sampler(s):**	BME/EPA
Sweep Air Flow Meter #:	7067-001	**PCB Collection Time:**	0936 - 1042 A016
Sample Flow Meter #:	7063-004	**Weather:**	Cloudy, warm, almost no breeze

Time	Sweep Air Rota Setting/ Flow L/min	PCB Sampling Tau	PCB Sampling Beta Setting	PCB Sampling Flow L/min	Temperature (°C) Ambient	Temperature (°C) Chamber	Temperature (°C) Surface
0912	71 5.0	0					
0936	71. 5.0	4	76	63 5.0	22		
0951	~70	6	76		22	Ram	
1014	70		76		22		
1028	70		76				
1042	70		76		22	Stop	Sample

Comments: Dipped sample from end of discharge pipe. Put 3-4 inch layer of sediment in each wash tub. Appears to be ~5% solids.

Collected URSW016 from tub after sample. Mixed water before sample collection

Figure 1. Flux Chamber Sampling Form

RADIAN

Flux Chamber Measurement Field Data Sheet

Date:	15 August 2000	**Sample Site:**	New Bedford Harbor Superfund Site
Test #:	A2	**Location:**	Fresh Sediment CDF
Flux Chamber #:	003	**Sampler(s):**	BMS/EPA
Sweep Air Flow Meter #:	7067-004	**PCB Collection Time:**	0939 - 1034 URS A17
Sample Flow Meter #	7063-	**Weather:**	cloudy, warm

Time	Sweep Air Roto Setting/ Flow L/min	PCB Sampling Tan	PCB Sampling Roto Setting	PCB Sampling Flow L/min	Temperature (°C) Ambient	Temperature (°C) Chamber	Temperature (°C) Surface
0915	69 5.0	0					
0939	69 5.0	4	96	62.5=5.0	22		
0951	~70	6	95	6	22	Rain	
1014	69		96		22		
1028	69		96				
1034	70		95		22	Stop Sample	
1044	70		95		22		

Comments: This sample appears to have the most solids of the 3 collected.

Collected URS W017 in same manner as URS W016

Figure 1. Flux Chamber Sampling Form

L-B18

RADIAN

Flux Chamber Measurement Field Data Sheet

Date:	15 August 2000	Sample Site:	New Bedford Harbor Superfund Site
Test #:	A3	Location:	Fresh Sediment CDF
Flux Chamber #:	001	Sampler(s):	BME/EPA
Sweep Air Flow Meter #:	7067-003	PCB Collection Time:	0940-1044 URS A18
Sample Flow Meter #	7063-001	Weather:	cloudy, warm, little breeze

Time	Sweep Air Rota Setting/ Flow L/min	PCB Sampling			Temperature (°C)		
		Tan	Rota Setting	Flow L/min	Ambient	Chamber	Surface
0916	71.5 5.0	0					
0940	71.5 5.0	A	88		22		
0952	~70	6	85		22	Rain	
1035	71		86		22		
1028	71		87				
1044	~70 5.0		86		22	stop Sample	

Comments: URS A18
Sediment sample had more water than other samples. Momentum carried bucket into CDF during filling.
Collected URS W18 in same manner as URS W16

Figure 1. Flux Chamber Sampling Form

RADIAN

Flux Chamber Measurement Field Data Sheet

Date:	15 August 2000	**Sample Site:**	New Bedford Harbor Superfund Site
Test #:	B1	**Location:**	Sediment + water
Flux Chamber #:	002	**Sampler(s):**	SAA/BME
Sweep Air Flow Meter #:	7067-001	**PCB Collection Time:**	URSA19 1127 - 1227
Sample Flow Meter #	7063-004	**Weather:**	Light rain

Time	Sweep Air Rota Setting/ Flow L/min		PCB Sampling Tau	PCB Sampling Rota Setting	PCB Sampling Flow L/min	Temperature (°C) Ambient	Temperature (°C) Chamber	Temperature (°C) Surface
1100	71	5.0	0			22		
1112	~70		2			23		
1127	~70		4T	76	63=2.0 L/min	24	Sample Start	
1142	~70		7T	76		25		
1154	~70		9	76		25	No more rain	
1218	70	5.0	13	76		24		
1227						24	END SAMPLE	

1000 psi

Comments: F/c removed from basins prior to start of sampling. Added 2 gallons of harbor water to each basin (~2" water layer). The effect, at least initially, appears to be to dilute the sample more than to add a water layer. Poured water in slowly using hand as a deflection plate.

Figure 1. Flux Chamber Sampling Form

RADIAN

Flux Chamber Measurement Field Data Sheet

Date:	15 August 2000	Sample Site:	New Bedford Harbor Superfund Site
Test #:	B2	Location:	sediment + water
Flux Chamber #:	003	Sampler(s):	EPA - BMS
Sweep Air		PCB Collection	VRS A2C
Flow Meter #:	7067-004	Time:	1128 - 1228
Sample		Weather:	Rain
Flow Meter #	7063-		

Time	Sweep Air Roto Setting/ Flow L/min	PCB Sampling Tan	PCB Sampling Roto Setting	PCB Sampling Flow L/min	Temperature (°C) Ambient	Temperature (°C) Chamber	Temperature (°C) Surface
1101	64 5.0	0			22		
1113	~70	2			23		
1128	~70	4	98	2.0 L/m = 62.5	24	Sample Start	
1143	~70	7	95		25		
1155	70	9	96		25		
1219	~70 5.0	13	96		24		
1228						END Sample	

30 psi

Comments: t=1152 changed out gas cylinder <1 min

Figure 1. Flux Chamber Sampling Form

L-B21

RADIAN

Flux Chamber Measurement Field Data Sheet

Date:	15 August 2000	Sample Site:	New Bedford Harbor Superfund Site
Test #:	B3	Location:	Sediment + water
Flux Chamber #:	001	Sampler(s):	EPA/BMS
Sweep Air		PCB Collection Time:	VRS-A21 1130-1230
Flow Meter #:	7067-003	Weather:	Rain
Sample Flow Meter #	7063-001		

Time	Sweep Air Rota Setting/ Flow L/min		PCB Sampling Tau	Rota Setting	Flow L/min	Temperature (°C) Ambient	Chamber	Surface
1101	71.5	5.0	0			22		
1113	~70		2			23	(first sunshine of day, still light rain)	
1130	~70		4+	85		24		
1143	~70		7	87		25		
1155	70	5.0	9	88		25		
1215	~70	5.0	13	87		24		
1230						24	End sample	

sample start 300 psi

Comments: t=1152 Changed out gas cylinder <1 min

Figure 1. Flux Chamber Sampling Form

RADIAN

Flux Chamber Measurement Field Data Sheet

Date:	15 August 2000	Sample Site:	New Bedford Harbor Superfund Site
Test #:	D1	Location:	water near sheen
Flux Chamber #:	002	Sampler(s):	BME/EPA
Sweep Air Flow Meter #:	7067-002	PCB Collection Time:	URS A22 1508-1611
Sample Flow Meter #	7063-~~004~~ 002 BME 8-13-00	Weather:	Cloudy, warm

Time	Sweep Air Rota Setting/ Flow L/min	PCB Sampling Tag	PCB Sampling Rota Setting	PCB Sampling Flow L/min	Temperature (°C) Ambient	Temperature (°C) Chamber	Temperature (°C) Surface
1444	69 5.0	0		6.3 5.0	23		
1456	~70	2			21		
1508	~70	4	98		20	Rain	
1514		5	94				
1530	70		90		20	Heavy rain	
1555	70		92		20		
1611	STOP						

Comments: Hard rain before start of sampling
Oil boom is doing nothing to contain flow of fresh material. Boom was moved about ~1330.
Sampling done from shore

Figure 1. Flux Chamber Sampling Form

7063-002 used for tests A2 & B2

L-B23

RADIAN

Flux Chamber Measurement Field Data Sheet

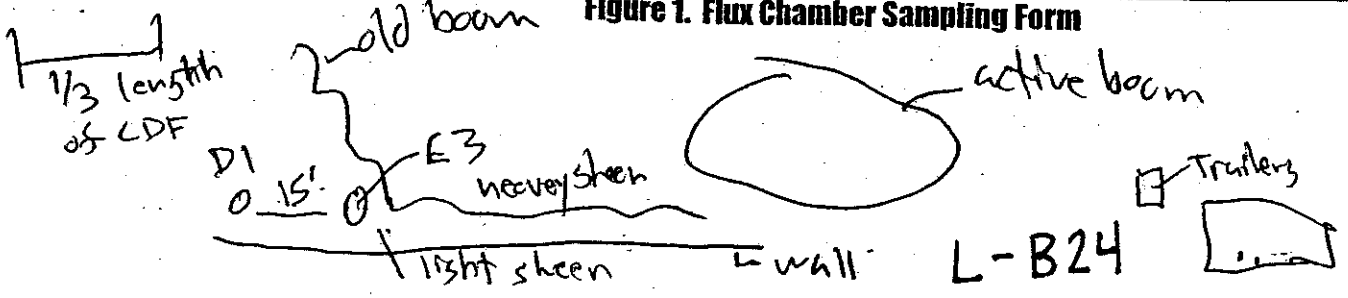
Date:	15 August 2000	**Sample Site:**	New Bedford Harbor Superfund Site
Test #:	C3	**Location:**	Sheen in CDF
Flux Chamber #:	003	**Sampler(s):**	EPA; BMS
Sweep Air Flow Meter #:	7067-001	**PCB Collection Time:**	VRS-A23 1513-1615
Sample Flow Meter #	7063-001	**Weather:**	Cloudy, warm, some drizzle

Time	Sweep Air Rota Setting/ Flow L/min	PCB Sampling Tau	PCB Sampling Rota Setting	PCB Sampling Flow L/min	Temperature (°C) Ambient	Temperature (°C) Chamber	Temperature (°C) Surface
1449	71 5.0	0		63-66 L/min	21		
1455	~70	1			21		
1513	~70	4	78		20		
1530	~70		78		20	Heavier rain	
1555	70		78		20		
~~1515~~	~~STOP~~						
1615						End of sample	

BMS 8-15-00

Comments: Put F/C in area with minimal water depth. Area w/ heavy sheen is ~sand bar can't access by boat

Figure 1. Flux Chamber Sampling Form



RADIAN

Flux Chamber Measurement Field Data Sheet

Date:	August 2000	**Sample Site:**	New Bedford Harbor Superfund Site
Test #:	E-3 (Simple Green)	**Location:**	Oil Sheen
Flux Chamber #:	003	**Sampler(s):**	BME/EPA
Sweep Air Flow Meter #:	7067-001	**PCB Collection Time:**	URS-A24 22 1616 - 1722
Sample Flow Meter #	7063-001	**Weather:**	

Time	Sweep Air Rota Setting/ Flow L/min	PCB Sampling			Temperature (°C)		
		Tag	Rota Setting	Flow L/min	Ambient	Chamber	Surface
22 1616	70	0	78				
START 1640	70	4	77				
1656	70 5.0	6	77		20		
1722	70 5.0	10	78		20		

Comments: Applied ~6 squirts of simple green directly into chamber from boat at about 1615 Chamber is next to wall in area of heavy sediment loading.

Figure 1. Flux Chamber Sampling Form

L-B25

RADIAN

Flux Chamber Measurement Field Data Sheet

Date:	15 August 2000	**Sample Site:**	New Bedford Harbor Superfund Site
Test #:	D-2	**Location:**	H_2O Near Sheen
Flux Chamber #:	002	**Sampler(s):**	EPA/BNE URS-A25
Sweep Air Flow Meter #:	7067-002	**PCB Collection Time:**	1640-1710
Sample Flow Meter #	7063-002	**Weather:**	RAIN

Time	Sweep Air Rota Setting/ Flow L/min	PCB Sampling Tan	PCB Sampling Roto Setting	PCB Sampling Flow L/min	Temperature (°C) Ambient	Temperature (°C) Chamber	Temperature (°C) Surface
1616	69	0					
Start 1640	69	4	92				
1658	~70 5.0	7	92		21	Norgm	
1720	~70 5.0	~10	92		21		
1740						END of Sample	

URS-A-25

Comments:

Chamber was moved down wall ~10-ft from location of D1

Figure 1. Flux Chamber Sampling Form

L-B26

wall
- D2
- D1
- A—discharge pipe

A2
G7

RADIAN

Flux Chamber Measurement Field Data Sheet

Date:	16 August 2000	Sample Site:	New Bedford Harbor Superfund Site
Test #:	G2	Location:	~40' from silt fence
Flux Chamber #:	003	Sampler(s):	BMC
Sweep Air Flow Meter #:	7067-003	PCB Collection Time:	VRS A26 1406-
Sample Flow Meter #	7063-001	Weather:	cloudy, warm, light breeze

Time	Sweep Air Rate Setting/ Flow L/min		PCB Sampling Tan	PCB Sampling Rate Setting	PCB Sampling Flow L/min	Temperature (°C) Ambient	Temperature (°C) Chamber	Temperature (°C) Surface
1345	70	5.0	0		63=2.0 L/min	16	Readout faulty	
1357	70	5.0	2	85		15		
1406	70	5,0	4	95 Plug 8-16cc			Start sample	
1421	70	5.0	6	85				
1433	70	5.0	8	85				
1451	70	5.0	11	85				
1509	70	5,0	14	85			END	Sample

Comments: No visible sheen or plume

Cut A in location of 2nd set, while 3rd set is being dredged

VRS w26 collected next to chamber at t=1425

Figure 1. Flux Chamber Sampling Form

A27
G3

RADIAN

Flux Chamber Measurement Field Data Sheet

Date:	16 August 2000	Sample Site:	New Bedford Harbor Superfund Site
Test #:	G3	Location:	~ 47' from silt fence
Flux Chamber #:	002	Sampler(s):	BME URS A27
Sweep Air Flow Meter #:	7067-001	PCB Collection Time:	1410-1510
Sample Flow Meter #	7063-002	Weather:	cloudy, warm

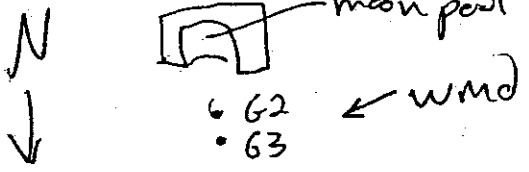
Time	Sweep Air Rota Setting/ Flow L/min		PCB Sampling Tag	PCB Sampling Rota Setting	PCB Sampling Flow L/min	Temperature (°C) Ambient	Chamber	Surface
1346	70	5.0	0		62.5 = 2.0 L/min	17		
1358	70	5.0	2			15		
1410	70	5.0	4	98			Start sample	
1422	70	5.0	6	98				
1434	70	5.0	8	98				
1452	70	5.0	11	98				
1500	70	5.0	14	98		1510	END sample	

t=1500

(to the south)

Comments: Silt fence edging into moon pool, implying flow of surface water is away from samples. Wind from W.

Figure 1. Flux Chamber Sampling Form



L-B28

Attachment C

Summary of Analytical Data

For Emission Flux Air Samples

ALTA

August 24, 2000

Alta Batch I.D.: 8950

Mr. Eric Anderson
Radian Corporation
8501 Mo-Pac Blvd.
Austin, TX 78720

Dear Mr. Anderson,

Enclosed are the results for nine MM5 trains received at Alta Analytical Laboratory on August 17, 2000. This work was authorized under your BOA #AO6 and Work Order #756661.UA. These trains were extracted and analyzed using EPA Method 1668 for PCB congeners and Total PCB's (as per your attached list) using High Resolution Mass Spectrometry (HRMS). A standard turnaround time was requested for this work.

The following report consists of a Sample Inventory (Section I), Analytical Results (Section II) and the Appendix. The Appendix contains a copy of the chain-of-custody, a list of data qualifiers and abbreviations, our current certifications, copies of the raw data.

If you have any questions regarding this report please feel free to contact me.

Sincerely,

Robert S. Mitzel
Vice-President of HRMS Operations

L-C2

Alta Analytical Laboratory Inc.
5070 Robert J. Mathews Parkway
El Dorado Hills, CA 95762
FAX (916) 933-0940

ALTA

Sample Inventory Report: MM5 Sampling Train

Project No.: 8950 **Project Name:** New Bedford Harbor
Date Rec.: 8/17/00

Lab. Sample ID	Client Sample ID	Component ID
001	URS-A-20	XAD
002	URS-A-21	XAD
003	URS-A-22	XAD
004	URS-A-23	XAD
005	URS-A-24	XAD
006	URS-A-25	XAD
007	URS-A-26	XAD
008	URS-A-27	XAD
009	URS-B-2	XAD

ALTA

EPA METHOD 1668
POLYCHLORINATED BIPHENYLS

Method Blank		**Date Received:**	NA	**QC Lot:**	LC0818M
Lab ID:	8950-MB	**Date Extracted:**	8/18/00	**Units:**	ng/sample
Matrix:	MM5 Train	**Sample Amount:**	Sample		

Compound	Conc.	R.L.	Qualifier
PCB-8	ND	1.0	
PCB-18	ND	1.0	
PCB-28	ND	1.0	
PCB-44	ND	1.0	
PCB-52	ND	1.0	
PCB-66	ND	1.0	
PCB-77	ND	1.0	
PCB-81	ND	1.0	
PCB-90/101	ND	1.0	
PCB-118	ND	1.0	
PCB-123	ND	1.0	
PCB-105	ND	1.0	
PCB-114	ND	1.0	
PCB-126	ND	1.0	
PCB-151	ND	1.0	
PCB-128	ND	1.0	
PCB-138	ND	1.0	
PCB-153	ND	1.0	
PCB-167	ND	1.0	
PCB-156	ND	1.0	
PCB-157	ND	1.0	
PCB-169	ND		
PCB-170	ND	1.0	
PCB-180	ND	1.0	
PCB-187	ND	1.0	
PCB-189	ND	1.0	
PCB-195	ND	1.0	
PCB-206	ND	1.0	
PCB-209	ND	1.0	
Totals			
Total monoCB	ND	1.0	
Total diCB	ND	1.0	
Total triCB	ND	1.0	
Total tetraCB	ND	1.0	
Total pentaCB	ND	1.0	
Total hexaCB	ND	1.0	
Total heptaCB	ND	1.0	
Total octaCB	ND	1.0	
Total nonaCB	ND	1.0	

Analyst: BS

Reviewer:

L-C4

ALTA

EPA METHOD 1668
POLYCHLORINATED BIPHENYLS

Method Blank
Lab ID: 8950-MB

Isotopic Recovery Results

Internal Standard:	% R	Qualifier
^{13}C-PCB-3	49	
^{13}C-PCB-9	66	
^{13}C-PCB-28	72	
^{13}C-PCB-37	71	
^{13}C-PCB-77	66	
^{13}C-PCB-101	61	
^{13}C-PCB-118	51	
^{13}C-PCB-105	53	
^{13}C-PCB-126	51	
^{13}C-PCB-138	60	
^{13}C-PCB-156	59	
^{13}C-PCB-157	60	
^{13}C-PCB-169	57	
^{13}C-PCB-180	62	
^{13}C-PCB-202	70	
^{13}C-PCB-194	56	
^{13}C-PCB-208	61	
^{13}C-PCB-209	66	

Prespike Standard:	% Rec.	Qualifier
^{13}C-PCB-52	NA	
^{13}C-PCB-178	NA	

Dates Analyzed:

DB-1: 8/22/00

Analyst: BS

Reviewer:

L-C5

ALTA

EPA METHOD 1668
POLYCHLORINATED BIPHENYLS

LCS1/LCS2 RESULTS
Lab ID: 8950-LCS1/LCS2
Matrix: MM5

Date Received: NA
Date Extracted: 8/18/00
Sample Amount: Sample

ICAL ID: I1668
QC Lot: LC0818M
Units: NA

Compound	LCS1 %R	LCS2 %R	RPD %
PCB-8	103	105	1.9
PCB-18	81	82	1.2
PCB-28	95	99	4.1
PCB-44	83	82	1.2
PCB-52	80	80	0.0
PCB-66	89	87	2.3
PCB-77	90	90	0.0
PCB-81	85	84	1.2
PCB-90/101	88	99	12
PCB-118	106	104	1.9
PCB-123	103	104	0.97
PCB-105	101	107	5.8
PCB-114	107	109	1.9
PCB-126	97	100	3.0
PCB-151	108	106	1.9
PCB-128	103	103	0.0
PCB-138	101	99	2.0
PCB-153	101	102	0.99
PCB-167	98	106	7.8
PCB-156	103	100	3.0
PCB-157	102	104	1.9
PCB-169	108	105	2.8
PCB-170	108	108	0.0
PCB-180	97	100	3.0
PCB-187	105	104	0.96
PCB-189	106	105	0.95
PCB-195	111	111	0.0
PCB-206	92	99	7.3
PCB-209	99	97	2.0

Analyst: BS

Reviewer:

L-C6

ALTA

EPA METHOD 1668
POLYCHLORINATED BIPHENYLS

LCS1/LCS2 RESULTS
Lab ID: 8950-LCS1/LCS2

	Isotopic Recovery Results	
	LCS1	LCS2
Internal Standard:	**%R**	**%R**
^{13}C-PCB-3	50	49
^{13}C-PCB-9	62	63
^{13}C-PCB-28	67	65
^{13}C-PCB-37	68	73
^{13}C-PCB-77	68	75
^{13}C-PCB-101	64	67
^{13}C-PCB-118	52	58
^{13}C-PCB-105	53	57
^{13}C-PCB-126	48	57
^{13}C-PCB-138	55	62
^{13}C-PCB-156	55	66
^{13}C-PCB-157	56	64
^{13}C-PCB-169	46	58
^{13}C-PCB-180	65	77
^{13}C-PCB-202	69	82
^{13}C-PCB-194	57	67
^{13}C-PCB-208	60	71
^{13}C-PCB-209	61	76

Dates Analyzed:

DB-1: 8/22/00

Analyst: BS

Reviewer:

L-C7

EPA METHOD 1668
POLYCHLORINATED BIPHENYLS

Sample ID:	URS-A-20	Date Received:	8/17/00	QC Lot:	LC0818M
Lab ID:	8950-0001-PCB	Date Extracted:	8/18/00	Units:	ng/sample
Matrix:	MM5 Train	Sample Amount:	Sample		

Compound	Conc.	R.L.	Qualifier
PCB-8	1600	1.0	
PCB-18	1900	1.0	
PCB-28	690	1.0	
PCB-44	250	1.0	
PCB-52	450	1.0	
PCB-66	15	1.0	
PCB-77	ND	1.0	
PCB-81	ND	1.0	
PCB-90/101	32	1.0	
PCB-118	1.2	1.0	
PCB-123	ND	1.0	
PCB-105	ND	1.0	
PCB-114	ND	1.0	
PCB-126	ND	1.0	
PCB-151	2.6	1.0	
PCB-128	ND	1.0	
PCB-138	ND	1.0	
PCB-153	ND	1.0	
PCB-167	ND	1.0	
PCB-156	ND	1.0	
PCB-157	ND	1.0	
PCB-169	ND	1.0	
PCB-170	ND	1.0	
PCB-180	ND	1.0	
PCB-187	ND	1.0	
PCB-189	ND	1.0	
PCB-195	ND	1.0	
PCB-206	ND	1.0	
PCB-209	ND	1.0	
Totals			
Total monoCB	120	1.0	
Total diCB	5000	1.0	
Total triCB	6800	1.0	
Total tetraCB	2000	1.0	
Total pentaCB	280	1.0	
Total hexaCB	12	1.0	
Total heptaCB	ND	1.0	
Total octaCB	ND	1.0	
Total nonaCB	ND	1.0	

Analyst: BS

Reviewer: 

L-C8

ALTA

EPA METHOD 1668

POLYCHLORINATED BIPHENYLS

Sample ID: URS-A-20
Lab ID: 8950-0001-PCB

Isotopic Recovery Results

Internal Standard:	% R	Qualifier
^{13}C-PCB-3	57	
^{13}C-PCB-9	67	
^{13}C-PCB-28	71	
^{13}C-PCB-37	76	
^{13}C-PCB-77	73	
^{13}C-PCB-101	71	
^{13}C-PCB-118	65	
^{13}C-PCB-105	65	
^{13}C-PCB-126	65	
^{13}C-PCB-138	64	
^{13}C-PCB-156	74	
^{13}C-PCB-157	68	
^{13}C-PCB-169	65	
^{13}C-PCB-180	64	
^{13}C-PCB-202	71	
^{13}C-PCB-194	60	
^{13}C-PCB-208	59	
^{13}C-PCB-209	60	

Prespike Standard:	% Rec.	Qualifier
^{13}C-PCB-52	94	
^{13}C-PCB-178	101	

Dates Analyzed:

DB-1: 8/22/00

Analyst: BS

Reviewer:

L-C9

ALTA

EPA METHOD 1668
POLYCHLORINATED BIPHENYLS

Sample ID:	URS-A-21	**Date Received:**	8/17/00	**QC Lot:**	LC0818M
Lab ID:	8950-0002-PCB	**Date Extracted:**	8/18/00	**Units:**	ng/sample
Matrix:	MM5 Train	**Sample Amount:**	Sample		

Compound	Conc.	R.L.	Qualifier
PCB-8	1700	1.0	
PCB-18	2200	1.0	
PCB-28	880	1.0	
PCB-44	430	1.0	
PCB-52	740	1.0	
PCB-66	21	1.0	
PCB-77	ND	1.0	
PCB-81	ND	1.0	
PCB-90/101	47	1.0	
PCB-118	1.7	1.0	
PCB-123	ND	1.0	
PCB-105	ND	1.0	
PCB-114	ND	1.0	
PCB-126	ND	1.0	
PCB-151	3.2	1.0	
PCB-128	ND	1.0	
PCB-138	ND	1.0	
PCB-153	1.3	1.0	
PCB-167	ND	1.0	
PCB-156	ND	1.0	
PCB-157	ND	1.0	
PCB-169	ND	1.0	
PCB-170	ND	1.0	
PCB-180	ND	1.0	
PCB-187	ND	1.0	
PCB-189	ND	1.0	
PCB-195	ND	1.0	
PCB-206	ND	1.0	
PCB-209	ND	1.0	
Totals			
Total monoCB	91	1.0	
Total diCB	5300	1.0	
Total triCB	8400	1.0	
Total tetraCB	3300	1.0	
Total pentaCB	470	1.0	
Total hexaCB	5.5	1.0	
Total heptaCB	ND	1.0	
Total octaCB	ND	1.0	
Total nonaCB	ND	1.0	

Analyst: BS

Reviewer:

L-C10

ALTA

EPA METHOD 1668

POLYCHLORINATED BIPHENYLS

Sample ID: URS-A-21
Lab ID: 8950-0002-PCB

Isotopic Recovery Results

Internal Standard:	% R	Qualifier
13C-PCB-37	36	
^{13}C-PCB-9	45	
^{13}C-PCB-28	49	
^{13}C-PCB-37	49	
^{13}C-PCB-77	45	
^{13}C-PCB-101	47	
^{13}C-PCB-118	38	
^{13}C-PCB-105	39	
^{13}C-PCB-126	40	
^{13}C-PCB-138	43	
^{13}C-PCB-156	46	
^{13}C-PCB-157	43	
^{13}C-PCB-169	42	
^{13}C-PCB-180	46	
^{13}C-PCB-202	48	
^{13}C-PCB-194	38	
^{13}C-PCB-208	45	
^{13}C-PCB-209	44	

Prespike Standard:	% Rec.	Qualifier
^{13}C-PCB-52	103	
^{13}C-PCB-178	104	

Dates Analyzed:

DB-1: 8/22/00

Analyst: BS

Reviewer:

L-C11

ALTA

EPA METHOD 1668
POLYCHLORINATED BIPHENYLS

Sample ID:	URS-A-22	**Date Received:**	8/17/00	**QC Lot:**	LC0818M
Lab ID:	8950-0003-PCB	**Date Extracted:**	8/18/00	**Units:**	ng/sample
Matrix:	MM5 Train	**Sample Amount:**	Sample		

Compound	Conc.	R.L.	Qualifier
PCB-8	680	1.0	
PCB-18	810	1.0	
PCB-28	290	1.0	
PCB-44	120	1.0	
PCB-52	210	1.0	
PCB-66	6.9	1.0	
PCB-77	ND	1.0	
PCB-81	ND	1.0	
PCB-90/101	16	1.0	
PCB-118	ND	1.0	
PCB-123	ND	1.0	
PCB-105	ND	1.0	
PCB-114	ND	1.0	
PCB-126	ND	1.0	
PCB-151	ND	1.0	
PCB-128	ND	1.0	
PCB-138	ND	1.0	
PCB-153	ND	1.0	
PCB-167	ND	1.0	
PCB-156	ND	1.0	
PCB-157	ND	1.0	
PCB-169	ND	1.0	
PCB-170	ND	1.0	
PCB-180	ND	1.0	
PCB-187	ND	1.0	
PCB-189	ND	1.0	
PCB-195	ND	1.0	
PCB-206	ND	1.0	
PCB-209	ND	1.0	
Totals			
Total monoCB	90	1.0	
Total diCB	2300	1.0	
Total triCB	2800	1.0	
Total tetraCB	920	1.0	
Total pentaCB	130	1.0	
Total hexaCB	3.6	1.0	
Total heptaCB	ND	1.0	
Total octaCB	ND	1.0	
Total nonaCB	ND	1.0	

Analyst: BS

Reviewer: [signature]

L-C12

ALTA

EPA METHOD 1668
POLYCHLORINATED BIPHENYLS

Sample ID: URS-A-22
Lab ID: 8950-0003-PCB

Isotopic Recovery Results

Internal Standard:	% R	Qualifier
^{13}C-PCB-3	57	
^{13}C-PCB-9	69	
^{13}C-PCB-28	72	
^{13}C-PCB-37	83	
^{13}C-PCB-77	78	
^{13}C-PCB-101	74	
^{13}C-PCB-118	71	
^{13}C-PCB-105	69	
^{13}C-PCB-126	69	
^{13}C-PCB-138	71	
^{13}C-PCB-156	75	
^{13}C-PCB-157	73	
^{13}C-PCB-169	76	
^{13}C-PCB-180	73	
^{13}C-PCB-202	72	
^{13}C-PCB-194	66	
^{13}C-PCB-208	65	
^{13}C-PCB-209	63	

Prespike Standard:	% Rec.	Qualifier
^{13}C-PCB-52	85	
^{13}C-PCB-178	91	

Dates Analyzed:

DB-1: 8/22/00

Analyst: BS

Reviewer: MF

L-C13

ALTA

EPA METHOD 1668
POLYCHLORINATED BIPHENYLS

Sample ID:	URS-A-23	**Date Received:**	8/17/00	**QC Lot:**	LC0818M
Lab ID:	8950-0004-PCB	**Date Extracted:**	8/18/00	**Units:**	ng/sample
Matrix:	MM5 Train	**Sample Amount:**	Sample		

Compound	Conc.	R.L.	Qualifier
PCB-8	710	1.0	
PCB-18	840	1.0	
PCB-28	100	1.0	
PCB-44	93	1.0	
PCB-52	170	1.0	
PCB-66	1.6	1.0	
PCB-77	ND	1.0	
PCB-81	ND	1.0	
PCB-90/101	4.2	1.0	
PCB-118	ND	1.0	
PCB-123	ND	1.0	
PCB-105	ND	1.0	
PCB-114	ND	1.0	
PCB-126	ND	1.0	
PCB-151	ND	1.0	
PCB-128	ND	1.0	
PCB-138	ND	1.0	
PCB-153	ND	1.0	
PCB-167	ND	1.0	
PCB-156	ND	1.0	
PCB-157	ND	1.0	
PCB-169	ND	1.0	
PCB-170	ND	1.0	
PCB-180	ND	1.0	
PCB-187	ND	1.0	
PCB-189	ND	1.0	
PCB-195	ND	1.0	
PCB-206	ND	1.0	
PCB-209	ND	1.0	
Totals			
Total monoCB	49	1.0	
Total diCB	2200	1.0	
Total triCB	2300	1.0	
Total tetraCB	680	1.0	
Total pentaCB	74	1.0	
Total hexaCB	1.1	1.0	
Total heptaCB	ND	1.0	
Total octaCB	ND	1.0	
Total nonaCB	ND	1.0	

Analyst: BS

Reviewer:

L-C14

ALTA

EPA METHOD 1668
POLYCHLORINATED BIPHENYLS

Sample ID: URS-A-23
Lab ID: 8950-0004-PCB

Isotopic Recovery Results

Internal Standard:	% R	Qualifier
^{13}C-PCB-3	54	
^{13}C-PCB-9	69	
^{13}C-PCB-28	89	
^{13}C-PCB-37	81	
^{13}C-PCB-77	76	
^{13}C-PCB-101	70	
^{13}C-PCB-118	64	
^{13}C-PCB-105	64	
^{13}C-PCB-126	65	
^{13}C-PCB-138	71	
^{13}C-PCB-156	74	
^{13}C-PCB-157	72	
^{13}C-PCB-169	73	
^{13}C-PCB-180	65	
^{13}C-PCB-202	73	
^{13}C-PCB-194	57	
^{13}C-PCB-208	61	
^{13}C-PCB-209	65	

Prespike Standard:	% Rec.	Qualifier
^{13}C-PCB-52	76	
^{13}C-PCB-178	102	

Dates Analyzed:

DB-1: 8/22/00

Analyst: BS

Reviewer:

L-C15

ALTA

EPA METHOD 1668
POLYCHLORINATED BIPHENYLS

Sample ID:	URS-A-24	**Date Received:**	8/17/00	**QC Lot:**	LC0818M
Lab ID:	8950-0005-PCB	**Date Extracted:**	8/18/00	**Units:**	ng/sample
Matrix:	MM5 Train	**Sample Amount:**	Sample		

Compound	Conc.	R.L.	Qualifier
PCB-8	280	1.0	
PCB-18	520	1.0	
PCB-28	200	1.0	
PCB-44	92	1.0	
PCB-52	160	1.0	
PCB-66	2.2	1.0	
PCB-77	ND	1.0	
PCB-81	ND	1.0	
PCB-90/101	7.8	1.0	
PCB-118	ND	1.0	
PCB-123	ND	1.0	
PCB-105	ND	1.0	
PCB-114	ND	1.0	
PCB-126	ND	1.0	
PCB-151	ND	1.0	
PCB-128	ND	1.0	
PCB-138	ND	1.0	
PCB-153	ND	1.0	
PCB-167	ND	1.0	
PCB-156	ND	1.0	
PCB-157	ND	1.0	
PCB-169	ND	1.0	
PCB-170	ND	1.0	
PCB-180	ND	1.0	
PCB-187	ND	1.0	
PCB-189	ND	1.0	
PCB-195	ND	1.0	
PCB-206	ND	1.0	
PCB-209	ND	1.0	
Totals			
Total monoCB	9.3	1.0	
Total diCB	820	1.0	
Total triCB	2000	1.0	
Total tetraCB	670	1.0	
Total pentaCB	90	1.0	
Total hexaCB	1.9	1.0	
Total heptaCB	ND	1.0	
Total octaCB	ND	1.0	
Total nonaCB	ND	1.0	

Analyst: BS

Reviewer:

L-C16

ALTA

EPA METHOD 1668

POLYCHLORINATED BIPHENYLS

Sample ID: URS-A-24
Lab ID: 8950-0005-PCB

Isotopic Recovery Results

Internal Standard:	% R	Qualifier
^{13}C-PCB-3	52	
^{13}C-PCB-9	67	
^{13}C-PCB-28	62	
^{13}C-PCB-37	79	
^{13}C-PCB-77	76	
^{13}C-PCB-101	73	
^{13}C-PCB-118	67	
^{13}C-PCB-105	68	
^{13}C-PCB-126	66	
^{13}C-PCB-138	71	
^{13}C-PCB-156	76	
^{13}C-PCB-157	75	
^{13}C-PCB-169	72	
^{13}C-PCB-180	69	
^{13}C-PCB-202	75	
^{13}C-PCB-194	63	
^{13}C-PCB-208	65	
^{13}C-PCB-209	69	

Prespike Standard:	% Rec.	Qualifier
^{13}C-PCB-52	89	
^{13}C-PCB-178	101	

Dates Analyzed:

DB-1: 8/22/00

Analyst: BS

Reviewer:

L-C17

ALTA

EPA METHOD 1668
POLYCHLORINATED BIPHENYLS

Sample ID:	URS-A-25	**Date Received:**	8/17/00	**QC Lot:**	LC0818M
Lab ID:	8950-0006-PCB	**Date Extracted:**	8/18/00	**Units:**	ng/sample
Matrix:	MM5 Train	**Sample Amount:**	Sample		

Compound	Conc.	R.L.	Qualifier
PCB-8	650	1.0	
PCB-18	1100	1.0	
PCB-28	280	1.0	
PCB-44	140	1.0	
PCB-52	230	1.0	
PCB-66	6.9	1.0	
PCB-77	ND	1.0	
PCB-81	ND	1.0	
PCB-90/101	16	1.0	
PCB-118	ND	1.0	
PCB-123	ND	1.0	
PCB-105	ND	1.0	
PCB-114	ND	1.0	
PCB-126	ND	1.0	
PCB-151	ND	1.0	
PCB-128	ND	1.0	
PCB-138	ND	1.0	
PCB-153	ND	1.0	
PCB-167	ND	1.0	
PCB-156	ND	1.0	
PCB-157	ND	1.0	
PCB-169	ND	1.0	
PCB-170	ND	1.0	
PCB-180	ND	1.0	
PCB-187	ND	1.0	
PCB-189	ND	1.0	
PCB-195	ND	1.0	
PCB-206	ND	1.0	
PCB-209	ND	1.0	
Totals			
Total monoCB	46	1.0	
Total diCB	2000	1.0	
Total triCB	3400	1.0	
Total tetraCB	1000	1.0	
Total pentaCB	160	1.0	
Total hexaCB	3.4	1.0	
Total heptaCB	ND	1.0	
Total octaCB	ND	1.0	
Total nonaCB	ND	1.0	

Analyst: BS

Reviewer: 

L-C18

ALTA

EPA METHOD 1668

POLYCHLORINATED BIPHENYLS

Sample ID: URS-A-25
Lab ID: 8950-0006-PCB

Isotopic Recovery Results

Internal Standard:	% R	Qualifier
^{13}C-PCB-3	43	
^{13}C-PCB-9	59	
^{13}C-PCB-28	54	
^{13}C-PCB-37	69	
^{13}C-PCB-77	69	
^{13}C-PCB-101	71	
^{13}C-PCB-118	52	
^{13}C-PCB-105	52	
^{13}C-PCB-126	48	
^{13}C-PCB-138	63	
^{13}C-PCB-156	63	
^{13}C-PCB-157	63	
^{13}C-PCB-169	58	
^{13}C-PCB-180	68	
^{13}C-PCB-202	79	
^{13}C-PCB-194	51	
^{13}C-PCB-208	64	
^{13}C-PCB-209	67	

Prespike Standard:	% Rec.	Qualifier
^{13}C-PCB-52	70	
^{13}C-PCB-178	78	

Dates Analyzed:

DB-1: 8/23/00

Analyst: BS

Reviewer:

L-C19

ALTA

EPA METHOD 1668
POLYCHLORINATED BIPHENYLS

Sample ID:	URS-A-26	**Date Received:**	8/17/00	**QC Lot:**	LC0818M
Lab ID:	8950-0007-PCB	**Date Extracted:**	8/18/00	**Units:**	ng/sample
Matrix:	MM5 Train	**Sample Amount:**	Sample		

Compound	Conc.	R.L.	Qualifier
PCB-8	94	1.0	
PCB-18	130	1.0	
PCB-28	90	1.0	
PCB-44	28	1.0	
PCB-52	45	1.0	
PCB-66	5.4	1.0	
PCB-77	ND	1.0	
PCB-81	ND	1.0	
PCB-90/101	11	1.0	
PCB-118	ND	1.0	
PCB-123	ND	1.0	
PCB-105	ND	1.0	
PCB-114	ND	1.0	
PCB-126	ND	1.0	
PCB-151	ND	1.0	
PCB-128	ND	1.0	
PCB-138	ND	1.0	
PCB-153	ND	1.0	
PCB-167	ND	1.0	
PCB-156	ND	1.0	
PCB-157	ND	1.0	
PCB-169	ND	1.0	
PCB-170	ND	1.0	
PCB-180	ND	1.0	
PCB-187	ND	1.0	
PCB-189	ND	1.0	
PCB-195	ND	1.0	
PCB-206	ND	1.0	
PCB-209	ND	1.0	
Totals			
Total monoCB	ND	1.0	
Total diCB	310	1.0	
Total triCB	600	1.0	
Total tetraCB	220	1.0	
Total pentaCB	76	1.0	
Total hexaCB	ND	1.0	
Total heptaCB	ND	1.0	
Total octaCB	ND	1.0	
Total nonaCB	ND	1.0	

Analyst: BS

Reviewer:

L-C20

ALTA

EPA METHOD 1668

POLYCHLORINATED BIPHENYLS

Sample ID: URS-A-26
Lab ID: 8950-0007-PCB

Isotopic Recovery Results

Internal Standard:	% R	Qualifier
^{13}C-PCB-3	41	
^{13}C-PCB-9	54	
^{13}C-PCB-28	47	
^{13}C-PCB-37	58	
^{13}C-PCB-77	63	
^{13}C-PCB-101	59	
^{13}C-PCB-118	42	
^{13}C-PCB-105	44	
^{13}C-PCB-126	40	
^{13}C-PCB-138	54	
^{13}C-PCB-156	56	
^{13}C-PCB-157	56	
^{13}C-PCB-169	51	
^{13}C-PCB-180	57	
^{13}C-PCB-202	64	
^{13}C-PCB-194	41	
^{13}C-PCB-208	50	
^{13}C-PCB-209	56	

Prespike Standard:	% Rec.	Qualifier
^{13}C-PCB-52	87	
^{13}C-PCB-178	98	

Dates Analyzed:

DB-1: 8/23/00

Analyst: BS

Reviewer:

L-C21

ALTA

EPA METHOD 1668

POLYCHLORINATED BIPHENYLS

Sample ID:	URS-A-27	Date Received:	8/17/00	QC Lot:	LC0818M
Lab ID:	8950-0008-PCB	Date Extracted:	8/18/00	Units:	ng/sample
Matrix:	MM5 Train	Sample Amount:	Sample		

Compound	Conc.	R.L.	Qualifier
PCB-8	81	1.0	
PCB-18	110	1.0	
PCB-28	68	1.0	
PCB-44	39	1.0	
PCB-52	62	1.0	
PCB-66	3.8	1.0	
PCB-77	ND	1.0	
PCB-81	ND	1.0	
PCB-90/101	9.5	1.0	
PCB-118	ND	1.0	
PCB-123	ND	1.0	
PCB-105	ND	1.0	
PCB-114	ND	1.0	
PCB-126	ND	1.0	
PCB-151	ND	1.0	
PCB-128	ND	1.0	
PCB-138	ND	1.0	
PCB-153	ND	1.0	
PCB-167	ND	1.0	
PCB-156	ND	1.0	
PCB-157	ND	1.0	
PCB-169	ND	1.0	
PCB-170	ND	1.0	
PCB-180	ND	1.0	
PCB-187	ND	1.0	
PCB-189	ND	1.0	
PCB-195	ND	1.0	
PCB-206	ND	1.0	
PCB-209	ND	1.0	
Totals			
Total monoCB	ND	1.0	
Total diCB	270	1.0	
Total triCB	500	1.0	
Total tetraCB	290	1.0	
Total pentaCB	80	1.0	
Total hexaCB	ND	1.0	
Total heptaCB	ND	1.0	
Total octaCB	ND	1.0	
Total nonaCB	ND	1.0	

Analyst: BS

Reviewer:

L-C22

ALTA

EPA METHOD 1668
POLYCHLORINATED BIPHENYLS

Sample ID: URS-A-27
Lab ID: 8950-0008-PCB

Isotopic Recovery Results

Internal Standard:	% R	Qualifier
^{13}C-PCB-3	52	
^{13}C-PCB-9	69	
^{13}C-PCB-28	80	
^{13}C-PCB-37	78	
^{13}C-PCB-77	85	
^{13}C-PCB-101	76	
^{13}C-PCB-118	60	
^{13}C-PCB-105	59	
^{13}C-PCB-126	61	
^{13}C-PCB-138	74	
^{13}C-PCB-156	75	
^{13}C-PCB-157	78	
^{13}C-PCB-169	71	
^{13}C-PCB-180	73	
^{13}C-PCB-202	81	
^{13}C-PCB-194	54	
^{13}C-PCB-208	64	
^{13}C-PCB-209	70	

Prespike Standard:	% Rec.	Qualifier
^{13}C-PCB-52	83	
^{13}C-PCB-178	104	

Dates Analyzed:

DB-1: 8/23/00

Analyst: BS

Reviewer:

L-C23

ALTA

EPA METHOD 1668
POLYCHLORINATED BIPHENYLS

Sample ID:	URS-B-2	**Date Received:**	8/17/00	**QC Lot:**	LC0818M
Lab ID:	8950-0009-PCB	**Date Extracted:**	8/18/00	**Units:**	ng/sample
Matrix:	MM5 Train	**Sample Amount:**	Sample		

Compound	Conc.	R.L.	Qualifier
PCB-8	ND	1.0	
PCB-18	ND	1.0	
PCB-28	ND	1.0	
PCB-44	ND	1.0	
PCB-52	ND	1.0	
PCB-66	ND	1.0	
PCB-77	ND	1.0	
PCB-81	ND	1.0	
PCB-90/101	ND	1.0	
PCB-118	ND	1.0	
PCB-123	ND	1.0	
PCB-105	ND	1.0	
PCB-114	ND	1.0	
PCB-126	ND	1.0	
PCB-151	ND	1.0	
PCB-128	ND	1.0	
PCB-138	ND	1.0	
PCB-153	ND	1.0	
PCB-167	ND	1.0	
PCB-156	ND	1.0	
PCB-157	ND	1.0	
PCB-169	ND	1.0	
PCB-170	ND	1.0	
PCB-180	ND	1.0	
PCB-187	ND	1.0	
PCB-189	ND	1.0	
PCB-195	ND	1.0	
PCB-206	ND	1.0	
PCB-209	ND	1.0	
Totals			
Total monoCB	ND	1.0	
Total diCB	ND	1.0	
Total triCB	ND	1.0	
Total tetraCB	ND	1.0	
Total pentaCB	ND	1.0	
Total hexaCB	ND	1.0	
Total heptaCB	ND	1.0	
Total octaCB	ND	1.0	
Total nonaCB	ND	1.0	

Analyst: BS

Reviewer:

L-C24

ALTA

EPA METHOD 1668

POLYCHLORINATED BIPHENYLS

Sample ID: URS-B-2
Lab ID: 8950-0009-PCB

Isotopic Recovery Results

Internal Standard:	% R	Qualifier
^{13}C-PCB-3	50	
^{13}C-PCB-9	66	
^{13}C-PCB-28	91	
^{13}C-PCB-37	75	
^{13}C-PCB-77	74	
^{13}C-PCB-101	76	
^{13}C-PCB-118	60	
^{13}C-PCB-105	57	
^{13}C-PCB-126	57	
^{13}C-PCB-138	69	
^{13}C-PCB-156	74	
^{13}C-PCB-157	76	
^{13}C-PCB-169	68	
^{13}C-PCB-180	69	
^{13}C-PCB-202	76	
^{13}C-PCB-194	53	
^{13}C-PCB-208	61	
^{13}C-PCB-209	70	

Prespike Standard:	% Rec.	Qualifier
^{13}C-PCB-52	90	
^{13}C-PCB-178	105	

Dates Analyzed:

DB-1: 8/23/00

Analyst: BS

Reviewer:

L-C25

DATA QUALIFIERS & ABBREVIATIONS

A	The amount detected is below the Method Calibration Limit.
B	This compound was also detected in the blank.
C	The amount detected is less than five times the Method Quantitation Limit.
D	The amount reported is the maximum possible concentration.
E	The detection limit was raised above the Method Quantitation Limit due to chemical interference's.
F	This result has been confirmed on a DB-225 column.
G	This result has been confirmed on a SP-2331 column.
H	The signal-to-noise ratio is greater than 10:1.
I	Chemical Interference

Conc.	Concentration
D.L.	Detection Limit
NA	Not applicable
S/N	Signal-to-noise
*	See Cover Letter
ND	Not Detected
MPC	Maximum Possible Concentration

CURRENT CERTIFICATIONS

ALTA

Bureau of Reclamation-Mid-Pacific Region---(MP-470, Res-1.10)

Commonwealth of Kentucky---(Certificate No. 90063)

Commonwealth of Virginia---(Certificate No. 00013)

State of Alaska, Department of Environmental Conservation---(Certificate No. OS-00197)

State of Arkansas, Department of Health---(Approval granted through CA certification)

State of Arkansas, Department of Environmental Quality---

State of California---(Certificate No. 1640)

State of Connecticut---(Certificate No. PH-0182)

State of Florida---(Certificate No. 87456)

State of Louisiana---(Certificate No. 98-33)

State of Mississippi---(Approval granted through CA certification)

State of Nevada---(Certificate No. CA413)

State of New York, Department of Health---(Certificate No. 11411)

State of North Carolina---(Certificate No. 06700)

State of North Dakota, Department of Health---(Certificate No. R-078)

State of Oregon---

State of Pennsylvania---(Certificate No. 68-490)

State of South Carolina---(Certificate No. 87002001)

State of Texas — (Certificate No. TX247-2000A)

State of Tennessee---(Certificate No. 02996)

State of Utah---(Certificate No. E-201)

State of Washington, Department of Ecology---(Certification No. C091)

State of Wisconsin---(Certificate No. 998036160)

State of Wyoming---(Ref: 8ES-LB)

U.S. Army Corps of Engineers

U.S. 5 EPA Region

May 2000

L-C27

RADIAN INTERNATIONAL
A DAMES & MOORE GROUP COMPANY

Chain of Custody Record

PROJECT: Foster Wheeler
SITE: New Bedford Harbor
PREPARED BY (Signature):

FIELD SAMPLE I.D.	SAMPLE MATRIX	DATE/TIME	MS/MSD	NO. OF CONTAINERS	ANALYSES: PCB	REMARKS
URS-A20	X AD	8/15/1128-1228			X	Test B-2
URS A21		8/15/1130-1230			X	Test B-3
URS A22		8/15/1508-1611			X	Test D-1 (EIA)
URS A23		8/15/1513-1615			X	Test E-3 C-B
URS-A24		8/15/1622-1722			X	Test E-1
URS-A25		8/15/1640-1740			X	Test D-2
URS A26		8/16/1409-1509			X	Test G-2
URS A27		8/16/1410-1510			X	Test G-3
URS B-2		8/16			X	Field Blank

REMARKS

RELINQUISHED BY:	DATE	TIME
	8/16	1440

RECEIVED BY:	DATE	TIME	RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME	RELINQUISHED BY:	DATE	TIME

LAB USE ONLY

RECEIVED FOR LABORATORY BY:	DATE	TIME	AIRBILL NO.	OPENED BY:	DATE	TIME	TEMP°C	SEAL #	CONDITION
ALPHA	8/17	1028							

REMARKS:

IEG-4FH13-96-30337coc.FH8

L-C28

Statement of Work

PNS - Mono - Deca Totals

Table 1
NOAA and WHO List of PCB Congeners

Analyte	BZ#	NOAA	WHO
2,4'-DiCB	8	X	
2,5,2'-TriCB	18	X	
2,4,4'-TriCB	28	X	
2,3,6,2'-TetraCB	44	X	
2,5,2',5'-TetraCB	52	X	
2,4,3',4'-TetraCB	66	X	
3,4,3',4'-TetraCB	77		X
3,4,5,4'-TetraCB	81		X
2,4,5,2',5'-PentaCB	101	X	
2,3,4,3',4'-PentaCB	105	X	X
2,3,4,5,4'-PentaCB	114		X
2,4,5,3',4'-PentaCB	118	X	X
3,4,5,2',4'-PentaCB	123		X
3,4,5,3',4'-PentaCB	126		X
2,3,4,2',3',4'-HexaCB	128	X	
2,3,4,2',4',5'-HexaCB	138	X	
2,4,5,2',4',5'-HexaCB	153	X	
2,3,4,5,3',4'-HexaCB	156		X
2,3,4,3',4',5'-HexaCB	157		X
2,4,5,3',4',5'-HexaCB	167		X
3,4,5,3',4',5'-HexaCB	169		X
2,3,4,5,2',3',4'-HeptaCB	170	X	X
2,3,4,5,2',4',5'-HeptaCB	180	X	X
2,3,5,6,2',4',5'-HeptaCB	187	X	
2,3,4,5,2',4',5'-HeptaCB	189		X
2,3,4,5,6,2',3',4'-OctaCB	195	X	
2,3,4,5,6,2',3',4',5'-NonaCB	206	X	
Deca-CB	209	X	

$1200

detail the minimum quality control criteria used to measure acceptability of the method performance. At a minimum these documents will include the following:

API I
SOP 10B
SOP 7B
AP 30

- Procedure and documentation for the preparation of analyte free sample media
- Procedure for receiving and storing samples and sample extracts
- Procedure for reporting laboratory data, including documentation of the ability to provide electronic data deliverables in the required format.
- Procedure for implementing and maintaining Y2K compliance for all aspects of laboratory operations
- Reporting limits for PCB homologue groups and selected congeners
- Initial and continuing calibration frequency, target analyte list, concentration, and acceptance criteria
- Surrogate compound list, concentration, and acceptable recovery limits
- Internal standard compound list, concentration, and acceptable recovery limits
- Cleanup recovery standard compound list, concentration, and acceptable recovery limits

L-C29

Attachment 10.B.1

SAMPLE LOG-IN CHECKLIST

ALTA Project No.: 8950 Client/Protocol No. N/A

		YES	NO	NA
1.	Date Samples Arrived: 8-17-00 Initials: MC Location: WR-1			
2.	Time / Date logged in: 8-17-00 1400 Initials: RM Location: WR-1			
3.	Samples Arrived By: (circle) (FedEx) UPS World Courier Other:			
4.	Shipping Preservation: (circle) Ice / (Blue Ice) Dry Ice / None Temp °C 3			
5.	Shipping Container(s) Intact"? If not, describe condition in comment section.	X		
6.	Shipping Container(s) Custody Seals Present?		X	
	Intact? If not intact, describe condition in comment section.			X
7.	Shipping Documentation Present? (circle) Shipping Label (Airbill) Tracking Number FedEx 8110 6516 0818 FedEx Tracking Number for Customer	X		
8.	Sample Custody Seal(s) Present? No. of Seals ____ or Seal No. ____		X	
	Intact? If not intact, describe condition in comment section.			X
9.	Sample Container Intact? If no, indicate sample condition in comment section.	X		
10.	Chain of Custody (COC) or other Sample Documentation Present?	X		
11.	COC/Documentation Acceptable? If no, complete COC Anomaly Form.	X		
12.	Shipping Container (circle): (ALTA) Client (Retain) or Return or Disposed			
13.	Container(s) and/or Bottle(s) Requested?		X	
14.	Sample Control Check In/Out Log Completed? (HRMS Only)	X		
15.	Drinking Water Sample? (HRMS Only) If yes, Acceptable Preservation? Y or N			X
	Preservation Info From? (circle) COC or Sample Container or None Noted			
16.	Number of Samples Received: N/A			

Name: _____ Date Samples Reconciled: _____
(Signature Required for LCMS Only)

Comments:

L-C30

ALTA

August 29, 2000

Alta Batch I.D.: 8944

Mr. Eric Anderson
Radian Corporation
8501 Mo-Pac Blvd.
Austin, TX 78720

Dear Mr. Anderson,

Enclosed are the results for twenty MM5 trains received at Alta Analytical Laboratory on August 17, 2000. This work was authorized under your BOA #AO6 and Work Order #756661.UA. These trains were extracted and analyzed using EPA Method 1668 for PCB congeners and Total PCB's (as per your attached list) using High Resolution Mass Spectrometry (HRMS). A standard turnaround time was requested for this work.

The following report consists of a Sample Inventory (Section I), Analytical Results (Section II) and the Appendix. The Appendix contains a copy of the chain-of-custody, a list of data qualifiers and abbreviations, our current certifications, copies of the raw data.

If you have any questions regarding this report please feel free to contact me.

Sincerely,

Robert S. Mitzel
Vice-President of HRMS Operations

L-C31

Alta Analytical Laboratory Inc.
5070 Robert J. Mathews Parkway
El Dorado Hills, CA 95762
FAX (916) 933-0940

ALTA

Sample Inventory Report: MM5 Sampling Train

Project No.: 8944 **Project Name:** New Bedford Harbor
Date Rec.: 8/16/00

Lab. Sample ID	Client Sample ID	Component ID
001	URS-A-1	XAD
002	URS-A-2	XAD
003	URS-A-3	XAD
004	URS-B-1	XAD
005	URS-A-4	XAD
006	URS-A-5	XAD
007	URS-A-6	XAD
008	URS-A-7	XAD
009	URS-A-8	XAD
010	URS-A-9	XAD
011	URS-A-10	XAD
012	URS-A-11	XAD
013	URS-A-12	XAD
014	URS-A-13	XAD
015	URS-A-14	XAD
016	URS-A-15	XAD
017	URS-A-16	XAD
018	URS-A-17	XAD
019	URS-A-18	XAD
020	URS-A-19	XAD

SECTION II.

ALTA

EPA METHOD 1668
POLYCHLORINATED BIPHENYLS

Method Blank		Date Received:	NA	QC Lot:	LC0821M
Lab ID:	8944-MB	Date Extracted:	8/21/00	Units:	ng/sample
Matrix:	MM5 Train	Sample Amount:	Sample		

Compound	Conc.	R.L.	Qualifier
PCB-8	ND	1.0	
PCB-18	ND	1.0	
PCB-28	ND	1.0	
PCB-44	ND	1.0	
PCB-52	ND	1.0	
PCB-66	ND	1.0	
PCB-77	ND	1.0	
PCB-81	ND	1.0	
PCB-90/101	ND	1.0	
PCB-118	ND	1.0	
PCB-123	ND	1.0	
PCB-105	ND	1.0	
PCB-114	ND	1.0	
PCB-126	ND	1.0	
PCB-151	ND	1.0	
PCB-128	ND	1.0	
PCB-138	ND	1.0	
PCB-153	ND	1.0	
PCB-167	ND	1.0	
PCB-156	ND	1.0	
PCB-157	ND	1.0	
PCB-169	ND	1.0	
PCB-170	ND	1.0	
PCB-180	ND	1.0	
PCB-187	ND	1.0	
PCB-189	ND	1.0	
PCB-195	ND	1.0	
PCB-206	ND	1.0	
PCB-209	ND	1.0	
Totals			
Total monoCB	ND	1.0	
Total diCB	ND	1.0	
Total triCB	ND	1.0	
Total tetraCB	ND	1.0	
Total pentaCB	ND	1.0	
Total hexaCB	ND	1.0	
Total heptaCB	ND	1.0	
Total octaCB	ND	1.0	
Total nonaCB	ND	1.0	

Analyst: BS

Reviewer:

L-C34

ALTA

EPA METHOD 1668
POLYCHLORINATED BIPHENYLS

Method Blank
Lab ID: 8944-MB

Isotopic Recovery Results

Internal Standard:	% R	Qualifier
^{13}C-PCB-3	51	
^{13}C-PCB-9	69	
^{13}C-PCB-28	87	
^{13}C-PCB-37	85	
^{13}C-PCB-77	82	
^{13}C-PCB-101	81	
^{13}C-PCB-118	107	
^{13}C-PCB-105	107	
^{13}C-PCB-126	94	
^{13}C-PCB-138	84	
^{13}C-PCB-156	81	
^{13}C-PCB-157	81	
^{13}C-PCB-169	68	
^{13}C-PCB-180	88	
^{13}C-PCB-202	98	
^{13}C-PCB-194	130	
^{13}C-PCB-208	106	
^{13}C-PCB-209	97	

Prespike Standard:	% Rec.	Qualifier
^{13}C-PCB-52	NA	
^{13}C-PCB-178	NA	

Dates Analyzed:

DB-1: 8/24/00

Analyst: BS

Reviewer:

L-C35

ALTA

EPA METHOD 1668
POLYCHLORINATED BIPHENYLS

LCS1/LCS2 RESULTS
Lab ID: 8944-LCS1/LCS2
Matrix: MM5

Date Received: NA
Date Extracted: 8/21/00
Sample Amount: Sample

ICAL ID: I1668
QC Lot: LC0821M
Units: NA

Compound	LCS1 %R	LCS2 %R	RPD %
PCB-8	110	113	2.7
PCB-18	81	84	3.6
PCB-28	118	120	1.7
PCB-44	103	98	5.0
PCB-52	105	95	10
PCB-66	116	107	8.1
PCB-77	104	98	5.9
PCB-81	103	97	6.0
PCB-90/101	99	101	2.0
PCB-118	123	121	1.6
PCB-123	116	115	0.87
PCB-105	116	116	0.0
PCB-114	120	123	2.6
PCB-126	112	108	3.6
PCB-151	128	115	11
PCB-128	110	106	3.7
PCB-138	108	108	0.0
PCB-153	113	110	2.7
PCB-167	108	106	1.9
PCB-156	111	114	2.7
PCB-157	113	113	0
PCB-169	107	107	0
PCB-170	109	108	0.92
PCB-180	103	104	0.97
PCB-187	114	114	0.0
PCB-189	103	101	3.8
PCB-195	127	126	0.79
PCB-206	114	112	1.8
PCB-209	105	105	0.0

Analyst: BS

Reviewer: JM

L-C36

ALTA

EPA METHOD 1668
POLYCHLORINATED BIPHENYLS

LCS1/LCS2 RESULTS
Lab ID: 8944-LCS1/LCS2

	Isotopic Recovery Results	
	LCS1	LCS2
Internal Standard:	**%R**	**%R**
^{13}C-PCB-3	48	41
^{13}C-PCB-9	63	53
^{13}C-PCB-28	63	49
^{13}C-PCB-37	70	53
^{13}C-PCB-77	73	62
^{13}C-PCB-101	71	57
^{13}C-PCB-118	78	67
^{13}C-PCB-105	82	68
^{13}C-PCB-126	74	60
^{13}C-PCB-138	67	57
^{13}C-PCB-156	67	53
^{13}C-PCB-157	65	54
^{13}C-PCB-169	57	46
^{13}C-PCB-180	77	61
^{13}C-PCB-202	92	72
^{13}C-PCB-194	102	84
^{13}C-PCB-208	87	72
^{13}C-PCB-209	81	67

Dates Analyzed:

DB-1: 8/24/00

Analyst: BS

Reviewer:

L-C37

ALTA

EPA METHOD 1668
POLYCHLORINATED BIPHENYLS

Sample ID:	URS-A-1	**Date Received:**	8/16/00	**QC Lot:**	LC0821M
Lab ID:	8944-0001-PCB	**Date Extracted:**	8/21/00	**Units:**	ng/sample
Matrix:	MM5 Train	**Sample Amount:**	Sample		

Compound	Conc.	R.L.	Qualifier
PCB-8	15	1.0	
PCB-18	160	1.0	
PCB-28	280	1.0	
PCB-44	370	1.0	
PCB-52	640	1.0	
PCB-66	ND	1.0	
PCB-77	ND	1.0	
PCB-81	ND	1.0	
PCB-90/101	50	1.0	
PCB-118	1.5	1.0	
PCB-123	ND	1.0	
PCB-105	ND	1.0	
PCB-114	ND	1.0	
PCB-126	ND	1.0	
PCB-151	3.2	1.0	
PCB-128	ND	1.0	
PCB-138	1.4	1.0	
PCB-153	1.4	1.0	
PCB-167	ND	1.0	
PCB-156	ND	1.0	
PCB-157	ND	1.0	
PCB-169	ND	1.0	
PCB-170	ND	1.0	
PCB-180	ND	1.0	
PCB-187	ND	1.0	
PCB-189	ND	1.0	
PCB-195	ND	1.0	
PCB-206	ND	1.0	
PCB-209	ND	1.0	
Totals			
Total monoCB	ND	1.0	
Total diCB	170	1.0	
Total triCB	1600	1.0	
Total tetraCB	2800	1.0	
Total pentaCB	320	1.0	
Total hexaCB	27	1.0	
Total heptaCB	ND	1.0	
Total octaCB	ND	1.0	
Total nonaCB	ND	1.0	

Analyst: MS

Reviewer:

L-C38

ALTA

EPA METHOD 1668
POLYCHLORINATED BIPHENYLS

Sample ID: URS-A-20
Lab ID: 8944-0001-PCB

Isotopic Recovery Results

Internal Standard:	% R	Qualifier
^{13}C-PCB-3	40	
^{13}C-PCB-9	58	
^{13}C-PCB-28	74	
^{13}C-PCB-37	65	
^{13}C-PCB-77	69	
^{13}C-PCB-101	68	
^{13}C-PCB-118	95	
^{13}C-PCB-105	93	
^{13}C-PCB-126	85	
^{13}C-PCB-138	73	
^{13}C-PCB-156	71	
^{13}C-PCB-157	69	
^{13}C-PCB-169	61	
^{13}C-PCB-180	71	
^{13}C-PCB-202	80	
^{13}C-PCB-194	112	
^{13}C-PCB-208	92	
^{13}C-PCB-209	80	

Prespike Standard:	% Rec.	Qualifier
^{13}C-PCB-52	102	
^{13}C-PCB-178	106	

Dates Analyzed:

DB-1: 8/25/00

Analyst: MS

Reviewer:

L-C39

ALTA

EPA METHOD 1668
POLYCHLORINATED BIPHENYLS

Sample ID:	URS-A-2	**Date Received:**	8/16/00	**QC Lot:**	LC0821M
Lab ID:	8944-0002-PCB	**Date Extracted:**	8/21/00	**Units:**	ng/sample
Matrix:	MM5 Train	**Sample Amount:**	Sample		

Compound	Conc.	R.L.	Qualifier
PCB-8	84	1.0	
PCB-18	140	1.0	
PCB-28	71	1.0	
PCB-44	22	1.0	
PCB-52	93	1.0	
PCB-66	2.5	1.0	
PCB-77	ND	1.0	
PCB-81	ND	1.0	
PCB-90/101	3.6	1.0	
PCB-118	ND	1.0	
PCB-123	ND	1.0	
PCB-105	ND	1.0	
PCB-114	ND	1.0	
PCB-126	ND	1.0	
PCB-151	ND	1.0	
PCB-128	ND	1.0	
PCB-138	ND	1.0	
PCB-153	ND	1.0	
PCB-167	ND	1.0	
PCB-156	ND	1.0	
PCB-157	ND	1.0	
PCB-169	ND	1.0	
PCB-170	ND	1.0	
PCB-180	ND	1.0	
PCB-187	ND	1.0	
PCB-189	ND	1.0	
PCB-195	ND	1.0	
PCB-206	ND	1.0	
PCB-209	ND	1.0	
Totals			
Total monoCB	7.7	1.0	
Total diCB	350	1.0	
Total triCB	580	1.0	
Total tetraCB	310	1.0	
Total pentaCB	23	1.0	
Total hexaCB	1.6	1.0	
Total heptaCB	ND	1.0	
Total octaCB	ND	1.0	
Total nonaCB	ND	1.0	

Analyst: MS

Reviewer:

L-C40

ALTA

EPA METHOD 1668
POLYCHLORINATED BIPHENYLS

Sample ID: URS-A-20
Lab ID: 8944-0002-PCB

Isotopic Recovery Results

Internal Standard:	% R	Qualifier
^{13}C-PCB-3	46	
^{13}C-PCB-9	68	
^{13}C-PCB-28	83	
^{13}C-PCB-37	71	
^{13}C-PCB-77	77	
^{13}C-PCB-101	78	
^{13}C-PCB-118	107	
^{13}C-PCB-105	104	
^{13}C-PCB-126	97	
^{13}C-PCB-138	82	
^{13}C-PCB-156	79	
^{13}C-PCB-157	79	
^{13}C-PCB-169	68	
^{13}C-PCB-180	85	
^{13}C-PCB-202	94	
^{13}C-PCB-194	134	
^{13}C-PCB-208	108	
^{13}C-PCB-209	94	

Prespike Standard:	% Rec.	Qualifier
^{13}C-PCB-52	110	
^{13}C-PCB-178	110	

Dates Analyzed:

DB-1: 8/25/00

Analyst: MS

Reviewer:

1-C41

ALTA

EPA METHOD 1668

POLYCHLORINATED BIPHENYLS

Sample ID:	URS-A-3	**Date Received:**	8/16/00	**QC Lot:**	LC0821M
Lab ID:	8944-0003-PCB	**Date Extracted:**	8/21/00	**Units:**	ng/sample
Matrix:	MM5 Train	**Sample Amount:**	Sample		

Compound	Conc.	R.L.	Qualifier
PCB-8	25	1.0	
PCB-18	66	1.0	
PCB-28	32	1.0	
PCB-44	13	1.0	
PCB-52	51	1.0	
PCB-66	ND	1.0	
PCB-77	ND	1.0	
PCB-81	ND	1.0	
PCB-90/101	2.1	1.0	
PCB-118	ND	1.0	
PCB-123	ND	1.0	
PCB-105	ND	1.0	
PCB-114	ND	1.0	
PCB-126	ND	1.0	
PCB-151	ND	1.0	
PCB-128	ND	1.0	
PCB-138	ND	1.0	
PCB-153	ND	1.0	
PCB-167	ND	1.0	
PCB-156	ND	1.0	
PCB-157	ND	1.0	
PCB-169	ND	1.0	
PCB-170	ND	1.0	
PCB-180	ND	1.0	
PCB-187	ND	1.0	
PCB-189	ND	1.0	
PCB-195	ND	1.0	
PCB-206	ND	1.0	
PCB-209	ND	1.0	
Totals			
Total monoCB	ND	1.0	
Total diCB	120	1.0	
Total triCB	270	1.0	
Total tetraCB	170	1.0	
Total pentaCB	14	1.0	
Total hexaCB	ND	1.0	
Total heptaCB	ND	1.0	
Total octaCB	ND	1.0	
Total nonaCB	ND	1.0	

Analyst: MS

Reviewer: [signature]

L-C42

ALTA

EPA METHOD 1668
POLYCHLORINATED BIPHENYLS

Sample ID: URS-A-20
Lab ID: 8944-0003-PCB

Isotopic Recovery Results

Internal Standard:	% R	Qualifier
^{13}C-PCB-3	41	
^{13}C-PCB-9	56	
^{13}C-PCB-28	68	
^{13}C-PCB-37	54	
^{13}C-PCB-77	56	
^{13}C-PCB-101	59	
^{13}C-PCB-118	82	
^{13}C-PCB-105	83	
^{13}C-PCB-126	75	
^{13}C-PCB-138	63	
^{13}C-PCB-156	63	
^{13}C-PCB-157	60	
^{13}C-PCB-169	53	
^{13}C-PCB-180	60	
^{13}C-PCB-202	65	
^{13}C-PCB-194	97	
^{13}C-PCB-208	78	
^{13}C-PCB-209	66	

Prespike Standard:	% Rec.	Qualifier
^{13}C-PCB-52	114	
^{13}C-PCB-178	110	

Dates Analyzed:

DB-1: 8/25/00

Analyst: MS

Reviewer:

L-C43

ALTA

EPA METHOD 1668
POLYCHLORINATED BIPHENYLS

Sample ID:	URS-B-1	Date Received:	8/16/00	QC Lot:	LC0821M
Lab ID:	8944-0004-PCB	Date Extracted:	8/21/00	Units:	ng/sample
Matrix:	MM5 Train	Sample Amount:	Sample		

Compound	Conc.	R.L.	Qualifier
PCB-8	ND	1.0	
PCB-18	ND	1.0	
PCB-28	ND	1.0	
PCB-44	ND	1.0	
PCB-52	ND	1.0	
PCB-66	ND	1.0	
PCB-77	ND	1.0	
PCB-81	ND	1.0	
PCB-90/101	ND	1.0	
PCB-118	ND	1.0	
PCB-123	ND	1.0	
PCB-105	ND	1.0	
PCB-114	ND	1.0	
PCB-126	ND	1.0	
PCB-151	ND	1.0	
PCB-128	ND	1.0	
PCB-138	ND	1.0	
PCB-153	ND	1.0	
PCB-167	ND	1.0	
PCB-156	ND	1.0	
PCB-157	ND	1.0	
PCB-169	ND	1.0	
PCB-170	ND	1.0	
PCB-180	ND	1.0	
PCB-187	ND	1.0	
PCB-189	ND	1.0	
PCB-195	ND	1.0	
PCB-206	ND	1.0	
PCB-209	ND	1.0	
Totals			
Total monoCB	ND	1.0	
Total diCB	1.4	1.0	
Total triCB	ND	1.0	
Total tetraCB	ND	1.0	
Total pentaCB	ND	1.0	
Total hexaCB	ND	1.0	
Total heptaCB	ND	1.0	
Total octaCB	ND	1.0	
Total nonaCB	ND	1.0	

Analyst: MS

Reviewer:

L-C44

ALTA

EPA METHOD 1668
POLYCHLORINATED BIPHENYLS

Sample ID: URS-A-20
Lab ID: 8944-0004-PCB

Isotopic Recovery Results

Internal Standard:	% R	Qualifier
^{13}C-PCB-3	39	
^{13}C-PCB-9	57	
^{13}C-PCB-28	58	
^{13}C-PCB-37	59	
^{13}C-PCB-77	58	
^{13}C-PCB-101	62	
^{13}C-PCB-118	88	
^{13}C-PCB-105	87	
^{13}C-PCB-126	80	
^{13}C-PCB-138	67	
^{13}C-PCB-156	66	
^{13}C-PCB-157	64	
^{13}C-PCB-169	58	
^{13}C-PCB-180	62	
^{13}C-PCB-202	69	
^{13}C-PCB-194	98	
^{13}C-PCB-208	79	
^{13}C-PCB-209	67	

Prespike Standard:	% Rec.	Qualifier
^{13}C-PCB-52	106	
^{13}C-PCB-178	106	

Dates Analyzed:

DB-1: 8/25/00

Analyst: MS

Reviewer:

L-C45

ALTA

EPA METHOD 1668
POLYCHLORINATED BIPHENYLS

Sample ID:	URS-A-4	Date Received:	8/16/00	QC Lot:	LC0821M
Lab ID:	8944-0005-PCB	Date Extracted:	8/21/00	Units:	ng/sample
Matrix:	MM5 Train	Sample Amount:	Sample		

Compound	Conc.	R.L.	Qualifier
PCB-8	57	1.0	
PCB-18	57	1.0	
PCB-28	2.7	1.0	
PCB-44	3.2	1.0	
PCB-52	9.4	1.0	
PCB-66	ND	1.0	
PCB-77	ND	1.0	
PCB-81	ND	1.0	
PCB-90/101	ND	1.0	
PCB-118	ND	1.0	
PCB-123	ND	1.0	
PCB-105	ND	1.0	
PCB-114	ND	1.0	
PCB-126	ND	1.0	
PCB-151	ND	1.0	
PCB-128	ND	1.0	
PCB-138	ND	1.0	
PCB-153	ND	1.0	
PCB-167	ND	1.0	
PCB-156	ND	1.0	
PCB-157	ND	1.0	
PCB-169	ND	1.0	
PCB-170	ND	1.0	
PCB-180	ND	1.0	
PCB-187	ND	1.0	
PCB-189	ND	1.0	
PCB-195	ND	1.0	
PCB-206	ND	1.0	
PCB-209	ND	1.0	
Totals			
Total monoCB	8.4	1.0	
Total diCB	210	1.0	
Total triCB	130	1.0	
Total tetraCB	33	1.0	
Total pentaCB	1.2	1.0	
Total hexaCB	ND	1.0	
Total heptaCB	ND	1.0	
Total octaCB	ND	1.0	
Total nonaCB	ND	1.0	

Analyst: MS

Reviewer:

L-C46

ALTA

EPA METHOD 1668

POLYCHLORINATED BIPHENYLS

Sample ID: URS-A-20
Lab ID: 8944-0005-PCB

Isotopic Recovery Results

Internal Standard:	% R	Qualifier
^{13}C-PCB-3	40	
^{13}C-PCB-9	59	
^{13}C-PCB-28	61	
^{13}C-PCB-37	60	
^{13}C-PCB-77	65	
^{13}C-PCB-101	69	
^{13}C-PCB-118	91	
^{13}C-PCB-105	92	
^{13}C-PCB-126	86	
^{13}C-PCB-138	70	
^{13}C-PCB-156	70	
^{13}C-PCB-157	66	
^{13}C-PCB-169	62	
^{13}C-PCB-180	68	
^{13}C-PCB-202	74	
^{13}C-PCB-194	106	
^{13}C-PCB-208	85	
^{13}C-PCB-209	73	

Prespike Standard:	% Rec.	Qualifier
^{13}C-PCB-52	104	
^{13}C-PCB-178	106	

Dates Analyzed:

DB-1: 8/25/00

Analyst: MS

Reviewer:

L-C47

ALTA

EPA METHOD 1668

POLYCHLORINATED BIPHENYLS

Sample ID:	URS-A-5	Date Received:	8/16/00	QC Lot:	LC0821M
Lab ID:	8944-0006-PCB	Date Extracted:	8/21/00	Units:	ng/sample
Matrix:	MM5 Train	Sample Amount:	Sample		

Compound	Conc.	R.L.	Qualifier
PCB-8	120	1.0	
PCB-18	160	1.0	
PCB-28	5.0	1.0	
PCB-44	11	1.0	
PCB-52	29	1.0	
PCB-66	ND	1.0	
PCB-77	ND	1.0	
PCB-81	ND	1.0	
PCB-90/101	ND	1.0	
PCB-118	ND	1.0	
PCB-123	ND	1.0	
PCB-105	ND	1.0	
PCB-114	ND	1.0	
PCB-126	ND	1.0	
PCB-151	ND	1.0	
PCB-128	ND	1.0	
PCB-138	ND	1.0	
PCB-153	ND	1.0	
PCB-167	ND	1.0	
PCB-156	ND	1.0	
PCB-157	ND	1.0	
PCB-169	ND	1.0	
PCB-170	ND	1.0	
PCB-180	ND	1.0	
PCB-187	ND	1.0	
PCB-189	ND	1.0	
PCB-195	ND	1.0	
PCB-206	ND	1.0	
PCB-209	ND	1.0	
Totals			
Total monoCB	22	1.0	
Total diCB	420	1.0	
Total triCB	320	1.0	
Total tetraCB	100	1.0	
Total pentaCB	3.4	1.0	
Total hexaCB	ND	1.0	
Total heptaCB	ND	1.0	
Total octaCB	ND	1.0	
Total nonaCB	ND	1.0	

Analyst: MS

Reviewer:

L-C48

ALTA

EPA METHOD 1668

POLYCHLORINATED BIPHENYLS

Sample ID: URS-A-20
Lab ID: 8944-0006-PCB

Isotopic Recovery Results

Internal Standard:	% R	Qualifier
^{13}C-PCB-3	46	
^{13}C-PCB-9	53	
^{13}C-PCB-28	63	
^{13}C-PCB-37	56	
^{13}C-PCB-77	48	
^{13}C-PCB-101	55	
^{13}C-PCB-118	65	
^{13}C-PCB-105	64	
^{13}C-PCB-126	65	
^{13}C-PCB-138	56	
^{13}C-PCB-156	63	
^{13}C-PCB-157	58	
^{13}C-PCB-169	60	
^{13}C-PCB-180	46	
^{13}C-PCB-202	47	
^{13}C-PCB-194	589	
^{13}C-PCB-208	54	
^{13}C-PCB-209	50	

Prespike Standard:	% Rec.	Qualifier
^{13}C-PCB-52	114	
^{13}C-PCB-178	102	

Dates Analyzed:

DB-1: 8/25/00

Analyst: MS

Reviewer:

L-C49

ALTA

EPA METHOD 1668
POLYCHLORINATED BIPHENYLS

Sample ID:	URS-A-6	**Date Received:**	8/16/00	**QC Lot:**	LC0821M
Lab ID:	8944-0007-PCB	**Date Extracted:**	8/21/00	**Units:**	ng/sample
Matrix:	MM5 Train	**Sample Amount:**	Sample		

Compound	Conc.	R.L.	Qualifier
PCB-8	120	1.0	
PCB-18	150	1.0	
PCB-28	11	1.0	
PCB-44	19	1.0	
PCB-52	46	1.0	
PCB-66	ND	1.0	
PCB-77	ND	1.0	
PCB-81	ND	1.0	
PCB-90/101	ND	1.0	
PCB-118	ND	1.0	
PCB-123	ND	1.0	
PCB-105	ND	1.0	
PCB-114	ND	1.0	
PCB-126	ND	1.0	
PCB-151	ND	1.0	
PCB-128	ND	1.0	
PCB-138	ND	1.0	
PCB-153	ND	1.0	
PCB-167	ND	1.0	
PCB-156	ND	1.0	
PCB-157	ND	1.0	
PCB-169	ND	1.0	
PCB-170	ND	1.0	
PCB-180	ND	1.0	
PCB-187	ND	1.0	
PCB-189	ND	1.0	
PCB-195	ND	1.0	
PCB-206	ND	1.0	
PCB-209	ND	1.0	
Totals			
Total monoCB	16	1.0	
Total diCB	370	1.0	
Total triCB	360	1.0	
Total tetraCB	160	1.0	
Total pentaCB	10	1.0	
Total hexaCB	ND	1.0	
Total heptaCB	ND	1.0	
Total octaCB	ND	1.0	
Total nonaCB	ND	1.0	

Analyst: MS

Reviewer: MM

L-C50

ALTA

EPA METHOD 1668
POLYCHLORINATED BIPHENYLS

Sample ID: URS-A-20
Lab ID: 8944-0007-PCB

Isotopic Recovery Results

Internal Standard:	% R	Qualifier
^{13}C-PCB-3	53	
^{13}C-PCB-9	62	
^{13}C-PCB-28	72	
^{13}C-PCB-37	62	
^{13}C-PCB-77	60	
^{13}C-PCB-101	65	
^{13}C-PCB-118	76	
^{13}C-PCB-105	76	
^{13}C-PCB-126	73	
^{13}C-PCB-138	68	
^{13}C-PCB-156	73	
^{13}C-PCB-157	66	
^{13}C-PCB-169	66	
^{13}C-PCB-180	54	
^{13}C-PCB-202	55	
^{13}C-PCB-194	64	
^{13}C-PCB-208	65	
^{13}C-PCB-209	59	

Prespike Standard:	% Rec.	Qualifier
^{13}C-PCB-52	102	
^{13}C-PCB-178	104	

Dates Analyzed:

DB-1: 8/25/00

Analyst: MS

Reviewer:

L-C51

ALTA

EPA METHOD 1668
POLYCHLORINATED BIPHENYLS

Sample ID:	URS-A-7	**Date Received:**	8/16/00	**QC Lot:**	LC0821M
Lab ID:	8944-0008-PCB	**Date Extracted:**	8/21/00	**Units:**	ng/sample
Matrix:	MM5 Train	**Sample Amount:**	Sample		

Compound	Conc.	R.L.	Qualifier
PCB-8	41	1.0	
PCB-18	68	1.0	
PCB-28	27	1.0	
PCB-44	20	1.0	
PCB-52	49	1.0	
PCB-66	5.7	1.0	
PCB-77	ND	1.0	
PCB-81	ND	1.0	
PCB-90/101	5.9	1.0	
PCB-118	ND	1.0	
PCB-123	ND	1.0	
PCB-105	ND	1.0	
PCB-114	ND	1.0	
PCB-126	ND	1.0	
PCB-151	ND	1.0	
PCB-128	ND	1.0	
PCB-138	ND	1.0	
PCB-153	ND	1.0	
PCB-167	ND	1.0	
PCB-156	ND	1.0	
PCB-157	ND	1.0	
PCB-169	ND	1.0	
PCB-170	ND	1.0	
PCB-180	ND	1.0	
PCB-187	ND	1.0	
PCB-189	ND	1.0	
PCB-195	ND	1.0	
PCB-206	ND	1.0	
PCB-209	ND	1.0	
Totals			
Total monoCB	2.3	1.0	
Total diCB	80	1.0	
Total triCB	230	1.0	
Total tetraCB	200	1.0	
Total pentaCB	27	1.0	
Total hexaCB	2.2	1.0	
Total heptaCB	ND	1.0	
Total octaCB	ND	1.0	
Total nonaCB	ND	1.0	

Analyst: RS

Reviewer: 

L-C52

ALTA

EPA METHOD 1668

POLYCHLORINATED BIPHENYLS

Sample ID: URS-A-20
Lab ID: 8944-0008-PCB

Isotopic Recovery Results

Internal Standard:	% R	Qualifier
^{13}C-PCB-3	33	
^{13}C-PCB-9	57	
^{13}C-PCB-28	73	
^{13}C-PCB-37	67	
^{13}C-PCB-77	54	
^{13}C-PCB-101	59	
^{13}C-PCB-118	68	
^{13}C-PCB-105	68	
^{13}C-PCB-126	66	
^{13}C-PCB-138	64	
^{13}C-PCB-156	68	
^{13}C-PCB-157	66	
^{13}C-PCB-169	65	
^{13}C-PCB-180	52	
^{13}C-PCB-202	53	
^{13}C-PCB-194	58	
^{13}C-PCB-208	60	
^{13}C-PCB-209	55	

Prespike Standard:	% Rec.	Qualifier
^{13}C-PCB-52	108	
^{13}C-PCB-178	104	

Dates Analyzed:

DB-1: 8/25/00

Analyst: RS

Reviewer:

L-C53

ALTA

EPA METHOD 1668
POLYCHLORINATED BIPHENYLS

Sample ID:	URS-A-8	Date Received:	8/16/00	QC Lot:	LC0821M
Lab ID:	8944-0009-PCB	Date Extracted:	8/21/00	Units:	ng/sample
Matrix:	MM5 Train	Sample Amount:	Sample		

Compound	Conc.	R.L.	Qualifier
PCB-8	31	1.0	
PCB-18	42	1.0	
PCB-28	14	1.0	
PCB-44	9.8	1.0	
PCB-52	28	1.0	
PCB-66	1.9	1.0	
PCB-77	ND	1.0	
PCB-81	ND	1.0	
PCB-90/101	3.3	1.0	
PCB-118	ND	1.0	
PCB-123	ND	1.0	
PCB-105	ND	1.0	
PCB-114	ND	1.0	
PCB-126	ND	1.0	
PCB-151	ND	1.0	
PCB-128	ND	1.0	
PCB-138	ND	1.0	
PCB-153	ND	1.0	
PCB-167	ND	1.0	
PCB-156	ND	1.0	
PCB-157	ND	1.0	
PCB-169	ND	1.0	
PCB-170	ND	1.0	
PCB-180	ND	1.0	
PCB-187	ND	1.0	
PCB-189	ND	1.0	
PCB-195	ND	1.0	
PCB-206	ND	1.0	
PCB-209	ND	1.0	
Totals			
Total monoCB	ND	1.0	
Total diCB	64	1.0	
Total triCB	140	1.0	
Total tetraCB	110	1.0	
Total pentaCB	16	1.0	
Total hexaCB	1.5	1.0	
Total heptaCB	ND	1.0	
Total octaCB	ND	1.0	
Total nonaCB	ND	1.0	

Analyst: RS

Reviewer:

L-C54

EPA METHOD 1668
POLYCHLORINATED BIPHENYLS

Sample ID: URS-A-20
Lab ID: 8944-0009-PCB

Isotopic Recovery Results

Internal Standard:	% R	Qualifier
^{13}C-PCB-3	38	
^{13}C-PCB-9	44	
^{13}C-PCB-28	66	
^{13}C-PCB-37	45	
^{13}C-PCB-77	48	
^{13}C-PCB-101	48	
^{13}C-PCB-118	53	
^{13}C-PCB-105	53	
^{13}C-PCB-126	49	
^{13}C-PCB-138	51	
^{13}C-PCB-156	52	
^{13}C-PCB-157	48	
^{13}C-PCB-169	46	
^{13}C-PCB-180	43	
^{13}C-PCB-202	46	
^{13}C-PCB-194	49	
^{13}C-PCB-208	54	
^{13}C-PCB-209	49	

Prespike Standard:	% Rec.	Qualifier
^{13}C-PCB-52	104	
^{13}C-PCB-178	112	

Dates Analyzed:

DB-1: 8/25/00

Analyst: RS

Reviewer:

L-C55

ALTA

EPA METHOD 1668
POLYCHLORINATED BIPHENYLS

Sample ID:	URS-A-9	Date Received:	8/16/00	QC Lot:	LC0821M
Lab ID:	8944-0010-PCB	Date Extracted:	8/21/00	Units:	ng/sample
Matrix:	MM5 Train	Sample Amount:	Sample		

Compound	Conc.	R.L.	Qualifier
PCB-8	120	1.0	
PCB-18	140	1.0	
PCB-28	62	1.0	
PCB-44	36	1.0	
PCB-52	78	1.0	
PCB-66	9.7	1.0	
PCB-77	ND	1.0	
PCB-81	ND	1.0	
PCB-90/101	17	1.0	
PCB-118	ND	1.0	
PCB-123	ND	1.0	
PCB-105	ND	1.0	
PCB-114	ND	1.0	
PCB-126	ND	1.0	
PCB-151	1.2	1.0	
PCB-128	ND	1.0	
PCB-138	ND	1.0	
PCB-153	ND	1.0	
PCB-167	ND	1.0	
PCB-156	ND	1.0	
PCB-157	ND	1.0	
PCB-169	ND	1.0	
PCB-170	ND	1.0	
PCB-180	ND	1.0	
PCB-187	ND	1.0	
PCB-189	ND	1.0	
PCB-195	ND	1.0	
PCB-206	ND	1.0	
PCB-209	ND	1.0	
Totals			
Total monoCB	4.3	1.0	
Total diCB	290	1.0	
Total triCB	520	1.0	
Total tetraCB	340	1.0	
Total pentaCB	76	1.0	
Total hexaCB	8.3	1.0	
Total heptaCB	ND	1.0	
Total octaCB	ND	1.0	
Total nonaCB	ND	1.0	

Analyst: RS

Reviewer: [signature]

L-C56

ALTA

EPA METHOD 1668

POLYCHLORINATED BIPHENYLS

Sample ID: URS-A-20
Lab ID: 8944-0010-PCB

Isotopic Recovery Results

Internal Standard:	% R	Qualifier
^{13}C-PCB-3	48	
^{13}C-PCB-9	69	
^{13}C-PCB-28	101	
^{13}C-PCB-37	80	
^{13}C-PCB-77	73	
^{13}C-PCB-101	72	
^{13}C-PCB-118	97	
^{13}C-PCB-105	98	
^{13}C-PCB-126	100	
^{13}C-PCB-138	83	
^{13}C-PCB-156	96	
^{13}C-PCB-157	88	
^{13}C-PCB-169	99	
^{13}C-PCB-180	61	
^{13}C-PCB-202	57	
^{13}C-PCB-194	69	
^{13}C-PCB-208	70	
^{13}C-PCB-209	63	

Prespike Standard:	% Rec.	Qualifier
^{13}C-PCB-52	88	
^{13}C-PCB-178	98	

Dates Analyzed:

DB-1: 8/26/00

Analyst: RS

Reviewer:

L-C57

ALTA

EPA METHOD 1668
POLYCHLORINATED BIPHENYLS

Sample ID: URS-A-10
Lab ID: 8944-0011-PCB
Matrix: MM5 Train

Date Received: 8/16/00
Date Extracted: 8/21/00
Sample Amount: Sample

QC Lot: LC0821M
Units: ng/sample

Compound	Conc.	R.L.	Qualifier
PCB-8	2800	1.0	
PCB-18	2000	1.0	
PCB-28	360	1.0	
PCB-44	150	1.0	
PCB-52	290	1.0	
PCB-66	6.8	1.0	
PCB-77	ND	1.0	
PCB-81	ND	1.0	
PCB-90/101	8.5	1.0	
PCB-118	ND	1.0	
PCB-123	ND	1.0	
PCB-105	ND	1.0	
PCB-114	ND	1.0	
PCB-126	ND	1.0	
PCB-151	ND	1.0	
PCB-128	ND	1.0	
PCB-138	ND	1.0	
PCB-153	ND	1.0	
PCB-167	ND	1.0	
PCB-156	ND	1.0	
PCB-157	ND	1.0	
PCB-169	ND	1.0	
PCB-170	ND	1.0	
PCB-180	ND	1.0	
PCB-187	ND	1.0	
PCB-189	ND	1.0	
PCB-195	ND	1.0	
PCB-206	ND	1.0	
PCB-209	ND	1.0	
Totals			
Total monoCB	620	1.0	
Total diCB	9700	1.0	
Total triCB	5500	1.0	
Total tetraCB	1300	1.0	
Total pentaCB	59	1.0	
Total hexaCB	2.7	1.0	
Total heptaCB	ND	1.0	
Total octaCB	ND	1.0	
Total nonaCB	ND	1.0	

Analyst: RS

Reviewer:

L-C58

ALTA

EPA METHOD 1668
POLYCHLORINATED BIPHENYLS

Sample ID: URS-A-20
Lab ID: 8944-0011-PCB

Isotopic Recovery Results

Internal Standard:	% R	Qualifier
^{13}C-PCB-3	52	
^{13}C-PCB-9	75	
^{13}C-PCB-28	92	
^{13}C-PCB-37	76	
^{13}C-PCB-77	69	
^{13}C-PCB-101	74	
^{13}C-PCB-118	92	
^{13}C-PCB-105	91	
^{13}C-PCB-126	86	
^{13}C-PCB-138	82	
^{13}C-PCB-156	87	
^{13}C-PCB-157	82	
^{13}C-PCB-169	84	
^{13}C-PCB-180	64	
^{13}C-PCB-202	65	
^{13}C-PCB-194	73	
^{13}C-PCB-208	77	
^{13}C-PCB-209	72	

Prespike Standard:	% Rec.	Qualifier
^{13}C-PCB-52	112	
^{13}C-PCB-178	100	

Dates Analyzed:

DB-1: 8/26/00

Analyst: RS

Reviewer:

L-C59

ALTA

EPA METHOD 1668
POLYCHLORINATED BIPHENYLS

Sample ID: URS-A-11
Lab ID: 8944-0012-PCB
Matrix: MM5 Train

Date Received: 8/16/00
Date Extracted: 8/21/00
Sample Amount: Sample

QC Lot: LC0821M
Units: ng/sample

Compound	Conc.	R.L.	Qualifier
PCB-8	1800	1.0	
PCB-18	1100	1.0	
PCB-28	160	1.0	
PCB-44	75	1.0	
PCB-52	120	1.0	
PCB-66	3.7	1.0	
PCB-77	ND	1.0	
PCB-81	ND	1.0	
PCB-90/101	ND	1.0	
PCB-118	ND	1.0	
PCB-123	ND	1.0	
PCB-105	ND	1.0	
PCB-114	ND	1.0	
PCB-126	ND	1.0	
PCB-151	ND	1.0	
PCB-128	ND	1.0	
PCB-138	ND	1.0	
PCB-153	ND	1.0	
PCB-167	ND	1.0	
PCB-156	ND	1.0	
PCB-157	ND	1.0	
PCB-169	ND	1.0	
PCB-170	ND	1.0	
PCB-180	ND	1.0	
PCB-187	ND	1.0	
PCB-189	ND	1.0	
PCB-195	ND	1.0	
PCB-206	ND	1.0	
PCB-209	ND	1.0	
Totals			
Total monoCB	460	1.0	
Total diCB	6400	1.0	
Total triCB	2900	1.0	
Total tetraCB	580	1.0	
Total pentaCB	28	1.0	
Total hexaCB	1.5	1.0	
Total heptaCB	ND	1.0	
Total octaCB	ND	1.0	
Total nonaCB	ND	1.0	

Analyst: RS

Reviewer:

L-C60

ALTA

EPA METHOD 1668
POLYCHLORINATED BIPHENYLS

Sample ID: URS-A-20
Lab ID: 8944-0012-PCB

Isotopic Recovery Results

Internal Standard:	% R	Qualifier
^{13}C-PCB-3	46	
^{13}C-PCB-9	64	
^{13}C-PCB-28	85	
^{13}C-PCB-37	67	
^{13}C-PCB-77	67	
^{13}C-PCB-101	65	
^{13}C-PCB-118	80	
^{13}C-PCB-105	78	
^{13}C-PCB-126	75	
^{13}C-PCB-138	71	
^{13}C-PCB-156	76	
^{13}C-PCB-157	72	
^{13}C-PCB-169	76	
^{13}C-PCB-180	52	
^{13}C-PCB-202	53	
^{13}C-PCB-194	56	
^{13}C-PCB-208	61	
^{13}C-PCB-209	60	

Prespike Standard:	% Rec.	Qualifier
^{13}C-PCB-52	90	
^{13}C-PCB-178	98	

Dates Analyzed:

DB-1: 8/26/00

Analyst: RS

Reviewer:

L-C61

ALTA

EPA METHOD 1668
POLYCHLORINATED BIPHENYLS

Sample ID:	URS-A-12	**Date Received:**	8/16/00	**QC Lot:**	LC0821M
Lab ID:	8944-0013-PCB	**Date Extracted:**	8/21/00	**Units:**	ng/sample
Matrix:	MM5 Train	**Sample Amount:**	Sample		

Compound	Conc.	R.L.	Qualifier
PCB-8	3900	1.0	
PCB-18	2600	1.0	
PCB-28	650	1.0	
PCB-44	240	1.0	
PCB-52	420	1.0	
PCB-66	14	1.0	
PCB-77	ND	1.0	
PCB-81	ND	1.0	
PCB-90/101	17	1.0	
PCB-118	ND	1.0	
PCB-123	ND	1.0	
PCB-105	ND	1.0	
PCB-114	ND	1.0	
PCB-126	ND	1.0	
PCB-151	ND	1.0	
PCB-128	ND	1.0	
PCB-138	ND	1.0	
PCB-153	ND	1.0	
PCB-167	ND	1.0	
PCB-156	ND	1.0	
PCB-157	ND	1.0	
PCB-169	ND	1.0	
PCB-170	ND	1.0	
PCB-180	ND	1.0	
PCB-187	ND	1.0	
PCB-189	ND	1.0	
PCB-195	ND	1.0	
PCB-206	ND	1.0	
PCB-209	ND	1.0	
Totals			
Total monoCB	670	1.0	
Total diCB	13000	1.0	
Total triCB	8000	1.0	
Total tetraCB	2000	1.0	
Total pentaCB	110	1.0	
Total hexaCB	5.1	1.0	
Total heptaCB	ND	1.0	
Total octaCB	ND	1.0	
Total nonaCB	ND	1.0	

Analyst: RS

Reviewer: [signature]

L-C62

ALTA

EPA METHOD 1668
POLYCHLORINATED BIPHENYLS

Sample ID: URS-A-20
Lab ID: 8944-0013-PCB

Isotopic Recovery Results

Internal Standard:	% R	Qualifier
^{13}C-PCB-3	45	
^{13}C-PCB-9	64	
^{13}C-PCB-28	81	
^{13}C-PCB-37	59	
^{13}C-PCB-77	62	
^{13}C-PCB-101	58	
^{13}C-PCB-118	73	
^{13}C-PCB-105	71	
^{13}C-PCB-126	67	
^{13}C-PCB-138	66	
^{13}C-PCB-156	69	
^{13}C-PCB-157	65	
^{13}C-PCB-169	63	
^{13}C-PCB-180	53	
^{13}C-PCB-202	54	
^{13}C-PCB-194	56	
^{13}C-PCB-208	66	
^{13}C-PCB-209	61	

Prespike Standard:	% Rec.	Qualifier
^{13}C-PCB-52	96	
^{13}C-PCB-178	102	

Dates Analyzed:

DB-1: 8/26/00

Analyst: RS

Reviewer:

L-C63

ALTA

EPA METHOD 1668
POLYCHLORINATED BIPHENYLS

Sample ID:	URS-A-13	Date Received:	8/16/00	QC Lot:	LC0821M
Lab ID:	8944-0014-PCB	Date Extracted:	8/21/00	Units:	ng/sample
Matrix:	MM5 Train	Sample Amount:	Sample		

Compound	Conc.	R.L.	Qualifier
PCB-8	2000	1.0	
PCB-18	1600	1.0	
PCB-28	320	1.0	
PCB-44	140	1.0	
PCB-52	250	1.0	
PCB-66	7.9	1.0	
PCB-77	ND	1.0	
PCB-81	ND	1.0	
PCB-90/101	9.2	1.0	
PCB-118	ND	1.0	
PCB-123	ND	1.0	
PCB-105	ND	1.0	
PCB-114	ND	1.0	
PCB-126	ND	1.0	
PCB-151	ND	1.0	
PCB-128	ND	1.0	
PCB-138	ND	1.0	
PCB-153	ND	1.0	
PCB-167	ND	1.0	
PCB-156	ND	1.0	
PCB-157	ND	1.0	
PCB-169	ND	1.0	
PCB-170	ND	1.0	
PCB-180	ND	1.0	
PCB-187	ND	1.0	
PCB-189	ND	1.0	
PCB-195	ND	1.0	
PCB-206	ND	1.0	
PCB-209	ND	1.0	
Totals			
Total monoCB	380	1.0	
Total diCB	6600	1.0	
Total triCB	4400	1.0	
Total tetraCB	1200	1.0	
Total pentaCB	64	1.0	
Total hexaCB	2.4	1.0	
Total heptaCB	ND	1.0	
Total octaCB	ND	1.0	
Total nonaCB	ND	1.0	

Analyst: RS

Reviewer: 

L-C64

ALTA

EPA METHOD 1668
POLYCHLORINATED BIPHENYLS

Sample ID: URS-A-20
Lab ID: 8944-0014-PCB

Isotopic Recovery Results

Internal Standard:	% R	Qualifier
^{13}C-PCB-3	49	
^{13}C-PCB-9	67	
^{13}C-PCB-28	85	
^{13}C-PCB-37	69	
^{13}C-PCB-77	64	
^{13}C-PCB-101	67	
^{13}C-PCB-118	76	
^{13}C-PCB-105	75	
^{13}C-PCB-126	70	
^{13}C-PCB-138	72	
^{13}C-PCB-156	77	
^{13}C-PCB-157	70	
^{13}C-PCB-169	71	
^{13}C-PCB-180	52	
^{13}C-PCB-202	52	
^{13}C-PCB-194	54	
^{13}C-PCB-208	62	
^{13}C-PCB-209	60	

Prespike Standard:	% Rec.	Qualifier
^{13}C-PCB-52	110	
^{13}C-PCB-178	104	

Dates Analyzed:

DB-1: 8/26/00

Analyst: RS

Reviewer: BMG

L-C65

ALTA

EPA METHOD 1668
POLYCHLORINATED BIPHENYLS

Sample ID:	URS-A-14	**Date Received:**	8/16/00	**QC Lot:**	LC0821M
Lab ID:	8944-0015-PCB	**Date Extracted:**	8/21/00	**Units:**	ng/sample
Matrix:	MM5 Train	**Sample Amount:**	Sample		

Compound	Conc.	R.L.	Qualifier
PCB-8	440	1.0	
PCB-18	460	1.0	
PCB-28	230	1.0	
PCB-44	140	1.0	
PCB-52	230	1.0	
PCB-66	11	1.0	
PCB-77	ND	1.0	
PCB-81	ND	1.0	
PCB-90/101	16	1.0	
PCB-118	ND	1.0	
PCB-123	ND	1.0	
PCB-105	ND	1.0	
PCB-114	ND	1.0	
PCB-126	ND	1.0	
PCB-151	ND	1.0	
PCB-128	ND	1.0	
PCB-138	ND	1.0	
PCB-153	ND	1.0	
PCB-167	ND	1.0	
PCB-156	ND	1.0	
PCB-157	ND	1.0	
PCB-169	ND	1.0	
PCB-170	ND	1.0	
PCB-180	ND	1.0	
PCB-187	ND	1.0	
PCB-189	ND	1.0	
PCB-195	ND	1.0	
PCB-206	ND	1.0	
PCB-209	ND	1.0	
Totals			
Total monoCB	29	1.0	
Total diCB	1400	1.0	
Total triCB	2000	1.0	
Total tetraCB	1000	1.0	
Total pentaCB	100	1.0	
Total hexaCB	5.9	1.0	
Total heptaCB	ND	1.0	
Total octaCB	ND	1.0	
Total nonaCB	ND	1.0	

Analyst: RS

Reviewer:

L-C66

ALTA

EPA METHOD 1668

POLYCHLORINATED BIPHENYLS

Sample ID: URS-A-20
Lab ID: 8944-0015-PCB

Isotopic Recovery Results

Internal Standard:	% R	Qualifier
^{13}C-PCB-3	52	
^{13}C-PCB-9	70	
^{13}C-PCB-28	88	
^{13}C-PCB-37	72	
^{13}C-PCB-77	68	
^{13}C-PCB-101	72	
^{13}C-PCB-118	85	
^{13}C-PCB-105	84	
^{13}C-PCB-126	81	
^{13}C-PCB-138	78	
^{13}C-PCB-156	87	
^{13}C-PCB-157	77	
^{13}C-PCB-169	80	
^{13}C-PCB-180	54	
^{13}C-PCB-202	57	
^{13}C-PCB-194	55	
^{13}C-PCB-208	64	
^{13}C-PCB-209	64	

Prespike Standard:	% Rec.	Qualifier
^{13}C-PCB-52	103	
^{13}C-PCB-178	105	

Dates Analyzed:

DB-1: 8/26/00

Analyst: RS

Reviewer:

1-C47

ALTA

EPA METHOD 1668
POLYCHLORINATED BIPHENYLS

Sample ID:	URS-A-15	**Date Received:**	8/16/00	**QC Lot:**	LC0821M
Lab ID:	8944-0016-PCB	**Date Extracted:**	8/21/00	**Units:**	ng/sample
Matrix:	MM5 Train	**Sample Amount:**	Sample		

Compound	Conc.	R.L.	Qualifier
PCB-8	360	1.0	
PCB-18	470	1.0	
PCB-28	130	1.0	
PCB-44	91	1.0	
PCB-52	160	1.0	
PCB-66	2.7	1.0	
PCB-77	ND	1.0	
PCB-81	ND	1.0	
PCB-90/101	5.8	1.0	
PCB-118	ND	1.0	
PCB-123	ND	1.0	
PCB-105	ND	1.0	
PCB-114	ND	1.0	
PCB-126	ND	1.0	
PCB-151	ND	1.0	
PCB-128	ND	1.0	
PCB-138	ND	1.0	
PCB-153	ND	1.0	
PCB-167	ND	1.0	
PCB-156	ND	1.0	
PCB-157	ND	1.0	
PCB-169	ND	1.0	
PCB-170	ND	1.0	
PCB-180	ND	1.0	
PCB-187	ND	1.0	
PCB-189	ND	1.0	
PCB-195	ND	1.0	
PCB-206	ND	1.0	
PCB-209	ND	1.0	
Totals			
Total monoCB	17	1.0	
Total diCB	1100	1.0	
Total triCB	1600	1.0	
Total tetraCB	690	1.0	
Total pentaCB	47	1.0	
Total hexaCB	1.6	1.0	
Total heptaCB	ND	1.0	
Total octaCB	ND	1.0	
Total nonaCB	ND	1.0	

Analyst: BS

Reviewer:

L-C68

ALTA

EPA METHOD 1668

POLYCHLORINATED BIPHENYLS

Sample ID: URS-A-20
Lab ID: 8944-0016-PCB

Isotopic Recovery Results

Internal Standard:	% R	Qualifier
^{13}C-PCB-3	57	
^{13}C-PCB-9	80	
^{13}C-PCB-28	102	
^{13}C-PCB-37	83	
^{13}C-PCB-77	83	
^{13}C-PCB-101	79	
^{13}C-PCB-118	94	
^{13}C-PCB-105	90	
^{13}C-PCB-126	84	
^{13}C-PCB-138	86	
^{13}C-PCB-156	87	
^{13}C-PCB-157	83	
^{13}C-PCB-169	82	
^{13}C-PCB-180	70	
^{13}C-PCB-202	72	
^{13}C-PCB-194	70	
^{13}C-PCB-208	78	
^{13}C-PCB-209	80	

Prespike Standard:	% Rec.	Qualifier
^{13}C-PCB-52	101	
^{13}C-PCB-178	109	

Dates Analyzed:

DB-1: 8/26/00

Analyst: BS

Reviewer:

L-69

ALTA

EPA METHOD 1668
POLYCHLORINATED BIPHENYLS

Sample ID:	URS-A-16	**Date Received:**	8/16/00	**QC Lot:**	LC0821M
Lab ID:	8944-0017-PCB	**Date Extracted:**	8/21/00	**Units:**	ng/sample
Matrix:	MM5 Train	**Sample Amount:**	Sample		

Compound	Conc.	R.L.	Qualifier
PCB-8	450	1.0	
PCB-18	470	1.0	
PCB-28	130	1.0	
PCB-44	88	1.0	
PCB-52	160	1.0	
PCB-66	3.9	1.0	
PCB-77	ND	1.0	
PCB-81	ND	1.0	
PCB-90/101	9.4	1.0	
PCB-118	ND	1.0	
PCB-123	ND	1.0	
PCB-105	ND	1.0	
PCB-114	ND	1.0	
PCB-126	ND	1.0	
PCB-151	ND	1.0	
PCB-128	ND	1.0	
PCB-138	ND	1.0	
PCB-153	ND	1.0	
PCB-167	ND	1.0	
PCB-156	ND	1.0	
PCB-157	ND	1.0	
PCB-169	ND	1.0	
PCB-170	ND	1.0	
PCB-180	ND	1.0	
PCB-187	ND	1.0	
PCB-189	ND	1.0	
PCB-195	ND	1.0	
PCB-206	ND	1.0	
PCB-209	ND	1.0	
Totals			
Total monoCB	37	1.0	
Total diCB	1400	1.0	
Total triCB	1600	1.0	
Total tetraCB	700	1.0	
Total pentaCB	66	1.0	
Total hexaCB	3.7	1.0	
Total heptaCB	ND	1.0	
Total octaCB	ND	1.0	
Total nonaCB	ND	1.0	

Analyst: BS

Reviewer: [signature]

L-C70

ALTA

EPA METHOD 1668
POLYCHLORINATED BIPHENYLS

Sample ID: URS-A-20
Lab ID: 8944-0017-PCB

Isotopic Recovery Results

Internal Standard:	% R	Qualifier
^{13}C-PCB-3	59	
^{13}C-PCB-9	82	
^{13}C-PCB-28	114	
^{13}C-PCB-37	74	
^{13}C-PCB-77	85	
^{13}C-PCB-101	89	
^{13}C-PCB-118	105	
^{13}C-PCB-105	100	
^{13}C-PCB-126	96	
^{13}C-PCB-138	98	
^{13}C-PCB-156	100	
^{13}C-PCB-157	94	
^{13}C-PCB-169	92	
^{13}C-PCB-180	73	
^{13}C-PCB-202	75	
^{13}C-PCB-194	73	
^{13}C-PCB-208	86	
^{13}C-PCB-209	85	

Prespike Standard:	% Rec.	Qualifier
^{13}C-PCB-52	105	
^{13}C-PCB-178	105	

Dates Analyzed:

DB-1: 8/26/00

Analyst: BS

Reviewer:

L-C71

ALTA

EPA METHOD 1668
POLYCHLORINATED BIPHENYLS

Sample ID:	URS-A-17	**Date Received:**	8/16/00	**QC Lot:**	LC0821M
Lab ID:	8944-0018-PCB	**Date Extracted:**	8/21/00	**Units:**	ng/sample
Matrix:	MM5 Train	**Sample Amount:**	Sample		

Compound	Conc.	R.L.	Qualifier
PCB-8	1800	1.0	
PCB-18	1600	1.0	
PCB-28	380	1.0	
PCB-44	190	1.0	
PCB-52	370	1.0	
PCB-66	9.4	1.0	
PCB-77	ND	1.0	
PCB-81	ND	1.0	
PCB-90/101	21	1.0	
PCB-118	ND	1.0	
PCB-123	ND	1.0	
PCB-105	ND	1.0	
PCB-114	ND	1.0	
PCB-126	ND	1.0	
PCB-151	1.0	1.0	
PCB-128	ND	1.0	
PCB-138	ND	1.0	
PCB-153	ND	1.0	
PCB-167	ND	1.0	
PCB-156	ND	1.0	
PCB-157	ND	1.0	
PCB-169	ND	1.0	
PCB-170	ND	1.0	
PCB-180	ND	1.0	
PCB-187	ND	1.0	
PCB-189	ND	1.0	
PCB-195	ND	1.0	
PCB-206	ND	1.0	
PCB-209	ND	1.0	
Totals			
Total monoCB	250	1.0	
Total diCB	5900	1.0	
Total triCB	4900	1.0	
Total tetraCB	1600	1.0	
Total pentaCB	120	1.0	
Total hexaCB	7.7	1.0	
Total heptaCB	ND	1.0	
Total octaCB	ND	1.0	
Total nonaCB	ND	1.0	

Analyst: BS

Reviewer: [signature]

L-C72

ALTA

EPA METHOD 1668

POLYCHLORINATED BIPHENYLS

Sample ID: URS-A-20
Lab ID: 8944-0018-PCB

Isotopic Recovery Results

Internal Standard:	% R	Qualifier
^{13}C-PCB-3	61	
^{13}C-PCB-9	85	
^{13}C-PCB-28	118	
^{13}C-PCB-37	97	
^{13}C-PCB-77	88	
^{13}C-PCB-101	91	
^{13}C-PCB-118	115	
^{13}C-PCB-105	112	
^{13}C-PCB-126	109	
^{13}C-PCB-138	103	
^{13}C-PCB-156	107	
^{13}C-PCB-157	102	
^{13}C-PCB-169	100	
^{13}C-PCB-180	81	
^{13}C-PCB-202	79	
^{13}C-PCB-194	85	
^{13}C-PCB-208	94	
^{13}C-PCB-209	91	

Prespike Standard:	% Rec.	Qualifier
^{13}C-PCB-52	105	
^{13}C-PCB-178	104	

Dates Analyzed:

DB-1: 8/26/00

Analyst: BS

Reviewer:

L-C73

ALTA

EPA METHOD 1668
POLYCHLORINATED BIPHENYLS

Sample ID:	URS-A-18	**Date Received:**	8/16/00	**QC Lot:**	LC0821M
Lab ID:	8944-0019-PCB	**Date Extracted:**	8/21/00	**Units:**	ng/sample
Matrix:	MM5 Train	**Sample Amount:**	Sample		

Compound	Conc.	R.L.	Qualifier
PCB-8	2400	1.0	
PCB-18	2900	1.0	
PCB-28	610	1.0	
PCB-44	260	1.0	
PCB-52	520	1.0	
PCB-66	ND	1.0	
PCB-77	ND	1.0	
PCB-81	ND	1.0	
PCB-90/101	22	1.0	
PCB-118	ND	1.0	
PCB-123	ND	1.0	
PCB-105	ND	1.0	
PCB-114	ND	1.0	
PCB-126	ND	1.0	
PCB-151	1.2	1.0	
PCB-128	ND	1.0	
PCB-138	ND	1.0	
PCB-153	ND	1.0	
PCB-167	ND	1.0	
PCB-156	ND	1.0	
PCB-157	ND	1.0	
PCB-169	ND	1.0	
PCB-170	ND	1.0	
PCB-180	ND	1.0	
PCB-187	ND	1.0	
PCB-189	ND	1.0	
PCB-195	ND	1.0	
PCB-206	ND	1.0	
PCB-209	ND	1.0	
Totals			
Total monoCB	200	1.0	
Total diCB	7400	1.0	
Total triCB	8900	1.0	
Total tetraCB	2200	1.0	
Total pentaCB	160	1.0	
Total hexaCB	9.2	1.0	
Total heptaCB	ND	1.0	
Total octaCB	ND	1.0	
Total nonaCB	ND	1.0	

Analyst: BS

Reviewer:

L-C74

ALTA

EPA METHOD 1668

POLYCHLORINATED BIPHENYLS

Sample ID: URS-A-20
Lab ID: 8944-0019-PCB

Isotopic Recovery Results

Internal Standard:	% R	Qualifier
^{13}C-PCB-3	55	
^{13}C-PCB-9	78	
^{13}C-PCB-28	73	
^{13}C-PCB-37	66	
^{13}C-PCB-77	80	
^{13}C-PCB-101	76	
^{13}C-PCB-118	94	
^{13}C-PCB-105	90	
^{13}C-PCB-126	88	
^{13}C-PCB-138	85	
^{13}C-PCB-156	87	
^{13}C-PCB-157	83	
^{13}C-PCB-169	81	
^{13}C-PCB-180	68	
^{13}C-PCB-202	69	
^{13}C-PCB-194	72	
^{13}C-PCB-208	88	
^{13}C-PCB-209	81	

Prespike Standard:	% Rec.	Qualifier
^{13}C-PCB-52	101	
^{13}C-PCB-178	102	

Dates Analyzed:

DB-1: 8/26/00

Analyst: BS

Reviewer:

L-C75

ALTA

EPA METHOD 1668
POLYCHLORINATED BIPHENYLS

Sample ID:	URS-A-19	**Date Received:**	8/16/00	**QC Lot:**	LC0821M
Lab ID:	8944-0020-PCB	**Date Extracted:**	8/21/00	**Units:**	ng/sample
Matrix:	MM5 Train	**Sample Amount:**	Sample		

Compound	Conc.	R.L.	Qualifier
PCB-8	230	1.0	
PCB-18	240	1.0	
PCB-28	110	1.0	
PCB-44	88	1.0	
PCB-52	140	1.0	
PCB-66	7.2	1.0	
PCB-77	ND	1.0	
PCB-81	ND	1.0	
PCB-90/101	14	1.0	
PCB-118	ND	1.0	
PCB-123	ND	1.0	
PCB-105	ND	1.0	
PCB-114	ND	1.0	
PCB-126	ND	1.0	
PCB-151	ND	1.0	
PCB-128	ND	1.0	
PCB-138	ND	1.0	
PCB-153	ND	1.0	
PCB-167	ND	1.0	
PCB-156	ND	1.0	
PCB-157	ND	1.0	
PCB-169	ND	1.0	
PCB-170	ND	1.0	
PCB-180	ND	1.0	
PCB-187	ND	1.0	
PCB-189	ND	1.0	
PCB-195	ND	1.0	
PCB-206	ND	1.0	
PCB-209	ND	1.0	
Totals			
Total monoCB	12	1.0	
Total diCB	700	1.0	
Total triCB	1100	1.0	
Total tetraCB	660	1.0	
Total pentaCB	79	1.0	
Total hexaCB	6.4	1.0	
Total heptaCB	ND	1.0	
Total octaCB	ND	1.0	
Total nonaCB	ND	1.0	

Analyst: BS

Reviewer:

L-C76

ALTA

EPA METHOD 1668

POLYCHLORINATED BIPHENYLS

Sample ID: URS-A-20
Lab ID: 8944-0020-PCB

Isotopic Recovery Results

Internal Standard:	% R	Qualifier
^{13}C-PCB-3	45	
^{13}C-PCB-9	60	
^{13}C-PCB-28	86	
^{13}C-PCB-37	55	
^{13}C-PCB-77	61	
^{13}C-PCB-101	60	
^{13}C-PCB-118	75	
^{13}C-PCB-105	72	
^{13}C-PCB-126	65	
^{13}C-PCB-138	66	
^{13}C-PCB-156	62	
^{13}C-PCB-157	62	
^{13}C-PCB-169	54	
^{13}C-PCB-180	55	
^{13}C-PCB-202	57	
^{13}C-PCB-194	60	
^{13}C-PCB-208	68	
^{13}C-PCB-209	65	

Prespike Standard:	% Rec.	Qualifier
^{13}C-PCB-52	105	
^{13}C-PCB-178	109	

Dates Analyzed:

DB-1: 8/27/00

Analyst: BS

Reviewer:

L-C77

DATA QUALIFIERS & ABBREVIATIONS

A	The amount detected is below the Method Calibration Limit.
B	This compound was also detected in the blank.
C	The amount detected is less than five times the Method Quantitation Limit.
D	The amount reported is the maximum possible concentration.
E	The detection limit was raised above the Method Quantitation Limit due to chemical interference's.
F	This result has been confirmed on a DB-225 column.
G	This result has been confirmed on a SP-2331 column.
H	The signal-to-noise ratio is greater than 10:1.
I	Chemical Interference

Conc.	Concentration
D.L.	Detection Limit
NA	Not applicable
S/N	Signal-to-noise
*	See Cover Letter
ND	Not Detected
MPC	Maximum Possible Concentration

CURRENT CERTIFICATIONS

ALTA

Bureau of Reclamation-Mid-Pacific Region---(MP-470, Res-1.10)

Commonwealth of Kentucky---(Certificate No. 90063)

Commonwealth of Virginia---(Certificate No. 00013)

State of Alaska, Department of Environmental Conservation---(Certificate No. OS-00197)

State of Arkansas, Department of Health---(Approval granted through CA certification)

State of Arkansas, Department of Environmental Quality---

State of California---(Certificate No. 1640)

State of Connecticut---(Certificate No. PH-0182)

State of Florida---(Certificate No. 87456)

State of Louisiana---(Certificate No. 98-33)

State of Mississippi---(Approval granted through CA certification)

State of Nevada---(Certificate No. CA413)

State of New York, Department of Health---(Certificate No. 11411)

State of North Carolina---(Certificate No. 06700)

State of North Dakota, Department of Health---(Certificate No. R-078)

State of Oregon---

State of Pennsylvania---(Certificate No. 68-490)

State of South Carolina---(Certificate No. 87002001)

State of Texas — (Certificate No. TX247-2000A)

State of Tennessee---(Certificate No. 02996)

State of Utah---(Certificate No. E-201)

State of Washington, Department of Ecology---(Certification No. C091)

State of Wisconsin---(Certificate No. 998036160)

State of Wyoming---(Ref: 8ES-LB)

U.S. Army Corps of Engineers

U.S. 5 EPA Region

May 2000

L-C79

RADIAN INTERNATIONAL
A DAMES & MOORE GROUP COMPANY

Chain of Custody Record

Page ____ of ____

PROJECT: Foster-Wheeler

SITE: New Bedford Harbor

PREPARED BY (Signature):

FIELD SAMPLE I.D.	SAMPLE MATRIX	DATE/TIME	MS/MSD	NO. OF CONTAINERS	ANALYSES: PCBs	REMARKS
URS-A-1	XAD	8/8 0858-1058		1	X	Test I-1
URS-A-2	↓	8/8 0908-1108			X	Test I-2
URS-A-3	↓	8/8 0908-1108			X	Test I-3
URS-B-1	↓	8/8			X	Blank
URS-A-4	↓	8/10 1529-1729			X	Test H-1
URS-A5	↓	8/11 1425-1630			X	Test H2
URS-A6	↓	8/11 1639-1722			X	Test H3
URS-A7	↓	8/11 1724-1824			X	Test G1
URS-A8	↓	8/11 1809-1909			X	Test F1
URS-A9	↓	8/11 1851-1951			X	Test F2

REMARKS

RELINQUISHED BY:	DATE	TIME
	8/15	1200

RECEIVED BY:	DATE	TIME	RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME	RELINQUISHED BY:	DATE	TIME

LAB USE ONLY

RECEIVED FOR LABORATORY BY:	DATE	TIME	AIRBILL NO.	OPENED BY:	DATE	TIME	TEMP°C	SEAL #	CONDITION
[signature]	5/6/00	1020							

REMARKS:

IEG-4\FH13-96-30337\coc.FHB

L-C80

RADIAN INTERNATIONAL
A DAMES & MOORE GROUP COMPANY

Chain of Custody Record

Page ___ of ___

PROJECT: Foster Wheeler

SITE: New Bedford Harbor

PREPARED BY (Signature):

FIELD SAMPLE I.D.	SAMPLE MATRIX	DATE/TIME	MS/MSD	NO. OF CONTAINERS	ANALYSES: PCBs	REMARKS
URS-A10	XAD	8-14/1005-1105		1	X	Test C1
URS-A11		8-14/0956-1056			X	Test C2
URS-A12		8-14/1108-1208			X	Test E1
URS-A13		8-14/1102-1202			X	Test E2
URS-A14		8-14/1605-1705			X	Test E3
URS-A15		8-14/1605-1705			X	Test E4
URS-A16		8/15/0936-1042			X	Test A-1
URS-A17		8/15/0939-1044			X	Test A-2
URS-A18		8/15/0940-1044			X	Test A-3
URS-A19		8/15/1127-1227			X	Test B-1

REMARKS:

RECEIVED BY:	DATE	TIME	RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME	RELINQUISHED BY:	DATE	TIME
									[signature]	8/15	1200

LAB USE ONLY

RECEIVED FOR LABORATORY BY:	DATE	TIME	AIRBILL NO.	OPENED BY:	DATE	TIME	TEMP°C	SEAL #	CONDITION
[signature]	8/16	1000							

REMARKS:

IEG-4IFH13-96-30337coc.FH8

Ken Flatt

From: eric_p_anderson@urscorp.com
Sent: Wednesday, August 16, 2000 5:34 PM
To: Ken Flatt
Subject: Re: XAD Sample problem

Ken,

The sample that has no label, is an unused resin trap that inadverntly got
left in the sample pile (do not analyze this sample). The one labeled Sheen1 should be URS-A-10. I think it got mislabeled during the rain storms that occurred during our sampling.

You will get another shipment tomorrow. One chest is samples, the other is
unused traps. Do not analyze these traps.

Let me know it there are any other discrepancies.

Eric P. Anderson
Senior Scientist
URS
(512) 419-5437
(512) 454-8807 (fax)
eric_p_anderson@urscorp.com

Please note change of email. Radian is now a URS company.

Ken Flatt <kflatt@ALTAL AB.com>
08/16/00 02:06 PM

To: "'eric_p_anderson@urscorp.com'" <eric_p_anderson@urscorp.com>
cc:
Subject: XAD Sample problem

Eric, I received the Xad's this morning.

The only problem I have is with sample # URS-A-10
I have (2) Xad traps left, one has on the label what looks like " sheen1
062 " on the Packing/Spike label
The other one has nothing other than the Xad Packing/Spike label.

L-C82

Attachment D

Spreadsheet of Emission Flux Test Results

L-D1

Client: Foster Wheeler
Project: New Bedford Harbor Superfund Site
Last Update: 30-Aug

Date	Test #	Sample ID	Start Time	End Time	Run Time (min)	Ave. Roto Setting	Sample Roto #	Ave. Flow Rate (mL/min)	Total Flow (m3)	Comments
8-Aug	I -1	URS -A1	8:50	10:58	128	76	7063-004	2,462	0.315	Mud Flat (657)
8-Aug	I -2	URS -A2	9:08	11:08	120	95	7063-001	3,087	0.370	Mud Flat (602)
8-Aug	I -3	URS -A3	9:08	11:08	120	91	7063-002	2,935	0.352	Mud Flat (650)
10-Aug	H -1	URS -A4	15:29	17:29	53	105	7063-004	3,495	0.185	Dredge/Hopper (sample on/off)
11-Aug	H -2	URS -A5	14:25	16:30	58	105	7063-004	3,495	0.203	Dredge/Hopper (sample on/off)
11-Aug	H -3	URS -A6	16:39	17:22	43	105	7063-004	3,495	0.150	Dredge/Hopper (sample on/off)
11-Aug	G -1	URS -A7	17:24	18:24	60	85	7063-002	2,724	0.163	Outside silt fence
11-Aug	F -1	URS -A8	18:09	19:09	60	76	7063-004	2,462	0.148	Moon Pool
11-Aug	F -2	URS -A9	18:51	19:51	60	82	7063-002	2,618	0.157	Moon Pool
14-Aug	C -1	URS -A10	10:05	11:05	60	100	7063-004	3,317	0.199	CDF Sheen-1
14-Aug	C -2	URS -A11	9:56	10:56	60	75	7063-002	2,372	0.142	CDF Sheen-2
14-Aug	E -1	URS -A12	11:08	12:08	60	98	7063-004	3,246	0.195	CDF Dawn Surfactant
14-Aug	E -2	URS -A13	11:02	12:02	60	75	7063-002	2,372	0.142	CDF Biosolve Surfactant
14-Aug	F -3	URS -A14	16:05	17:05	60	98	7063-004	3,246	0.195	Moon Pool
14-Aug	F -4	URS -A15	16:05	17:05	60	75	7063-002	2,372	0.142	Moon Pool
15-Aug	A -1	URS -A16	9:36	10:42	66	76	7063-004	2,462	0.162	CDF Fresh Sediment-1
15-Aug	A -2	URS -A17	9:39	10:44	65	95.5	7063-002	3,094	0.201	CDF Fresh Sediment-2
15-Aug	A -3	URS -A18	9:40	10:44	64	86	7063-001	2,771	0.177	CDF Fresh Sediment-3
15-Aug	B -1	URS -A19	11:27	12:27	60	76	7063-004	2,462	0.148	CDF Sediment + Water-1
15-Aug	B -2	URS -A20	11:28	12:28	60	96	7063-002	3,111	0.187	CDF Sediment + Water-2
15-Aug	B -3	URS -A21	11:30	12:30	60	87.5	7063-001	2,823	0.169	CDF Sediment + Water-3
15-Aug	D -1	URS -A22	15:08	16:11	63	92	7063-002	2,970	0.187	CDF Water near Sheen-1
15-Aug	C -3	URS -A23	15:13	16:15	62	78	7063-001	2,489	0.154	CDF Sheen
15-Aug	E -3	URS -A24	16:22	17:22	60	78	7063-001	2,489	0.149	CDF Simple Green
15-Aug	D -2	URS -A25	16:40	17:40	60	92	7063-002	2,970	0.178	Water near sheen
16-Aug	G -2	URS -A26	14:09	15:09	60	85	7063-001	2,735	0.164	~ 40 feet from Silt fence
16-Aug	G -3	URS -A27	14:10	15:10	60	98	7063-002	3,182	0.191	~ 47 feet from Silt fence

24-7

Emission Flux Calculations

Date	Test #	Sample ID	Total Flow (m3)	PCB (ng)	PCB (ng/m3)	Sweep Air (L/min)	Surface Area (m2)	Emission Flux (ng/min-m2)	Comments
8-Aug	I -1	URS -A1	0.315	1	3.17	0.005	0.13	0.122	Mud Flat (657)
8-Aug	I -2	URS -A2	0.370	1	2.70	0.005	0.13	0.104	Mud Flat (602)
8-Aug	I -3	URS -A3	0.352	1	2.84	0.005	0.13	0.109	Mud Flat (650)
10-Aug	H -1	URS -A4	0.185	1	5.40	0.005	0.13	0.208	Dredge/Hopper (sample on/off)
11-Aug	H -2	URS -A5	0.203	1	4.93	0.005	0.13	0.190	Dredge/Hopper (sample on/off)
11-Aug	H -3	URS -A6	0.150	1	6.65	0.005	0.13	0.256	Dredge/Hopper (sample on/off)
11-Aug	G -1	URS -A7	0.163	1	6.12	0.005	0.13	0.235	Outside silt fence
11-Aug	F -1	URS -A8	0.148	1	6.77	0.005	0.13	0.260	Moon Pool
11-Aug	F -2	URS -A9	0.157	1	6.37	0.005	0.13	0.245	Moon Pool
14-Aug	C -1	URS -A10	0.199	1	5.02	0.005	0.13	0.193	CDF Sheen-1
14-Aug	C -2	URS -A11	0.142	1	7.03	0.005	0.13	0.270	CDF Sheen-2
14-Aug	E -1	URS -A12	0.195	1	5.14	0.005	0.13	0.198	CDF Dawn Surfactant
14-Aug	E -2	URS -A13	0.142	1	7.03	0.005	0.13	0.270	CDF Biosolve Surfactant
14-Aug	F -3	URS -A14	0.195	1	5.14	0.005	0.13	0.198	Moon Pool
14-Aug	F -4	URS -A15	0.142	1	7.03	0.005	0.13	0.270	Moon Pool
15-Aug	A -1	URS -A16	0.162	1	6.15	0.005	0.13	0.237	CDF Fresh Sediment-1
15-Aug	A -2	URS -A17	0.201	1	4.97	0.005	0.13	0.191	CDF Fresh Sediment-2
15-Aug	A -3	URS -A18	0.177	1	5.64	0.005	0.13	0.217	CDF Fresh Sediment-3
15-Aug	B -1	URS -A19	0.148	1	6.77	0.005	0.13	0.260	CDF Sediment + Water-1
15-Aug	B -2	URS -A20	0.187	1	5.36	0.005	0.13	0.206	CDF Sediment + Water-2
15-Aug	B -3	URS -A21	0.169	1	5.90	0.005	0.13	0.227	CDF Sediment + Water-3
15-Aug	D -1	URS -A22	0.187	1	5.34	0.005	0.13	0.206	CDF Water near Sheen-1
15-Aug	C -3	URS -A23	0.154	1	6.48	0.005	0.13	0.249	CDF Sheen
15-Aug	E -3	URS -A24	0.149	1	6.69	0.005	0.13	0.257	CDF Simple Green
15-Aug	D -2	URS -A25	0.178	1	5.61	0.005	0.13	0.216	Water near sheen
16-Aug	G -2	URS -A26	0.164	1	6.09	0.005	0.13	0.234	~ 40 feet from Silt fence
16-Aug	G -3	URS -A27	0.191	1	5.24	0.005	0.13	0.201	~ 47 feet from Silt fence

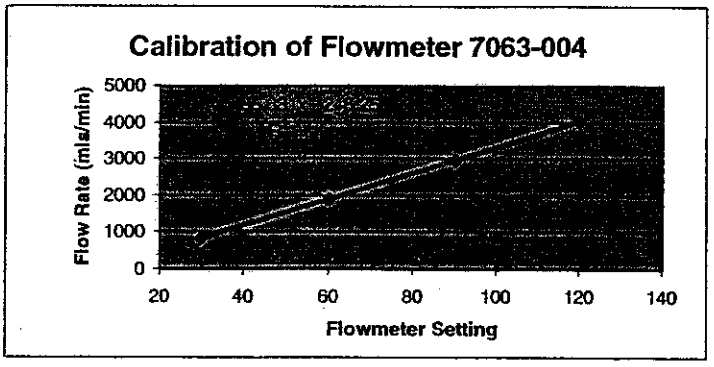
L-D3

Attachment E

Calibration Data

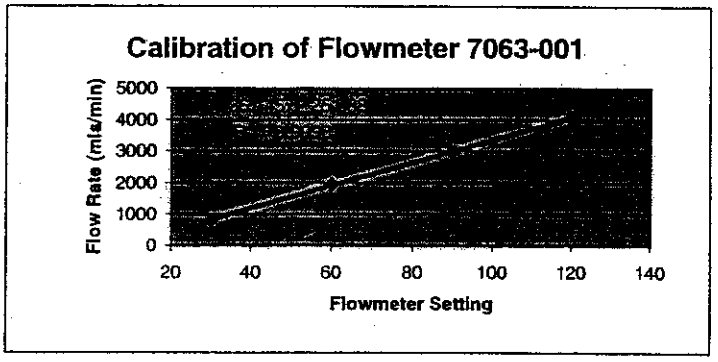
Flowmeter 7063-004

Meter Setting	Trial #1	Trial #2	Trial #3	Trial #4	Average
30	823	823	823		823
60	1927	1892	1888	1883	1898
90	2932	2950	2961		2948
120	4029	4033	4046		4036



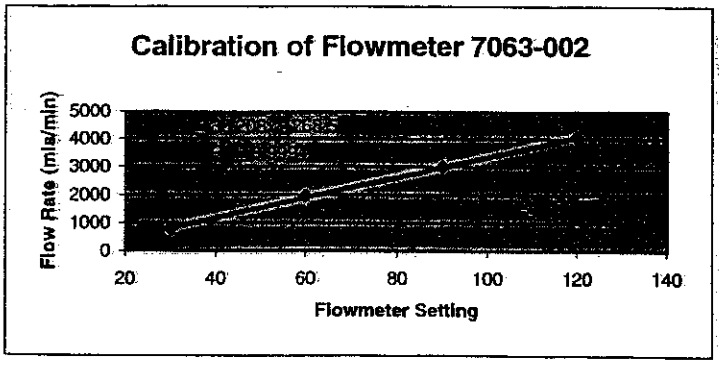
Flowmeter 7063-001

Meter Setting	Trial #1	Trial #2	Trial #3	Trial #4	Average
30	822	809	804	807	811
60	1977	1949	1957	1950	1958
90	2945	3000	2997	2995	2984
120	4108	4083	4071	4070	4083



Flowmeter 7063-002

Meter Setting	Trial #1	Trial #2	Trial #3	Trial #4	Average
30	789	791	783	785	787
60	1927	1951	1959	1967	1951
90	2971	2994	2991	2997	2988
120	4060	4078	4058	4052	4062



L-E2

From Page No.

Thermocouple / Digital Meter ①

Thermocouple Color	Letter	Meter #	Temp (°C) Hg	Dig. ②	Omega
Black	C	1	98.5	—	99.9
	S		98.5	—	100.3
	C	2	98.5	—	99.7
	S		98.5	—	99.7
Red	C	1	99.0	—	101.9
	S		99.2	—	101.2
	C	2	99.2	—	101.3
	S		99.2	—	100.7
Green	C	1	99.2	—	102.1
	S		99.2	—	101.8
	C	2	99.2	—	101.3
	S		99.2	—	101.2

L-E3

① See p. TC

② Dig. NOT USE - NOT recommended for use above 90°C.

To Page No.

Witnessed & Understood by me,	Date	Invented by	Date

From Page No.

Thermocouples / Omega Dig. Readout Meters.

Color	Letter	Meter #	Temp-Dig ①	Temp.-Hg ②	Meter Readout
Red	C	1	-0.7	-0.5	0.9
"	S	"	-0.8	-0.8	1.4
Green	C	"	-0.8	-0.7	0.4
"	S	"	-0.8		-1.7
Black/Red	C	"	-0.7		0.3
"	S	"	-0.7		
Red	C	2	-0.5		0.6
"	S	"	-0.6		0.9
Green	C	"	-0.5		0.5
"	S	"	-0.6		0.5
Black/Red	C	"	-0.5		0.6

Gas Lab

L-E4

① Orion Cond. Meter - Model #140
②

To Page No.

Witnessed & Understood by me,	Date	Invented by	Date
			6/2/00

Thermocouple / Digital Meter ①

Thermocoup Color	Letter	Meter #	Temp (°C) Hg	Dig.	Omega
BLACK	C	1	-0.8	-0.9	0.3
	S		-0.8	-0.9	0.2
	C	2	-0.8	-0.9	0.2
	S		-0.8	-0.9	0.0
RED	C	1	-0.8	-0.9	0.6
	S		-0.8	-0.9	0.8
	C	2	-0.8	-0.9	0.3
	S		-0.8	-0.9	0.3
GREEN	C	1	-0.8	-0.9	0.5
	S		-0.8	-0.9	0.4
	C	2	-0.8	-0.9	-0.3
	S		-0.8	-0.9	-0.2
BLACK	C	1	21.8	21.9	22.5
	S		21.8	21.9	22.7
	C	2	21.8	21.7	22.2
	S		21.8	21.7	22.2
RED	C	1	21.6	21.7	22.5
	S		21.6	21.7	22.3
	C	2	21.6	21.7	21.9
	S		21.6	21.7	21.8
GREEN	C	1	21.6	21.7	~~20.5~~ GN 22.1
	S		21.6	21.7	22.2
	C	2	21.6	21.7	21.7
	S		21.6	21.7	21.7

L-E5

Thermoc. - Type K / Dig. Meters - Omega #11

nessed & Understood by me,	Date	Invented by	Date
			9/3/09

Attachment F

Analytical Results

For Source Samples

Qualifier Definitions:
V – Value
Q – Qualifier
U – Compound was analyzed for, but not detected in the sample.
P – The percent difference for results between the two analytical columns. is greater than 25%. The lower of the two values is reported.
E – Compound exceeded the instrument range, results may be estimated.
D – Compound result is from a diluted sample.

Final Flux Chamber Source Sample Data

Matrix / Units of Measure (wet weight)		slurry / mg/kg		slurry / mg/kg		slurry / mg/kg		slurry / mg/kg		slurry / mg/kg		slurry / mg/kg		slurry / mg/kg	
Station Number		CDF Sheen		CDF Sediment		CDF Sediment		Sediment w/harbor H2O cover		CDF Sheen		Sheen w/ Dawn		Sheen w/ Biosolve	
Sample Number		FC1011		FC161718		FC161718REP		FC192021		FC2225		URS-W12		URS-W13	
Flux Chamber Test Designation		C		A		A		B		D		E		E	
Sample Date		17-Aug-00		17-Aug-00		17-Aug-00		17-Aug-00		17-Aug-00		14-Aug-00		14-Aug-00	
Analyte	BZ#	V	Q	V	Q	V	Q	V	Q	V	Q	V	Q	V	Q
2,4'-DiCB	8 *	72.0	D	.69		.81		.92		2.0		3.4		2.3	
2,5,2'-TriCB	18 *	95.0	D	.9		1.0		1.2		2.5		4.2		3.0	
2,4,4'-TriCB	28 *	120.0	D	1.1		1.2		1.4		3.2		5.4		3.9	
2,3,6,2'-TetraCB	44 *	55.0	D	.54		.63		.74		1.5		2.6		1.8	
2,5,2',5'-TetraCB	52 *	86.0	D	.77		.9		1.0		2.2		3.5		2.5	
2,4,3',4'-TetraCB	66 *	57.0	D	.57		.65		.76		1.4		2.4		1.8	
3,4,3',4'-TetraCB	77	.59	U	.06	U	.059	U	.058	U	.14	U	.3	U	.14	U
3,4,5,4'-TetraCB	81	1.8	P	.06	U	.059	U	.058	U	.14	U	.3	U	.14	U
2,4,5,2',5'-PentaCB	101 *	35.0	DP	.36	P	.42	P	.5	P	.96	P	1.5	P	1.2	P
2,3,4,3',4'-PentaCB	105 *	1.2	P	.06	U	.059	U	.058	U	.14	U	.3	U	.14	U
2,3,4,5,4'-PentaCB	114	.59	U	.06	U	.059	U	.058	U	.14	U	.3	U	.14	U
2,4,5,3',4'-PentaCB	118 *	15.0		.16		.18		.22		.38		.62		.52	
3,4,5,2',4'-PentaCB	123	19.0		.24		.28		.33		.67		.98		.73	
3,4,5,3',4'-PentaCB	126	.59	U	.06	U	.059	U	.058	U	.14	U	.3	U	.14	U
2,3,4,2',3',4'-HexaCB	128 *	.87	P	.06	U	.059	U	.058	U	.14	U	.3	U	.14	U
2,3,4,2',4',5'-HexaCB	138 *	5.0	P	.067	P	.073	P	.084	P	.18	P	.3	U	.21	P
2,4,5,2',4',5'-HexaCB	153 *	17.0		.18		.21		.26		.49		.72		.58	
2,3,4,5,3',4'-HexaCB	156	1.1	P	.06	U	.059	U	.058	U	.14	U	.3	U	.14	U
2,3,4,3',4',5'-HexaCB	157	.59	U	.06	U	.059	U	.058	U	.14	U	.3	U	.14	U
2,4,5,3',4',5'-HexaCB	167	1.0	P	.06	U	.059	U	.058	U	.14	U	.3	U	.14	U
3,4,5,3',4',5'-HexaCB	169	.59	U	.06	U	.059	U	.058	U	.14	U	.3	U	.14	U
2,3,4,5,2',3',4'-HeptaCB	170 *	1.1	P	.06	U	.059	U	.058	U	.14	U	.3	U	.14	U
2,3,4,5,2',4',5'-HeptaCB	180 *	2.0		.06	U	.059	U	.058	U	.14	U	.3	U	.14	U
2,3,5,6,2',4',5'-HeptaCB	187 *	2.6		.06	U	.059	U	.058	U	.14	U	.3	U	.14	U
2,3,4,5,3',4',5'-HeptaCB	189	.59	U	.06		.059	U	.058	U	.14	U	.3	U	.14	U
2,3,4,5,6,2',3',4'-OctaCB	195 *	.59	U	.06	U	.059	U	.058	U	.14	U	.3	U	.14	U
2,3,4,5,6,2',3',4',5'-NonaCB	206 *	.59	U	.06	U	.059	U	.058	U	.14	U	.3	U	.14	U
Deca-CB	209 *	.59	U	.06	U	.059	U	.058	U	.14	U	.3	U	.14	U
NOAA Congeners Total		560		5.3		6.1		7.1		15		24		18	
Total X 2.5		1400		13		15		18		38		60		45	

L-F2

Final Flux Chamber Source Sample Data

Sample Matrix/Units of Measure (dryweight)		Sediment/mg/kg		Sediment/mg/kg		Sediment/mg/kg	
Station Number		@657		@602		@650	
Sample Number		URS-W1		URS-W2		URS-W3	
Flux Chamber Test Designation		I		I		I	
Sample Date		08-Aug-00		08-Aug-00		08-Aug-00	
Analyte	BZ#	V	Q	V	Q	V	Q
2,4'-DiCB	8 *	14.0		1.0		.81	U
2,5,2'-TriCB	18 *	65.0	P	3.2		3.5	P
2,4,4'-TriCB	28 *	680.0	D	7.2		17.0	
2,3,6,2'-TetraCB	44 *	540.0	D	3.4		9.7	
2,5,2',5'-TetraCB	52 *	600.0	D	6.9		13.0	
2,4,3',4'-TetraCB	66 *	970.0	D	6.6		17.0	
3,4,3',4'-TetraCB	77	76.0	EP	.39	U	.81	U
3,4,5,4'-TetraCB	81	1.6	U	.39	U	.81	U
2,4,5,2',5'-PentaCB	101 *	400.0	DP	3.5	P	6.8	P
2,3,4,3',4'-PentaCB	105 *	190.0	DP	.66	P	2.8	
2,3,4,5,4'-PentaCB	114	14.0	P	.39	U	.81	U
2,4,5,3',4'-PentaCB	118 *	340.0	DP	2.8		5.4	
3,4,5,2',4'-PentaCB	123	200.0	D	3.2		4.0	
3,4,5,3',4'-PentaCB	126	1.6	U	.39	U	.81	U
2,3,4,2',3',4'-HexaCB	128 *	62.0	P	.4		.97	
2,3,4,2',4',5'-HexaCB	138 *	240.0	D	1.3	P	3.4	
2,4,5,2',4',5'-HexaCB	153 *	180.0	D	2.6		3.4	
2,3,4,5,3',4'-HexaCB	156	32.0	P	.39	U	.81	U
2,3,4,3',4',5'-HexaCB	157	7.5		.39	U	.81	U
2,4,5,3',4',5'-HexaCB	167	18.0	P	.39	U	.81	U
3,4,5,3',4',5'-HexaCB	169	1.6	U	.39	U	.81	U
2,3,4,5,2',3',4'-HeptaCB	170 *	26.0		.39	U	.81	U
2,3,4,5,2',4',5'-HeptaCB	180 *	41.0		.39	U	.81	U
2,3,5,6,2',4',5'-HeptaCB	187 *	25.0	P	.39	U	.81	U
2,3,4,5,3',4',5'-HeptaCB	189	1.6	U	.39	U	.81	U
2,3,4,5,6,2',3',4'-OctaCB	195 *	2.0		.39	U	.81	U
2,3,4,5,6,2',3',4',5'-NonaCB	206 *	2.6		.39	U	.81	U
Deca-CB	209 *	1.6	U	.39	U	.81	U
NOAA Congeners Total		4400		40		83	
Total X 2.5		10K+		100		210	

Final Flux Chamber Source Sample Data

Sample Matrix/Units of Measure		Aqueous/ug/l		Aqueous/ug/l		Aqueous/ug/l	
Station Number		Moon Pool		Harbor outside silt fence		Moon Pool	
Sample Number		FC1415		FC72627		FC89	
Flux Chamber Test Designation		F		G		F	
Sample Date		17-Aug-00		17-Aug-00		17-Aug-00	
Analyte	BZ#	V	Q	V	Q	V	Q
2,4'-DiCB	8 *	.98		.16		.16	
2,5,2'-TriCB	18 *	1.5		.35		.32	
2,4,4'-TriCB	28 *	2.0		.31		.32	
2,3,6,2'-TetraCB	44 *	.92		.12		.15	
2,5,2',5'-TetraCB	52 *	1.6		.33		.34	
2,4,3',4'-TetraCB	66 *	1.0		.15		.28	
3,4,3',4'-TetraCB	77	.095	U	.02	U	.019	U
3,4,5,4'-TetraCB	81	.095	U	.02	U	.029	
2,4,5,2',5'-PentaCB	101 *	.62	P	.074	P	.16	P
2,3,4,3',4'-PentaCB	105 *	.095	U	.02	U	.019	U
2,3,4,5,4'-PentaCB	114	.095	U	.02	U	.019	U
2,4,5,3',4'-PentaCB	118 *	.31		.043		.11	
3,4,5,2',4'-PentaCB	123	.49		.072		.12	
3,4,5,3',4'-PentaCB	126	.095	U	.02	U	.019	U
2,3,4,2',3',4'-HexaCB	128 *	.095	U	.02	U	.019	U
2,3,4,2',4',5'-HexaCB	138 *	.15	P	.022	P	.032	P
2,4,5,2',4',5'-HexaCB	153 *	.36		.049		.099	
2,3,4,5,3',4'-HexaCB	156	.095	U	.02	U	.019	U
2,3,4,3',4',5'-HexaCB	157	.095	U	.02	U	.019	U
2,4,5,3',4',5'-HexaCB	167	.095	U	.02	U	.019	U
3,4,5,3',4',5'-HexaCB	169	.095	U	.02	U	.019	U
2,3,4,5,2',3',4'-HeptaCB	170 *	.095	U	.02	U	.019	U
2,3,4,5,2',4',5'-HeptaCB	180 *	.095	U	.02	U	.019	U
2,3,5,6,2',4',5'-HeptaCB	187 *	.095	U	.02	U	.019	U
2,3,4,5,3',4',5'-HeptaCB	189	.095	U	.02	U	.019	U
2,3,4,5,6,2',3',4'-OctaCB	195 *	.095	U	.02	U	.019	U
2,3,4,5,6,2',3',4',5'-NonaCB	206 *	.095	U	.02	U	.019	U
Deca-CB	209 *	.095	U	.02	U	.019	U
NOAA Congeners Total		9.4		1.6		2.0	
Total X 2.5		24		4.0		5.0	

L-F4

Ambient Air Data

USACE CONTRACT NO. DACW33-94-D-0002
TASK ORDER NO. 0017
TOTAL ENVIRONMENTAL RESTORATION CONTRACT

FINAL DATA REPORTS FOR

Pre-Design Dredge Test Sampling: 15 August 2000 – 17 August 2000

OPERABLE UNIT #1
NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS

May 2001

Prepared by
The KEVRIC Company, Incorporated and
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The United States Army Corps of Engineers
New England District
Concord, Massachusetts

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Final Sample Event Summary for Pre-Design Dredge Test Sampling – 15, 16, and 17 August 2000

1.0 SAMPLE DATA

The information contained in this report includes detailed tables for each sample event date. The report details the polychlorinated biphenyl (PCB) congener and homologue results, quality flags, detection limits, Estimated Maximum Potential Concentration (EMPC) values, and sampling information. The meteorological data contained in this section are based on the start and end times for each individual sample.

The meteorological station takes readings every 5 minutes and averages these 5-minute readings at the end of every hour. For example, the sample at station 28 on 14 March 2001 started at 07:47 a.m. and ended at 07:52 a.m. on 15 March 2001. Therefore, the average temperature, average solar radiation, and total precipitation are calculated based on the 14 March 2001 08:00 a.m. data through 15 March 2001 8:00 a.m. data.

2.0 SAMPLING SCHEDULE

The sample event schedule is presented in Table 1. Samples in the area surrounding the confined disposal facility were collected for 3 days in August 2000 during the pre-design dredge testing. Samples were collected at stations 02, 03, 03D, 06, 09, 17, and 27. Samples were collected at station 03D on an alternating basis. A designated U.S. Army Corps of Engineers laboratory analyzed these quality assurance samples.

Table 1: Sample Event Schedule

Sampling Effort	Sample Event Date	Sampling Stations							
		02	03	03D	06	09	17	27	Blank Station
Pre-Design Dredge Test	08/15/00	X	X	X	X	X	X	X	02
	08/16/00	X	X	†	X	X	X	X	06
	08/17/00	X	X	X	X	X	X	X	27

X Sample collected at station

† Alternate duplicate samples analyzed by the U.S. Army Corps of Engineers designated laboratory

3.0 IMPORTANT TERMS

3.1. Summary Report Definitions

Air sample summary reports have been developed for each sample collected. The data is presented in the tables that follow. The following information is provided to help the reader interpret the data reports.

Table 2: Column Headings

Heading	Definition
Sample Event Date	Start date. Date in which the sample was installed in the sampler
Lab Sample ID	Identification number designed by the analytical laboratory
Station ID/Name	Site identification number and corresponding name
Sample Type	Designates whether the sample is a field blank, normal sample, or duplicate sample
Sample Number	Field identification number formatted as month, day, year, station. For example, sample number 09190028 represents a sample collected on 19 September 2000 at station 28. A letter "B" following the sample number (09190028B) indicates a field blank, a letter "D" (09190028D) indicates a duplicate sample
Preliminary Flow	For this data report the flow is assumed to be 225 standard liters per minute (slpm)
Run Time	Sample duration in hours
Sample Volume	Total volume of air sampled, cubic meters
Prevailing Wind Direction	Predominant direction that the wind was blowing from
Average Temperature	Average temperature for the sampling event date at 2 meters, degrees Fahrenheit
Average Solar Radiation	Average solar radiation for the sampling event date, watt meter squared
Total Precipitation	Total Precipitation for the sampling event date, inches of water
Analyte	The name of the PCB congener, homologue or total homologues
Detsym	Detection symbol; < denotes not detected, = denotes detected, M denotes EMPC
Mass	Mass of analyte detected in the sample, nanograms
EMPC	Estimated Maximum Potential Concentration (denoted as M in the Detsym column). An EMPC value indicates there were interferences in the sample that may cause an underestimation of the result. In this case, the EMPC value is used to calculate the estimated concentration
Qflag	Quality flag designated by either the laboratory or the data validator
Concentration	Average concentration of analyte over the sampling period, nanograms per cubic meter
TEF	Toxic Equivalency Factor, not applicable to homologue groups
TEQ	Toxic Equivalent Concentration, not applicable to homologue groups The TEF is multiplied by the concentration to calculate the TEQ

3.2. Data Qualifier Flags

In order to assist with data interpretation, data qualifier flags are used on the final reports. The most commonly used flags are:

C: Coeluting congener
NDR: Peak detected, but did not meet quantification criteria
R: Rejected
U: Not detected. Result is within five times the concentration detected in associated blanks and considered not detected at the reported value.

4.0 REPORTING CONVENTIONS

In order to calculate homologue group concentrations, several data validation conventions are applied. The concentration values for non-detects are calculated at half the detection limit, based on the assumption that the actual concentration is likely to be somewhere between zero and the detection limit. The exception to this data validation convention is homologue #209 (DecaCB), which if detected, was detected intermittently and at relatively low concentrations such that their actual presence is questionable. Including non-detects with elevated detection limits at half the detection limit results in relatively high values; in turn, skewing the resulting averages higher. Consequently, when calculating concentrations for homologue #209, non-detect values were disregarded (i.e., not included as a result). For analytes qualified as U due to blank contamination, the analyte concentrations are calculated at half the reported mass value. In all cases where an EMPC value was reported, this value is used in calculating analyte concentrations in lieu of the reported value.

Individual sample results reported in this data package include the mass of each analyte as reported by the laboratory, the volume of air sampled, the resulting sample concentration, and the data qualifiers (described in Section 3.2). Total PCBs are reported (in nanograms) as the sum of the homologue group detected mass values, EMPC (where reported), or half of the detection limit values, with the exception of DecaCB, which was rejected. An example of Total PCB calculation is shown in Table 3.

Table 3: Example Total PCB Calculation

Homologue Group	Detsym	Detection Limit (ng)	Mass (ng)	EMPC (ng)
Total MonoCB	=	0.08	**105**	
Total DiCB	=	0.1	**5640**	
Total TriCB	M	0.06	7710	**7750**
Total TetraCB	M	0.1	5220	**5230**
Total PentaCB	=	0.3	**1490**	
Total HexaCB	M	0.2	202	**212**
Total HeptaCB	M	0.4	35.1	**37.6**
Total OctaCB	=	0.5	**3.8**	
Total NonaCB	<	**0.6**		
Total DecaCB	<	0.7		
Homologue Group Sum = 20468.7 nanograms*				

* Obtained by the summation of table values highlighted in bold print.

5.0 PROBLEMS AND CORRECTIVE ACTION

There were no problems for these sampling events.

6.0 SAMPLE EVENT SUMMARY REPORTS

The attached sample summary reports are for the Pre-Design Dredge Test 15, 16, and 17 August 2000 sampling efforts.

Sample Event Date	8/15/2000	**Sample Number**	08150002	**Prevailing Wind Direction**	NNE
Lab Sample ID	L2694-1	**Preliminary Flow (slpm)**	225	**Average Temperature (°F)**	68.6
Station ID/Name	02/E Side of CDF	**Run Time (hours)**	24.15	**Average Solar Radiation (w -m²)**	70.3
Sample Type	Normal Sample	**Sample Volume (m³)**	326.025	**Total Precipitation (inches H_2O)**	0.32

Analyte	Detsym	Detection Limit (ng)	Mass (ng)	EMPC*	QFlag	Concentration (ng/m³)	TEF	TEQ† (ng/m³)
PCB Congeners								
3,3',4,4'-TetraCB (#77)	=	0.395	3.87	—		0.0119	0.0001	0.000001
3,4,5,4'-TetraCB (#81)	<	0.376	—	—	U	0.0006	0.0001	0.00000006
2,3,3',4,4'-PentaCB (#105)	=	0.0551	5.42	—		0.0166	0.0001	0.000002
2,3,4,4',5-PentaCB (#114)	=	0.0519	0.67	—		0.0021	0.0005	0.000001
2,3',4,4',5-PentaCB (#118)	=	0.051	40.4	—		0.124	0.0001	0.00001
2',3,4,4',5-PentaCB (#123)	=	0.0548	0.971	—		0.00298	0.0001	0.0000003
3,3',4,4',5-PentaCB (#126)	M	0.0564	0.0906	0.0906	NDR	0.000278	0.1	0.00003
2,3,3',4,4',5-HexaCB (#156)	=	0.0414	0.905	—	C	0.00278	0.0005	0.000001
2,3,3',4,4',5'-HexaCB (#157)		—	—	—	C156	—	0.0005	
2,3',4,4',5,5'-HexaCB (#167)	=	0.0314	0.635	—		0.00195	0.00001	0.00000002
3,3',4,4',5,5'-HexaCB (#169)	<	0.0341	—	—	U	0.00005	0.01	0.0000005
2,2',3,3',4,4',5-HeptaCB (#170)	=	0.0112	0.362	—		0.00111	—	
2,2',3,4,4',5,5'-HeptaCB (#180)	=	0.00988	0.903	—	C	0.00277	—	
2,3,3',4,4',5,5'-HeptaCB (#189)	<	0.00536	0.024	—	U	0.000037	0.0001	0.000000004
DecaCB (#209)	=	0.0127	0.0284	—	R	—	—	
Additional PCB Congeners								
2,4'-DiCB (#8)	=	0.0388	500	—		1.5		
2,2',5-TriCB (#18)	=	0.019	1290	—	C	3.96		
2,3,3',-TriCB (#20)	=	0.234	1130	—	C	3.47		
2,4,4'-TriCB (#28)		—	—	—	C20	—		
2,2',3,5'-TetraCB (#44)	=	0.0145	602	—	C	1.85		
2,2',5,5'-TetraCB (#52)	=	0.0135	1110	—		3.4		
2,3',4,4'-TetraCB (#66)	=	0.303	85.9	—		0.263		
2,2',3,4',5-PentaCB (#90)	=	0.0362	116	—	C	0.356		
2,2',4,5,5'-PentaCB (#101)		—	—	—	C90	—		
2,2',3,3',4,4'-HexaCB (#128)	=	0.0389	1.67	—	C	0.00512		
2,2',3,3',4,5-HexaCB (#129)	=	0.0364	13.8	—	C	0.0423		
2,2',3,4,4',5'-HexaCB (#138)		—	—	—	C129	—		
2,2',4,4',5,5'-HexaCB (#153)	=	0.0333	21.6	—	C	0.0663		
2,2',3,4',5,5',6-HeptaCB (#187)	=	0.00908	1.31	—		0.00402		
2,2',3,3',4,4',5,6-OctaCB (#195)	=	0.00706	0.0323	—		0.0000991		
2,2',3,3',4,4',5,5',6-NonaCB (#206)	M	0.0341	0.0572	0.0572	NDR	0.000175		
PCB Homologue Groups								
Total MonoCB	=	0.0527	32.6	—		0.100		
Total DiCB	=	0.0776	2180	—		6.69		
Total TriCB	=	0.308	7050	—		21.6		
Total TetraCB	=	0.395	3890	—		11.9		
Total PentaCB	=	0.0564	831	—		2.55		
Total HexaCB	=	0.0483	121	—		0.371		
Total HeptaCB	=	0.0147	5.15	—		0.0158		
Total OctaCB	=	0.0153	0.139	—		0.000426		
Total NonaCB	<	0.0341	—	—	U	0.00005		
DecaCB (#209)	=	0.0127	0.0284	—	R	—		
Homologue Groups Sum			**14100**			**43**		

* M indicates all or a portion of the result has a calculated EMPC value.
† TEQ is the product of the concentration and its TEF value.

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Sample Event Date	8/15/2000	**Sample Number**	08150002B	**Prevailing Wind Direction**	—
Lab Sample ID	L2694-8	**Preliminary Flow (slpm)**	0	**Average Temperature (°F)**	—
Station ID/Name	02/E Side of CDF	**Run Time (hours)**	0	**Average Solar Radiation (w ·m²)**	—
Sample Type	Field Blank	**Sample Volume (m³)**	0	**Total Precipitation (inches H_2O)**	—

Analyte	Detsym	Detection Limit (ng)	Mass (ng)	EMPC*	QFlag	Concentration ng	TEF	TEQ† ng
PCB Congeners								
3,3',4,4'-TetraCB (#77)	<	0.015	—	—	U	—		
3,4,5,4'-TetraCB (#81)	<	0.0143	—	—	U	—		
2,3,3',4,4'-PentaCB (#105)	<	0.0127	—	—	U	—		
2,3,4,4',5-PentaCB (#114)	<	0.0116	—	—	U	—		
2,3',4,4',5-PentaCB (#118)	=	0.0121	0.0435	—		—		
2',3,4,4',5-PentaCB (#123)	<	0.0123	—	—	U	—		
3,3',4,4',5-PentaCB (#126)	<	0.0126	—	—	ND	—		
2,3,3',4,4',5-HexaCB (#156)	M	0.00595	0.0104	0.0104	C NDR	—		
2,3,3',4,4',5'-HexaCB (#157)		—	—	—	C156	—		
2,3',4,4',5,5'-HexaCB (#167)	<	0.00452	—	—	U	—		
3,3',4,4',5,5'-HexaCB (#169)	<	0.00481	—	—	U	—		
2,2',3,3',4,4',5-HeptaCB (#170)	<	0.00879	—	—	U	—		
2,2',3,4,4',5,5'-HeptaCB (#180)	M	0.00806	0.0104	0.0104	C NDR	—		
2,3,3',4,4',5,5'-HeptaCB (#189)	<	0.0033	—	—	U	—		
DecaCB (#209)	M	0.00825	0.0122	0.0122	R	—		
Additional PCB Congeners								
2,4'-DiCB (#8)	=	0.0687	0.215	—		—		
2,2',5-TriCB (#18)	=	0.0478	0.334	—	C	—		
2,3,3',-TriCB (#20)	=	0.0248	0.168	—	C	—		
2,4,4'-TriCB (#28)		—	—	—	C20	—		
2,2',3,5'-TetraCB (#44)	=	0.0166	0.142	—	C	—		
2,2',5,5'-TetraCB (#52)	=	0.0153	0.153	—		—		
2,3',4,4'-TetraCB (#66)	=	0.0113	0.0301	—		—		
2,2',3,4',5-PentaCB (#90)	=	0.0144	0.0805	—	C	—		
2,2',4,5,5'-PentaCB (#101)		—	—	—	C90	—		
2,2',3,3',4,4'-HexaCB (#128)	<	0.00558	—	—	U	—		
2,2',3,3',4,5-HexaCB (#129)	=	0.00531	0.0351	—	C	—		
2,2',3,4,4',5'-HexaCB (#138)		—	—	—	C129	—		
2,2',4,4',5,5'-HexaCB (#153)	=	0.00472	0.0415	—	C	—		
2,2',3,4',5,5',6-HeptaCB (#187)	<	0.0074	—	—	U	—		
2,2',3,3',4,4',5,6-OctaCB (#195)	<	0.00526	—	—	U	—		
2,2',3,3',4,4',5,5',6-NonaCB (#206)	<	0.0183	—	—	U	—		
PCB Homologue Groups								
Total MonoCB	<	0.0222	—	—	U	—		
Total DiCB	=	0.0991	0.387	—		—		
Total TriCB	=	0.0633	1.14	—		—		
Total TetraCB	=	0.0206	0.583	—		—		
Total PentaCB	=	0.0224	0.428	—		—		
Total HexaCB	=	0.0097	0.117	—		—		
Total HeptaCB	<	0.0119	—	—	U	—		
Total OctaCB	<	0.0147	—	—	U	—		
Total NonaCB	<	0.0183	—	—	U	—		
DecaCB (#209)	M	0.00825	0.0122	0.0122	R	—		
Homologue Groups Sum			**2.69**					

* M indicates all or a portion of the result has a calculated EMPC value.
† TEQ is the product of the concentration and its TEF value.

Sample Event Date	8/15/2000	**Sample Number**	08150003	**Prevailing Wind Direction**	NNE
Lab Sample ID	L2694-2	**Preliminary Flow (slpm)**	225	**Average Temperature (°F)**	68.6
Station ID/Name	03/N Side of CDF	**Run Time (hours)**	24.19	**Average Solar Radiation (w·m²)**	71.7
Sample Type	Normal Sample	**Sample Volume (m³)**	326.565	**Total Precipitation (inches H_2O)**	0.32

Analyte	Detsym	Detection Limit (ng)	Mass (ng)	EMPC*	QFlag	Concentration (ng/m³)	TEF	TEQ† (ng/m³)
PCB Congeners								
3,3',4,4'-TetraCB (#77)	=	0.862	13.4	—		0.0410	0.0001	0.000004
3,4,5,4'-TetraCB (#81)	<	0.802	—	—	U	0.001	0.0001	0.0000001
2,3,3',4,4'-PentaCB (#105)	=	0.221	18.8	—		0.0576	0.0001	0.000006
2,3,4,4',5-PentaCB (#114)	=	0.214	2.15	—		0.00658	0.0005	0.000003
2,3',4,4',5-PentaCB (#118)	=	0.202	128	—		0.392	0.0001	0.00004
2',3,4,4',5-PentaCB (#123)	=	0.224	3.07	—		0.00940	0.0001	0.0000009
3,3',4,4',5-PentaCB (#126)	M	0.227	0.333	0.333	NDR	0.00102	0.1	0.0001
2,3,3',4,4',5-HexaCB (#156)	=	0.14	3.43	—	C	0.0105	0.0005	0.000005
2,3,3',4,4',5'-HexaCB (#157)		—	—	—	C156	—	0.0005	
2,3',4,4',5,5'-HexaCB (#167)	=	0.103	2.13	—		0.00652	0.00001	0.00000007
3,3',4,4',5,5'-HexaCB (#169)	<	0.119	—	—	U	0.0002	0.01	0.000002
2,2',3,3',4,4',5-HeptaCB (#170)	=	0.0102	1.31	—		0.00401	—	
2,2',3,4,4',5,5'-HeptaCB (#180)	=	0.00899	3.24	—	C	0.00992	—	
2,3,3',4,4',5,5'-HeptaCB (#189)	=	0.00416	0.0768	—		0.000235	0.0001	0.00000002
DecaCB (#209)	M	0.0137	0.072	0.072	R	—	—	
Additional PCB Congeners								
2,4'-DiCB (#8)	=	0.164	1960	—		6		
2,2',5-TriCB (#18)	=	0.0213	2900	—	C	8.9		
2,3,3',-TriCB (#20)	=	0.961	3240	—	C	9.92		
2,4,4'-TriCB (#28)		—	—	—	C20	—		
2,2',3,5'-TetraCB (#44)	=	0.0184	1440	—	C	4.41		
2,2',5,5'-TetraCB (#52)	=	0.0171	2490	—		7.62		
2,3',4,4'-TetraCB (#66)	=	0.68	213	—		0.652		
2,2',3,4',5-PentaCB (#90)	=	0.116	292	—	C	0.894		
2,2',4,5,5'-PentaCB (#101)		—	—	—	C90	—		
2,2',3,3',4,4'-HexaCB (#128)	=	0.129	6.11	—	C	0.0187		
2,2',3,3',4,5-HexaCB (#129)	=	0.121	50.6	—	C	0.155		
2,2',3,4,4',5'-HexaCB (#138)		—	—	—	C129	—		
2,2',4,4',5,5'-HexaCB (#153)	=	0.111	77.5	—	C	0.237		
2,2',3,4',5,5',6-HeptaCB (#187)	=	0.00827	4.44	—		0.0136		
2,2',3,3',4,4',5,6-OctaCB (#195)	M	0.00898	0.135	0.135	NDR	0.000413		
2,2',3,3',4,4',5,5',6-NonaCB (#206)	M	0.0304	0.161	0.161	NDR	0.000493		
PCB Homologue Groups								
Total MonoCB	=	0.0288	182	—		0.557		
Total DiCB	=	0.116	7110	—		21.8		
Total TriCB	=	0.36	18000	—		55		
Total TetraCB	=	0.862	9060	—		27.7		
Total PentaCB	=	0.227	2110	—		6.46		
Total HexaCB	=	0.161	408	—		1.25		
Total HeptaCB	=	0.0133	21	—		0.064		
Total OctaCB	=	0.0179	1.34	—		0.00410		
Total NonaCB	=	0.0304	0.135	—		0.000413		
DecaCB (#209)	M	0.0137	0.072	0.072	R	—		
Homologue Groups Sum			**36900**			**110**		

* M indicates all or a portion of the result has a calculated EMPC value.
† TEQ is the product of the concentration and its TEF value.

Sample Event Date	8/15/2000	**Sample Number**	08150003D	**Prevailing Wind Direction**	NNE
Lab Sample ID	L2694-3	**Preliminary Flow (slpm)**	225	**Average Temperature (°F)**	68.6
Station ID/Name	03D/N Side of CDF Dup	**Run Time (hours)**	24.17	**Average Solar Radiation (w -m²)**	71.7
Sample Type	Field Duplicate	**Sample Volume (m³)**	326.295	**Total Precipitation (inches H_2O)**	0.32

Analyte	Detsym	Detection Limit (ng)	Mass (ng)	EMPC*	QFlag	Concentration (ng/m³)	TEF	TEQ† (ng/m³)
PCB Congeners								
3,3',4,4'-TetraCB (#77)	=	0.439	8.75	—		0.0268	0.0001	0.000003
3,4,5,4'-TetraCB (#81)	M	0.404	0.42	0.42	NDR	0.0013	0.0001	0.0000001
2,3,3',4,4'-PentaCB (#105)	=	0.327	15.2	—		0.0466	0.0001	0.000005
2,3,4,4',5-PentaCB (#114)	=	0.301	1.35	—		0.00414	0.0005	0.000002
2,3',4,4',5-PentaCB (#118)	=	0.293	94.2	—		0.289	0.0001	0.00003
2',3,4,4',5-PentaCB (#123)	=	0.324	2.16	—		0.00662	0.0001	0.0000007
3,3',4,4',5-PentaCB (#126)	<	0.332	—	—	U	0.0005	0.1	0.00005
2,3,3',4,4',5-HexaCB (#156)	=	0.134	2.61	—	C	0.00800	0.0005	0.000004
2,3,3',4,4',5'-HexaCB (#157)		—	—	—	C156	—	0.0005	
2,3',4,4',5,5'-HexaCB (#167)	=	0.0945	1.58	—		0.00484	0.00001	0.00000005
3,3',4,4',5,5'-HexaCB (#169)	<	0.111	—	—	U	0.0002	0.01	0.000002
2,2',3,3',4,4',5-HeptaCB (#170)	=	0.014	0.967	—		0.00296	—	
2,2',3,4,4',5,5'-HeptaCB (#180)	=	0.0124	2.32	—	C	0.00711	—	
2,3,3',4,4',5,5'-HeptaCB (#189)	=	0.00467	0.0439	—		0.000135	0.0001	0.00000001
DecaCB (#209)	M	0.013	0.0337	0.0337	R	—	—	
Additional PCB Congeners								
2,4'-DiCB (#8)	=	0.0539	1090	—		3.34		
2,2',5-TriCB (#18)	=	0.0325	2120	—	C	6.5		
2,3,3',-TriCB (#20)	=	0.478	2400	—	C	7.4		
2,4,4'-TriCB (#28)		—	—	—	C20	—		
2,2',3,5'-TetraCB (#44)	=	0.0271	1070	—	C	3.28		
2,2',5,5'-TetraCB (#52)	=	0.0252	1830	—		5.61		
2,3',4,4'-TetraCB (#66)	=	0.339	153	—		0.469		
2,2',3,4',5-PentaCB (#90)	=	0.0888	213	—	C	0.653		
2,2',4,5,5'-PentaCB (#101)		—	—	—	C90	—		
2,2',3,3',4,4'-HexaCB (#128)	=	0.122	5.05	—	C	0.0155		
2,2',3,3',4,5-HexaCB (#129)	=	0.114	40.8	—	C	0.125		
2,2',3,4,4',5'-HexaCB (#138)		—	—	—	C129	—		
2,2',4,4',5,5'-HexaCB (#153)	=	0.104	57	—	C	0.17		
2,2',3,4',5,5',6-HeptaCB (#187)	=	0.0114	3.3	—		0.010		
2,2',3,3',4,4',5,6-OctaCB (#195)	M	0.00679	0.0874	0.0874	NDR	0.000268		
2,2',3,3',4,4',5,5',6-NonaCB (#206)	=	0.0352	0.0919	—		0.000282		
PCB Homologue Groups								
Total MonoCB	=	0.0739	112	—		0.343		
Total DiCB	=	0.103	4400	—		13		
Total TriCB	=	0.279	13000	—		40		
Total TetraCB	=	0.439	6700	—		21		
Total PentaCB	=	0.332	1230	—		3.77		
Total HexaCB	=	0.152	305	—		0.935		
Total HeptaCB	=	0.0184	16.7	—		0.0512		
Total OctaCB	=	0.026	0.962	—		0.00295		
Total NonaCB	=	0.0352	0.0919	—		0.000282		
DecaCB (#209)	M	0.013	0.0337	0.0337	R	—		
Homologue Groups Sum			**25800**			**79**		

* M indicates all or a portion of the result has a calculated EMPC value.
† TEQ is the product of the concentration and its TEF value.

Sample Event Date	8/15/2000	**Sample Number**	08150006	**Prevailing Wind Direction**	NNE
Lab Sample ID	L2694-4	**Preliminary Flow (slpm)**	225	**Average Temperature (°F)**	68.6
Station ID/Name	06/W Side of CDF	**Run Time (hours)**	24.15	**Average Solar Radiation (w·m²)**	71.7
Sample Type	Normal Sample	**Sample Volume (m³)**	326.025	**Total Precipitation (inches H_2O)**	0.32

Analyte	Detsym	Detection Limit (ng)	Mass (ng)	EMPC*	QFlag	Concentration (ng/m³)	TEF	TEQ† (ng/m³)
PCB Congeners								
3,3',4,4'-TetraCB (#77)	=	0.925	31.4	—		0.0963	0.0001	0.00001
3,4,5,4'-TetraCB (#81)	=	0.859	1.03	—		0.00316	0.0001	0.0000003
2,3,3',4,4'-PentaCB (#105)	=	0.193	26.2	—		0.0804	0.0001	0.000008
2,3,4,4',5-PentaCB (#114)	=	0.174	2.54	—		0.00779	0.0005	0.000004
2,3',4,4',5-PentaCB (#118)	=	0.169	152	—		0.466	0.0001	0.00005
2',3,4,4',5-PentaCB (#123)	=	0.189	4.28	—		0.0131	0.0001	0.000001
3,3',4,4',5-PentaCB (#126)	=	0.193	0.665	—		0.00204	0.1	0.0002
2,3,3',4,4',5-HexaCB (#156)	=	0.152	3.96	—	C	0.0121	0.0005	0.000006
2,3,3',4,4',5'-HexaCB (#157)		—	—	—	C156	—	0.0005	
2,3',4,4',5,5'-HexaCB (#167)	=	0.11	2.4	—		0.0074	0.00001	0.00000007
3,3',4,4',5,5'-HexaCB (#169)	<	0.122	—	—	U	0.0002	0.01	0.000002
2,2',3,3',4,4',5-HeptaCB (#170)	=	0.0135	1.42	—		0.00436	—	
2,2',3,4,4',5,5'-HeptaCB (#180)	=	0.0119	3.49	—	C	0.0107	—	
2,3,3',4,4',5,5'-HeptaCB (#189)	<	0.00395	0.059	—	U	0.000090	0.0001	0.000000009
DecaCB (#209)	M	0.0117	0.0293	0.0293	R	—	—	
Additional PCB Congeners								
2,4'-DiCB (#8)	=	0.204	1830	—		5.61		
2,2',5-TriCB (#18)	=	0.0262	2360	—	C	7.24		
2,3,3',-TriCB (#20)	=	0.324	2650	—	C	8.13		
2,4,4'-TriCB (#28)		—	—	—	C20	—		
2,2',3,5'-TetraCB (#44)	=	0.027	1660	—	C	5.09		
2,2',5,5'-TetraCB (#52)	=	0.0251	2350	—		7.21		
2,3',4,4'-TetraCB (#66)	=	0.716	306	—		0.939		
2,2',3,4',5-PentaCB (#90)	=	0.0771	372	—	C	1.14		
2,2',4,5,5'-PentaCB (#101)		—	—	—	C90	—		
2,2',3,3',4,4'-HexaCB (#128)	=	0.138	7.81	—	C	0.0240		
2,2',3,3',4,5-HexaCB (#129)	=	0.13	61	—	C	0.19		
2,2',3,4,4',5'-HexaCB (#138)		—	—	—	C129	—		
2,2',4,4',5,5'-HexaCB (#153)	=	0.118	87.5	—	C	0.268		
2,2',3,4',5,5',6-HeptaCB (#187)	=	0.0109	4.56	—		0.0140		
2,2',3,3',4,4',5,6-OctaCB (#195)	M	0.00626	0.133	0.133	NDR	0.000408		
2,2',3,3',4,4',5,5',6-NonaCB (#206)	M	0.0359	0.101	0.101	NDR	0.000310		
PCB Homologue Groups								
Total MonoCB	=	0.0695	205	—		0.629		
Total DiCB	=	0.0931	6620	—		20.3		
Total TriCB	=	0.285	15400	—		47.2		
Total TetraCB	=	0.925	9950	—		30.5		
Total PentaCB	=	0.193	2730	—		8.37		
Total HexaCB	=	0.172	491	—		1.51		
Total HeptaCB	=	0.0177	23.8	—		0.0730		
Total OctaCB	=	0.0213	0.724	—		0.00222		
Total NonaCB	<	0.0359	—	—	U	0.00006		
DecaCB (#209)	M	0.0117	0.0293	0.0293	R	—		
Homologue Groups Sum			**35400**			**110**		

* M indicates all or a portion of the result has a calculated EMPC value.
† TEQ is the product of the concentration and its TEF value.

Sample Event Date	8/15/2000	**Sample Number**	08150009	**Prevailing Wind Direction**	NNE
Lab Sample ID	L2694-6	**Preliminary Flow (slpm)**	225	**Average Temperature (°F)**	68.6
Station ID/Name	09/Coffin Avenue	**Run Time (hours)**	24.14	**Average Solar Radiation (w·m²)**	71.7
Sample Type	Normal Sample	**Sample Volume (m³)**	325.89	**Total Precipitation (inches H_2O)**	0.32

Analyte	Detsym	Detection Limit (ng)	Mass (ng)	EMPC*	QFlag	Concentration (ng/m³)	TEF	TEQ† (ng/m³)
PCB Congeners								
3,3',4,4'-TetraCB (#77)	=	0.467	4.5	—		0.014	0.0001	0.000001
3,4,5,4'-TetraCB (#81)	<	0.438	—	—	U	0.0007	0.0001	0.00000007
2,3,3',4,4'-PentaCB (#105)	=	0.153	7.36	—		0.0226	0.0001	0.000002
2,3,4,4',5-PentaCB (#114)	=	0.155	0.76	—		0.0023	0.0005	0.000001
2,3',4,4',5-PentaCB (#118)	=	0.143	45.7	—		0.140	0.0001	0.00001
2',3,4,4',5-PentaCB (#123)	=	0.16	1.2	—		0.0037	0.0001	0.0000004
3,3',4,4',5-PentaCB (#126)	<	0.171	—	—	U	0.0003	0.1	0.00003
2,3,3',4,4',5-HexaCB (#156)	=	0.133	1.38	—	C	0.00423	0.0005	0.000002
2,3,3',4,4',5'-HexaCB (#157)		—	—	—	C156	—	0.0005	
2,3',4,4',5,5'-HexaCB (#167)	=	0.0973	0.851	—		0.00261	0.00001	0.00000003
3,3',4,4',5,5'-HexaCB (#169)	<	0.116	—	—	U	0.0002	0.01	0.000002
2,2',3,3',4,4',5-HeptaCB (#170)	=	0.0367	1.02	—		0.00313	—	
2,2',3,4,4',5,5'-HeptaCB (#180)	=	0.0291	2.42	—	C	0.00743	—	
2,3,3',4,4',5,5'-HeptaCB (#189)	M	0.0204	0.0775	0.0775	NDR	0.000238	0.0001	0.00000002
DecaCB (#209)	M	0.0225	0.0547	0.0547	R	—	—	
Additional PCB Congeners								
2,4'-DiCB (#8)	=	0.0994	497	—		1.53		
2,2',5-TriCB (#18)	=	0.068	1130	—	C	3.47		
2,3,3',-TriCB (#20)	=	0.382	1190	—	C	3.65		
2,4,4'-TriCB (#28)		—	—	—	C20	—		
2,2',3,5'-TetraCB (#44)	=	0.0315	436	—	C	1.34		
2,2',5,5'-TetraCB (#52)	=	0.0329	837	—		2.57		
2,3',4,4'-TetraCB (#66)	=	0.401	96.1	—		0.295		
2,2',3,4',5-PentaCB (#90)	=	0.0853	141	—	C	0.433		
2,2',4,5,5'-PentaCB (#101)		—	—	—	C90	—		
2,2',3,3',4,4'-HexaCB (#128)	=	0.121	2.22	—	C	0.00681		
2,2',3,3',4,5-HexaCB (#129)	=	0.12	19	—	C	0.058		
2,2',3,4,4',5'-HexaCB (#138)		—	—	—	C129	—		
2,2',4,4',5,5'-HexaCB (#153)	=	0.11	28.8	—	C	0.0884		
2,2',3,4',5,5',6-HeptaCB (#187)	=	0.0308	3.47	—		0.0106		
2,2',3,3',4,4',5,6-OctaCB (#195)	=	0.0265	0.0698	—		0.000214		
2,2',3,3',4,4',5,5',6-NonaCB (#206)	=	0.0716	0.179	—		0.000549		
PCB Homologue Groups								
Total MonoCB	=	0.0468	40.1	—		0.123		
Total DiCB	=	0.15	1870	—		5.74		
Total TriCB	=	0.474	6950	—		21.3		
Total TetraCB	=	0.467	3200	—		9.8		
Total PentaCB	=	0.171	939	—		2.88		
Total HexaCB	=	0.16	167	—		0.512		
Total HeptaCB	=	0.0383	14.2	—		0.0436		
Total OctaCB	=	0.0384	1.43	—		0.00439		
Total NonaCB	=	0.0716	0.273	—		0.000838		
DecaCB (#209)	M	0.0225	0.0547	0.0547	R	—		
Homologue Groups Sum			**13200**			**40**		

* M indicates all or a portion of the result has a calculated EMPC value.
† TEQ is the product of the concentration and its TEF value.

Sample Event Date	8/15/2000	**Sample Number**	08150017	**Prevailing Wind Direction**	NNE
Lab Sample ID	L2694-5	**Preliminary Flow (slpm)**	225	**Average Temperature (°F)**	68.5
Station ID/Name	17/S Side of CDF	**Run Time (hours)**	24.13	**Average Solar Radiation (w ·m²)**	67.4
Sample Type	Normal Sample	**Sample Volume (m³)**	325.755	**Total Precipitation (inches H_2O)**	0.32

Analyte	Detsym	Detection Limit (ng)	Mass (ng)	EMPC*	QFlag	Concentration (ng/m³)	TEF	TEQ† (ng/m³)
PCB Congeners								
3,3',4,4'-TetraCB (#77)	=	3.86	24.1	—		0.0740	0.0001	0.000007
3,4,5,4'-TetraCB (#81)	<	3.46	—	—	U	0.005	0.0001	0.0000005
2,3,3',4,4'-PentaCB (#105)	=	0.431	27.8	—		0.0853	0.0001	0.000009
2,3,4,4',5-PentaCB (#114)	=	0.416	4.5	—		0.014	0.0005	0.000007
2,3',4,4',5-PentaCB (#118)	=	0.39	237	—		0.728	0.0001	0.00007
2',3,4,4',5-PentaCB (#123)	=	0.436	6.18	—		0.0190	0.0001	0.000002
3,3',4,4',5-PentaCB (#126)	=	0.466	0.595	—		0.00183	0.1	0.0002
2,3,3',4,4',5-HexaCB (#156)	=	0.231	7.24	—	C	0.0222	0.0005	0.00001
2,3,3',4,4',5'-HexaCB (#157)		—	—	—	C156	—	0.0005	
2,3',4,4',5,5'-HexaCB (#167)	=	0.172	4.09	—		0.0126	0.00001	0.0000001
3,3',4,4',5,5'-HexaCB (#169)	<	0.191	—	—	U	0.0003	0.01	0.000003
2,2',3,3',4,4',5-HeptaCB (#170)	=	0.00988	3.43	—		0.0105	—	
2,2',3,4,4',5,5'-HeptaCB (#180)	=	0.00872	7.17	—	C	0.0220	—	
2,3,3',4,4',5,5'-HeptaCB (#189)	=	0.004	0.158	—		0.000485	0.0001	0.00000005
DecaCB (#209)	=	0.0129	0.0409	—	R	—	—	
Additional PCB Congeners								
2,4'-DiCB (#8)	=	0.343	10500	—		32.2		
2,2',5-TriCB (#18)	=	0.348	27800	—	C	85.3		
2,3,3',-TriCB (#20)	=	1.91	18800	—	C	57.7		
2,4,4'-TriCB (#28)		—	—	—	C20	—		
2,2',3,5'-TetraCB (#44)	=	0.13	5400	—	C	17		
2,2',5,5'-TetraCB (#52)	=	0.12	8310	—		25.5		
2,3',4,4'-TetraCB (#66)	=	2.97	642	—		1.97		
2,2',3,4',5-PentaCB (#90)	=	0.341	903	—	C	2.77		
2,2',4,5,5'-PentaCB (#101)		—	—	—	C90	—		
2,2',3,3',4,4'-HexaCB (#128)	=	0.214	10.8	—	C	0.0332		
2,2',3,3',4,5-HexaCB (#129)	=	0.201	89	—	C	0.27		
2,2',3,4,4',5'-HexaCB (#138)		—	—	—	C129	—		
2,2',4,4',5,5'-HexaCB (#153)	=	0.183	157	—	C	0.482		
2,2',3,4',5,5',6-HeptaCB (#187)	=	0.00801	9.72	—		0.0298		
2,2',3,3',4,4',5,6-OctaCB (#195)	=	0.00805	0.251	—		0.000771		
2,2',3,3',4,4',5,5',6-NonaCB (#206)	=	0.027	0.22	—		0.00068		
PCB Homologue Groups								
Total MonoCB	=	0.0808	940	—		2.9		
Total DiCB	=	0.564	37600	—		115		
Total TriCB	=	2.31	118000	—		362		
Total TetraCB	=	3.86	33500	—		103		
Total PentaCB	=	0.494	6680	—		20.5		
Total HexaCB	=	0.266	926	—		2.84		
Total HeptaCB	=	0.0129	48.4	—		0.149		
Total OctaCB	=	0.0158	2.34	—		0.00718		
Total NonaCB	=	0.027	0.485	—		0.00149		
DecaCB (#209)	=	0.0129	0.0409	—	R	—		
Homologue Groups Sum			**198000**			**610**		

* M indicates all or a portion of the result has a calculated EMPC value.
† TEQ is the product of the concentration and its TEF value.

Sample Event Date	8/15/2000	**Sample Number**	08150027	**Prevailing Wind Direction**	NNE
Lab Sample ID	L2694-7	**Preliminary Flow (slpm)**	225	**Average Temperature (°F)**	68.6
Station ID/Name	27/Francis Street	**Run Time (hours)**	24.17	**Average Solar Radiation (w·m²)**	71.7
Sample Type	Normal Sample	**Sample Volume (m³)**	326.295	**Total Precipitation (inches H_2O)**	0.32

Analyte	Detsym	Detection Limit (ng)	Mass (ng)	EMPC*	QFlag	Concentration (ng/m³)	TEF	TEQ† (ng/m³)
PCB Congeners								
3,3',4,4'-TetraCB (#77)	=	0.0908	1.99	—		0.00610	0.0001	0.0000006
3,4,5,4'-TetraCB (#81)	<	0.0858	—	—	U	0.0001	0.0001	0.00000001
2,3,3',4,4'-PentaCB (#105)	=	0.0313	3.47	—		0.0106	0.0001	0.000001
2,3,4,4',5-PentaCB (#114)	=	0.0318	0.30	—		0.00092	0.0005	0.0000005
2,3',4,4',5-PentaCB (#118)	=	0.0292	16.9	—		0.0518	0.0001	0.000005
2',3,4,4',5-PentaCB (#123)	=	0.0314	0.408	—		0.00125	0.0001	0.0000001
3,3',4,4',5-PentaCB (#126)	=	0.0376	0.0661	—		0.000203	0.1	0.00002
2,3,3',4,4',5-HexaCB (#156)	=	0.0298	0.616	—	C	0.00189	0.0005	0.0000009
2,3,3',4,4',5'-HexaCB (#157)		—	—	—	C156	—	0.0005	
2,3',4,4',5,5'-HexaCB (#167)	=	0.0227	0.334	—		0.00102	0.00001	0.00000001
3,3',4,4',5,5'-HexaCB (#169)	<	0.0262	—	—	U	0.00004	0.01	0.0000004
2,2',3,3',4,4',5-HeptaCB (#170)	=	0.00816	0.369	—		0.00113	—	
2,2',3,4,4',5,5'-HeptaCB (#180)	=	0.00647	1.01	—	C	0.00310	—	
2,3,3',4,4',5,5'-HeptaCB (#189)	M	0.00342	0.0149	0.0149	NDR	0.0000457	0.0001	0.000000005
DecaCB (#209)	=	0.00535	0.0188	—	R	—	—	
Additional PCB Congeners								
2,4'-DiCB (#8)	=	0.0134	161	—		0.493		
2,2',5-TriCB (#18)	=	0.0098	293	—	C	0.898		
2,3,3',-TriCB (#20)	=	0.0587	352	—	CE	1.08		
2,4,4'-TriCB (#28)		—	—	—	C20	—		
2,2',3,5'-TetraCB (#44)	=	0.00728	148	—	C	0.454		
2,2',5,5'-TetraCB (#52)	=	0.00759	284	—		0.870		
2,3',4,4'-TetraCB (#66)	=	0.0807	36.2	—		0.111		
2,2',3,4',5-PentaCB (#90)	=	0.0203	45.4	—	C	0.139		
2,2',4,5,5'-PentaCB (#101)		—	—	—	C90	—		
2,2',3,3',4,4'-HexaCB (#128)	=	0.0271	1.1	—	C	0.0034		
2,2',3,3',4,5-HexaCB (#129)	=	0.0269	8.72	—	C	0.0267		
2,2',3,4,4',5'-HexaCB (#138)		—	—	—	C129	—		
2,2',4,4',5,5'-HexaCB (#153)	=	0.0247	11.8	—	C	0.0362		
2,2',3,4',5,5',6-HeptaCB (#187)	=	0.00685	1.51	—		0.00463		
2,2',3,3',4,4',5,6-OctaCB (#195)	=	0.00516	0.0496	—		0.000152		
2,2',3,3',4,4',5,5',6-NonaCB (#206)	=	0.0119	0.112	—		0.000343		
PCB Homologue Groups								
Total MonoCB	=	0.00888	9.36	—		0.0287		
Total DiCB	=	0.0231	599	—		1.84		
Total TriCB	=	0.0687	1950	—		5.98		
Total TetraCB	=	0.0908	1090	—		3.34		
Total PentaCB	=	0.0376	304	—		0.932		
Total HexaCB	=	0.0359	70.2	—		0.215		
Total HeptaCB	=	0.00852	5.96	—		0.0183		
Total OctaCB	=	0.00678	1.49	—		0.00457		
Total NonaCB	=	0.0119	0.286	—		0.000877		
DecaCB (#209)	=	0.00535	0.0188	—	R	—		
Homologue Groups Sum			**4030**			**12**		

* M indicates all or a portion of the result has a calculated EMPC value.
† TEQ is the product of the concentration and its TEF value.

Sample Event Date	8/16/2000	**Sample Number**	08160002	**Prevailing Wind Direction**	NW
Lab Sample ID	L2699-1	**Preliminary Flow (slpm)**	225	**Average Temperature (°F)**	70.3
Station ID/Name	02/E Side of CDF	**Run Time (hours)**	23.35	**Average Solar Radiation (w -m²)**	134
Sample Type	Normal Sample	**Sample Volume (m³)**	315.225	**Total Precipitation (inches H_2O)**	0.040

Analyte	Detsym	Detection Limit (ng)	Mass (ng)	EMPC*	QFlag	Concentration (ng/m³)	TEF	TEQ† (ng/m³)
PCB Congeners								
3,3',4,4'-TetraCB (#77)	=	0.49	8.75	—		0.0278	0.0001	0.000003
3,4,5,4'-TetraCB (#81)	<	0.459	—	—	U	0.0007	0.0001	0.00000007
2,3,3',4,4'-PentaCB (#105)	=	0.246	16.1	—		0.0511	0.0001	0.000005
2,3,4,4',5-PentaCB (#114)	=	0.228	1.46	—		0.00463	0.0005	0.000002
2,3',4,4',5-PentaCB (#118)	=	0.225	103	—		0.327	0.0001	0.00003
2',3,4,4',5-PentaCB (#123)	=	0.243	2.53	—		0.00803	0.0001	0.0000008
3,3',4,4',5-PentaCB (#126)	=	0.257	0.389	—		0.00123	0.1	0.0001
2,3,3',4,4',5-HexaCB (#156)	=	0.166	3.53	—	C	0.0112	0.0005	0.000006
2,3,3',4,4',5'-HexaCB (#157)		—	—	—	C156	—	0.0005	
2,3',4,4',5,5'-HexaCB (#167)	=	0.125	2.2	—		0.0070	0.00001	0.00000007
3,3',4,4',5,5'-HexaCB (#169)	<	0.136	—	—	U	0.0002	0.01	0.000002
2,2',3,3',4,4',5-HeptaCB (#170)	=	0.00838	1.15	—		0.00365	—	
2,2',3,4,4',5,5'-HeptaCB (#180)	=	0.00739	3.1	—	C	0.0098	—	
2,3,3',4,4',5,5'-HeptaCB (#189)	<	0.00527	0.0468	—	U	0.0000742	0.0001	0.000000007
DecaCB (#209)	M	0.0129	0.093	0.093	R	—	—	
Additional PCB Congeners								
2,4'-DiCB (#8)	=	0.064	1490	—		4.73		
2,2',5-TriCB (#18)	=	0.0214	2160	—	C	6.85		
2,3,3',-TriCB (#20)	=	0.784	2280	—	C	7.23		
2,4,4'-TriCB (#28)		—	—	—	C20	—		
2,2',3,5'-TetraCB (#44)	=	0.0115	1100	—	C	3.5		
2,2',5,5'-TetraCB (#52)	=	0.0107	1760	—		5.58		
2,3',4,4'-TetraCB (#66)	=	0.382	164	—		0.520		
2,2',3,4',5-PentaCB (#90)	=	0.0814	249	—	C	0.790		
2,2',4,5,5'-PentaCB (#101)		—	—	—	C90	—		
2,2',3,3',4,4'-HexaCB (#128)	=	0.154	6.04	—	C	0.0192		
2,2',3,3',4,5-HexaCB (#129)	=	0.144	47.5	—	C	0.151		
2,2',3,4,4',5'-HexaCB (#138)		—	—	—	C129	—		
2,2',4,4',5,5'-HexaCB (#153)	=	0.131	68.8	—	C	0.218		
2,2',3,4',5,5',6-HeptaCB (#187)	=	0.00679	4.45	—		0.0141		
2,2',3,3',4,4',5,6-OctaCB (#195)	=	0.00716	0.0783	—		0.000248		
2,2',3,3',4,4',5,5',6-NonaCB (#206)	=	0.0349	0.322	—		0.00102		
PCB Homologue Groups								
Total MonoCB	=	0.0553	140	—		0.44		
Total DiCB	=	0.123	5630	—		17.9		
Total TriCB	=	0.23	12400	—		39.3		
Total TetraCB	=	0.49	6650	—		21.1		
Total PentaCB	=	0.257	1810	—		5.74		
Total HexaCB	=	0.191	362	—		1.15		
Total HeptaCB	=	0.011	22.1	—		0.0701		
Total OctaCB	=	0.0173	1.33	—		0.00422		
Total NonaCB	=	0.0349	0.527	—		0.00167		
DecaCB (#209)	M	0.0129	0.093	0.093	R	—		
Homologue Groups Sum			**27000**			**86**		

* M indicates all or a portion of the result has a calculated EMPC value.
† TEQ is the product of the concentration and its TEF value.

Sample Event Date	8/16/2000	**Sample Number**	08160003	**Prevailing Wind Direction**	NW
Lab Sample ID	L2699-2	**Preliminary Flow (slpm)**	225	**Average Temperature (°F)**	70.3
Station ID/Name	03/N Side of CDF	**Run Time (hours)**	23.34	**Average Solar Radiation (w·m²)**	134
Sample Type	Normal Sample	**Sample Volume (m³)**	315.09	**Total Precipitation (inches H_2O)**	0.040

Analyte	Detsym	Detection Limit (ng)	Mass (ng)	EMPC*	QFlag	Concentration (ng/m³)	TEF	TEQ† (ng/m³)
PCB Congeners								
3,3',4,4'-TetraCB (#77)	=	0.931	11.1	—		0.0352	0.0001	0.000004
3,4,5,4'-TetraCB (#81)	<	0.894	—	—	U	0.001	0.0001	0.0000001
2,3,3',4,4'-PentaCB (#105)	=	0.328	17.4	—		0.0552	0.0001	0.000006
2,3,4,4',5-PentaCB (#114)	=	0.308	1.72	—		0.00546	0.0005	0.000003
2,3',4,4',5-PentaCB (#118)	=	0.305	107	—		0.340	0.0001	0.00003
2',3,4,4',5-PentaCB (#123)	=	0.326	2.51	—		0.00797	0.0001	0.0000008
3,3',4,4',5-PentaCB (#126)	<	0.346	—	—	U	0.0005	0.1	0.00005
2,3,3',4,4',5-HexaCB (#156)	=	0.187	3.9	—	C	0.012	0.0005	0.000006
2,3,3',4,4',5'-HexaCB (#157)		—	—	—	C156	—	0.0005	
2,3',4,4',5,5'-HexaCB (#167)	=	0.132	2.18	—		0.00692	0.00001	0.00000007
3,3',4,4',5,5'-HexaCB (#169)	<	0.149	—	—	U	0.0002	0.01	0.000002
2,2',3,3',4,4',5-HeptaCB (#170)	=	0.00967	1.58	—		0.00501	—	
2,2',3,4,4',5,5'-HeptaCB (#180)	=	0.00853	3.63	—	C	0.0115	—	
2,3,3',4,4',5,5'-HeptaCB (#189)	M	0.00467	0.0752	0.0752	NDR	0.000239	0.0001	0.00000002
DecaCB (#209)	M	0.0107	0.0374	0.0374	R	—	—	
Additional PCB Congeners								
2,4'-DiCB (#8)	=	0.17	2550	—		8.09		
2,2',5-TriCB (#18)	=	0.0258	2560	—	C	8.12		
2,3,3',-TriCB (#20)	=	0.895	3160	—	C	10		
2,4,4'-TriCB (#28)		—	—	—	C20	—		
2,2',3,5'-TetraCB (#44)	=	0.023	1290	—	C	4.09		
2,2',5,5'-TetraCB (#52)	=	0.0214	1760	—		5.59		
2,3',4,4'-TetraCB (#66)	=	0.74	199	—		0.632		
2,2',3,4',5-PentaCB (#90)	=	0.119	254	—	C	0.806		
2,2',4,5,5'-PentaCB (#101)		—	—	—	C90	—		
2,2',3,3',4,4'-HexaCB (#128)	=	0.167	6.04	—	C	0.0192		
2,2',3,3',4,5-HexaCB (#129)	=	0.157	47.5	—	C	0.151		
2,2',3,4,4',5'-HexaCB (#138)		—	—	—	C129	—		
2,2',4,4',5,5'-HexaCB (#153)	=	0.143	65.9	—	C	0.209		
2,2',3,4',5,5',6-HeptaCB (#187)	=	0.00784	4.35	—		0.0138		
2,2',3,3',4,4',5,6-OctaCB (#195)	=	0.00421	0.128	—		0.000406		
2,2',3,3',4,4',5,5',6-NonaCB (#206)	=	0.0256	0.127	—		0.000403		
PCB Homologue Groups								
Total MonoCB	=	0.0507	254	—		0.806		
Total DiCB	=	0.138	7190	—		22.8		
Total TriCB	=	0.291	16000	—		51		
Total TetraCB	=	0.931	7300	—		23		
Total PentaCB	=	0.346	1810	—		5.74		
Total HexaCB	=	0.208	342	—		1.09		
Total HeptaCB	=	0.0127	22.9	—		0.0727		
Total OctaCB	=	0.0161	1.44	—		0.00457		
Total NonaCB	=	0.0256	0.269	—		0.000854		
DecaCB (#209)	M	0.0107	0.0374	0.0374	R	—		
Homologue Groups Sum			**32900**			**100**		

* M indicates all or a portion of the result has a calculated EMPC value.
† TEQ is the product of the concentration and its TEF value.

Sample Event Date	8/16/2000	**Sample Number**	08160006	**Prevailing Wind Direction**	NW
Lab Sample ID	L2699-3	**Preliminary Flow (slpm)**	225	**Average Temperature (°F)**	70.3
Station ID/Name	06/W Side of CDF	**Run Time (hours)**	23.43	**Average Solar Radiation (w -m²)**	134
Sample Type	Normal Sample	**Sample Volume (m³)**	316.305	**Total Precipitation (inches H_2O)**	0.040

Analyte	Detsym	Detection Limit (ng)	Mass (ng)	EMPC*	QFlag	Concentration (ng/m³)	TEF	TEQ† (ng/m³)
PCB Congeners								
3,3',4,4'-TetraCB (#77)	=	0.401	6.72	—		0.0212	0.0001	0.000002
3,4,5,4'-TetraCB (#81)	<	0.378	—	—	U	0.0006	0.0001	0.00000006
2,3,3',4,4'-PentaCB (#105)	=	0.125	13.2	—		0.0417	0.0001	0.000004
2,3,4,4',5-PentaCB (#114)	=	0.118	1.27	—		0.00402	0.0005	0.000002
2,3',4,4',5-PentaCB (#118)	=	0.118	70.1	—		0.222	0.0001	0.00002
2',3,4,4',5-PentaCB (#123)	=	0.125	1.63	—		0.00515	0.0001	0.0000005
3,3',4,4',5-PentaCB (#126)	=	0.13	0.234	—		0.000740	0.1	0.00007
2,3,3',4,4',5-HexaCB (#156)	=	0.102	3.01	—	C	0.00952	0.0005	0.000005
2,3,3',4,4',5'-HexaCB (#157)		—	—	—	C156	—	0.0005	
2,3',4,4',5,5'-HexaCB (#167)	=	0.0724	1.44	—		0.00455	0.00001	0.00000005
3,3',4,4',5,5'-HexaCB (#169)	<	0.0869	—	—	U	0.0001	0.01	0.000001
2,2',3,3',4,4',5-HeptaCB (#170)	=	0.0109	1.03	—		0.00326	—	
2,2',3,4,4',5,5'-HeptaCB (#180)	=	0.00999	2.89	—	C	0.00914	—	
2,3,3',4,4',5,5'-HeptaCB (#189)	<	0.00323	0.0536	0.0536	U	0.0000847	0.0001	0.000000008
DecaCB (#209)	=	0.00897	0.0296	—	R	—	—	
Additional PCB Congeners								
2,4'-DiCB (#8)	=	0.0335	157	—		0.496		
2,2',5-TriCB (#18)	=	0.0194	263	—	C	0.831		
2,3,3',-TriCB (#20)	=	0.0471	228	—	C	0.721		
2,4,4'-TriCB (#28)		—	—	—	C20	—		
2,2',3,5'-TetraCB (#44)	=	0.00703	186	—	C	0.588		
2,2',5,5'-TetraCB (#52)	=	0.00651	229	—		0.724		
2,3',4,4'-TetraCB (#66)	=	0.309	66.9	—		0.212		
2,2',3,4',5-PentaCB (#90)	=	0.0451	118	—	C	0.373		
2,2',4,5,5'-PentaCB (#101)		—	—	—	C90	—		
2,2',3,3',4,4'-HexaCB (#128)	=	0.0944	4.94	—	C	0.0156		
2,2',3,3',4,5-HexaCB (#129)	=	0.0898	37.3	—	C	0.118		
2,2',3,4,4',5'-HexaCB (#138)		—	—	—	C129	—		
2,2',4,4',5,5'-HexaCB (#153)	=	0.08	46.7	—	C	0.148		
2,2',3,4',5,5',6-HeptaCB (#187)	=	0.00917	3.15	—		0.00996		
2,2',3,3',4,4',5,6-OctaCB (#195)	M	0.00698	0.0838	0.0838	NDR	0.000265		
2,2',3,3',4,4',5,5',6-NonaCB (#206)	=	0.0268	0.0795	—		0.000251		
PCB Homologue Groups								
Total MonoCB	=	0.0475	20.4	—		0.0645		
Total DiCB	=	0.0616	499	—		1.58		
Total TriCB	=	0.0685	1400	—		4.4		
Total TetraCB	=	0.401	1150	—		3.64		
Total PentaCB	=	0.13	784	—		2.48		
Total HexaCB	=	0.118	230	—		0.73		
Total HeptaCB	=	0.0147	17.4	—		0.0550		
Total OctaCB	=	0.0187	1.35	—		0.00427		
Total NonaCB	=	0.0268	0.192	—		0.000607		
DecaCB (#209)	=	0.00897	0.0296	—	R	—		
Homologue Groups Sum			**4100**			**13**		

* M indicates all or a portion of the result has a calculated EMPC value.
† TEQ is the product of the concentration and its TEF value.

Sample Event Date	8/16/2000	**Sample Number**	08160006B	**Prevailing Wind Direction**	—
Lab Sample ID	L2699-7	**Preliminary Flow (slpm)**	0	**Average Temperature (°F)**	—
Station ID/Name	06/W Side of CDF	**Run Time (hours)**	0	**Average Solar Radiation (w·m²)**	—
Sample Type	Field Blank	**Sample Volume (m³)**	0	**Total Precipitation (inches H_2O)**	—

Analyte	Detsym	Detection Limit (ng)	Mass (ng)	EMPC*	QFlag	Concentration ng	TEF	TEQ† ng
PCB Congeners								
3,3',4,4'-TetraCB (#77)	<	0.0165	—	—	U	—		
3,4,5,4'-TetraCB (#81)	<	0.0152	—	—	U	—		
2,3,3',4,4'-PentaCB (#105)	<	0.0166	—	—	U	—		
2,3,4,4',5-PentaCB (#114)	<	0.0156	—	—	U	—		
2,3',4,4',5-PentaCB (#118)	<	0.0156	—	—	U	—		
2',3,4,4',5-PentaCB (#123)	<	0.0164	—	—	U	—		
3,3',4,4',5-PentaCB (#126)	<	0.0165	—	—	U	—		
2,3,3',4,4',5-HexaCB (#156)	M	0.00678	0.0101	0.0101	C NDR	—		
2,3,3',4,4',5'-HexaCB (#157)		—	—	—	C156	—		
2,3',4,4',5,5'-HexaCB (#167)	<	0.00501	—	—	U	—		
3,3',4,4',5,5'-HexaCB (#169)	<	0.0059	—	—	U	—		
2,2',3,3',4,4',5-HeptaCB (#170)	<	0.0084	—	—	U	—		
2,2',3,4,4',5,5'-HeptaCB (#180)	<	0.00743	—	—	U	—		
2,3,3',4,4',5,5'-HeptaCB (#189)	<	0.00376	—	—	U	—		
DecaCB (#209)	<	0.00638	—	—	R	—		
Additional PCB Congeners								
2,4'-DiCB (#8)	=	0.0805	0.0957	—		—		
2,2',5-TriCB (#18)	=	0.0414	0.0812	—	C	—		
2,3,3',-TriCB (#20)	=	0.0298	0.0946	—	C	—		
2,4,4'-TriCB (#28)		—	—	—	C20	—		
2,2',3,5'-TetraCB (#44)	M	0.0128	0.0644	0.0644	C NDR	—		
2,2',5,5'-TetraCB (#52)	=	0.0112	0.0712	—		—		
2,3',4,4'-TetraCB (#66)	<	0.0129	—	—	U	—		
2,2',3,4',5-PentaCB (#90)	<	0.0202	—	—	U	—		
2,2',4,5,5'-PentaCB (#101)		—	—	—	C90	—		
2,2',3,3',4,4'-HexaCB (#128)	<	0.00646	—	—	U	—		
2,2',3,3',4,5-HexaCB (#129)	M	0.00615	0.0137	0.0137	C NDR	—		
2,2',3,4,4',5'-HexaCB (#138)		—	—	—	C129	—		
2,2',4,4',5,5'-HexaCB (#153)	M	0.00555	0.0164	0.0164	C NDR	—		
2,2',3,4',5,5',6-HeptaCB (#187)	<	0.00672	—	—	U	—		
2,2',3,3',4,4',5,6-OctaCB (#195)	<	0.00337	—	—	U	—		
2,2',3,3',4,4',5,5',6-NonaCB (#206)	<	0.017	—	—	U	—		
PCB Homologue Groups								
Total MonoCB	<	0.0282	—	—	U	—		
Total DiCB	=	0.139	0.0957	—		—		
Total TriCB	=	0.0667	0.32	—		—		
Total TetraCB	=	0.0165	0.225	—		—		
Total PentaCB	<	0.0269	—	—	U	—		
Total HexaCB	<	0.00796	—	—	U	—		
Total HeptaCB	<	0.0107	—	—	U	—		
Total OctaCB	<	0.0126	—	—	U	—		
Total NonaCB	<	0.017	—	—	U	—		
DecaCB (#209)	<	0.00638	—	—	R	—		
Homologue Groups Sum			**0.692**					

* M indicates all or a portion of the result has a calculated EMPC value.
† TEQ is the product of the concentration and its TEF value.

L-2-18

Sample Event Date	8/16/2000	**Sample Number**	08160009	**Prevailing Wind Direction**	NW
Lab Sample ID	L2699-5	**Preliminary Flow (slpm)**	225	**Average Temperature (°F)**	70.3
Station ID/Name	09/Coffin Avenue	**Run Time (hours)**	23.42	**Average Solar Radiation (w·m²)**	134
Sample Type	Normal Sample	**Sample Volume (m³)**	316.17	**Total Precipitation (inches H_2O)**	0.040

Analyte	Detsym	Detection Limit (ng)	Mass (ng)	EMPC*	QFlag	Concentration (ng/m³)	TEF	TEQ† (ng/m³)
PCB Congeners								
3,3',4,4'-TetraCB (#77)	=	0.373	5.17	—		0.0164	0.0001	0.000002
3,4,5,4'-TetraCB (#81)	<	0.347	—	—	U	0.0005	0.0001	0.00000005
2,3,3',4,4'-PentaCB (#105)	=	0.171	9.46	—		0.0299	0.0001	0.000003
2,3,4,4',5-PentaCB (#114)	=	0.152	0.684	—		0.00216	0.0005	0.000001
2,3',4,4',5-PentaCB (#118)	=	0.158	54.1	—		0.171	0.0001	0.00002
2',3,4,4',5-PentaCB (#123)	=	0.162	1.32	—		0.00417	0.0001	0.0000004
3,3',4,4',5-PentaCB (#126)	=	0.174	0.186	—		0.000588	0.1	0.00006
2,3,3',4,4',5-HexaCB (#156)	=	0.0982	2.51	—	C	0.00794	0.0005	0.000004
2,3,3',4,4',5'-HexaCB (#157)		—	—	—	C156	—	0.0005	
2,3',4,4',5,5'-HexaCB (#167)	=	0.0724	1.15	—		0.00364	0.00001	0.00000004
3,3',4,4',5,5'-HexaCB (#169)	<	0.0945	—	—	U	0.0001	0.01	0.000001
2,2',3,3',4,4',5-HeptaCB (#170)	=	0.0164	1.08	—		0.00342	—	
2,2',3,4,4',5,5'-HeptaCB (#180)	=	0.0145	2.07	—	C	0.00655	—	
2,3,3',4,4',5,5'-HeptaCB (#189)	M	0.00597	0.0529	0.0529	NDR	0.000167	0.0001	0.00000002
DecaCB (#209)	M	0.0127	0.0418	0.0418	R	—	—	
Additional PCB Congeners								
2,4'-DiCB (#8)	=	0.0509	200	—		0.63		
2,2',5-TriCB (#18)	=	0.0461	566	—	C	1.79		
2,3,3',-TriCB (#20)	=	0.228	759	—	C	2.4		
2,4,4'-TriCB (#28)		—	—	—	C20	—		
2,2',3,5'-TetraCB (#44)	=	0.0226	401	—	C	1.27		
2,2',5,5'-TetraCB (#52)	=	0.0198	648	—		2.05		
2,3',4,4'-TetraCB (#66)	=	0.269	77.9	—		0.246		
2,2',3,4',5-PentaCB (#90)	=	0.0795	105	—	C	0.332		
2,2',4,5,5'-PentaCB (#101)		—	—	—	C90	—		
2,2',3,3',4,4'-HexaCB (#128)	=	0.0957	4.02	—	C	0.0127		
2,2',3,3',4,5-HexaCB (#129)	=	0.091	27.6	—	C	0.0873		
2,2',3,4,4',5'-HexaCB (#138)		—	—	—	C129	—		
2,2',4,4',5,5'-HexaCB (#153)	=	0.0822	34.3	—	C	0.108		
2,2',3,4',5,5',6-HeptaCB (#187)	=	0.0131	2.24	—		0.00708		
2,2',3,3',4,4',5,6-OctaCB (#195)	M	0.00828	0.087	0.087	NDR	0.00028		
2,2',3,3',4,4',5,5',6-NonaCB (#206)	M	0.0489	0.116	0.116	NDR	0.000367		
PCB Homologue Groups								
Total MonoCB	=	0.0442	15.3	—		0.0484		
Total DiCB	=	0.103	877	—		2.77		
Total TriCB	=	0.338	3970	—		12.6		
Total TetraCB	=	0.373	2460	—		7.78		
Total PentaCB	=	0.174	753	—		2.38		
Total HexaCB	=	0.118	179	—		0.566		
Total HeptaCB	=	0.0209	12.1	—		0.0383		
Total OctaCB	=	0.0244	0.624	—		0.00197		
Total NonaCB	<	0.0489	—	—	U	0.00008		
DecaCB (#209)	M	0.0127	0.0418	0.0418	R	—		
Homologue Groups Sum			**8270**			**26**		

* M indicates all or a portion of the result has a calculated EMPC value.
† TEQ is the product of the concentration and its TEF value.

Sample Event Date	8/16/2000	**Sample Number**	08160017	**Prevailing Wind Direction**	NW
Lab Sample ID	L2699-4	**Preliminary Flow (slpm)**	225	**Average Temperature (°F)**	70.3
Station ID/Name	17/S Side of CDF	**Run Time (hours)**	23.35	**Average Solar Radiation (w ·m²)**	134
Sample Type	Normal Sample	**Sample Volume (m³)**	315.225	**Total Precipitation (inches H_2O)**	0.040

Analyte	Detsym	Detection Limit (ng)	Mass (ng)	EMPC*	QFlag	Concentration (ng/m³)	TEF	TEQ† (ng/m³)
PCB Congeners								
3,3',4,4'-TetraCB (#77)	=	0.222	3.58	—		0.0114	0.0001	0.000001
3,4,5,4'-TetraCB (#81)	<	0.2	—	—	U	0.0003	0.0001	0.00000003
2,3,3',4,4'-PentaCB (#105)	=	0.0935	8.55	—		0.0271	0.0001	0.000003
2,3,4,4',5-PentaCB (#114)	=	0.086	0.737	—		0.00234	0.0005	0.000001
2,3',4,4',5-PentaCB (#118)	=	0.0818	40.5	—		0.128	0.0001	0.00001
2',3,4,4',5-PentaCB (#123)	=	0.0899	0.905	—		0.00287	0.0001	0.0000003
3,3',4,4',5-PentaCB (#126)	=	0.0952	0.333	—		0.00106	0.1	0.0001
2,3,3',4,4',5-HexaCB (#156)	=	0.0995	3.59	—	C	0.0114	0.0005	0.000006
2,3,3',4,4',5'-HexaCB (#157)		—	—	—	C156	—	0.0005	
2,3',4,4',5,5'-HexaCB (#167)	=	0.0717	1.33	—		0.00422	0.00001	0.00000004
3,3',4,4',5,5'-HexaCB (#169)	<	0.0816	—	—	U	0.0001	0.01	0.000001
2,2',3,3',4,4',5-HeptaCB (#170)	=	0.00862	1.89	—		0.00600	—	
2,2',3,4,4',5,5'-HeptaCB (#180)	=	0.0076	3.39	—	C	0.0108	—	
2,3,3',4,4',5,5'-HeptaCB (#189)	M	0.00364	0.0876	0.0876	NDR	0.000278	0.0001	0.00000003
DecaCB (#209)	=	0.00963	0.0336	—	R	—	—	
Additional PCB Congeners								
2,4'-DiCB (#8)	=	0.0314	253	—		0.803		
2,2',5-TriCB (#18)	=	0.0213	342	—	C	1.08		
2,3,3',-TriCB (#20)	=	0.0699	354	—	C	1.12		
2,4,4'-TriCB (#28)		—	—	—	C20	—		
2,2',3,5'-TetraCB (#44)	=	0.0131	250	—	C	0.79		
2,2',5,5'-TetraCB (#52)	=	0.0122	311	—		0.987		
2,3',4,4'-TetraCB (#66)	=	0.176	49.2	—		0.156		
2,2',3,4',5-PentaCB (#90)	=	0.0319	85.5	—	C	0.271		
2,2',4,5,5'-PentaCB (#101)		—	—	—	C90	—		
2,2',3,3',4,4'-HexaCB (#128)	=	0.0904	4.43	—	C	0.0141		
2,2',3,3',4,5-HexaCB (#129)	=	0.0847	26.6	—	C	0.0844		
2,2',3,4,4',5'-HexaCB (#138)		—	—	—	C129	—		
2,2',4,4',5,5'-HexaCB (#153)	=	0.0773	28.1	—	C	0.0891		
2,2',3,4',5,5',6-HeptaCB (#187)	=	0.00699	2.14	—		0.00679		
2,2',3,3',4,4',5,6-OctaCB (#195)	=	0.00629	0.126	—		0.000400		
2,2',3,3',4,4',5,5',6-NonaCB (#206)	M	0.0374	0.123	0.123	NDR	0.000390		
PCB Homologue Groups								
Total MonoCB	=	0.0488	26.9	—		0.0853		
Total DiCB	=	0.0601	991	—		3.14		
Total TriCB	=	0.0906	2060	—		6.54		
Total TetraCB	=	0.222	1400	—		4.4		
Total PentaCB	=	0.0952	581	—		1.84		
Total HexaCB	=	0.112	157	—		0.498		
Total HeptaCB	=	0.0113	16.4	—		0.0520		
Total OctaCB	=	0.0141	0.867	—		0.00275		
Total NonaCB	=	0.0374	0.0356	—		0.000113		
DecaCB (#209)	=	0.00963	0.0336	—	R	—		
Homologue Groups Sum			**5230**			**17**		

* M indicates all or a portion of the result has a calculated EMPC value.
† TEQ is the product of the concentration and its TEF value.

Sample Event Date	8/16/2000	**Sample Number**	08160027	**Prevailing Wind Direction**	NW
Lab Sample ID	L2699-6	**Preliminary Flow (slpm)**	225	**Average Temperature (°F)**	70.1
Station ID/Name	27/Francis Street	**Run Time (hours)**	23.34	**Average Solar Radiation (w -m²)**	136
Sample Type	Normal Sample	**Sample Volume (m³)**	315.09	**Total Precipitation (inches H_2O)**	0.040

Analyte	Detsym	Detection Limit (ng)	Mass (ng)	EMPC*	QFlag	Concentration (ng/m³)	TEF	TEQ† (ng/m³)
PCB Congeners								
3,3',4,4'-TetraCB (#77)	=	0.408	4.71	—		0.0149	0.0001	0.000001
3,4,5,4'-TetraCB (#81)	<	0.403	—	—	U	0.0006	0.0001	0.00000006
2,3,3',4,4'-PentaCB (#105)	=	0.156	10.5	—		0.0333	0.0001	0.000003
2,3,4,4',5-PentaCB (#114)	=	0.14	0.924	—		0.00293	0.0005	0.000001
2,3',4,4',5-PentaCB (#118)	=	0.144	51.5	—		0.163	0.0001	0.00002
2',3,4,4',5-PentaCB (#123)	=	0.156	1.11	—		0.00352	0.0001	0.0000004
3,3',4,4',5-PentaCB (#126)	=	0.168	0.225	—		0.000714	0.1	0.00007
2,3,3',4,4',5-HexaCB (#156)	=	0.1	2.73	—	C	0.00866	0.0005	0.000004
2,3,3',4,4',5'-HexaCB (#157)		—	—	—	C156	—	0.0005	
2,3',4,4',5,5'-HexaCB (#167)	=	0.0767	1.12	—		0.00355	0.00001	0.00000004
3,3',4,4',5,5'-HexaCB (#169)	<	0.079	—	—	U	0.0001	0.01	0.000001
2,2',3,3',4,4',5-HeptaCB (#170)	=	0.0193	1.06	—		0.00336	—	
2,2',3,4,4',5,5'-HeptaCB (#180)	=	0.0177	2.2	—	C	0.0070	—	
2,3,3',4,4',5,5'-HeptaCB (#189)	M	0.00795	0.0647	0.0647	NDR	0.000205	0.0001	0.00000002
DecaCB (#209)	M	0.0209	0.0301	0.0301	R	—	—	
Additional PCB Congeners								
2,4'-DiCB (#8)	=	0.0625	529	—		1.68		
2,2',5-TriCB (#18)	=	0.0491	1600	—	C	5.1		
2,3,3',-TriCB (#20)	=	0.441	1090	—	C	3.46		
2,4,4'-TriCB (#28)		—	—	—	C20	—		
2,2',3,5'-TetraCB (#44)	=	0.0256	445	—	C	1.41		
2,2',5,5'-TetraCB (#52)	=	0.0237	802	—		2.55		
2,3',4,4'-TetraCB (#66)	=	0.305	96.7	—		0.307		
2,2',3,4',5-PentaCB (#90)	=	0.053	95.8	—	C	0.304		
2,2',4,5,5'-PentaCB (#101)		—	—	—	C90	—		
2,2',3,3',4,4'-HexaCB (#128)	=	0.0961	4.3	—	C	0.014		
2,2',3,3',4,5-HexaCB (#129)	=	0.0911	27.4	—	C	0.0870		
2,2',3,4,4',5'-HexaCB (#138)		—	—	—	C129	—		
2,2',4,4',5,5'-HexaCB (#153)	=	0.0814	32.1	—	C	0.102		
2,2',3,4',5,5',6-HeptaCB (#187)	=	0.0162	1.94	—		0.00616		
2,2',3,3',4,4',5,6-OctaCB (#195)	=	0.0142	0.094	—		0.00030		
2,2',3,3',4,4',5,5',6-NonaCB (#206)	<	0.069	—	—	U	0.0001		
PCB Homologue Groups								
Total MonoCB	=	0.069	28.3	—		0.0898		
Total DiCB	=	0.102	1820	—		5.78		
Total TriCB	=	0.732	7460	—		23.7		
Total TetraCB	=	0.408	3020	—		9.58		
Total PentaCB	=	0.168	700	—		2.2		
Total HexaCB	=	0.12	173	—		0.549		
Total HeptaCB	=	0.0261	11.1	—		0.0352		
Total OctaCB	=	0.0398	0.674	—		0.00214		
Total NonaCB	<	0.069	—	—	U	0.0001		
DecaCB (#209)	M	0.0209	0.0301	0.0301	R	—		
Homologue Groups Sum			**13200**			**42**		

* M indicates all or a portion of the result has a calculated EMPC value.
† TEQ is the product of the concentration and its TEF value.

Sample Event Date	8/17/2000	**Sample Number**	08170002	**Prevailing Wind Direction**	WNW
Lab Sample ID	L2699-8	**Preliminary Flow (slpm)**	225	**Average Temperature (°F)**	66.2
Station ID/Name	02/E Side of CDF	**Run Time (hours)**	24.09	**Average Solar Radiation (w·m²)**	272
Sample Type	Normal Sample	**Sample Volume (m³)**	325.215	**Total Precipitation (inches H_2O)**	0.00

Analyte	Detsym	Detection Limit (ng)	Mass (ng)	EMPC*	QFlag	Concentration (ng/m³)	TEF	TEQ† (ng/m³)
PCB Congeners								
3,3',4,4'-TetraCB (#77)	=	0.689	10.5	—		0.0323	0.0001	0.000003
3,4,5,4'-TetraCB (#81)	<	0.65	—	—	U	0.001	0.0001	0.0000001
2,3,3',4,4'-PentaCB (#105)	=	0.394	12.2	—		0.0375	0.0001	0.000004
2,3,4,4',5-PentaCB (#114)	=	0.368	1.54	—		0.00474	0.0005	0.000002
2,3',4,4',5-PentaCB (#118)	=	0.373	107	—		0.329	0.0001	0.00003
2',3,4,4',5-PentaCB (#123)	=	0.401	2.83	—		0.00870	0.0001	0.0000009
3,3',4,4',5-PentaCB (#126)	<	0.392	—	—	U	0.0006	0.1	0.00006
2,3,3',4,4',5-HexaCB (#156)	=	0.0904	2.04	—	C	0.00627	0.0005	0.000003
2,3,3',4,4',5'-HexaCB (#157)		—	—	—	C156	—	0.0005	
2,3',4,4',5,5'-HexaCB (#167)	=	0.0659	1.45	—		0.00446	0.00001	0.00000004
3,3',4,4',5,5'-HexaCB (#169)	<	0.0733	—	—	U	0.0001	0.01	0.000001
2,2',3,3',4,4',5-HeptaCB (#170)	=	0.0194	0.682	—		0.00210	—	
2,2',3,4,4',5,5'-HeptaCB (#180)	=	0.0178	1.94	—	C	0.00597	—	
2,3,3',4,4',5,5'-HeptaCB (#189)	<	0.00817	0.0214	0.0214	U	0.0000329	0.0001	0.000000003
DecaCB (#209)	<	0.0208	—	—	R	—	—	
Additional PCB Congeners								
2,4'-DiCB (#8)	=	0.0848	2630	—		8.09		
2,2',5-TriCB (#18)	=	0.0488	6600	—	C	20		
2,3,3',-TriCB (#20)	=	1.6	4440	—	C	13.7		
2,4,4'-TriCB (#28)		—	—	—	C20	—		
2,2',3,5'-TetraCB (#44)	=	0.0234	1610	—	C	4.95		
2,2',5,5'-TetraCB (#52)	=	0.0217	2690	—		8.27		
2,3',4,4'-TetraCB (#66)	=	0.506	281	—		0.864		
2,2',3,4',5-PentaCB (#90)	=	0.113	330	—	C	1		
2,2',4,5,5'-PentaCB (#101)		—	—	—	C90	—		
2,2',3,3',4,4'-HexaCB (#128)	=	0.0852	3.73	—	C	0.0115		
2,2',3,3',4,5-HexaCB (#129)	=	0.0808	35	—	C	0.11		
2,2',3,4,4',5'-HexaCB (#138)		—	—	—	C129	—		
2,2',4,4',5,5'-HexaCB (#153)	=	0.0722	60.6	—	C	0.186		
2,2',3,4',5,5',6-HeptaCB (#187)	=	0.0163	3.34	—		0.0103		
2,2',3,3',4,4',5,6-OctaCB (#195)	=	0.0145	0.0508	—		0.000156		
2,2',3,3',4,4',5,5',6-NonaCB (#206)	M	0.0511	0.0913	0.0913	NDR	0.000281		
PCB Homologue Groups								
Total MonoCB	=	0.0794	164	—		0.504		
Total DiCB	=	0.14	9040	—		27.8		
Total TriCB	=	1.73	29300	—		90.1		
Total TetraCB	=	0.689	10300	—		31.7		
Total PentaCB	=	0.401	2220	—		6.83		
Total HexaCB	=	0.106	329	—		1.01		
Total HeptaCB	=	0.0263	14	—		0.043		
Total OctaCB	=	0.0323	0.204	—		0.000627		
Total NonaCB	<	0.0511	—	—	U	0.00008		
DecaCB (#209)	<	0.0208	—	—	R	—		
Homologue Groups Sum			**51400**			**160**		

* M indicates all or a portion of the result has a calculated EMPC value.
† TEQ is the product of the concentration and its TEF value.

Sample Event Date	8/17/2000	**Sample Number**	08170003	**Prevailing Wind Direction**	WNW
Lab Sample ID	L2699-9	**Preliminary Flow (slpm)**	225	**Average Temperature (°F)**	66.2
Station ID/Name	03/N Side of CDF	**Run Time (hours)**	23.95	**Average Solar Radiation (w·m²)**	272
Sample Type	Normal Sample	**Sample Volume (m³)**	323.325	**Total Precipitation (inches H_2O)**	0.00

Analyte	Detsym	Detection Limit (ng)	Mass (ng)	EMPC*	QFlag	Concentration (ng/m³)	TEF	TEQ† (ng/m³)
PCB Congeners								
3,3',4,4'-TetraCB (#77)	=	0.361	5.51	—		0.0170	0.0001	0.000002
3,4,5,4'-TetraCB (#81)	<	0.335	—	—	U	0.0005	0.0001	0.00000005
2,3,3',4,4'-PentaCB (#105)	=	0.192	6.82	—		0.0211	0.0001	0.000002
2,3,4,4',5-PentaCB (#114)	=	0.175	0.738	—		0.00228	0.0005	0.000001
2,3',4,4',5-PentaCB (#118)	=	0.179	49.4	—		0.153	0.0001	0.00002
2',3,4,4',5-PentaCB (#123)	=	0.192	1.17	—		0.00362	0.0001	0.0000004
3,3',4,4',5-PentaCB (#126)	<	0.194	—	—	U	0.0003	0.1	0.00003
2,3,3',4,4',5-HexaCB (#156)	=	0.0916	1.34	—	C	0.00414	0.0005	0.000002
2,3,3',4,4',5'-HexaCB (#157)		—	—	—	C156	—	0.0005	
2,3',4,4',5,5'-HexaCB (#167)	=	0.0697	0.917	—		0.00284	0.00001	0.00000003
3,3',4,4',5,5'-HexaCB (#169)	<	0.0747	—	—	U	0.0001	0.01	0.000001
2,2',3,3',4,4',5-HeptaCB (#170)	=	0.0213	0.621	—		0.00192	—	
2,2',3,4,4',5,5'-HeptaCB (#180)	=	0.0188	1.37	—	C	0.00424	—	
2,3,3',4,4',5,5'-HeptaCB (#189)	M	0.0063	0.0501	0.0501	NDR	0.000155	0.0001	0.00000002
DecaCB (#209)	M	0.0205	0.0304	0.0304	R	—	—	
Additional PCB Congeners								
2,4'-DiCB (#8)	=	0.124	894	—		2.77		
2,2',5-TriCB (#18)	=	0.067	1410	—	C	4.36		
2,3,3',-TriCB (#20)	=	0.35	1230	—	C	3.8		
2,4,4'-TriCB (#28)		—	—	—	C20	—		
2,2',3,5'-TetraCB (#44)	=	0.0344	565	—	C	1.75		
2,2',5,5'-TetraCB (#52)	=	0.0301	900	—		2.8		
2,3',4,4'-TetraCB (#66)	=	0.275	103	—		0.319		
2,2',3,4',5-PentaCB (#90)	=	0.0926	121	—	C	0.374		
2,2',4,5,5'-PentaCB (#101)		—	—	—	C90	—		
2,2',3,3',4,4'-HexaCB (#128)	=	0.0865	2.36	—	C	0.00730		
2,2',3,3',4,5-HexaCB (#129)	=	0.0823	19.1	—	C	0.0591		
2,2',3,4,4',5'-HexaCB (#138)		—	—	—	C129	—		
2,2',4,4',5,5'-HexaCB (#153)	=	0.0743	30.3	—	C	0.0937		
2,2',3,4',5,5',6-HeptaCB (#187)	=	0.017	1.92	—		0.00594		
2,2',3,3',4,4',5,6-OctaCB (#195)	M	0.0111	0.0542	0.0542	NDR	0.000168		
2,2',3,3',4,4',5,5',6-NonaCB (#206)	M	0.0617	0.126	0.126	NDR	0.000390		
PCB Homologue Groups								
Total MonoCB	=	0.0765	77.5	—		0.240		
Total DiCB	=	0.202	3320	—		10.3		
Total TriCB	=	0.525	7690	—		23.8		
Total TetraCB	=	0.361	3500	—		11		
Total PentaCB	=	0.194	837	—		2.59		
Total HexaCB	=	0.107	158	—		0.489		
Total HeptaCB	=	0.0271	8.78	—		0.0272		
Total OctaCB	=	0.0314	0.65	—		0.0020		
Total NonaCB	=	0.0617	0.0705	—		0.000218		
DecaCB (#209)	M	0.0205	0.0304	0.0304	R	—		
Homologue Groups Sum			**15600**			**48**		

* M indicates all or a portion of the result has a calculated EMPC value.
† TEQ is the product of the concentration and its TEF value.

Sample Event Date	8/17/2000	**Sample Number**	08170003D	**Prevailing Wind Direction**	WNW
Lab Sample ID	L2699-10	**Preliminary Flow (slpm)**	225	**Average Temperature (°F)**	66.2
Station ID/Name	03D/N Side of CDF Dup	**Run Time (hours)**	23.99	**Average Solar Radiation (w·m²)**	272
Sample Type	Field Duplicate	**Sample Volume (m³)**	323.865	**Total Precipitation (inches H_2O)**	0.00

Analyte	Detsym	Detection Limit (ng)	Mass (ng)	EMPC*	QFlag	Concentration (ng/m³)	TEF	TEQ† (ng/m³)
PCB Congeners								
3,3',4,4'-TetraCB (#77)	=	0.534	8.5	—		0.026	0.0001	0.000003
3,4,5,4'-TetraCB (#81)	<	0.49	—	—	U	0.0008	0.0001	0.00000008
2,3,3',4,4'-PentaCB (#105)	=	0.235	11.8	—		0.0364	0.0001	0.000004
2,3,4,4',5-PentaCB (#114)	=	0.22	1.12	—		0.00346	0.0005	0.000002
2,3',4,4',5-PentaCB (#118)	=	0.214	85.5	—		0.264	0.0001	0.00003
2',3,4,4',5-PentaCB (#123)	=	0.238	2.38	—		0.00735	0.0001	0.0000007
3,3',4,4',5-PentaCB (#126)	<	0.239	—	—	U	0.0004	0.1	0.00004
2,3,3',4,4',5-HexaCB (#156)	=	0.173	2.02	—	C	0.00624	0.0005	0.000003
2,3,3',4,4',5'-HexaCB (#157)		—	—	—	C156	—	0.0005	
2,3',4,4',5,5'-HexaCB (#167)	=	0.125	1.36	—		0.00420	0.00001	0.00000004
3,3',4,4',5,5'-HexaCB (#169)	<	0.143	—	—	U	0.0002	0.01	0.000002
2,2',3,3',4,4',5-HeptaCB (#170)	=	0.0163	0.831	—		0.00257	—	
2,2',3,4,4',5,5'-HeptaCB (#180)	=	0.0144	2.24	—	C	0.00692	—	
2,3,3',4,4',5,5'-HeptaCB (#189)	=	0.00572	0.0538	—		0.000166	0.0001	0.00000002
DecaCB (#209)	M	0.0162	0.0326	0.0326	R	—	—	
Additional PCB Congeners								
2,4'-DiCB (#8)	=	0.121	1350	—		4.17		
2,2',5-TriCB (#18)	=	0.0687	2590	—	C	8		
2,3,3',-TriCB (#20)	=	0.435	2120	—	C	6.55		
2,4,4'-TriCB (#28)		—	—	—	C20	—		
2,2',3,5'-TetraCB (#44)	=	0.0328	923	—	C	2.85		
2,2',5,5'-TetraCB (#52)	=	0.0287	1550	—		4.79		
2,3',4,4'-TetraCB (#66)	=	0.409	170	—		0.52		
2,2',3,4',5-PentaCB (#90)	=	0.12	213	—	C	0.658		
2,2',4,5,5'-PentaCB (#101)		—	—	—	C90	—		
2,2',3,3',4,4'-HexaCB (#128)	=	0.162	4.05	—	C	0.0125		
2,2',3,3',4,5-HexaCB (#129)	=	0.154	32.7	—	C	0.101		
2,2',3,4,4',5'-HexaCB (#138)		—	—	—	C129	—		
2,2',4,4',5,5'-HexaCB (#153)	=	0.139	52.5	—	C	0.162		
2,2',3,4',5,5',6-HeptaCB (#187)	=	0.0131	3.44	—		0.0106		
2,2',3,3',4,4',5,6-OctaCB (#195)	=	0.0101	0.102	—		0.000315		
2,2',3,3',4,4',5,5',6-NonaCB (#206)	M	0.0524	0.141	0.141	NDR	0.000435		
PCB Homologue Groups								
Total MonoCB	=	0.0868	116	—		0.358		
Total DiCB	=	0.214	5270	—		16.3		
Total TriCB	=	0.634	13500	—		41.7		
Total TetraCB	=	0.534	5970	—		18.4		
Total PentaCB	=	0.239	1480	—		4.57		
Total HexaCB	=	0.199	273	—		0.843		
Total HeptaCB	=	0.0208	15.4	—		0.0476		
Total OctaCB	=	0.0258	0.669	—		0.00207		
Total NonaCB	<	0.0524	—	—	U	0.00008		
DecaCB (#209)	M	0.0162	0.0326	0.0326	R	—		
Homologue Groups Sum			**26600**			**82**		

* M indicates all or a portion of the result has a calculated EMPC value.
† TEQ is the product of the concentration and its TEF value.

Sample Event Date	8/17/2000	**Sample Number**	08170006	**Prevailing Wind Direction**	WNW
Lab Sample ID	L2699-11	**Preliminary Flow (slpm)**	225	**Average Temperature (°F)**	66.2
Station ID/Name	06/W Side of CDF	**Run Time (hours)**	23.89	**Average Solar Radiation (w·m²)**	272
Sample Type	Normal Sample	**Sample Volume (m³)**	322.515	**Total Precipitation (inches H_2O)**	0.00

Analyte	Detsym	Detection Limit (ng)	Mass (ng)	EMPC*	QFlag	Concentration (ng/m³)	TEF	TEQ† (ng/m³)
PCB Congeners								
3,3',4,4'-TetraCB (#77)	=	0.592	11.2	—		0.0347	0.0001	0.000003
3,4,5,4'-TetraCB (#81)	<	0.549	—	—	U	0.0009	0.0001	0.00000009
2,3,3',4,4'-PentaCB (#105)	=	0.31	13.4	—		0.0415	0.0001	0.000004
2,3,4,4',5-PentaCB (#114)	=	0.289	1.54	—		0.00477	0.0005	0.000002
2,3',4,4',5-PentaCB (#118)	=	0.276	91.5	—		0.284	0.0001	0.00003
2',3,4,4',5-PentaCB (#123)	=	0.303	2.24	—		0.00695	0.0001	0.0000007
3,3',4,4',5-PentaCB (#126)	<	0.324	—	—	U	0.0005	0.1	0.00005
2,3,3',4,4',5-HexaCB (#156)	=	0.18	2.04	—	C	0.00633	0.0005	0.000003
2,3,3',4,4',5'-HexaCB (#157)		—	—	—	C156	—	0.0005	
2,3',4,4',5,5'-HexaCB (#167)	=	0.131	1.28	—		0.00397	0.00001	0.00000004
3,3',4,4',5,5'-HexaCB (#169)	<	0.147	—	—	U	0.0002	0.01	0.000002
2,2',3,3',4,4',5-HeptaCB (#170)	=	0.0198	0.849	—		0.00263	—	
2,2',3,4,4',5,5'-HeptaCB (#180)	=	0.0175	2.06	—	C	0.00639	—	
2,3,3',4,4',5,5'-HeptaCB (#189)	M	0.00838	0.0501	0.0501	NDR	0.000155	0.0001	0.00000002
DecaCB (#209)	<	0.0183	—	—	R	—	—	
Additional PCB Congeners								
2,4'-DiCB (#8)	=	0.148	1530	—		4.74		
2,2',5-TriCB (#18)	=	0.0573	2840	—	C	8.81		
2,3,3',-TriCB (#20)	=	0.24	2310	—	C	7.16		
2,4,4'-TriCB (#28)		—	—	—	C20	—		
2,2',3,5'-TetraCB (#44)	=	0.0281	1010	—	C	3.13		
2,2',5,5'-TetraCB (#52)	=	0.0246	1420	—		4.4		
2,3',4,4'-TetraCB (#66)	=	0.439	206	—		0.639		
2,2',3,4',5-PentaCB (#90)	=	0.207	284	—	C	0.881		
2,2',4,5,5'-PentaCB (#101)		—	—	—	C90	—		
2,2',3,3',4,4'-HexaCB (#128)	=	0.168	3.71	—	C	0.0115		
2,2',3,3',4,5-HexaCB (#129)	=	0.159	33.7	—	C	0.104		
2,2',3,4,4',5'-HexaCB (#138)		—	—	—	C129	—		
2,2',4,4',5,5'-HexaCB (#153)	=	0.144	53.2	—	C	0.165		
2,2',3,4',5,5',6-HeptaCB (#187)	=	0.0159	2.97	—		0.00921		
2,2',3,3',4,4',5,6-OctaCB (#195)	=	0.0103	0.061	—		0.00019		
2,2',3,3',4,4',5,5',6-NonaCB (#206)	=	0.0645	0.104	—		0.000322		
PCB Homologue Groups								
Total MonoCB	=	0.0758	154	—		0.477		
Total DiCB	=	0.262	6090	—		18.9		
Total TriCB	=	0.36	14700	—		45.6		
Total TetraCB	=	0.592	6080	—		18.9		
Total PentaCB	=	0.324	1760	—		5.46		
Total HexaCB	=	0.206	301	—		0.933		
Total HeptaCB	=	0.0252	14.5	—		0.0450		
Total OctaCB	=	0.029	1.1	—		0.0034		
Total NonaCB	=	0.0645	0.104	—		0.000322		
DecaCB (#209)	<	0.0183	—	—	R	—		
Homologue Groups Sum			**29100**			**90**		

* M indicates all or a portion of the result has a calculated EMPC value.
† TEQ is the product of the concentration and its TEF value.

Sample Event Date	8/17/2000	**Sample Number**	08170009	**Prevailing Wind Direction**	WNW
Lab Sample ID	L2699-15	**Preliminary Flow (slpm)**	225	**Average Temperature (°F)**	66.2
Station ID/Name	09/Coffin Avenue	**Run Time (hours)**	24.03	**Average Solar Radiation (w·m²)**	272
Sample Type	Normal Sample	**Sample Volume (m³)**	324.405	**Total Precipitation (inches H_2O)**	0.00

Analyte	Detsym	Detection Limit (ng)	Mass (ng)	EMPC*	QFlag	Concentration (ng/m³)	TEF	TEQ† (ng/m³)
PCB Congeners								
3,3',4,4'-TetraCB (#77)	=	0.286	3.31	—		0.0102	0.0001	0.000001
3,4,5,4'-TetraCB (#81)	<	0.264	—	—	U	0.0004	0.0001	0.00000004
2,3,3',4,4'-PentaCB (#105)	=	0.187	4.71	—		0.0145	0.0001	0.000001
2,3,4,4',5-PentaCB (#114)	=	0.172	0.556	—		0.00171	0.0005	0.0000009
2,3',4,4',5-PentaCB (#118)	=	0.171	35.5	—		0.109	0.0001	0.00001
2',3,4,4',5-PentaCB (#123)	=	0.18	0.832	—		0.00256	0.0001	0.0000003
3,3',4,4',5-PentaCB (#126)	<	0.177	—	—	U	0.0003	0.1	0.00003
2,3,3',4,4',5-HexaCB (#156)	=	0.079	0.822	—	C	0.00253	0.0005	0.000001
2,3,3',4,4',5'-HexaCB (#157)		—	—	—	C156	—	0.0005	
2,3',4,4',5,5'-HexaCB (#167)	=	0.0574	0.594	—		0.00183	0.00001	0.00000002
3,3',4,4',5,5'-HexaCB (#169)	<	0.0608	—	—	U	0.00009	0.01	0.0000009
2,2',3,3',4,4',5-HeptaCB (#170)	=	0.0139	0.326	—		0.00100	—	
2,2',3,4,4',5,5'-HeptaCB (#180)	=	0.0123	1.31	—	C	0.00404	—	
2,3,3',4,4',5,5'-HeptaCB (#189)	<	0.0056	0.0369	—	U	0.0000569	0.0001	0.000000006
DecaCB (#209)	M	0.0176	0.0388	0.0388	R	—	—	
Additional PCB Congeners								
2,4'-DiCB (#8)	=	0.0752	545	—		1.68		
2,2',5-TriCB (#18)	=	0.055	1280	—	C	3.95		
2,3,3',-TriCB (#20)	=	0.311	951	—	C	2.93		
2,4,4'-TriCB (#28)		—	—	—	C20	—		
2,2',3,5'-TetraCB (#44)	=	0.0185	351	—	C	1.08		
2,2',5,5'-TetraCB (#52)	=	0.0162	612	—		1.89		
2,3',4,4'-TetraCB (#66)	=	0.214	68.8	—		0.212		
2,2',3,4',5-PentaCB (#90)	=	0.112	87.2	—	C	0.269		
2,2',4,5,5'-PentaCB (#101)		—	—	—	C90	—		
2,2',3,3',4,4'-HexaCB (#128)	=	0.0738	1.59	—	C	0.00490		
2,2',3,3',4,5-HexaCB (#129)	=	0.0702	13.6	—	C	0.0419		
2,2',3,4,4',5'-HexaCB (#138)		—	—	—	C129	—		
2,2',4,4',5,5'-HexaCB (#153)	=	0.0634	22.6	—	C	0.0697		
2,2',3,4',5,5',6-HeptaCB (#187)	=	0.0112	1.86	—		0.00573		
2,2',3,3',4,4',5,6-OctaCB (#195)	=	0.0104	0.0573	—		0.000177		
2,2',3,3',4,4',5,5',6-NonaCB (#206)	=	0.0534	0.214	—		0.000660		
PCB Homologue Groups								
Total MonoCB	=	0.0662	41.5	—		0.128		
Total DiCB	=	0.137	2250	—		6.94		
Total TriCB	=	0.473	6430	—		19.8		
Total TetraCB	=	0.286	2320	—		7.15		
Total PentaCB	=	0.187	605	—		1.86		
Total HexaCB	=	0.0909	118	—		0.364		
Total HeptaCB	=	0.0177	8.05	—		0.0248		
Total OctaCB	=	0.0209	0.734	—		0.00226		
Total NonaCB	=	0.0534	0.259	—		0.000798		
DecaCB (#209)	M	0.0176	0.0388	0.0388	R	—		
Homologue Groups Sum			**11800**			**36**		

* M indicates all or a portion of the result has a calculated EMPC value.
† TEQ is the product of the concentration and its TEF value.

Sample Event Date	8/17/2000	**Sample Number**	08170017	**Prevailing Wind Direction**	WNW
Lab Sample ID	L2699-12	**Preliminary Flow (slpm)**	225	**Average Temperature (°F)**	66.2
Station ID/Name	17/S Side of CDF	**Run Time (hours)**	24.12	**Average Solar Radiation (w •m²)**	272
Sample Type	Normal Sample	**Sample Volume (m³)**	325.62	**Total Precipitation (inches H_2O)**	0.00

Analyte	Detsym	Detection Limit (ng)	Mass (ng)	EMPC*	QFlag	Concentration (ng/m³)	TEF	TEQ† (ng/m³)
PCB Congeners								
3,3',4,4'-TetraCB (#77)	=	0.738	10.7	—		0.0329	0.0001	0.000003
3,4,5,4'-TetraCB (#81)	<	0.704	—	—	U	0.001	0.0001	0.0000001
2,3,3',4,4'-PentaCB (#105)	=	0.394	12.7	—		0.0390	0.0001	0.000004
2,3,4,4',5-PentaCB (#114)	=	0.378	1.56	—		0.00479	0.0005	0.000002
2,3',4,4',5-PentaCB (#118)	=	0.359	107	—		0.329	0.0001	0.00003
2',3,4,4',5-PentaCB (#123)	=	0.395	2.67	—		0.00820	0.0001	0.0000008
3,3',4,4',5-PentaCB (#126)	<	0.406	—	—	U	0.0006	0.1	0.00006
2,3,3',4,4',5-HexaCB (#156)	=	0.246	2.3	—	C	0.0071	0.0005	0.000004
2,3,3',4,4',5'-HexaCB (#157)		—	—	—	C156	—	0.0005	
2,3',4,4',5,5'-HexaCB (#167)	=	0.178	1.63	—		0.00501	0.00001	0.00000005
3,3',4,4',5,5'-HexaCB (#169)	<	0.193	—	—	U	0.0003	0.01	0.000003
2,2',3,3',4,4',5-HeptaCB (#170)	=	0.0181	0.80	—		0.0025	—	
2,2',3,4,4',5,5'-HeptaCB (#180)	=	0.016	2.55	—	C	0.00783	—	
2,3,3',4,4',5,5'-HeptaCB (#189)	<	0.00659	0.0368	0.0368	U	0.0000565	0.0001	0.000000006
DecaCB (#209)	M	0.0153	0.0324	0.0324	R	—	—	
Additional PCB Congeners								
2,4'-DiCB (#8)	=	0.0877	2060	—		6.33		
2,2',5-TriCB (#18)	=	0.0706	3550	—	C	10.9		
2,3,3',-TriCB (#20)	=	0.65	2940	—	C	9.03		
2,4,4'-TriCB (#28)		—	—	—	C20	—		
2,2',3,5'-TetraCB (#44)	=	0.0345	1250	—	C	3.84		
2,2',5,5'-TetraCB (#52)	=	0.0303	1710	—		5.25		
2,3',4,4'-TetraCB (#66)	=	0.57	248	—		0.762		
2,2',3,4',5-PentaCB (#90)	=	0.185	310	—	C	0.95		
2,2',4,5,5'-PentaCB (#101)		—	—	—	C90	—		
2,2',3,3',4,4'-HexaCB (#128)	=	0.224	4.14	—	C	0.0127		
2,2',3,3',4,5-HexaCB (#129)	=	0.214	38.2	—	C	0.117		
2,2',3,4,4',5'-HexaCB (#138)		—	—	—	C129	—		
2,2',4,4',5,5'-HexaCB (#153)	=	0.193	65.2	—	C	0.200		
2,2',3,4',5,5',6-HeptaCB (#187)	=	0.0145	3.77	—		0.0116		
2,2',3,3',4,4',5,6-OctaCB (#195)	=	0.0118	0.081	—		0.00025		
2,2',3,3',4,4',5,5',6-NonaCB (#206)	=	0.0563	0.0976	—		0.000300		
PCB Homologue Groups								
Total MonoCB	=	0.0945	174	—		0.534		
Total DiCB	=	0.159	7760	—		23.8		
Total TriCB	=	0.96	18300	—		56.2		
Total TetraCB	=	0.738	7440	—		22.8		
Total PentaCB	=	0.406	2030	—		6.23		
Total HexaCB	=	0.277	361	—		1.11		
Total HeptaCB	=	0.023	17.8	—		0.0547		
Total OctaCB	=	0.0285	1.36	—		0.00418		
Total NonaCB	=	0.0563	0.188	—		0.000577		
DecaCB (#209)	M	0.0153	0.0324	0.0324	R	—		
Homologue Groups Sum			**36100**			**110**		

* M indicates all or a portion of the result has a calculated EMPC value.
† TEQ is the product of the concentration and its TEF value.

Sample Event Date	8/17/2000	**Sample Number**	08170027	**Prevailing Wind Direction**	WNW
Lab Sample ID	L2699-13	**Preliminary Flow (slpm)**	225	**Average Temperature (°F)**	66.2
Station ID/Name	27/Francis Street	**Run Time (hours)**	24.03	**Average Solar Radiation (w·m²)**	278
Sample Type	Normal Sample	**Sample Volume (m³)**	324.405	**Total Precipitation (inches H_2O)**	0.00

Analyte	Detsym	Detection Limit (ng)	Mass (ng)	EMPC*	QFlag	Concentration (ng/m³)	TEF	TEQ† (ng/m³)
PCB Congeners								
3,3',4,4'-TetraCB (#77)	=	0.577	3.55	—		0.0109	0.0001	0.000001
3,4,5,4'-TetraCB (#81)	<	0.535	—	—	U	0.0008	0.0001	0.00000008
2,3,3',4,4'-PentaCB (#105)	=	0.209	7.39	—		0.0228	0.0001	0.000002
2,3,4,4',5-PentaCB (#114)	=	0.192	0.642	—		0.00198	0.0005	0.000001
2,3',4,4',5-PentaCB (#118)	=	0.188	36.7	—		0.113	0.0001	0.00001
2',3,4,4',5-PentaCB (#123)	=	0.205	0.803	—		0.00248	0.0001	0.0000002
3,3',4,4',5-PentaCB (#126)	<	0.213	—	—	U	0.0003	0.1	0.00003
2,3,3',4,4',5-HexaCB (#156)	=	0.114	2.08	—	C	0.00641	0.0005	0.000003
2,3,3',4,4',5'-HexaCB (#157)		—	—	—	C156	—	0.0005	
2,3',4,4',5,5'-HexaCB (#167)	=	0.0827	0.845	—		0.00260	0.00001	0.00000003
3,3',4,4',5,5'-HexaCB (#169)	<	0.0853	—	—	U	0.0001	0.01	0.000001
2,2',3,3',4,4',5-HeptaCB (#170)	M	0.019	1.03	1.03	NDR	0.00318	—	
2,2',3,4,4',5,5'-HeptaCB (#180)	=	0.0168	1.98	—	C	0.00610	—	
2,3,3',4,4',5,5'-HeptaCB (#189)	=	0.00875	0.0478	—		0.000147	0.0001	0.00000001
DecaCB (#209)	M	0.0174	0.0343	0.0343	R	—	—	
Additional PCB Congeners								
2,4'-DiCB (#8)	=	0.0732	386	—		1.19		
2,2',5-TriCB (#18)	=	0.0666	754	—	C	2.32		
2,3,3',-TriCB (#20)	=	0.27	607	—	C	1.87		
2,4,4'-TriCB (#28)		—	—	—	C20	—		
2,2',3,5'-TetraCB (#44)	=	0.0274	308	—	C	0.949		
2,2',5,5'-TetraCB (#52)	=	0.024	459	—		1.41		
2,3',4,4'-TetraCB (#66)	=	0.429	63.3	—		0.195		
2,2',3,4',5-PentaCB (#90)	=	0.0966	83.8	—	C	0.258		
2,2',4,5,5'-PentaCB (#101)		—	—	—	C90	—		
2,2',3,3',4,4'-HexaCB (#128)	=	0.104	2.97	—	C	0.00916		
2,2',3,3',4,5-HexaCB (#129)	=	0.0989	19.8	—	C	0.0610		
2,2',3,4,4',5'-HexaCB (#138)		—	—	—	C129	—		
2,2',4,4',5,5'-HexaCB (#153)	=	0.0892	23.7	—	C	0.0731		
2,2',3,4',5,5',6-HeptaCB (#187)	=	0.0152	1.61	—		0.00496		
2,2',3,3',4,4',5,6-OctaCB (#195)	M	0.0104	0.0766	0.0766	NDR	0.000236		
2,2',3,3',4,4',5,5',6-NonaCB (#206)	M	0.0793	0.0962	0.0962	NDR	0.000297		
PCB Homologue Groups								
Total MonoCB	=	0.0779	30.7	—		0.0946		
Total DiCB	=	0.13	1390	—		4.28		
Total TriCB	=	0.4	3890	—		12		
Total TetraCB	=	0.577	1880	—		5.8		
Total PentaCB	=	0.213	550	—		1.7		
Total HexaCB	=	0.128	130	—		0.40		
Total HeptaCB	=	0.0242	7.91	—		0.0244		
Total OctaCB	=	0.0305	0.507	—		0.00156		
Total NonaCB	<	0.0793	—	—	U	0.0001		
DecaCB (#209)	M	0.0174	0.0343	0.0343	R	—		
Homologue Groups Sum			**7880**			**24**		

* M indicates all or a portion of the result has a calculated EMPC value.
† TEQ is the product of the concentration and its TEF value.

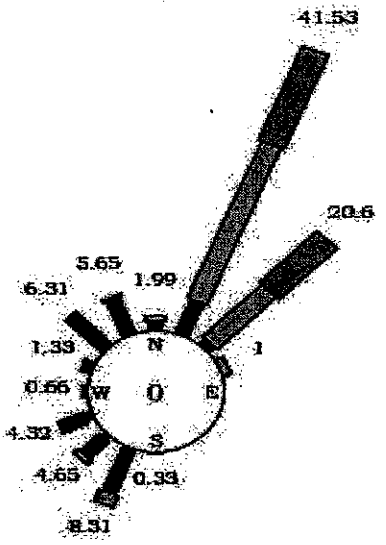
Sample Event Date	8/17/2000	**Sample Number**	08170027B	**Prevailing Wind Direction**	—
Lab Sample ID	L2699-14 i	**Preliminary Flow (slpm)**	0	**Average Temperature (°F)**	—
Station ID/Name	27/Francis Street	**Run Time (hours)**	0	**Average Solar Radiation (w·m²)**	—
Sample Type	Field Blank	**Sample Volume (m³)**	0	**Total Precipitation (inches H_2O)**	—

Analyte	Detsym	Detection Limit (ng)	Mass (ng)	EMPC*	QFlag	Concentration ng	TEF	TEQ† ng
PCB Congeners								
3,3',4,4'-TetraCB (#77)	M	0.0113	0.0192	0.0192	NDR	—		
3,4,5,4'-TetraCB (#81)	<	0.0104	—	—	U	—		
2,3,3',4,4'-PentaCB (#105)	<	0.022	—	—	U	—		
2,3,4,4',5-PentaCB (#114)	<	0.0201	—	—	U	—		
2,3',4,4',5-PentaCB (#118)	=	0.021	0.0805	—		—		
2',3,4,4',5-PentaCB (#123)	<	0.0219	—	—	U	—		
3,3',4,4',5-PentaCB (#126)	<	0.0201	—	—	U	—		
2,3,3',4,4',5-HexaCB (#156)	M	0.00664	0.0147	0.0147	C NDR	—		
2,3,3',4,4',5'-HexaCB (#157)		—	—	—	C156	—		
2,3',4,4',5,5'-HexaCB (#167)	<	0.00517	—	—	U	—		
3,3',4,4',5,5'-HexaCB (#169)	<	0.00484	—	—	U	—		
2,2',3,3',4,4',5-HeptaCB (#170)	<	0.0095	—	—	U	—		
2,2',3,4,4',5,5'-HeptaCB (#180)	M	0.0084	0.0124	0.0124	C NDR	—		
2,3,3',4,4',5,5'-HeptaCB (#189)	=	0.00352	0.00752	—		—		
DecaCB (#209)	M	0.0091	0.0137	0.0137	R	—		
Additional PCB Congeners								
2,4'-DiCB (#8)	=	0.0343	0.307	—		—		
2,2',5-TriCB (#18)	=	0.0357	0.395	—	C	—		
2,3,3',-TriCB (#20)	=	0.0343	0.297	—	C	—		
2,4,4'-TriCB (#28)		—	—	—	C20	—		
2,2',3,5'-TetraCB (#44)	=	0.0108	0.145	—	C	—		
2,2',5,5'-TetraCB (#52)	=	0.0095	0.189	—		—		
2,3',4,4'-TetraCB (#66)	=	0.00836	0.0382	—		—		
2,2',3,4',5-PentaCB (#90)	=	0.0151	0.105	—	C	—		
2,2',4,5,5'-PentaCB (#101)		—	—	—	C90	—		
2,2',3,3',4,4'-HexaCB (#128)	<	0.00619	—	—	U	—		
2,2',3,3',4,5-HexaCB (#129)	M	0.00589	0.0484	0.0484	C NDR	—		
2,2',3,4,4',5'-HexaCB (#138)		—	—	—	C129	—		
2,2',4,4',5,5'-HexaCB (#153)	M	0.00532	0.0364	0.0364	C NDR	—		
2,2',3,4',5,5',6-HeptaCB (#187)	=	0.00761	0.0109	—		—		
2,2',3,3',4,4',5,6-OctaCB (#195)	<	0.00538	—	—	U	—		
2,2',3,3',4,4',5,5',6-NonaCB (#206)	<	0.0305	—	—	U	—		
PCB Homologue Groups								
Total MonoCB	=	0.0262	0.0346	—		—		
Total DiCB	=	0.0629	0.933	—		—		
Total TriCB	=	0.0562	1.83	—		—		
Total TetraCB	=	0.012	0.715	—		—		
Total PentaCB	=	0.022	0.518	—		—		
Total HexaCB	=	0.0111	0.0731	—		—		
Total HeptaCB	=	0.0121	0.0184	—		—		
Total OctaCB	=	0.0185	0.00699	—		—		
Total NonaCB	<	0.0305	—	—	U	—		
DecaCB (#209)	M	0.0091	0.0137	0.0137	R	—		
Homologue Groups Sum			**4.14**					

* M indicates all or a portion of the result has a calculated EMPC value.
† TEQ is the product of the concentration and its TEF value.

New Bedford Harbor

15 Aug - 16 Aug, 2000 (0700 EST - 0800 EST)



Scale (mph)

Wind Speed (mph) Percent Occurance

	0.5-3	3-7	7-11	11-16	16-21	>21
N	0	1.33	0.66	0	0	0
NNE	0	4.98	22.92	13.62	0	0
NE	0	1	9.97	9.63	0	0
ENE	0	0	1	0	0	0
E	0	0	0	0	0	0
ESE	0	0	0	0	0	0
SE	0	0	0	0	0	0
SSE	0	0	0	0	0	0

Wind Speed (mph) Percent Occurance

	0.5-3	3-7	7-11	11-16	16-21	>21
S	0	0.33	0	0	0	0
SSW	0.33	6.31	1.66	0	0	0
SW	0.66	3.32	0.66	0	0	0
WSW	1	3.32	0	0	0	0
W	0	0.66	0	0	0	0
WNW	0	1.33	0	0	0	0
NW	0	6.31	0	0	0	0
NNW	0	5.32	0.33	0	0	0

New Bedford Harbor

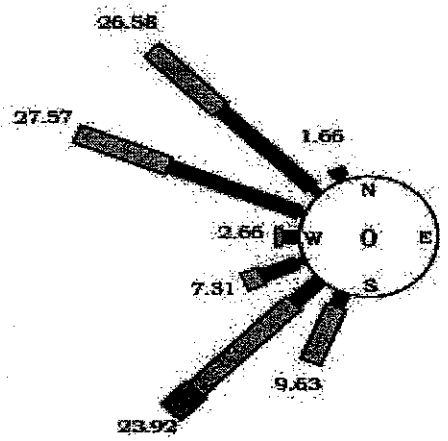
Meteorological Data

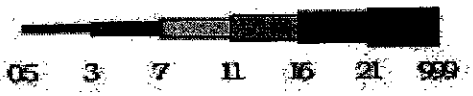
Hourly Summary
15 Aug - 16 Aug, 2000 (0700 EST - 0800 EST)

Date	Time	Wind Speed	Wind Direction		STD	Temp. (10m)	Temp. (2m)	Delta Temp	Solar Radiation	Batt.	Barr. Press.	Relative Humidity	Precip.
Mo. Day	EST	mph	deg	compass	deg	°F	°F	°F	w•m^2	vdc	in. Hg	%RH	in. H_2O
08/15	700	9.27	19.52	NNE	8.45	67.44	67.13	0.31	34.94	13.42	29.96	93.04	0
08/15	800	9.37	34.57	NE	7.32	68.23	68.03	0.2	52.68	13.46	29.97	91.64	0
08/15	900	9.07	26.84	NNE	9.5	68.99	68.65	0.33	82.44	13.46	29.98	90.95	0
08/15	1000	10.66	18.98	NNE	8.83	69.48	69.2	0.28	137.73	13.44	29.98	90.07	0
08/15	1100	10.21	27.21	NNE	7.66	69.59	69.43	0.16	228.19	13.44	29.98	91.64	0.01
08/15	1200	11	27.51	NNE	8.25	72.6	72.38	0.22	341.83	13.41	29.97	86.91	0
08/15	1300	12.5	32.17	NNE	7.54	71.78	71.63	0.15	162.61	13.4	29.96	84.94	0
08/15	1400	11	40.88	NE	8.73	68.2	68.24	-0.04	70.36	13.42	29.95	90.79	0.17
08/15	1500	8.91	28.9	NNE	9.7	68.84	68.47	0.37	126.29	13.43	29.94	93.77	0.04
08/15	1600	11.94	30.25	NNE	8.71	69.66	69.44	0.22	181.42	13.44	29.92	90.92	0.01
08/15	1700	12.6	31.19	NNE	7.87	68.89	68.75	0.14	122.28	13.43	29.92	92.04	0.09
08/15	1800	12.12	37.96	NE	7.27	69.69	69.49	0.2	88.76	13.44	29.91	90.23	0
08/15	1900	10.83	36.22	NE	6.87	69.3	69.1	0.19	33.26	13.44	29.91	89.93	0
08/15	2000	9.12	33.34	NNE	8.72	68.26	68.05	0.21	2.77	13.44	29.91	91.15	0
08/15	2100	7.83	27.44	NNE	8.86	67.7	67.34	0.36	0.11	13.46	29.91	93.02	0
08/15	2200	7.16	24.47	NNE	8.74	68.32	67.82	0.49	0.08	13.46	29.91	92.25	0
08/15	2300	5.6	19.12	NNE	11.85	68.51	67.96	0.56	0.06	13.46	29.91	92.07	0
08/16	2400	6.31	353.52	N	14.48	68.47	67.82	0.65	0.06	13.46	29.9	92.38	0
08/16	100	5.76	343.17	NNW	13.93	68.41	67.68	0.73	0.05	13.47	29.89	91.97	0
08/16	200	5.55	325.76	NW	11.15	67.95	67.27	0.68	0.05	13.47	29.87	92.11	0
08/16	300	5.06	320.02	NW	9.48	67.67	67	0.67	0.05	13.47	29.85	92.67	0
08/16	400	4.12	270.3	W	13.81	67.75	67.11	0.64	0.04	13.47	29.84	91.97	0
08/16	500	3.69	243.37	WSW	19.45	68.36	67.75	0.61	0.04	13.48	29.83	90.91	0
08/16	600	5.11	197.66	SSW	14.22	68.77	68.25	0.52	0.55	13.47	29.82	90.71	0
08/16	700	6.5	202.31	SSW	17.93	69.27	68.73	0.54	19.04	13.43	29.82	90.49	0
08/16	800	6.31	218	SW	21.59	70.95	70.38	0.57	142.29	13.44	29.83	89.25	0
Average		8.37			10.8	68.96	68.58	0.38	70.31	13.45	29.91	91.07	0.01
Minimum		3.69			6.87	67.44	67	-0.04	0.04	13.4	29.82	84.94	0
Maximum		12.6			21.59	72.6	72.38	0.73	341.83	13.48	29.98	93.77	0.17
Total													0.32

New Bedford Harbor

16 Aug - 17 Aug, 2000 (0700 EST - 0800 EST)





Scale (mph)

Wind Speed (mph) Percent Occurance

	0.5-3	3-7	7-11	11-16	16-21	>21
N	0	0	0	0	0	0
NNE	0	0	0	0	0	0
NE	0	0	0	0	0	0
ENE	0	0	0	0	0	0
E	0	0	0	0	0	0
ESE	0	0	0	0	0	0
SE	0	0	0	0	0	0
SSE	0	0	0	0	0	0

Wind Speed (mph) Percent Occurance

	0.5-3	3-7	7-11	11-16	16-21	>21
S	0	0	0	0	0	0
SSW	0	1.99	7.64	0	0	0
SW	0.33	3.99	15.61	3.99	0	0
WSW	1	4.32	1.99	0	0	0
W	0.33	1.66	0.66	0	0	0
WNW	0.66	15.95	10.96	0	0	0
NW	1.33	14.29	10.96	0	0	0
NNW	0.66	1	0	0	0	0

New Bedford Harbor

Meteorological Data

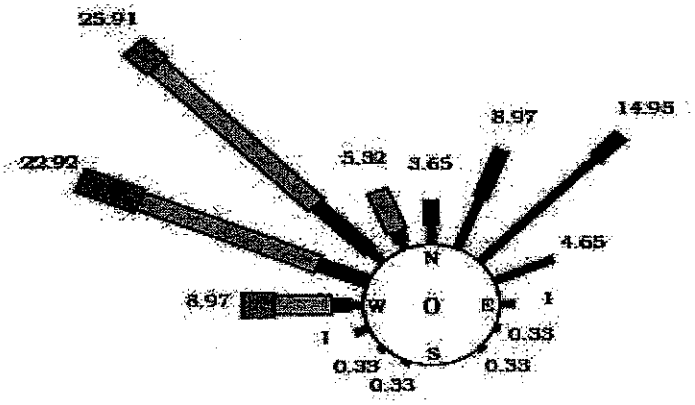
Hourly Summary
16 Aug - 17 Aug, 2000 (0700 EST - 0800 EST)

Date	Time	Wind Speed	Wind Direction		STD	Temp. (10m)	Temp. (2m)	Delta Temp	Solar Radiation	Batt.	Barr. Press.	Relative Humidity	Precip.
Mo. Day	EST	mph	deg	compass	deg	°F	°F	°F	w•m^2	vdc	in. Hg	%RH	in. H_2O
08/16	700	6.5	202.31	SSW	17.93	69.27	68.73	0.54	19.04	13.43	29.82	90.49	0
08/16	800	6.31	218	SW	21.59	70.95	70.38	0.57	142.29	13.44	29.83	89.25	0
08/16	900	9.7	222.53	SW	20.72	74.17	73.72	0.45	333.87	13.39	29.82	83.93	0
08/16	1000	8.85	222.8	SW	20.8	73.04	72.31	0.72	142.66	13.37	29.81	84.61	0.02
08/16	1100	8.47	207.39	SSW	16.24	70.66	69.83	0.83	123.89	13.4	29.8	90.3	0.01
08/16	1200	8.82	208.44	SSW	22.12	73.27	72.68	0.59	174.24	13.4	29.78	87.44	0
08/16	1300	9.7	222.77	SW	21.52	74.47	74.18	0.29	252.67	13.37	29.76	85.83	0
08/16	1400	10.92	229.83	SW	17.14	74.71	74.48	0.22	269	13.35	29.74	85.09	0
08/16	1500	8.49	236.55	WSW	18.37	77.83	77.89	-0.06	500.91	13.32	29.73	81.47	0
08/16	1600	6.74	246.66	WSW	22.55	81.79	81.99	-0.21	592.03	13.27	29.72	75.24	0
08/16	1700	7.53	229.25	SW	19.88	80.24	80.02	0.22	224.69	13.25	29.72	75.23	0.01
08/16	1800	8.48	290.86	WNW	14.29	75.97	75.2	0.77	239.28	13.3	29.73	81.75	0
08/16	1900	8.11	300.29	WNW	11.78	77.26	76.54	0.72	163	13.3	29.74	74.49	0
08/16	2000	5.88	307.9	NW	10.21	75.03	73.78	1.25	24.63	13.33	29.76	67.19	0
08/16	2100	5.56	303.91	NW	10.1	71.64	70.36	1.28	0.21	13.39	29.78	70.33	0
08/16	2200	4.73	301.3	WNW	12.61	69.81	68.59	1.21	0.16	13.44	29.79	72.8	0
08/16	2300	6.96	303.86	NW	11.55	69.24	68.08	1.16	0.12	13.46	29.8	70.23	0
08/17	2400	6.91	302.9	WNW	11.78	68.12	66.99	1.14	0.11	13.48	29.81	69.53	0
08/17	100	8.83	302.42	WNW	9.98	66.72	65.72	1	0.1	13.5	29.81	70.89	0
08/17	200	8.53	307.91	NW	10	65.49	64.51	0.99	0.1	13.51	29.8	72.69	0
08/17	300	6.64	308.46	NW	8.76	64.66	63.63	1.04	0.09	13.53	29.79	74.54	0
08/17	400	3.99	323.16	NW	9.86	63.29	62.23	1.06	0.08	13.55	29.79	77.18	0
08/17	500	3.07	313.94	NW	12.9	62.42	61.36	1.05	0.06	13.59	29.82	79.62	0
08/17	600	6.22	304.53	NW	9.1	61.83	60.82	1.01	0.84	13.6	29.84	80.42	0
08/17	700	4.92	289.38	WNW	11.79	62.5	61.64	0.86	36.73	13.52	29.87	79.83	0
08/17	800	3.92	273.22	W	20.89	66.04	64.96	1.08	169.67	13.51	29.89	76.62	0
Average		7.11			15.17	70.79	70.02	0.76	131.17	13.42	29.79	78.73	0
Minimum		3.07			8.76	61.83	60.82	-0.21	0.06	13.25	29.72	67.19	0
Maximum		10.92			22.55	81.79	81.99	1.28	592.03	13.6	29.89	90.49	0.02
Total													0.04

L-2-33

New Bedford Harbor

17 Aug - 18 Aug, 2000 (0700 EST - 0800 EST)



Scale (mph)

Wind Speed (mph) Percent Occurance

	0.5-3	3-7	7-11	11-16	16-21	>21
N	1.66	1.99	0	0	0	0
NNE	4.65	4.32	0	0	0	0
NE	12.29	2.66	0	0	0	0
ENE	4.65	0	0	0	0	0
E	1	0	0	0	0	0
ESE	0.33	0	0	0	0	0
SE	0.33	0	0	0	0	0
SSE	0	0	0	0	0	0

Wind Speed (mph) Percent Occurance

	0.5-3	3-7	7-11	11-16	16-21	>21
S	0	0	0	0	0	0
SSW	0.33	0	0	0	0	0
SW	0.33	0	0	0	0	0
WSW	1	0	0	0	0	0
W	1	1.33	4.32	2.33	0	0
WNW	0	3.99	14.29	4.65	0	0
NW	1.33	5.65	16.61	2.33	0	0
NNW	0.66	1	3.65	0	0	0

New Bedford Harbor

Meteorological Data

Hourly Summary
17 Aug - 18 Aug, 2000 (0700 EST - 0800 EST)

Date		Time	Wind Speed	Wind Direction		STD	Temp. (10m)	Temp. (2m)	Delta Temp	Solar Radiation	Batt.	Barr. Press.	Relative Humidity	Precip.
Mo.	Day	EST	mph	deg	compass	deg	°F	°F	°F	w•m^2	vdc	in. Hg	%RH	in. H_2O
08/17		700	4.92	289.38	WNW	11.79	62.5	61.64	0.86	36.73	13.52	29.87	79.83	0
08/17		800	3.92	273.22	W	20.89	66.04	64.96	1.08	169.67	13.51	29.89	76.62	0
08/17		900	8.69	301.62	WNW	13.67	68.31	67.52	0.79	398.72	13.46	29.9	72.85	0
08/17		1000	10.26	312.02	NW	12.47	70.35	69.41	0.94	593.8	13.41	29.9	69.01	0
08/17		1100	10.37	298.08	WNW	15.7	72.43	71.65	0.78	709.53	13.36	29.9	65.61	0
08/17		1200	9.91	297.03	WNW	15.88	73.86	73.22	0.64	790.03	13.34	29.9	63.47	0
08/17		1300	11.17	284.57	WNW	16.42	74.35	74.61	-0.27	904.71	13.35	29.88	60.49	0
08/17		1400	10.84	292.23	WNW	16.61	75.21	75.92	-0.71	923.59	13.35	29.89	58.75	0
08/17		1500	10.35	285.18	WNW	19.12	75.66	76.21	-0.55	756.16	13.35	29.89	58.07	0
08/17		1600	9.43	287.26	WNW	17.42	76.46	76.75	-0.29	622.97	13.33	29.88	57.05	0
08/17		1700	9.29	309.04	NW	14.18	75.89	75.5	0.39	375.75	13.32	29.88	58.14	0
08/17		1800	9.61	308.57	NW	13.23	75.5	74.93	0.57	297.68	13.33	29.89	57.77	0
08/17		1900	8.44	321.96	NW	11.02	74.05	73.15	0.89	135.18	13.35	29.9	59.31	0
08/17		2000	8.57	330.65	NNW	12.3	70.89	69.78	1.11	20.77	13.39	29.91	63.19	0
08/17		2100	6.4	314.57	NW	10.32	66.82	65.83	0.99	0.2	13.45	29.93	69.37	0
08/17		2200	6.43	316.48	NW	9.2	65.39	64.32	1.07	0.14	13.5	29.94	71.92	0
08/17		2300	2.2	337.52	NNW	25.21	64.2	63.04	1.16	0.12	13.54	29.94	73.51	0
08/18		2400	1.94	26.63	NNE	27.37	62.24	60.69	1.55	0.09	13.59	29.94	80.98	0
08/18		100	2.49	44.38	NE	12.4	60.11	58.84	1.27	0.07	13.62	29.93	84.49	0
08/18		200	2	36.33	NE	16.95	58.92	57.91	1.01	0.04	13.64	29.93	86.1	0
08/18		300	2.44	41.49	NE	11.04	57.9	57.07	0.83	0.02	13.66	29.93	86.85	0
08/18		400	2.22	51.11	NE	11.07	57.17	56.4	0.77	0.04	13.67	29.92	87.01	0
08/18		500	2.3	42.87	NE	8.19	56.43	55.68	0.75	0.01	13.69	29.92	88.08	0
08/18		600	2.94	36.04	NE	7.88	55.49	54.77	0.72	1.01	13.7	29.92	89.04	0
08/18		700	4.34	3.34	N	11.78	57.01	55.95	1.06	59.94	13.69	29.95	87.62	0
08/18		800	3.2	32.93	NNE	10.15	62.02	60.78	1.24	188.66	13.64	29.97	83.22	0
Average			6.33			14.32	66.74	66.02	0.72	268.68	13.49	29.91	72.63	0
Minimum			1.94			7.88	55.49	54.77	-0.71	0.01	13.32	29.87	57.05	0
Maximum			11.17			27.37	76.46	76.75	1.55	923.59	13.7	29.97	89.04	0
Total														0

Click here to go to Appendix M